



COMMITTEE  
ON  
TRANSPORT POLICY  
AND COORDINATION

Final Report

GOVERNMENT OF INDIA  
PLANNING COMMISSION  
NEW DELHI  
JANUARY, 1966

R.  
x4.2 1459t.  
N66.  
217927.



56

COMMITTEE  
ON  
TRANSPORT POLICY  
AND COORDINATION

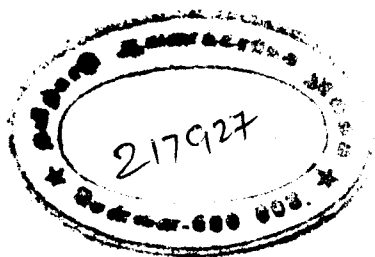
Final Report

GOVERNMENT OF INDIA  
PLANNING COMMISSION  
NEW DELHI  
JANUARY, 1966

COMMITTEE  
ON  
TRANSPORT POLICY AND COORDINATION  
FINAL REPORT

SUMMARY OF CONTENTS

|                                                                                           | PAGE |
|-------------------------------------------------------------------------------------------|------|
| I INTRODUCTION . . . . .                                                                  | 1    |
| II TRENDS IN THE DEVELOPMENT OF TRANSPORT—A BROAD<br>VIEW . . . . .                       | 6    |
| III APPROACH TO PROBLEMS OF COORDINATION . . . . .                                        | 22   |
| IV RAILWAYS . . . . .                                                                     | 44   |
| V ROAD DEVELOPMENT AND ROAD POLICY . . . . .                                              | 60   |
| VI ROAD TRANSPORT . . . . .                                                               | 76   |
| VII TAXATION OF COMMERCIAL MOTOR TRANSPORT . . . . .                                      | 107  |
| VIII COASTAL SHIPPING AND RAIL-SEA COORDINATION . . . . .                                 | 117  |
| IX PORTS AND HARBOURS . . . . .                                                           | 134  |
| X INLAND WATER TRANSPORT . . . . .                                                        | 142  |
| XI PIPELINES AND ROPEWAYS . . . . .                                                       | 152  |
| XII AIR TRANSPORT . . . . .                                                               | 155  |
| XIII MACHINERY FOR COORDINATING TRANSPORT PROGRAMMES<br>AND POLICIES . . . . .            | 163  |
| XIV ORGANISATION AND COLLECTION OF DATA ON TRAFFIC<br>FLOWS AND TRANSPORT COSTS . . . . . | 175  |
| XV CONCLUDING OBSERVATIONS . . . . .                                                      | 182  |
| MAIN CONCLUSIONS AND RECOMMENDATIONS . . . . .                                            | 184  |
| APPENDICES . . . . .                                                                      | 225  |
| INDEX . . . . .                                                                           | 335  |



| CONTENTS                                                                    |  | PAGE |
|-----------------------------------------------------------------------------|--|------|
| CHAPTER I—INTRODUCTION . . . . .                                            |  | 1    |
| CHAPTER II—TRENDS IN THE DEVELOPMENT OF TRANSPORT A<br>BROAD VIEW . . . . . |  | 6    |
| Transport in the National Economy . . . . .                                 |  | 6    |
| Trends in Goods and Passenger Traffic . . . . .                             |  | 10   |
| Imbalances in Transport . . . . .                                           |  | 14   |
| Changes in Composition of Traffic . . . . .                                 |  | 15   |
| CHAPTER III—APPROACH TO PROBLEMS OF COORDINATION . . . . .                  |  | 22   |
| Objective of Coordination . . . . .                                         |  | 22   |
| Rail and Road Costs . . . . .                                               |  | 24   |
| Methods of Achieving Coordination . . . . .                                 |  | 32   |
| CHAPTER IV—RAILWAYS . . . . .                                               |  | 44   |
| Public Service Obligations of the Railways . . . . .                        |  | 45   |
| Financial Trends . . . . .                                                  |  | 50   |
| Railway Rating Policy . . . . .                                             |  | 54   |
| Operational Efficiency . . . . .                                            |  | 57   |
| CHAPTER V—ROAD DEVELOPMENT AND ROAD POLICY . . . . .                        |  | 60   |
| Review of Progress . . . . .                                                |  | 61   |
| Emerging Problems and Need for Systematic Road Planning . . . . .           |  | 63   |
| Finance of Road Development . . . . .                                       |  | 69   |
| Road Research and Construction Techniques . . . . .                         |  | 72   |
| Administrative Organisation . . . . .                                       |  | 74   |
| CHAPTER VI—ROAD TRANSPORT . . . . .                                         |  | 76   |
| Road Transport Industry . . . . .                                           |  | 76   |
| Legislative Provisions . . . . .                                            |  | 78   |
| Present System of Regulation . . . . .                                      |  | 80   |
| Comments and Recommendations . . . . .                                      |  | 87   |
| Fares and Freight Rates . . . . .                                           |  | 94   |

|                                                                               | PAGE |
|-------------------------------------------------------------------------------|------|
| Reorganisation of the Road Transport Industry in the Private Sector . . . . . | 95   |
| Scope of the Public Sector in Road Transport . . . . .                        | 97   |
| Management of State Transport Services . . . . .                              | 102  |
| ANNEXURE . . . . .                                                            | 104  |
| CHAPTER VII—TAXATION OF COMMERCIAL MOTOR TRANSPORT . . . . .                  | 107  |
| Main Features of Existing Taxation . . . . .                                  | 108  |
| Consolidation of Taxes and Other Reforms . . . . .                            | 110  |
| Motor Taxation and Inter-State Movement . . . . .                             | 111  |
| ANNEXURE . . . . .                                                            | 114  |
| CHAPTER VIII—COASTAL SHIPPING AND RAIL-SEA COORDINATION . . . . .             | 117  |
| Growth of Coastal Traffic . . . . .                                           | 117  |
| Prospects of Coastal Traffic . . . . .                                        | 119  |
| Coal . . . . .                                                                | 119  |
| Salt . . . . .                                                                | 126  |
| Cement . . . . .                                                              | 128  |
| Oil Traffic . . . . .                                                         | 128  |
| General Cargo . . . . .                                                       | 129  |
| Future of Coastal Shipping . . . . .                                          | 131  |
| The Coastal Shipping Industry . . . . .                                       | 132  |
| CHAPTER IX—PORTS AND HARBOURS . . . . .                                       | 134  |
| CHAPTER X—INLAND WATER TRANSPORT . . . . .                                    | 142  |
| Development under the First Three Plans . . . . .                             | 143  |
| Problems of Development . . . . .                                             | 143  |
| Waterways in the North East Region . . . . .                                  | 145  |
| The Ganga River System . . . . .                                              | 147  |
| Waterways in Kerala . . . . .                                                 | 148  |
| Waterways in Other Regions . . . . .                                          | 149  |
| CHAPTER XI—PIPELINES AND ROPEWAYS.. . . .                                     | 152  |
| CHAPTER XII—AIR TRANSPORT . . . . .                                           | 155  |

|                                                                                                                                                            | PAGE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| CHAPTER XIII—MACHINERY FOR COORDINATING TRANSPORT PROGRAMMES AND POLICIES . . . . .                                                                        | 163  |
| Policy Assumptions . . . . .                                                                                                                               | 163  |
| Scope of Coordination . . . . .                                                                                                                            | 165  |
| Some General Considerations . . . . .                                                                                                                      | 168  |
| Recommendations Concerning Machinery for Coordination . . . . .                                                                                            | 169  |
| Research and Training in Transport . . . . .                                                                                                               | 173  |
| CHAPTER XIV—ORGANISATION AND COLLECTION OF DATA ON TRAFFIC FLOWS AND TRANSPORT COSTS . . . . .                                                             | 175  |
| Traffic Flows . . . . .                                                                                                                                    | 176  |
| Appraisal of Transport Costs . . . . .                                                                                                                     | 179  |
| CHAPTER XV—CONCLUDING OBSERVATIONS . . . . .                                                                                                               | 182  |
| MAIN CONCLUSIONS AND RECOMMENDATIONS . . . . .                                                                                                             | 184  |
| APPENDICES . . . . .                                                                                                                                       | 225  |
| 1. Resolution Dated July 22, 1959 Regarding the Appointment of the Committee and Resolution Dated February 21, 1964 Reconstituting the Committee . . . . . | 225  |
| 2. Organisations and Individual Scholars and Specialists from Whom Memoranda were Received by the Committee . . . . .                                      | 228  |
| 3. Survey of Road Traffic (1959-61) . . . . .                                                                                                              | 230  |
| 4. Road Traffic on Sixteen Principal Routes (1963) . . . . .                                                                                               | 240  |
| 5. Estimates of Road Traffic, 1962-63 and 1970-71 . . . . .                                                                                                | 248  |
| 6. Licensing Policies for Road Transport in the States . . . . .                                                                                           | 258  |
| 7. Road Transport Costs. . . . .                                                                                                                           | 270  |
| 8. Role of Bullock Carts in Rural Transport . . . . .                                                                                                      | 287  |
| 9. A Note on the Working of Light Railways . . . . .                                                                                                       | 293  |
| 10. Memorandum by M. R. Bonavia on Road and Rail Coordination in India (January 1964) . . . . .                                                            | 312  |
| INDEX . . . . .                                                                                                                                            | 335  |

## CHAPTER I

### INTRODUCTION

THE Committee on Transport Policy and Coordination was set up in July 1959, with Shri K. C. Neogy as Chairman. The Committee submitted its Preliminary Report in February 1961. In January 1964, Shri Neogy resigned the office of Chairman. The Committee was reconstituted in February 1964 under the Chairmanship of Shri Tarlok Singh, Member of the Planning Commission in charge of Transport. Owing to transfers, retirements and other factors the composition of the Committee has undergone several changes since its inception. There were also changes in the office of Secretary. These changes are briefly indicated in the footnote<sup>1</sup> on this page.

---

<sup>1</sup>The composition of the Committee at its appointment in 1959 and its composition on reconstitution in February 1964, are set out in Appendix I. The following Members served on the Committee for periods indicated below :

| name              | designation                                                     | from                  | to                     |
|-------------------|-----------------------------------------------------------------|-----------------------|------------------------|
| Shri Vishnu Sahay | Secretary, Planning Commission.                                 | 22-7-1959<br>8-3-1961 | 9-11-1960<br>15-4-1962 |
| Shri K. B. Mathur | Chairman, Railway Board, Ministry of Railways.                  | 22-7-1959             | 18-4-1960              |
| Shri A. K. Roy    | Secretary, Department of Economic Affairs, Ministry of Finance. | 22-7-1959             | 31-5-1960              |
| Shri B. N. Jha    | Secretary, Planning Commission.                                 | 10-11-1960            | 7-3-1961               |
| Shri L. K. Jha    | Secretary, Department of Economic Affairs, Ministry of Finance. | 1-6-1960              | 10-8-1964              |
| Shri S. S. Khera  | Secretary, Planning Commission.                                 | 16-4-1962             | 20-2-1964              |
| Shri G. V. Ayyar  | Secretary, Department of Coordination, Ministry of Finance.     | 26-9-1960             | 8-11-1963              |

Shri K. L. Luthra, Director, Transport Division, Planning Commission, served as Secretary to the Committee from 22-7-1959 to 15-3-1962. Shri S. K. Bose, IAS, served as Member-Secretary from 16-3-1962 to 30-9-1962. Shri K. L. Luthra was again appointed Secretary on 1-10-1962 and has since continued in this position.

The present composition of the Committee is as follows :

|                                                                          |           |
|--------------------------------------------------------------------------|-----------|
| Shri Tarlok Singh, Member, Planning Commission.                          | Chairman  |
| Shri R. L. Gupta, Principal,<br>Administrative Staff College, Hyderabad. | Member    |
| Shri S. Ranganathan, Secretary,<br>Ministry of Industry.                 | Member    |
| Shri Kripal Singh, Chairman,<br>Railway Board.                           | Member    |
| Dr. Nagendra Singh, Secretary,<br>Ministry of Transport.                 | Member    |
| Shri S. Bhoothalingam, Secretary,<br>Department of Economic Affairs.     | Member    |
| Dr. J. G. Patel, Chief Economic Adviser,<br>Ministry of Finance.         | Member    |
| Shri K. L. Luthra, Director,<br>Transport Division, Planning Commission. | Secretary |

Shri G. V. Ayyar participated fully in discussions leading to the Final Report, but was obliged to relinquish his membership a few weeks before the report was signed.

2. The original terms of reference of the Committee were as follows :—

“Taking into account the existing stage of development of the various means of transport and the economic, political, social and strategic purposes which the transport machinery is designed to serve, the Committee should recommend :

- What broadly should be the long-term transport policy of the country, so that the development of the transport machinery may be effected in consonance with our growing needs, with economy and efficiency avoiding duplication to the maximum extent practicable;
- in keeping with the policy defined under item (a) what should be the role of the various means of transport in the country during the next 5 to 10 years; and
- what is the best mechanism for the regulation and coordination of the various means of transport, so that the transport needs of the country are met in an efficient and economic manner consistent with the larger interests of the country?”

3. There have been marked changes in the transport situation since the Committee was first appointed. In 1958-59, there had been a slowing down of the rate of growth of railway traffic. This caused concern to the Ministry of Railways who also feared that various proposals then being mooted for the liberalisation of road transport might lead to unrestricted competition between rail and road transport and to large-scale diversion of traffic from the railways. In 1960, serious transport deficiencies began to be experienced, specially in connection with the transport of coal from the Bengal-Bihar coal-fields to the northern, western and southern parts of the country. Several measures were taken by Government during the two years 1960-61 and 1961-

62 to augment railway and other capacities. By the middle of 1962, the position became less difficult. During the past year, on account of a lower rate of growth in the demand for transport, there has been significant surplus capacity on the railways. More recently, problems relating to the integrated development of transport, keeping in view the present and future needs of national defence, have also claimed special attention.

4. Significant changes in the transport situation are bound to occur from time to time. They underline, on the one hand, the need to anticipate transport requirements and to develop adequate transport facilities and, on the other, the importance of accurate economic and statistical data to facilitate short term adjustments in the supply of and demand for transport. These changes also illustrate the principle that various modes of transport should be viewed continuously as parts of a composite network of transport services to be developed and operated, as far as possible, as an integrated system for the country as a whole as well as within each region. Everything that has occurred in the field of transport in recent years has reinforced the need for a sound long-term approach to the development of transport and for a scheme of distribution of traffic between different modes of transport such as will ensure that facilities under each service are developed and operated in keeping with the traffic allocated to it and at minimum cost to the community.

5. When the Committee was first appointed, it was hoped that its recommendations would assist in the formulation of the Third Five Year Plan. The analysis provided by the Committee in its Preliminary Report brought out the major problems of policy and organisation which had to be resolved and indicated possible approaches. However, its specific proposals could not become available at that time. In the course of its work, the Committee, under Shri Neogy's chairmanship, undertook extensive studies of transport problems within the country as well as of experience in other countries. Shri Neogy personally took a great deal of trouble to ensure that the work of the Committee should be done in as thorough a manner as possible. Under his guidance the Committee's secretariat initiated a number of new studies. These included road traffic surveys on selected routes, studies of costs of road transport operations, studies of accounting procedures and refinement of cost data on the railways, review of railway rating policies in India and in some foreign countries, investigation into the economic aspects of selected branch lines on the railways, examination of financial implications of public service obligations of the Indian Railways, study of road transport licensing policies followed in different States, investigation into the transport needs of different industries and a case study, undertaken for the Committee by the Programme Evaluation Organisation, of the role of bullock carts in selected rural areas. Transport policies and experience in several countries were also studied carefully, notably, in relation to U.K., U.S.A., West Germany, France, Canada and Australia. Although, in the preparation of the Final Report, the Committee has not had the benefit of Shri Neogy's association, its members wish to express their gratitude to him for his most valuable contribution in

guiding the programme of studies undertaken or initiated by the secretariat. The material and special memoranda received from several countries were of great value and the Committee feels indebted to the organisations and to the individual specialists abroad who have helped so generously in its work.

6. The Committee also wishes to record its indebtedness to a large number of individuals and organisations who were good enough to assist it with their advice and suggestions and in several cases prepared special memoranda for the Committee.

7. The Committee was fortunate enough to secure the assistance, under the Colombo Plan, of Mr. M. R. Bonavia of the British Railways Board and a well-known authority on problems of transport. Mr. Bonavia visited India on two occasions, first in 1962 from March 1 to 31 and, again, from December 15, 1963 to February 6, 1964, and held discussions with the members of the Committee. His memorandum on coordination forms an appendix to this report.

8. After its reconstitution in February 1964, the Committee reviewed the material which had been gathered and endeavoured to formulate specific proposals and policies for the future. In assembling the available economic and statistical data the Committee has drawn on the work of the World Bank's Study Team on Coal Transport which submitted its interim Report in September 1963 and its final Report in June 1964.

9. In presenting its recommendations on transport policy and coordination, the committee has kept in view work undertaken for the preparation of the Fourth Plan in the Planning Commission and the Ministries concerned. The Committee hopes that its analysis and recommendations will assist in the formulation of the Fourth Plan in its final stages and, even more, in the preparation of the long-term transportation plan for the period ending 1975-76. Towards this end, the various commodity studies and the regional transport surveys now being pursued by the Planning Commission and the Ministries of Railways and Transport through the Joint Technical Group for Transport Planning are expected to provide much essential information for the first time. The Committee considers these studies and surveys to be a necessary foundation for effective planning and coordination in the field of transport and for a sound scheme of allocation of traffic between different modes of transport in keeping with economic criteria and the overall objectives of national policy.

10. On December 23, 1964, members of the Committee met the representatives of the All India Motor Unions' Congress and had an exchange of views with them on problems of road transport. On December 28, 1964, the Chairman met representatives of Shipping Companies engaged in coastal sea transport at Bombay and ascertained their views on various aspects of coordination between rail and sea transport. These discussions have been of considerable help to the Committee. On February 28, 1965, the Committee met the representatives of the Indian Roads and Transport Development Association, which had earlier submitted a detailed memorandum and ob-

tained their preliminary comments and suggestions on the main proposals affecting road transport which are embodied in this report.

11. The Committee wishes to express its indebtedness to Shri S. Jaganathan, Financial Commissioner, Railways. At its request he participated continuously in its deliberations and for all practical purposes functioned as a Member. Shri N. P. Mathur, Joint Secretary in the Ministry of Transport and Chairman, Inter-State Transport Commission and Dr. V. G. Bhatia, Director, Transport Research in the Ministry of Transport were also closely associated with the work of the Committee. Shri V. Shankar, Secretary, Ministry of Civil Aviation and Shri T. Arumugham of the Ministry of Civil Aviation assisted the Committee in the preparation of the Chapter on Air Transport. Similar assistance was given by Shri Kehar Singh, Director, Inland Water Transport, Ministry of Transport and Shri K. Narayanan, Deputy Secretary, Ministry of Transport in the preparation of Chapters respectively on Inland Water Transport and Ports and Harbours. Shri H. P. Sinha, Consulting Engineer, Road Development, Government of India has greatly helped the Committee with advice and suggestions on questions relating to road development and road policy. On behalf of the Ministry of Railways, Shri S. R. Kalyanaraman, formerly Additional Member, Railway Board and Shri R. Srinivasan, Deputy Director, participated in several investigations and studies undertaken during the first phase of the Committee's work. The Joint Technical Group for Transport Planning prepared estimates of road traffic in 1962-63 and 1970-71 which have been included in the appendices to this Report. The Committee received help from the late Shri D. R. Suri, who was then Chairman of the Joint Technical Group. The Committee also wishes to acknowledge the help of the Member-Secretary of the Group, Dr. M. K. Ganguli.

12. Finally, the Committee wishes to place on record its gratitude to members of the Secretariat who have laboured for a long period to assemble and process whatever materials they could secure and, from the very nature of the subject, have worked under certain limitations. Their work in the preparation of the Preliminary Report as well as the Final Report has entailed arduous labour. The Committee's Secretary, Shri K. L. Luthra, bore a specially heavy burden and made a most valuable personal contribution to the work of the Committee. He was helped greatly by Shri Sat Parkash, Assistant Chief, and by Shri R. B. Mathur and Shri S. B. Saharya, Senior Research Officers. These officers were associated with the work of the Committee from the very start and the Committee owes a great deal to them for the contribution they made and the devotion with which they worked. The Committee also wishes to express its appreciation of the services rendered by other members of the secretariat. Among the latter, special mention should be made of Sarvashri T. V. Gopalaswami, T. R. Kesharwani, H. D. Sethi, R. N. Tandon, I. F. Franklin, J. R. Chugh, B. K. Khurana, M. Y. M. Abbas, P. B. Nayar, Inderjit Tandon, V. P. Nargas and Inderjit Malhotra.

## CHAPTER II

## TRENDS IN THE DEVELOPMENT OF TRANSPORT—A BROAD VIEW

## TRANSPORT IN THE NATIONAL ECONOMY

BEFORE outlining the scope of the present transport system and considering recent trends, it is necessary to draw attention to two of the more general aspects of the subject. The transport system comprises a number of distinct services, notably, railways, roads, road transport, ports, inland water transport and internal airlines, which constitute the principal means of communication within the country, specialised modes of transport such as pipelines and rope ways, shipping and the international airlines. The capacity of each mode of transport has to be developed to meet the specific demands for it as well as in relation to the rest of the transport system. The system as a whole has to be viewed at each step both as an integrated structure as well as in terms of relationships between different transport services. As a sector of the national economy, transport is characterised by long-range investment, much of it devoted to the creation of basic facilities such as rail tracks, roads, ports, and terminals and ship-building and repairing yards. Invariably, investment in transport must look well beyond the current and anticipated needs of the economy and take into account future economic, technological and scientific developments. The significance of the transport sector lies not only in the specific services it renders, but even more in the unifying and integrating influence it exerts upon the economy, enhancing productivity, widening the market, introducing new stimuli to economic activity, and bringing village and town and the remoter and the more developed regions closer to one another. While the growth of transport in each period must be designed to meet the estimated needs, including traffic locations and composition, if the approach adopted is too rigidly limited to this consideration, some of the larger aspects may be missed.

2. The second aspect to which we should refer is the fundamentally altered nature of the objectives and scale of the transport effort since Independence. To begin with, priority had to be given to the links with Assam and road communications needed to bring the former princely territories into the integrated Indian polity. The task of rehabilitating the railways and the highways after the damage and neglect of the war years was immense in size and no less urgent. Once these objectives were substantially attained, the development of transport became both a handmaid and a precursor of large scale industrial and economic development. In the decades before Independence, exports of primary products, communications with the major ports and the larger cities and strategic needs on the north-west had largely guided the planning of rail-

ways and roads, while comparatively little was done for shipping and ports and in the northern and north-eastern sectors and the eastern parts of the country generally. With the initiation of industrial development plans, the main considerations in the planning of transport were the demands of steel and coal and heavy industry, of new centres of industrial growth and of construction projects for the development of irrigation, power, mining and oil, the requirements of exports of mineral ores and the need for a more diversified transport system, including ports, shipping and airlines. To the extent possible, attention had also to be given to measures for accelerating the pace of economic advance in the less developed regions. More recently, the key role of transport in stimulating the development of agriculture and rural industry is being stressed increasingly. Finally, it has been necessary to take a series of steps to strengthen the road system, both to meet new strategic needs and in response to heavier traffic and movement of heavy motor vehicles between the larger industrial and urban centres. Thus, as part of a planned national economy, looking to continuous and cumulative growth, with deep-rooted structural problems being resolved step by step, the transport system has now to subserve a much wider range of purposes than before and has a crucial role in economic, social and technical development at the national and regional levels as well as in the expansion of international trade.

3. The scale of effort undertaken under the Five Year Plans is expressed briefly by the magnitude of investment on transport. In the first three Plans, the total investment on the expansion of transport facilities will be of the order of Rs. 4,243 crores out of a total investment of Rs. 21,810 crores. Transport accounted for 17.2 per cent of the total investment in the First Plan and for 20.4 per cent in the Second, and is expected to account for 19.6 per cent in the Third Plan. The proportion of investment in the public sector represented by transport is higher, being respectively 30.6 per cent, 34 per cent and 30 per cent in the First, Second and Third Plans.

4. The key role of transport in the development of the national economy has been highlighted by events which have occurred during the past decade. Transport requirements have been observed to grow faster and to a greater extent than industrial and agricultural outputs. It takes time to build up transport capacities and, in the short period, shortages in transport capacities become a serious impediment to the smooth functioning of the economy and a maintenance of production. Since transportation requirements are always of a specific nature, much depends on the accuracy with which they are assessed in advance. The requirements may also change at short notice on account of changes in the industrial and economic situation. Thus, even within a few weeks or months, in particular sections of the transport system, bottlenecks may develop or spare capacities may be shown up.

5. *Railways.*—The internal transport system of the country is a vast and complex network comprising several media of transport. The Government railway system now comprises 57,611 kilometres (36,000 miles) of route

length, of which broad gauge, metre gauge and narrow gauge account respectively for 49, 44 and 7 per cent. The railways still constitute the major mode of transport and carry a little less than four-fifths of the total goods traffic and about one-half of the passenger traffic of the country. A large part of the increase in goods traffic since the commencement of planned development has been borne by the railways. The total freight traffic on the railways increased in terms of tonnes originating from 93 millions in 1950-51 to 194 millions in 1964-65, that is, by 109 per cent and in terms of tonne kilometres from about 44 billion to about 107 billion, or by 142 per cent. Passenger traffic in terms of number of passengers originating increased during the same period from 1284 million to 1992 million, that is, by 55 per cent. In terms of passenger kilometres, traffic rose from about 67 billion to about 94 billion, or by 40 per cent. Bulk commodities, namely, coal, iron and steel, cement, limestone, iron ore and other ores, foodgrains and mineral oils constituted about 70 per cent of the total originating traffic.

6. *Roads and road transport.*—Mechanised road transport comes next to the railways as means of transport for goods and passengers. The total length of roads has increased from 398,000 kilometres (249,000 miles) in 1950-51 to 752,000 kilometres (464,000 miles) in 1962-63, that is, by 89 per cent. About one-third of the roads are surfaced and the remaining unsurfaced. The length of surfaced roads has increased from 156,000 kms. (98,000 miles) to 250,000 kms. (157,000 miles) between 1950-51 and 1962-63. The total number of trucks in the country increased from about 82,000 in 1950-51 to 205,400 in 1962-63 and 235,000 in 1964-65. The number of buses increased from about 34,000 in 1950-51 to 61,000 in 1962-63 and 68,200 in 1964-65. The total goods traffic carried by road transport in 1964-65 is estimated at about 31 billion tonne kilometres and passenger traffic at about 76 billion passenger kilometres. Of the total passenger traffic by road, city services are estimated to account for about 10 per cent. About two-thirds of road passenger transport is in the private sector and the rest is at present in the public sector. Except for Jammu and Kashmir and Himachal Pradesh, the operation of goods transport by road is almost entirely in the private sector. A large amount of local traffic in the rural areas, specially to market centres, continues to be carried by bullock carts. The total number of bullock carts in the country is reckoned at about 12 million.

7. *Inland water transport.*—A total length of about 13,500 kilometres (8,000 miles) of inland waterways is under operation, of which about one-fifth is navigable by steamers. Inland water transport has an exceedingly important role in the north eastern region of the country. About a million tonnes of traffic is carried by river on the Calcutta-Assam route in both directions. Next to the north eastern region, water transport is important in Kerala. In this area, goods are carried mainly by country-boats called 'valloms'. In Bihar, until recently the Ganga Brahmaputra Water Transport Board operated some experimental services to test the suitability of shallow draft vessels in the Ganga.

8. *Coastal shipping.*—India has a long coast line extending to about 5,000 kilometres (3,000 miles). The shipping tonnage operating on the coast has increased from 217,000 GRT at the end of 1950-51 to 372,000 GRT in 1963-64 and 388,544 GRT in 1964-65. The traffic carried by coastal shipping increased from 2.5 million tonnes in 1951 to 4 million tonnes in 1963 and comprised mainly coal, cement, salt and foodgrains. Coastal shipping is predominantly in the hands of private companies, only about 11 per cent of the tonnage operating on the coast being owned and operated by the public sector undertakings.

9. *Ports.*—There has been a large increase in the traffic handled at the ports since the First Plan. The traffic handled by major ports increased from 20 million tonnes in 1950-51 to 42 million tonnes (excluding Mormugao port), and 48 million tonnes (including Mormugao port) in 1964-65. The traffic handled by the intermediate and minor ports, which are about 170 in number, increased from 3.7 million tonnes in 1950-51 to 8.3 million tonnes in 1964-65. The main items which have accounted for the expansion in the traffic at the ports are : Petroleum products, machinery, fertilizers etc. in the import trade and iron ore in the export trade.

10. *Air transport.*—Internal air services connect 69 cities and towns in the country and are used predominantly for passenger transport and for carrying mail. These services were nationalised with effect from August 1953 and are operated by the Indian Airlines Corporation. There has been a rapid expansion in these services since nationalisation. The number of passengers flown on the internal air services which stood at 450,000 in 1950-51 and 431,000 in 1953-54 increased to 1.2 million in 1964-65. In terms of revenue tonne kilometres, the traffic on the Indian Airlines Corporation has increased from 51 million in 1953-54 to 109 million in 1964-65 and the available capacity has increased during the same period from 75 million to 157 million. The routes for passenger services have been divided broadly into four categories, viz : (1) trunk routes, (2) high density regional routes (including important international routes, such as Madras-Colombo, Delhi-Kabul and Delhi-Karachi), (3) average density regional routes, and (4) low density regional or feeder routes. A study of growth of traffic on these routes in recent years shows that the rate of growth of traffic between the years 1958-59 and 1963-64 has been 14.6 per cent on the trunk routes, 12.5 per cent on high density routes, 10.0 per cent on average density routes and 5.5 per cent on low density routes.

Air services abroad are operated by a separate Corporation, the Air India, which was also set up in 1953. These services have also rapidly expanded since nationalisation, the number of passengers carried having increased from 30,556 in 1953-54 to 237,996 in 1964-65. During the same period the revenue passenger kilometres have increased from 139 million to 1,088 million and the available seat kilometres from 224 million to 2,276 million.

## TRENDS IN GOODS AND PASSENGER TRAFFIC

11. The burden of increase in internal traffic since the First Plan has fallen mainly on the railways and on road transport. Over the period 1950-51 to 1964-65, railway freight traffic increased nearly two and a half times and traffic by road is estimated to have increased almost five times. The share of road transport in the total traffic carried by rail and road transport together has increased from about 11 per cent in 1950-51 to about 23 per cent in 1964-65. The growth of traffic is illustrated in Table 1.

Table 1: Goods traffic carried by rail and road<sup>1</sup>

| year    | traffic carried by |        |         | indices (base 1950-51) |       |       |
|---------|--------------------|--------|---------|------------------------|-------|-------|
|         | rail               | road   | total   | rail                   | road  | total |
| 1950-51 | 44,117             | 5,500  | 49,617  | 100.0                  | 100.0 | 100.0 |
| 1955-56 | 59,576             | 8,950  | 68,526  | 135.0                  | 162.7 | 138.1 |
| 1960-61 | 87,680             | 17,400 | 105,080 | 198.7                  | 316.4 | 211.8 |
| 1961-62 | 91,218             | 21,000 | 112,218 | 206.8                  | 381.8 | 226.2 |
| 1962-63 | 100,693            | 25,000 | 125,693 | 228.2                  | 454.5 | 253.3 |
| 1963-64 | 106,841            | 27,000 | 133,841 | 242.2                  | 490.9 | 269.7 |
| 1964-65 | 106,570            | 31,000 | 137,570 | 241.6                  | 563.6 | 277.3 |

<sup>1</sup>The figures of traffic, both goods and passengers, carried by road transport over the years 1950-51 to 1960-61 (Tables 1 & 5) have been estimated with reference to the number of vehicles in the country in the corresponding years. The assumptions made in regard to average load, annual kilometreage, load factor, average annual performance per vehicle etc. are given below:

## Trucks

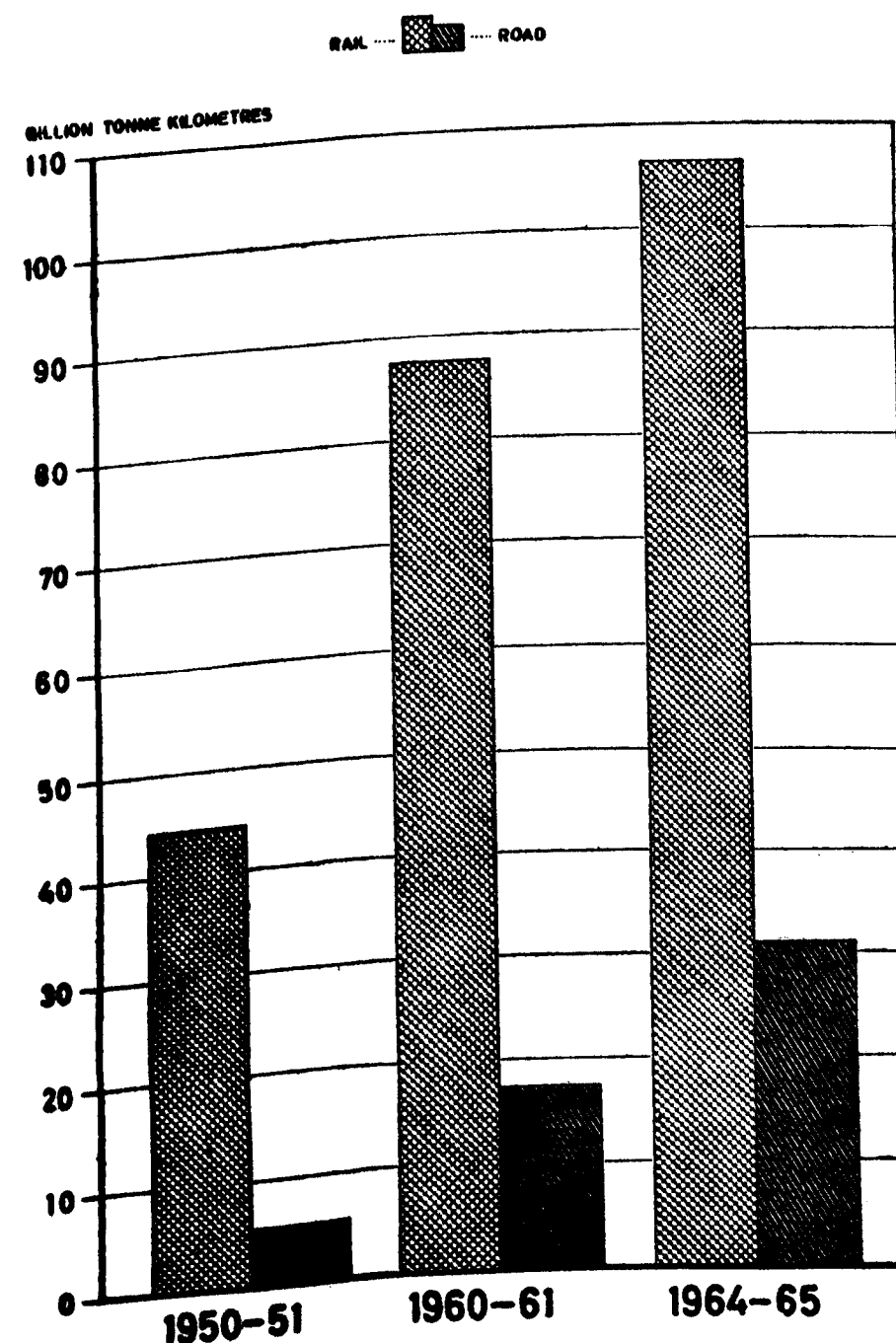
|                                      | petrol vehicles            | diesel vehicles            |
|--------------------------------------|----------------------------|----------------------------|
| average load carried                 | 3 tonnes                   | 5 tonnes                   |
| average annual kilometreage          | 32,000                     | 48,000                     |
| load factor                          | 66½ per cent               | 66½ per cent               |
| average annual performance per truck | 0.64 lakh tonne kilometres | 1.60 lakh tonne kilometres |

## Buses

|                                    | 30 passengers                 | 40 passengers                  |
|------------------------------------|-------------------------------|--------------------------------|
| average seating capacity           | 30 passengers                 | 40 passengers                  |
| average annual kilometreage        | 32,000                        | 48,000                         |
| load factor                        | 66½ per cent                  | 66½ per cent                   |
| average annual performance per bus | 6.4 lakh passenger kilometres | 12.8 lakh passenger kilometres |

For the years 1961-62 to 1964-65, estimates of traffic are based on the results of traffic surveys undertaken by the Ministry of Transport on selected long distance routes in the country and studies on movement of selected commodities undertaken by the Joint Technical Group for Transport Planning.

## GOODS TRAFFIC CARRIED BY RAIL &amp; ROAD



12. The railways account for close on 77 per cent of the movement of bulk commodities. This is brought out in Table 2, which summarises the results of a study undertaken by the Joint Technical Group for Transport Planning showing the relative share of railways, road transport and other means of transport, including coastal shipping, inland water transport, pipeline, ropeways etc. in the movement in 1962-63 of coal, iron ore, limestone, cement and petroleum products.

Table 2: Relative shares of railways, road and other modes of transport in the total traffic (1962-63)

| commodities        | traffic (million tonnes) |      |                          |       | percentage shares |      |                          |       |
|--------------------|--------------------------|------|--------------------------|-------|-------------------|------|--------------------------|-------|
|                    | railways                 | road | other modes of transport | total | railways          | road | other modes of transport | total |
| coal               | 61.4                     | 3.5  | 4.0                      | 68.9  | 89.1              | 5.1  | 5.8                      | 100.0 |
| iron ore           | 14.3                     | 0.8  | 5.0                      | 20.1  | 71.1              | 4.0  | 24.9                     | 100.0 |
| limestone          | 6.7                      | 2.2  | 7.6                      | 16.5  | 40.6              | 13.3 | 46.1                     | 100.0 |
| cement             | 6.9                      | 2.0  | 0.5                      | 9.4   | 73.4              | 21.3 | 5.3                      | 100.0 |
| petroleum products | 5.5                      | 1.0  | 2.3                      | 8.8   | 62.5              | 11.4 | 26.1                     | 100.0 |
| Total              | 94.8                     | 9.5  | 19.4                     | 123.7 | 76.6              | 7.7  | 15.7                     | 100.0 |

As will be seen from Table 3, the average lead for movement of bulk commodities by rail was considerably larger than for movement by road.

Table 3: Average lead

|                    | (kilometres) |               |
|--------------------|--------------|---------------|
|                    | rail         | road          |
| coal               | 593          | 56            |
| iron ore           | 259          | 137           |
| limestone          | 276          | 7             |
| cement             | 400          | 125           |
| petroleum products | 626          | not available |

13. The trends in the growth of passenger traffic by rail, suburban and non-suburban, are shown in the table below.

Table 4: Passenger traffic by rail

| year                                                        | passengers originating<br>(millions) |               |       | passenger kilometres |               |       |
|-------------------------------------------------------------|--------------------------------------|---------------|-------|----------------------|---------------|-------|
|                                                             | sub-urban                            | non-sub-urban | total | sub-urban            | non-sub-urban | total |
| 1950-51 <sup>1</sup>                                        | ..                                   | ..            | 128.4 | ..                   | ..            | 66517 |
| 1951-52                                                     | 412                                  | 796           | 1208  | 6835                 | 56237         | 63072 |
| 1955-56                                                     | 499                                  | 776           | 1275  | 8165                 | 54235         | 62400 |
| 1960-61                                                     | 685                                  | 909           | 1594  | 11818                | 65847         | 77665 |
| 1961-62                                                     | 764                                  | 928           | 1692  | 13268                | 68617         | 81885 |
| 1962-63                                                     | 808                                  | 942           | 1750  | 13561                | 70430         | 83991 |
| 1963-64                                                     | 882                                  | 990           | 1872  | 14460                | 74128         | 88588 |
| 1964-65                                                     | 951                                  | 1041          | 1992  | 15761                | 77728         | 93489 |
| percentage increase<br>between<br>1951-52<br>and<br>1964-65 | 130.8                                | 30.8          | 64.9  | 130.6                | 38.2          | 48.2  |

Suburban traffic on the railways has increased much faster than the non-suburban. Between 1951-52 and 1964-65, in terms of passengers originating, suburban traffic has increased by 130.8 per cent against an increase of 30.8 per cent in non-suburban traffic. In terms of passenger kilometres, suburban traffic has increased by 130.6 per cent whereas non-suburban traffic has increased by 38.2 per cent.

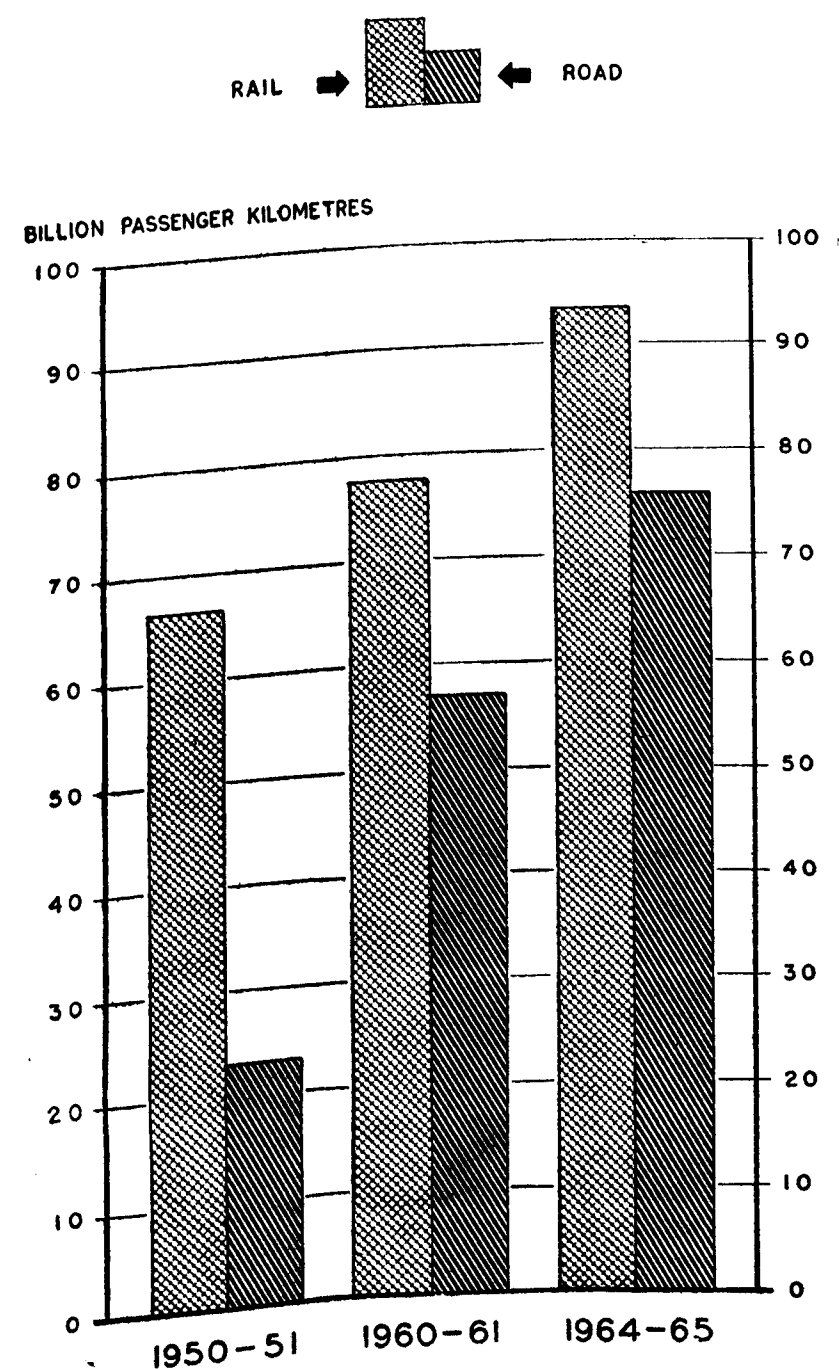
14. The relative expansion of passenger traffic by rail and road has been as follows since 1950-51.

Table 5: Passenger traffic carried by rail and road

| year    | (million passenger kilometres) |       |        | indices (base : 1950-51) |       |       |
|---------|--------------------------------|-------|--------|--------------------------|-------|-------|
|         | rail                           | road  | total  | rail                     | road  | total |
| 1950-51 | 66517                          | 23133 | 89650  | 100.0                    | 100.0 | 100.0 |
| 1955-56 | 64200                          | 31477 | 93877  | 93.8                     | 136.1 | 104.7 |
| 1960-61 | 77665                          | 57000 | 134665 | 116.8                    | 246.4 | 150.2 |
| 1961-62 | 81885                          | 59000 | 140885 | 123.1                    | 255.0 | 157.2 |
| 1962-63 | 83991                          | 65000 | 148991 | 126.3                    | 281.0 | 166.2 |
| 1963-64 | 88588                          | 69000 | 157588 | 133.2                    | 298.3 | 175.8 |
| 1964-65 | 93489                          | 76000 | 169489 | 140.5                    | 328.5 | 189.1 |

<sup>1</sup>Separate figures for suburban and non-suburban traffic for 1950-51 are not available.

## PASSENGER TRAFFIC CARRIED BY RAIL &amp; ROAD



Over the 14 years 1950-51 to 1964-65, passenger traffic by rail increased in terms of passenger kilometres by 40 per cent, while passenger traffic by road increased by nearly 228 per cent. The share of road transport in the total passenger traffic carried by rail and road together increased from about 26 per cent to about 45 per cent.

15. The factors which influence the growth of goods and passenger traffic are somewhat distinct. Goods traffic is affected largely by the expansion of aggregate production, more specially of industrial and mineral production, and by movement of materials and equipment for large construction projects. Passenger traffic is more directly influenced by increase in population, growth of national and per capita income, progress in urbanisation and changing habits in the community. Table 6 presents indices of freight traffic carried by rail and road transport alongside indices of growth of national income and industrial, mining and agricultural production.

Table 6: Freight traffic and economic trends<sup>1</sup>

| year    | freight tonne-kilometres |       |       | national income at 1948-49 prices | industrial production | mineral production | agricultural production |
|---------|--------------------------|-------|-------|-----------------------------------|-----------------------|--------------------|-------------------------|
|         | rail                     | road  | total |                                   |                       |                    |                         |
| 1       | 2                        | 3     | 4     | 5                                 | 6                     | 7                  | 8                       |
| 1950-51 | 100.0                    | 100.0 | 100.0 | 100.0                             | 100.0                 | 100.0              | 95.6                    |
| 1955-56 | 135.0                    | 162.7 | 138.1 | 118.4                             | 125.0                 | 111.6              | 116.8                   |
| 1960-61 | 198.7                    | 316.4 | 211.8 | 144.1                             | 177.0                 | 157.7              | 139.72                  |
| 1961-62 | 206.8                    | 381.8 | 226.2 | 147.6                             | 189.4                 | 169.3              | 141.42                  |
| 1962-63 | 228.2                    | 454.5 | 253.3 | 151.1                             | 203.7                 | 185.4              | 137.22                  |
| 1963-64 | 242.2                    | 490.9 | 269.7 | 157.5                             | 222.6                 | 202.2              | 140.52                  |

It will be seen that over the period 1950-51 to 1963-64 freight traffic increased at a rate distinctly faster than the rate of growth of national income or expansion of output in industrial, mineral and agricultural sectors. Similarly, as the table below will show, passenger traffic has tended to rise somewhat faster than growth in national income.

Table 7: Passenger traffic and economic trends

(base year 1950-51)

| year    | passenger kilometres |       |       | national income at 1948-49 prices | population (mid-year) |
|---------|----------------------|-------|-------|-----------------------------------|-----------------------|
|         | rail                 | road  | total |                                   |                       |
| 1950-51 | 100.0                | 100.0 | 100.0 | 100.0                             | 100.0                 |
| 1955-56 | 93.8                 | 136.1 | 104.7 | 118.4                             | 109.2                 |
| 1960-61 | 116.8                | 246.4 | 150.2 | 144.1                             | 121.1                 |
| 1961-62 | 123.1                | 255.0 | 157.2 | 147.6                             | 123.6                 |
| 1962-63 | 126.3                | 281.0 | 166.2 | 151.1                             | 126.9                 |
| 1963-64 | 133.1                | 298.3 | 175.7 | 157.5                             | 129.9                 |

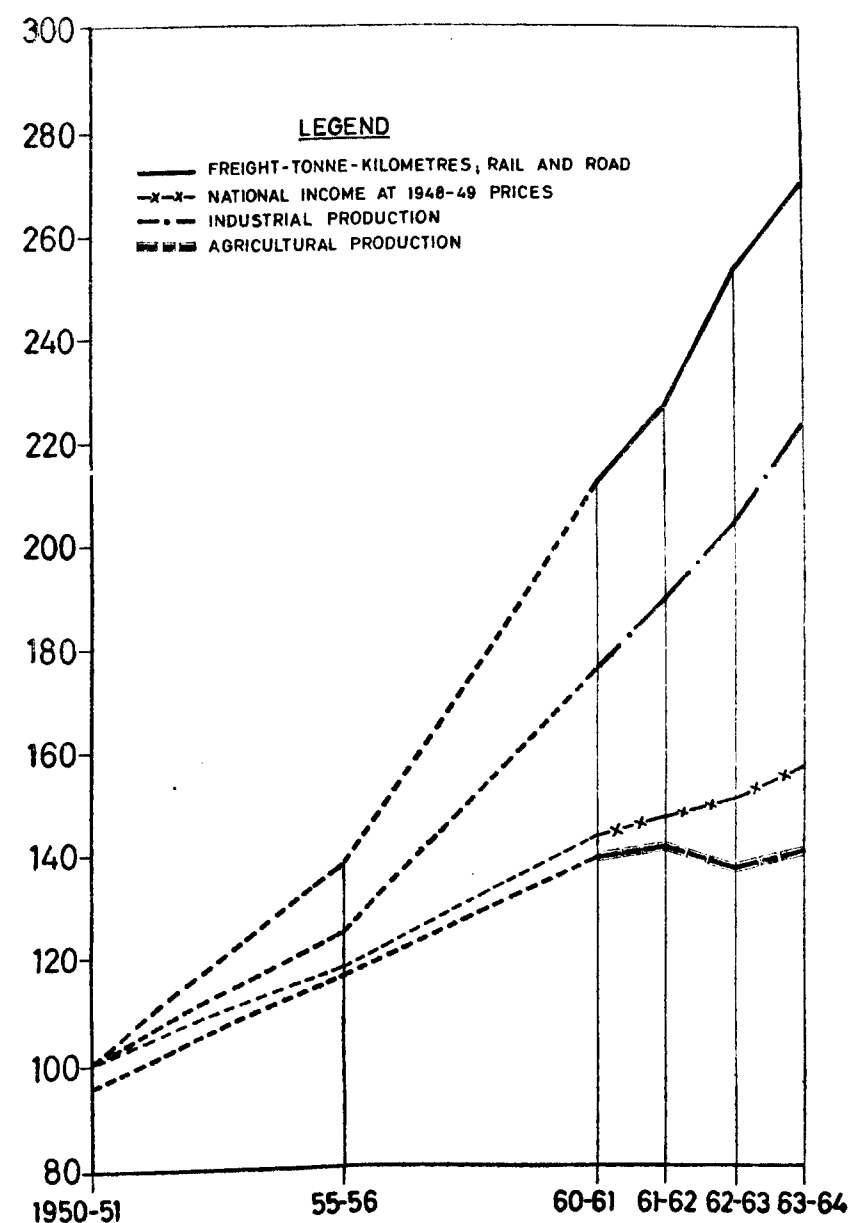
<sup>1</sup>The base year for columns 2, 3, 4 and 5 is 1950-51; for columns 6 and 7—1951 and for column 8—crop year ending June 1950.

<sup>2</sup>Provisional.

## IMBALANCES IN TRANSPORT

16. Continuous efforts have been made during the first three Plans to expand the capacities of rail and road transport and other media of transport so as to meet the growing requirements of the economy. Over this period, however, from time to time temporary imbalances have emerged between the supply of and demand for transport, and these have in turn affected adversely developmental efforts in other sectors, specially in mining and industry. When shortage in transport occurred about the middle of the First Plan, steps were taken to expand rail capacity through adjustments in Plan allocations and State Governments were urged to liberalise licensing policies for road transport. The transport position improved towards the end of the First Plan, but became difficult once again in the closing years of the Second Plan. In particular, there were pressures and bottlenecks in the movement of coal from the Bengal-Bihar coalfields towards the northern, western and southern parts of the country. Difficulties were also experienced in the movement of raw materials and finished products of industries, such as cotton textiles, jute manufactures, cement and iron and steel. In the first year of the Third Plan, these difficulties became even more acute. A series of measures were then taken to increase rail capacity and augment rolling stock and bring about a marked improvement in the transport situation. Additional line capacity works were undertaken by the railways and road programmes were strengthened. Coastal movement of coal was stepped up and industries farther removed from the coalfields were encouraged to switch over from coal to furnace oil. The transport situation began to ease towards the end of the year 1962. Loadings on the railways increased and the outstanding registrations which had reached a high level in 1961 began to show a downward trend. The outstanding registrations on the broad gauge system of the railways which were equivalent to about 4.5 days' loadings on the last day of December 1961 declined to the level of about 3 days' loadings at the end of December 1962 and to about 1.5 days' loadings at the end of December 1963. Even at the end of December 1964, outstanding registrations were as low as equivalent to 1.5 days' loadings. In recent months, the loadings on the railways have been steadily going up in response to the increasing demands for transport capacity.

17. This brief review of the experience of the past decade and more suggests that in the first phase of development transport requirements have tended to increase at a rate considerably higher than the rate of growth of output in industry, mining and other sectors. This was to be expected because of the emphasis given since the Second Plan to the development of industries, and specially of heavy industries. Temporary imbalances between supply of and demand for transport could also occur because of difficulties in making an advance assessment of requirements in relation

FREIGHT TRAFFIC AND ECONOMIC TRENDS  
INDICES

both to time and location. Techniques for estimation of requirements for transport have improved in some measure, though not yet sufficiently. Assessment of transport needs calls for close and continuous appreciation of the progress of plans for industrial development and the functioning of the entire industrial and agricultural economy as well as for systematic and consistent projections for the future. In determining ahead and planning for capacities to meet the requirements for transport, a coordinated view has to be taken of various media and, in particular, of rail and road transport. This makes it all the more essential that in the interest of uninterrupted economic growth, development of transport capacities should not lag behind requirements and decisions to augment capacities should be taken in time. A measure of flexibility to take care of unanticipated changes in demands for transportation arising from short term shifts in production should be built into the planning of transport. Finally, in relation to imbalances arising from the growth of industrial production, it has to be recognised that the bulk of the residual burden falls on the railways and pressures on transport reflect first and foremost on the operations of the railways. Therefore, rail capacities built up through investments over earlier periods and capable of being utilised at low marginal cost constitute an important asset for the economy. At the same time, plans for road transport should provide for expansion on an adequate scale so that, together, rail and road transport can meet emergent demands for additional transport at short notice.

#### CHANGES IN COMPOSITION OF TRAFFIC

18. In common with trends observed in a large number of countries, in recent years, while both rail and road transport have developed considerably their relative shares have changed markedly in favour of road transport. The share of the Indian Railways in the total goods traffic carried by rail and road together has diminished from about 89 per cent in 1950-51 to about 77 per cent in 1964-65. In passenger transport, the share of the Indian Railways has declined during this period from about 74 per cent to about 55 per cent. There have been corresponding increases in the share of road transport both in goods and passenger traffic. The broad trends which have been in operation are illustrated by two studies which have been undertaken, one during the period 1959-61 at the instance of the Committee on Transport Policy and Coordination and the second in 1963 by the Ministry of Transport at the request of the World Bank Study Team on Coal Transport.

19. In the first study six important long distance inter-State routes were selected with a view to assessing the nature and quantum of traffic moving by road. About 19.7 per cent of trucks moved over a distance of 320 kilometres (200 miles) or more and 8.3 per cent over a distance of 480

kilometres (300 miles) or more. About 54 per cent of cotton and raw jute, 39 per cent of textiles, 26 per cent of finished goods, 37 per cent of provisions, 20 per cent of iron and steel were found to move beyond 480 kilometres (300 miles) on certain routes. Although the quantities involved were small, it is significant that road movement of finished goods and textiles extended even beyond 1600 kilometres (1000 miles). The second study included 16 principal routes. Although data in the two enquiries are not strictly comparable, it will be seen from table 8 that in 1963 the average lead for carrying certain commodities was found to be generally higher than during 1959-61.

Table 8: Average length of haul

| commodities           | (kilometres) |      |
|-----------------------|--------------|------|
|                       | 1959-61      | 1963 |
| foodgrains            | 150          | 228  |
| oilseeds              | 237          | 281  |
| fruits and vegetables | 243          | 300  |
| iron and steel        | 264          | 412  |
| textiles              | 386          | 633  |
| building materials    | 157          | 150  |
| provisions            | 352          | 467  |

The broad trends indicated above were also borne out by enquiries made by the Committee on Transport Policy and Coordination from a number of leading enterprises regarding the modes of transport employed by them. It is clear that increasing quantities of high rated commodities such as chemicals, textiles, yarn and textile machinery and miscellaneous goods now move by road over considerable distances, which may extend as much as 1000 to 2000 kilometres and sometimes even more.

20. In recent years, rail traffic in commodities of higher unit value, on which railway freights are generally higher than freights charged by road hauliers, has tended to decline, while the proportion of bulk commodities which have comparatively low unit values, on which railway freights are relatively low, has tended to increase. In studying trends in the composition of rail traffic, it is convenient to divide traffic into two broad categories, 'low rated' and 'high rated'. The railway rate structure as revised from October 1, 1958, (following the report of the Railway Freight Structure Enquiry Committee 1957) is built round two separate basic rates known as Class 100-A and Class 100-B and, generally, all rates are expressed as percentages of these basic rates. Commodities which were previously chargeable at wagon load scales have been linked to the standard Class 100-A at appropriate percentage rates. All other commodities have been linked at appropriate percentage rates to the standard Class 100-B. Coal in wagon loads has been charged on a separate scale. In the present analysis, besides coal, commodities listed under categories up to 40 per cent of Scale—

A of the railway tariff schedule have been treated as low rated commodities. These include such commodities as iron ore, limestone, salt, foodgrains, fruits and vegetables, sugarcane, wood etc. Commodities included in categories above 40 per cent of Scale-A and those in Scale-B have been taken to be high rated. In following this basis for division of traffic between high rated and low rated, we have in view the relationship of rates to costs of haulage. In the case of low rated commodities, rates either do not recover costs or do so barely, while in the case of high rated commodities, they yield a surplus over costs. The division of traffic between high rated and low rated commodities has of course a certain element of arbitrariness; nevertheless, it is a convenient way of illustrating changes in the composition of rail and road traffic over a period. The following table shows for the period 1956-57 to 1964-65 the total originating tonnage in respect of low rated and high rated commodities carried by railways and their relative proportion in the total revenue earning traffic.

Table 9: Low rated and high rated rail traffic

| Year    | tonnes originating<br>(millions) |               |       | percentage<br>to total traf-<br>fic |               | freight earnings<br>(Rs. crores) |               |       | proportion<br>of earnings<br>to total<br>freight ear-<br>nings |               |
|---------|----------------------------------|---------------|-------|-------------------------------------|---------------|----------------------------------|---------------|-------|----------------------------------------------------------------|---------------|
|         | low<br>rated                     | high<br>rated | total | low<br>rated                        | high<br>rated | low<br>rated                     | high<br>rated | total | low<br>rated                                                   | high<br>rated |
| 1956-57 | 62.3                             | 36.3          | 98.6  | 63.2                                | 36.8          | 78.8                             | 121.7         | 200.5 | 39.3                                                           | 60.7          |
| 1957-58 | 68.4                             | 33.8          | 102.2 | 66.9                                | 33.1          | 98.4                             | 126.7         | 225.1 | 43.7                                                           | 56.3          |
| 1958-59 | 70.9                             | 32.3          | 103.2 | 68.7                                | 31.3          | 110.5                            | 125.7         | 236.2 | 46.8                                                           | 53.2          |
| 1959-60 | 77.4                             | 33.3          | 110.7 | 69.9                                | 30.1          | 121.4                            | 136.0         | 257.4 | 47.2                                                           | 52.8          |
| 1960-61 | 85.3                             | 34.4          | 119.7 | 71.3                                | 28.7          | 134.7                            | 145.2         | 279.9 | 48.1                                                           | 51.9          |
| 1961-62 | 91.4                             | 34.1          | 125.5 | 72.8                                | 27.2          | 148.0                            | 151.9         | 299.9 | 49.3                                                           | 50.7          |
| 1962-63 | 101.7                            | 37.7          | 139.4 | 72.9                                | 27.1          | 172.1                            | 170.4         | 342.5 | 50.2                                                           | 49.8          |
| 1963-64 | 106.8                            | 40.8          | 147.6 | 72.3                                | 27.7          | 189.9                            | 196.4         | 386.3 | 49.2                                                           | 50.8          |
| 1964-65 | 106.6                            | 42.2          | 148.8 | 71.6                                | 28.4          | 191.4                            | 207.6         | 399.0 | 48.0                                                           | 52.0          |

A large part of the increase in rail traffic which has taken place since the beginning of the Second Plan is in low rated commodities. Broadly, low rated traffic accounts for 9 per cent more of the total freight earnings of the railways and high rated traffic for 9 per cent less than it did in 1956-57. The proportions of low rated and high rated traffic to the total traffic carried by the railways have altered correspondingly. Generally speaking, the railways do not appear to have obtained a significant share of the increase in high rated traffic which has become available on account of increase in industrial production. In recent years, however, the volume of

traffic in high rated goods on the railways has shown a tendency to increase. The importance to the railways of high rated traffic may be judged from the fact that the earnings from such traffic account for about one-half of the total freight earnings of the railways.

21. The trends for different Zonal Railways are shown in the following table :

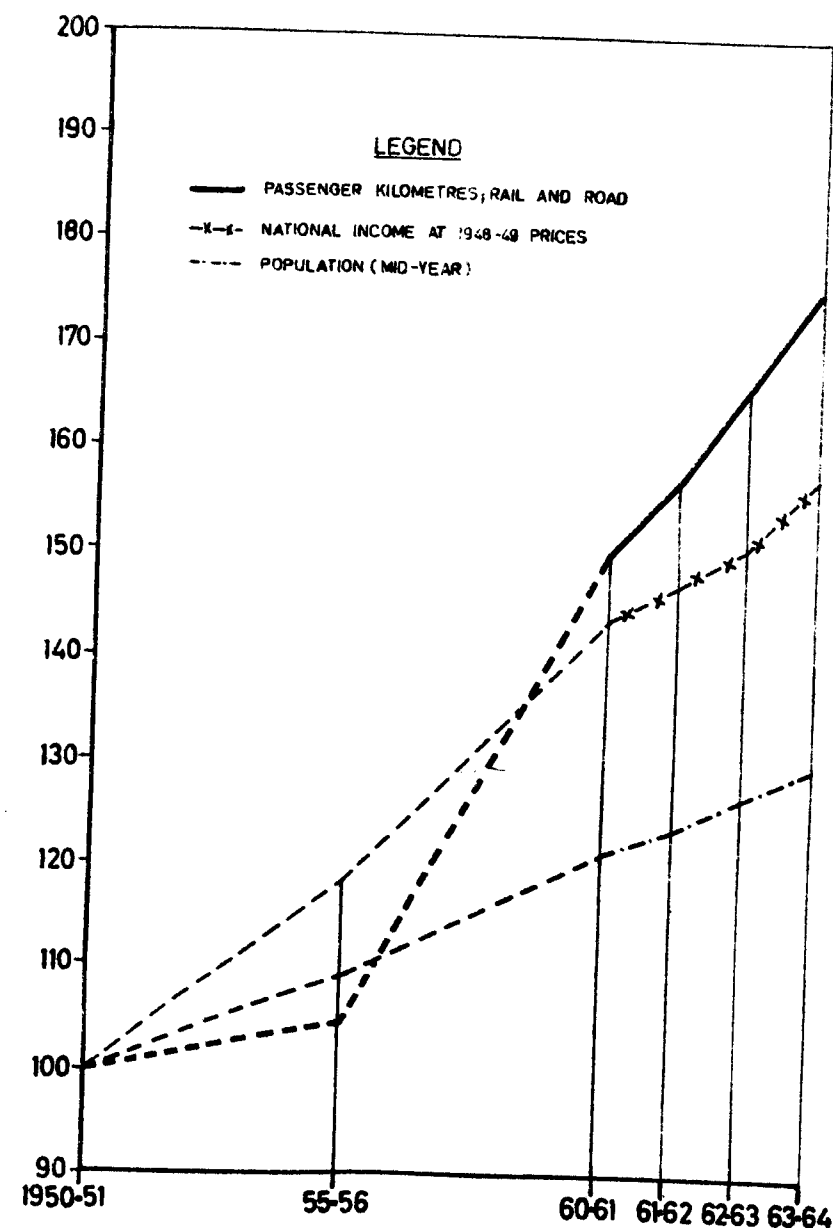
Table 10: Zonal railways—proportion of low rated traffic

| zonal railway                | volume of low rated traffic as per cent of total traffic |         | earnings on low rated traffic as per cent of total earnings |         |
|------------------------------|----------------------------------------------------------|---------|-------------------------------------------------------------|---------|
|                              | 1956-57                                                  | 1964-65 | 1956-57                                                     | 1964-65 |
| central . . . . .            | 40.6                                                     | 65.1    | 26.3                                                        | 42.1    |
| eastern . . . . .            | 74.9                                                     | 76.6    | 51.7                                                        | 57.8    |
| northern . . . . .           | 63.3                                                     | 64.0    | 51.1                                                        | 52.3    |
| southern . . . . .           | 59.7                                                     | 70.4    | 42.9                                                        | 47.9    |
| south eastern . . . . .      | 72.4                                                     | 83.1    | 43.0                                                        | 53.5    |
| western . . . . .            | 54.2                                                     | 57.0    | 35.0                                                        | 40.3    |
| north eastern . . . . .      | 58.9 <sup>1</sup>                                        | 55.8    | 50.0 <sup>1</sup>                                           | 40.0    |
| northeast frontier . . . . . | 39.6 <sup>1</sup>                                        | 36.0    | 25.9 <sup>1</sup>                                           | 29.7    |
| indian railways . . . . .    | 63.2                                                     | 71.6    | 39.3                                                        | 48.0    |

On most of the railway systems, the proportion of low rated to total traffic increased between 1956-57 and 1964-65. On some Zonal Railways, such as Central and Northern, while the total traffic has increased in recent years, the quantum of high rated traffic has registered a substantial decline not merely relatively to the total but also in absolute terms. High rated commodities in which the quantum of rail movements diminished in absolute terms on several of the Zonal Railways are raw cotton, oilseeds, sugar, cotton manufactures, jute manufactures, tea, hydrogenated and non-hydrogenated oils, kerosene in tins, petroleum, fuel oil, general provisions etc. These are the very commodities in which traffic by road has increased steadily in recent years. It may, however, be mentioned that on the Eastern, South Eastern and Western Railways, the quantum of high rated traffic increased significantly in absolute terms between 1956-57 and 1964-65 even though the rate of increase was not as much as in the case of low rated traffic. Moreover, on the Central, Southern, Western, North Eastern and

<sup>1</sup>These figures relate to 1958-59. The Northeast Frontier Railway was formed in January 1958 prior to which it was an integral part of the North Eastern Railway.

## PASSENGER TRAFFIC AND ECONOMIC TRENDS INDICES



Northeast Frontier Railways, the share of earnings from high rated traffic is still quite high and exceeds 50 per cent of the total earnings.

22. Increase in the proportion of low rated traffic on the railways, in the proportion of freight traffic carried by road, in the share of road transport in moving high rated commodities and in the proportion of long distance movement by road are but different facets of the same situation, namely, growth of road transport services and expansion of the road system and the need to devise appropriate methods of coordination. These developments are by no means unique to India. They have occurred in most countries, specially with the growth of motor transport after the Second World War and the greater technical capacity of modern road transport to handle large quantities of goods and to move them swiftly across long distances. Facilities provided by road transport, such as, the personal attention given to consignments, the time required for actual movement, specially over short and medium distances, and door to door delivery are of great importance in the efficient movement of goods of comparatively higher value and of commodities other than bulk commodities. Although significant adjustments have been made recently, railway rates have been based in the past mainly on the value of service principle and the relatively high rates charged by the railways for the more highly priced goods have tended to enhance the scope for competition from road transport. A third factor which has operated in favour of road transport is that the development of new rail capacities has been necessarily linked with the expansion of basic industries and provision of facilities as a matter of priority for the movement of industrial raw materials and finished goods. The concentrated nature of the new bulk traffics which have arisen on account of industrial and mineral development and the relatively dispersed location of plants producing manufactured goods which can be transported by road have also increased the area of operation of the road transport industry. As both railways and roads connect important industrial and urban centres, a considerable part of the road system runs parallel to the railway network. This development could hardly be avoided though, in certain situations, this very factor may increase the scope for competition between rail and road transport on long distance routes. The greater concentration of road transport along routes connecting the larger towns and cities is to be attributed, in fact, to the fact that the road network in most rural areas and in the less developed regions is not yet impressive enough. As the road system develops in depth, there will be greater scope for diversification of road transport services.

23. Between 1950-51 and 1964-65, passenger traffic by rail increased in terms of passenger kilometres by about 40 per cent. During this period passenger traffic by road increased nearly threefold. On the railways, the rate of increase was much larger for suburban than for non-suburban traffic. Between 1951-52 and 1964-65 suburban traffic in terms of passenger kilometres went up by about 131 per cent, while non-suburban traffic increased by 38 per cent. Table 11 below shows the extent to which total passenger

traffic and non-suburban passenger traffic increased on different Zonal Railways during the period 1956-57 to 1964-65.

Table 11: Growth of passenger traffic  
1956-57 to 1964-65 (percent)

| Zonal railway      | non-suburban passenger traffic |                   | total passenger traffic |                   |
|--------------------|--------------------------------|-------------------|-------------------------|-------------------|
|                    | passengers originating         | passenger kms.    | passengers originating  | passenger kms.    |
| central            | 37.0                           | 39.0              | 64.5                    | 48.5              |
| eastern            | 36.1                           | 46.1              | 70.1                    | 59.4              |
| northern           | 12.0                           | 25.3              | 12.0                    | 25.3              |
| north eastern      | 19.9 <sup>1</sup>              | 43.5 <sup>1</sup> | 19.9 <sup>1</sup>       | 43.5 <sup>1</sup> |
| northeast frontier | 38.1 <sup>1</sup>              | 50.3 <sup>1</sup> | 38.1 <sup>1</sup>       | 50.3 <sup>1</sup> |
| southern           | 7.9                            | 9.6               | 20.0                    | 12.4              |
| south eastern      | 70.4                           | 62.6              | 64.4                    | 61.9              |
| western            | 29.3                           | 26.1              | 62.5                    | 38.5              |
| indian railways    | 23.9                           | 32.1              | 46.5                    | 38.7              |

The average lead of non-suburban passenger traffic on the railways has shown a slight tendency to increase in recent years, having gone up from 67 kilometres in 1956-57 to about 75 kilometres in 1964-65. A factor which has doubtless contributed to this is the expansion in road transport services and their relative convenience, specially in respect of short and medium distance passenger traffic. Passenger traffic on the Northern and Southern Railways has not recorded any significant increase over the last few years. The Southern Railway has faced considerable competition from road transport, specially in long distance services. On the Northern Railway the occupation ratio of trains on most of the branch lines has been low. On several branch lines of other railway systems also the occupation ratio in passenger trains has been comparatively low. These trends reflect the greater availability of road transport services and, consequently, the greater competition now encountered by the railways on secondary routes and for short and medium distances. The fact that such trends are likely to continue into the future has certain implications for the continuance of a number of branch lines. Many branch lines were built originally to serve primarily the needs of passenger traffic even more than of goods traffic. Such traffic is still the main source of earnings on these lines, but in several instances the earnings are diminishing.

24. In the foregoing paragraphs we have attempted to bring out the broad features of the transport situation in India. There has been gradual expansion of the transport system in response to growing requirements. At the same time, competition between the two principal forms of transport—

<sup>1</sup>These figures represent increases over 1958-59 which is the first year of operation on the North Eastern and Northeast Frontier Railways.

railways and mechanised road transport—has also increased, specially on long distance routes. Transport requirements have increased faster than the rate of growth of the economy generally and, from time to time, temporary imbalances between supply of and demand for transport services have manifested themselves. The pattern of traffic on the railways has undergone important changes with growing preponderance of low-rated traffic and increase in the share of road transport in the total traffic in goods and passengers carried by rail and road together. These developments in transport and the composition and volume of demands for transport have been influenced by a number of factors, the most important being the impact of industrial and economic development under the Five Year Plans. It has been seen that a slackening in the rate of growth of the economy can soon lead to temporary surpluses in transport, specially on the railways, and increases in the tempo of economic activity can lead, equally swiftly, to acute transport shortages. The emphasis in the Plans on basic and heavy industries tends to increase the proportion of traffic in bulk commodities carried by the railways. The growth of consumer goods industries and industries requiring special facilities has led to increased demands for road transport facilities.

25. Transport requirements will grow in future with the growth and diversification of the economy. A large measure of expansion will be called for in the coming years both in railways and road transport and both systems of transport will have vital and complementary roles. The railways, being specially suited for long distance bulk traffic, will doubtless adapt themselves more and more to the requirements of such traffic and will, at the same time, take steps to increase their competitive capacity to carry other traffic. With diversification of production and expansion of consumption goods industries, there will also be increasing demands for expansion of road transport. Considerable expansion in road transport facilities will be needed to meet the requirements of rural areas, to promote the growth of agriculture and rural industry and for the development of the less advanced regions. A national transport policy must, therefore, seek to build a transport structure of the right size and pattern, consistent with the scheme of economic development envisaged under the Plans and capable of meeting the demands of the future. The basic problem is to develop the different modes of transport in such proportions and combinations as will meet the full needs of the developing economy of the country economically and to provide for the largest measure of coordination possible, so that the various transport services will become complementary to one another and will function as a composite network. In seeking the objective of coordination, it will be necessary not only to establish appropriate criteria for the distribution of traffic between different modes of transport, but also to consider, in the given conditions of India, the economic policies and the organisation and structure through which these criteria can be given practical effect in the day to day working of the transport system.

### CHAPTER III

## APPROACH TO PROBLEMS OF COORDINATION

### OBJECTIVE OF COORDINATION

CHANGES in patterns of traffic carried by rail and road, to which attention has been drawn in Chapter II, should be viewed, not as an isolated phenomenon, but as an aspect of the expansion of the economy and of the transport system as a whole. In part, these changes are accounted for by changes in demand for different transport services, in part by the relative costs at which the demands are met. If the transport system is viewed as an integrated network, disregarding the fact that each service may be operated by a different agency, frequently under diverse ownership, the objective of coordination may be stated to be to develop the various modes of transport as complementary services in such proportions and combinations as will meet the total need of the community at each given stage at minimum cost to the economy.

2. The problem of coordination in transport has to be considered, thus, in the dynamic context of growth. Its essential elements are, firstly, changes in the volume and composition of the services needed by the economy from period to period and, secondly, the cost at which these services can be established and operated. As between different transport services, the more important aspect is complementarity though, within a range determined by users' preferences and the prices at which individual services become available, there is also a significant element of substitutability. The problem of substitutability may arise in various forms. Within a single mode of transport, there may be the question of cost of substitution of one technology for another. Thus, it may be necessary to choose on the railways between electric or diesel traction and steam traction or between faster train services and full train loads and slower services and trains comprising wagon loads; in inland water transport between modern vessels and country craft; in road development, between wider roads with thicker surface and narrower roads of lower specification. As between different modes of transport, at given prices or for specific purposes, one mode may be preferred to another as occurs, frequently enough, between road and rail transport or between rail and water transport. In either case, substitutability is conditioned as much by the factor of technical and economic efficiency, the quality of the service provided, as by considerations of cost and price. The price paid by the consumer of a service influences his preference. Cost may refer to the cost incurred by the individual operator of the service or by the community as a whole. In considering the problem of coordination in transport, it is cost in the latter sense, that is, social cost, which is decisive. The price paid by the user for a service may or may not reflect the cost to the

operator. The operator's cost may or may not include significant elements of cost which have to be borne by the community. Since what requires to be determined are social costs, while making as careful an estimate as possible of the costs of operators of any transport service, there are other elements also which have to be evaluated, such as the cost of maintaining a road track. At the same time, while reckoning social costs, the social benefits derived from a service must also be considered. These are not always easy to measure. They may reflect the social values and judgment of the community functioning through its various organs and may in fact be of great importance in reaching conclusions on public policy for transport.

3. Planning for transport involves decisions, which often remain only implicit, concerning the distribution of traffic between different modes of transport. These determine the quantum of resources—capital, foreign exchange, scarce materials and personnel—which should be devoted to the development of different services during any given period, the prices at which the services are made available and the return on investment in the development of transport. The central purpose of transport policy is, therefore, to create such technical, economic and other conditions for the distribution of traffic between different modes of transport as will help ensure to the greatest extent feasible that facilities in each mode are developed in such proportions and operated in such manner as would meet the total needs of the economy at minimum cost to the community. In practice, as we shall see, this problem may not be easily resolved—and it certainly cannot be resolved by adopting any simple set of rules. Nevertheless, having regard to the limitations of resources and the large claims upon them, not the least by the transport sector itself, it is important that every effort be made to achieve progressively as close an approximation to the objective as may be possible and, to this end, to develop systematically the necessary economic and statistical information for different modes of transport, to utilise such information in making the main decisions and to keep under constant review the facts concerning costs of transport and changes in the demand for various services and in the composition of traffic.

4. Three further observations may be made at this stage on the subject of allocation of traffic between different modes of transport. First, such allocation of traffic is intended to facilitate key decisions on the part of public authorities, including those concerned with planning, bearing, for instance, on investment and pricing policies. Secondly, since any allocation of traffic is at best based on estimates of demand on given assumptions, the broad trends which it implies are even more important for policy and action than the details of the estimates themselves. The primary purpose of traffic allocations is, thus, to provide a certain perspective on growth rather than a rigid frame. Thirdly, it is essential to take a fairly long-term view, both because decisions in the field of transport commit resources for the future and are not reversible at short notice and because allocations of traffic have the positive aim of promoting or stimulating action on the part

of users and operators which may best subserve the overall interest of the economy over a period of years.

#### RAIL AND ROAD COSTS

5. Apart from reckoning cost elements of a social nature falling outside the customary costs of operators, even in estimating the latter there are several problems of method and approach on which much work still remains to be done. Before reviewing some of the available cost data for India, these problems may be briefly stated. Some of them are common to the transport sector as a whole, others pertain to particular services. One of the common problems is to apportion joint costs between different services or to different types of traffic. For instance, the railways provide both passenger and freight services. The track, signalling facilities and terminals as well as a considerable body of operating personnel are common. Maintenance costs, including such elements as embankments, drainage etc. are also common. Some elements in common costs are measurable, such as the cost of making and maintaining the track, signalling, terminals etc., but imputation remains a difficulty calling frequently for more or less arbitrary assumptions, not only for apportioning particular costs to different types of traffic, but also for making allowance for volume of traffic and for duration of the asset or service to which a given cost is related. In much the same way, the cost of making and maintaining a highway has to be apportioned between different road transport services, such as the movement of passengers and goods in different types of vehicles, taking account to the extent possible of factors like space occupied, frequency of service and wear and tear caused. These are aspects of the problem of cost determination which cannot be adequately considered without the aid of technical and economic data which must be specially gathered through road tests, traffic surveys and other investigations. In actual practice, both for rail and road transport, it is necessary to conduct over a period a series of investigations into costs, both total and marginal, for specific sections and specific streams of traffic so as to build up a body of data on which dependable policy judgments may be based.

6. Another problem of considerable importance is the treatment of taxation. In the case of road transport, taxation takes the form of taxes on motor vehicles, excise duties on fuel and accessories, import duties, sales taxes, income tax and corporation tax on surpluses accruing to individual undertakings and local toll taxes. On the one hand, it is difficult to isolate that element in taxation which may be attributed specifically as costs incurred by the industry on account of services or facilities received from public authorities; on the other, almost all taxation has larger social and economic objectives and none of the taxes may be regarded only as a specific charge on the road transport industry. Frequently, all taxes levied on the road transport industry are reckoned as costs. There would be good reason to do so in the case of taxes like the motor vehicles tax, taxes on fuel and acces-

sories and sales tax etc.; but income and corporation taxes and toll taxes should perhaps be kept outside the costs of the industry. Similarly, in the case of railways, the surplus transferred to the general budget after allowing for interest on capital could be excluded from costs of rail transport. Being a departmental undertaking the railways do not pay income tax or corporation tax, but they have to pay indirect taxes such as excise duties, sales tax and duties on imported component and materials. The important point to note is that the different elements of taxation that enter into the cost of a service need to be isolated and quantified as well as assessed with reference to considerations such as whether the tax represents a *quid pro quo* for benefits received without charge, or a contribution to general social purposes or a device to bring actual costs more in line with costs to the society or something else.

7. Studies of costs of transport have received a great deal of attention in recent years and much pioneering work has been undertaken in U.S.A. and other countries in the west. On the Indian Railways, until a few years ago, no detailed cost studies were done and the system of accounting in vogue did not lend itself readily to detailed analysis of costs of haulage of specific types of traffic hauled by the railways.

Recently, the Indian Railways have carried out a study of their existing system of accounting so as to facilitate cost calculations for specific services provided by the Railways. The Railway Board have issued instructions to the Zonal Railways to introduce a series of changes in the existing accounting system. These changes will necessarily be completed over a period. The Railway Board have also attempted a breakdown of the average operating cost figures into the cost of individual functional services like terminal services, marshalling, line haul, transshipment etc. They have studied costs of goods traffic separately for (a) movement of 'smalls', and (b) movement of full load wagons. The results of this study, which takes into account goods traffic moving on the railway system as a whole and is based on the accounts for 1962-63, are summarised in the following table :

Table 1 : Breakdown of railway freight costs (1962-63)

|                                                        | unit  | broad gauge | metre gauge |
|--------------------------------------------------------|-------|-------------|-------------|
| <i>terminal</i>                                        |       |             |             |
| smalls per tonne . . . . .                             | Rs.   | 8.66        | 8.32        |
| full load per tonne . . . . .                          | "     | 1.19        | 1.63        |
| full load per wagon . . . . .                          | "     | 24.12       | 19.15       |
| <i>line haul</i>                                       |       |             |             |
| movement per tonne kilometre (gross) . . . . .         | Paise | 1.68        | 1.82        |
| <i>other operations</i>                                |       |             |             |
| repacking of 'smalls' per tonne per handling . . . . . | Rs.   | 4.60        | 4.94        |
| marshalling per wagon per yard handled . . . . .       | "     | 10.99       | 9.73        |
| transshipment—per tonne . . . . .                      | "     | 2.55        | 2.55        |

These data are in the nature of an approximation. Steps are now being taken by the Railways to ascertain as a regular practice unit costs for the functional group of services and also to work out costs of transport of specific commodities on the basis of data obtained from the Zonal Railways.

8. In respect of road transport services, little systematic work on costs has been done so far. In 1959-60, the Committee on Transport Policy and Coordination carried out a pilot investigation into the costs of operation of three selected road transport undertakings with the assistance of the Chief Cost Accounts Officer of the Ministry of Finance. The results of the study were set out in the Committee's Preliminary Report<sup>1</sup> and a resume is given in Appendix 7 of this report. The range between the highest and the lowest costs was found to be very wide. The cost per vehicle kilometre varied from 35.2 paise to 72.2 paise and that per tonne kilometre from 7.3 paise to 28.4 paise. Owing to the limited scope of the study, these results are to be regarded as illustrative rather than as a measure of the average costs of road haulage or of the prevailing range of variation between them. It may be of interest to note in this connection that the average rail costs for 1964-65 worked out to 3.48 paise per tonne kilometre on the broad gauge and 5.03 paise per tonne kilometre on the metre gauge.

9. More recently, the World Bank Study Team on Coal Transport has made a study of the costs of haulage of coal by railways, road transport, coastal shipping and other modes of transport, such as ropeways and pipelines which, though related specifically to coal, throws useful light on the comparative position of the railways, road transport and other modes in respect of services provided by them. The following table compares the costs of rail and road transport for the economy as worked out in the World Bank Study Team's report.

Table 2 : Costs of haulage of coal per ton to economy

| kilometre     | rail costs | road costs                                           |                                                      |
|---------------|------------|------------------------------------------------------|------------------------------------------------------|
|               |            | 13 ton tract-<br>or and<br>semi-trailer <sup>2</sup> | 19-ton tract-<br>or and<br>semi-trailer <sup>2</sup> |
|               | Rs.        | Rs.                                                  | Rs.                                                  |
| 100 . . . . . | 7.47       | 6.14                                                 | 3.71                                                 |
| 200 . . . . . | 9.36       | 10.38                                                | 9.61                                                 |
| 300 . . . . . | 11.25      | 14.16                                                | 13.18                                                |
| 400 . . . . . | 13.14      | 18.62                                                | 17.28                                                |
| 500 . . . . . | 15.03      | 23.09                                                | 21.24                                                |

<sup>1</sup>Committee on Transport Policy and Coordination, Preliminary Report pages 78—79.

<sup>2</sup>The trucking costs are based on a return trip 25 per cent empty.

To determine rail costs to the economy, the en route and terminal costs have been adjusted by eliminating the tax portion, adding a domestic preference adjustment for the foreign exchange component and using a nominal rate of 12 per cent for return on investment. Similarly, in working out the cost of road transport to the economy all taxes have been excluded, domestic preference adjustments have been made on foreign exchange expenditure, and the rate of return on net investment has been taken at 12 per cent. On a comparison of rail costs and road transport costs under the most favourable conditions, the World Bank Study Team's report came to the following conclusion :

"These figures demonstrate that trucks of even higher capacity on good roads show a higher cost than rail except when the haul is less than 200 kilometres. However, the favourable trucking costs below 200 kilometres cannot be attained until there is a vast improvement in the condition of the highways near the collieries and on the main routes and until trucks of far greater capacity than those now in use in India are produced. Moreover, the trucking costs do not include any capital charges for improvements in highways. For the foreseeable future, therefore, it is indicated that the costs of the rail movement of coal will be well below those by highways."

10. We have also attempted a comparison of rail and road costs with the help of data furnished by the Railway Board in regard to rail costs and data on road costs as worked out by the World Bank Study Team. Such a comparison has been shown in Table 3, but it is necessary to stress that the data should be interpreted with caution. Rail costs were worked out separately for bulk commodities and for light merchandise. Road transport costs given in the table represent full costs as worked out in the World Bank Study.

11. It will be seen that road transport costs for a 13 tonne tractor-trailer are higher than rail costs for bulk movement at and above 100 kilometres on both broad and metre gauges. For light merchandise, costs of road transport in 8 tonne trucks are lower than costs of haulage of light merchandise by rail up to a distance of about 50 kilometres on the broad gauge and up to about 100 kilometres on the metre gauge. The figures of rail costs of light merchandise have been worked out on the basis of wagon load movement. However, if rail costs are worked out on the basis of movements in 'smalls', they would be higher. The rail costs would be still higher if marshalling and transshipment costs are also added. The road transport costs would also be higher if allowance were made for the fact that light merchandise might not load as well as coal. Costs could also be worked out for trucks with pay load of less than 8 tonnes.

Table 3 : Comparative rail and road costs

( rupees per tonne )

| distance (kilometre) | rail costs <sup>1</sup>         |             |                                  |             | road costs <sup>2</sup>         |              |
|----------------------|---------------------------------|-------------|----------------------------------|-------------|---------------------------------|--------------|
|                      | bulk commodities<br>broad gauge | metre gauge | light merchandise<br>broad gauge | metre gauge | 13 ton tractor and semi-trailer | 8 ton trucks |
| 50                   | 6.53                            | 7.59        | 14.86                            | 17.73       | 5.67                            | 9.76         |
| 100                  | 7.35                            | 8.93        | 16.02                            | 19.67       | 9.72                            | 17.12        |
| 150                  | 8.18                            | 10.28       | 17.18                            | 21.62       | 13.27                           | 23.22        |
| 200                  | 9.00                            | 11.62       | 18.34                            | 23.56       | 16.60                           | 29.56        |
| 250                  | 9.83                            | 12.97       | 19.50                            | 25.51       | 19.88                           | 35.35        |
| 300                  | 10.65                           | 14.31       | 20.66                            | 27.45       | 22.59                           | 42.16        |
| 400                  | 12.36                           | 17.00       | 22.98                            | 31.34       | 29.85                           | 55.77        |
| 500                  | 13.95                           | 19.69       | 25.31                            | 35.23       | 37.10                           | 69.38        |

12. In comparing rail and road costs, it is somewhat risky to generalise on the basis of average costs. Therefore, it is necessary to obtain comparative data on costs pertaining to specific flows of traffic. At the request of the Committee, the Railway Board have prepared estimates of costs of rail movement for certain selected commodities on specified sections on the railways, which has taken into account marshalling, repacking and transshipment costs. The following table compares rail and road transport costs on these sections.

<sup>1</sup>The following assumptions have been made in rail cost calculations :

- Costs of rail haulage pertain to the railway system as a whole. They have been worked out on the basis of through train movement of full load wagons. Transshipment or marshalling costs en route have not been taken into account.
- In the case of bulk commodities, the loadability of wagon has been assumed to be 22 tonnes for broad gauge wagons and 14 tonnes for metre gauge wagons. In the case of light merchandise, the loadability has been assumed as 13 tonnes and 8 tonnes respectively.
- Terminal costs at each end, both for bulk commodities and light merchandise, have been taken at Rs. 24.12 per wagon for broad gauge and at Rs. 19.15 per wagon for metre gauge. These work out to Rs. 1.10 per tonne for broad gauge and Rs. 1.37 for metre gauge in the case of bulk commodities and to Rs. 1.85 per tonne for broad gauge and Rs. 2.39 per tonne for metre gauge for light merchandise.
- The tare weight or the weight of the empty 4-wheeler broad gauge wagon has been taken as 10 tonnes and that of metre gauge wagon as 6 tonnes.
- The empty return ratio is assumed to be 30 per cent for both bulk commodities and light merchandise.
- Local transport charges have been assumed at Rs. 3.50 per tonne for bulk commodities (only at one end) and at Rs. 5 each at the two ends (i.e. Rs. 10 in all) for light merchandise.

<sup>2</sup>Road cost estimates for 8 tonne trucks pertain to roads as they are at present; those for 13 tonne trucks refer to 'good' roads on which such vehicles can ply.

Table 4 : Costs of movement per tonne by rail and road of specified commodities on selected sections (1962-63)

( rupees )

| sections           | distance (kms.) | name of commodity    | rail <sup>1</sup> |                    |   | road <sup>2</sup> |
|--------------------|-----------------|----------------------|-------------------|--------------------|---|-------------------|
|                    |                 |                      | wagon loads       | small <sup>3</sup> |   |                   |
| Howrah-Nagpur      | 1131            | building materials   | 33.7              | 46.2               |   | 150.3             |
| Delhi-Nagpur       | 1093            | building materials   | 33.4              | 58.6               | } | 150.8             |
|                    |                 | machinery            | 51.9              | 67.6               |   |                   |
| Nagpur-Bombay      | 837             | foodgrains           | 27.8              | 53.7               |   | 115.5             |
|                    |                 | cotton-raw-loose     | 42.0              | 69.7               |   | 144.44            |
|                    |                 | cotton-raw-pressed   | 33.0              | 58.5               | } | 115.5             |
|                    |                 | fruits & vegetables  | 34.2              | 58.5               |   |                   |
| Madras-Cochin      | 693             | foodgrains           | 25.2              | 40.6               |   | 95.5              |
|                    |                 | cotton-loose         | 50.9              | 58.9               |   | 119.44            |
| Howrah-Varanasi    | 678             | iron & steel         | 24.8              | 52.2               | } | 93.6              |
|                    |                 | mineral oils         | 29.2              | 64.4               |   |                   |
| Bombay-Ahmedabad   | 491             | textiles             | 25.0              | 38.1               |   | 68.1              |
|                    |                 | cotton-raw-loose     | 40.1              | 46.3               |   | 85.24             |
| Bilaspur-Rourkela  | 305             | limestone            | 13.4              | ..                 |   | 42.6              |
| Agra-New Delhi     | 194             | leather manufactured | 22.0              | 39.9               |   | 28.8              |
| Bombay-Nasik       | 188             | cotton textiles      | 22.1              | 38.8               |   | 27.8              |
| Palampur-Ahmedabad | 133             | petroleum products   | 19.1              | 30.0               |   | 21.2              |
| Calcutta-Kharagpur | 116             | tea                  | 17.0              | 24.7               |   | 19.9              |
| Calcutta-Burdwan   | 107             | jute manufactured    | 15.5              | 34.0               |   | 18.3              |
| Ahmedabad-Baroda   | 100             | cotton pressed       | 16.0              | 29.4               |   | 17.1              |
| Nepanagar-Khandwa  | 42              | paper                | 17.3              | 34.5               |   | 8.2               |

Although the figures in the table are rather in the nature of approximations, they indicate broadly the differences in the costs of wagon load movements and movements in smalls on the railways and those between costs of haulage by rail and road transport. Road transport costs are generally higher than rail costs for distances beyond, say, 100 kilometres, and the disparity between rail and road costs tends to increase with increase in the distance of haulage.

13. In interpreting these data there are important limitations which should be kept in view. For instance, costs of rail transport will vary widely

<sup>1</sup>To the figures of rail costs, local delivery costs have been added at the rate Rs. 3.50 per tonne at one end only in the case of limestone and at the rate Rs. 10/- each at both ends in the case of other commodities.

<sup>2</sup>Based on the World Bank Coal Transport Study.

<sup>3</sup>Cost estimates for 'smalls' are approximate and vary according to size of the unit load carried.

<sup>4</sup>For cotton loose 25 per cent more cost has been assumed.

under different circumstances, as for instance, according to the nature of the commodities carried, distance of haulage, extent of empty haulage, category of train services (fast or slow, train loads or otherwise), total train tonnage, loadability of the commodities carried, density of traffic on the lines, mode of traction, traffic handling techniques etc. Road cost data are subject to even greater limitations. Besides the limitations in estimating the costs of operations of rail and road transport services, there are several other aspects to be considered. For instance, since cost estimates should be converted into cost indices to facilitate ready use, it may be desirable to employ a set of accounting prices. In view of the scarcity of capital resources, for comparing initial capital costs, there may be a case for reckoning the cost of capital in terms of a rate of interest other than the current rate. Again, to take account of the scarcity of foreign exchange, there may be a case for placing a prescribed value on the foreign exchange resources needed in alternative lines of investment. These and other possible refinements need fuller consideration. Basic of course to any scheme of cost determination is the existence of a suitable accounting system at each level of the industry which will permit ready ascertainment and analysis of costs for specific flows of traffic. The steps taken recently by the Railway Board to modify their accounting system will go a long way to facilitate systematic and continuous determination of railway costs. So far as road transport costs are concerned, in view of the nature of the industry, commercial accounts maintained by State undertakings and the larger private companies will need to be supplemented by *ad hoc* periodical enquiries to be initiated by the Ministry of Transport. For accurate comparisons to be made between rail and road transport costs, it is essential that on key issues of definition, criteria and methods of analysis a common approach should be developed between the authorities concerned. Finally, account will also need to be taken, through appropriate money values being set, where possible, on the social aspects of costs and benefits of alternative modes of transport, such as, in the case of road transport, door to door service or saving in time, employment possibilities or developmental role in relation to rural areas or hilly tracts.

14. In the light of the preceding discussion, it may be useful at this stage to state a few broad propositions on the subject of rail-road coordination. In interpreting cost data due attention has to be given to the different economic and technological characteristics of rail and road transport since these necessarily influence their suitability for different types of traffic. As a major undertaking operating a large scale transport industry on a national scale, the railways carry a large fixed plant and have to undertake heavy long-term capital investment. They require a special track and large and expensive rolling stock which can only be used on the fixed track. The element of fixed or overhead costs is very high in rail transport, and, within the limits of available capacity, the greater the volume of traffic the lower is the unit cost. Further, to the extent that there are reserves of line

capacity on the railway system, increased demands for transport can be met with comparatively limited additional investment. To ensure the economy of large scale operation on any route, it will frequently be in overall economic interest that rail movements should be supported by adequate traffic as well as loading and unloading facilities such as will permit the maximum utilisation of available capacities. As the proportion of fixed costs is high on the railways, the total cost of a rail haul tends to diminish as distance increases, since this enables the overhead costs to be distributed more economically. On the other hand, with increase in distance beyond a point, road transport costs per unit of traffic tend to increase. The railways are, therefore, inherently better adapted for long distance haulage as compared to road transport. Traffic density or the size of the traffic flow has a marked effect on railway costs. With high traffic density, the railways are able to operate at low unit costs. Railway costs are considerably higher on branch lines and sections with low traffic density than on trunk routes.<sup>1</sup> The railways enjoy a relative advantage in respect of heavy consignments such as mineral products which are moved in wagon loads; even more so if they are moved in train loads. The nature of the route is also an important consideration in determining the suitability of rail transport for carrying a given traffic. The railways are in a position of relative advantage when the places of origin and destination for the traffic to be carried both fall on a main route, or when the points of despatch and destination are both provided with railway sidings.

In respect of passenger traffic also, as a mass carrier, railways are suited particularly for suburban and commuter traffic where large numbers of passengers have to be moved within certain fixed hours to and from urban centres. Railways also constitute a more convenient mode of transport for long distance passengers.

15. As distinguished from rail transport, road transport is operated through small units, each unit requiring relatively small capital investment. The capacity of the average individual unit is also much smaller. Fixed and overhead costs are a much less important element. The main characteristic of road transport is its flexibility. Goods can be moved readily from any one point to another, provided some kind of road exists. Road transport can provide a door to door service, thus dispensing with or at

<sup>1</sup>The Railway Board have drawn special attention to the following facts: On the Indian Railways, about 61 per cent of the total freight traffic is carried over 18 per cent of the railway system. Sections on this part of the railway system carry a throughput of 10,000 tonnes per day or more. Almost all the branch lines of the metro gauge and some of the branch lines of the broad gauge have a density of traffic of less than 1,000 tonnes per day. As between the broad gauge and the metro gauge systems, the net tonne kilometres per route kilometre per day on the broad gauge worked out to 8.449 in 1963-64 as against 1.756 on the metro gauge. The cost per tonne kilometre was 3.14 paise on the broad gauge against 4.90 paise on the metro gauge. The bearing of the density of traffic on the utilisation of fixed assets and railway costs may be seen from the fact that the incidence of interest charges on capital investment on the limited broad gauge system of the Northeast Frontier Railway where the density of traffic is relatively small was as high as 10 paise per tonne kilometre in 1963-64 as against 0.7 paise on the broad gauge system as a whole and 0.5 paise each on the broad gauge of the Western and the Central Railways.

least reducing multiple movements such as are unavoidable with the railways, where goods have first to be carried from the place of business of the shipper to the railhead and then again from the destination point to the place of business of the consignee. As road vehicles can operate over the whole network of roads, they are able to serve large territories in depth and thus promote diffusion of industrial and economic activity. Because of the small size of the operating unit, an element of personal service on the part of the transport operator and his customers is easily developed. Goods can receive greater attention in transit and avoidance of multiple handling makes road transport specially suited for such traffic as fragile and perishable goods requiring special care, such as certain kinds of machinery, glassware, medicines, fruits etc. There are less stringent packing conditions in the case of road transport than on the railways. Due to the shorter time required for delivering goods, business houses may find it possible to achieve quicker turnover through speedy haulage by road transport. On the other hand, the inadequate capacity of the road system and gaps such as missing bridges, and growing traffic congestion on road near the larger cities as well as road accidents may place certain real limitations on road transport.

16. In basing decisions on existing cost data pertaining to rail and road transport, possible effects of technological and other advances should be kept in view. For instance, costs of operation of road transport over fairly long distances may be lower as roads of higher specifications come to be built and heavier motor vehicles become available in larger number. Similarly, technical advances on the railways such as the development of electric and diesel traction, modern signalling devices, improved types of wagons, and mechanised handling, may lower rail transport costs. Transit time for consignments between important commercial centres may be reduced through the introduction of 'super express' goods trains which run to scheduled timings. In allocating traffic in terms of the economy as a whole or for different regions or in relation to different classes of goods, it is necessary to take a forward looking view regarding the technical and economic possibilities presented by alternative modes of transport. Moreover, this view, while being checked in terms of actual performance from time to time, should at each stage be for a period of years and should not be restricted too closely to the facts of the current transport situation or to trends over very short periods.

#### METHODS OF ACHIEVING COORDINATION

17. Given the facts of the relative growth of transport services set out in the preceding chapter and the state of knowledge of rail and road costs and the aims of coordination described in this chapter, we are faced with the problem that there exists in practice a wide gap between the objectives of policy and the practical means by which they can be fulfilled. As the experience of many countries bears out, there are no ready or universally applicable answers available. In each country, the problem arises in a given institutional, economic and historical context; invariably the approach

adopted is pragmatic, combining search for general principles and criteria with practical compromise and preparing the ground for adjustments in the direction of broader concepts of public policy and economic expansion. Among the more advanced countries the view has gained ground that the legislative and administrative instruments devised mainly before the second world war for the regulation of different modes of transport have become less meaningful in relation to the altered technical economic and social conditions which have developed over the past decade and in face of the still greater pace of change foreshadowed over the next decade. In the less developed economies, seeking to lift their people from the state of backwardness, the role of transport is even more fundamental and dynamic, and the growth of basic capacities in transport, increase in mobility, diffusion of industry and economic activity and changes in the structure of production and consumption also call for adjustments in the perspectives and instruments of policy for the future.

18. As has been stated earlier, the central purpose of transport policy is to create such technical, economic and other conditions for the growth of transport and the distribution of traffic between different modes of transport as will help ensure to the greatest extent feasible that facilities in each mode are developed and operated in keeping with the need to satisfy the overall requirements of traffic at minimum cost to the community. This statement may serve as the starting point of the present discussion on means for achieving coordination. The elements to which attention should be drawn are, firstly, that the result hoped for is not complete coordination as such, but a framework of economic policy and institutions conducive to coordination between different modes of transport, specially rail and road; secondly, coordination, set in the context of growth and expansion of the economy and of the system of transport subserving its needs should be achieved at minimum cost to the economy, that is, in conformity with essential investment criteria; and thirdly, to make such development and investment possible, the quantum of transport to be provided and its pattern of allocation between different modes of transport should be in conformity with the needs of the community assessed with reference to social costs and benefits, including preferences of consumers and other relevant considerations. The two latter propositions are in fact interdependent. For, unless we arrive at a correct estimate of transport requirements and their allocation between different modes, we cannot secure the appropriate order and distribution of investment as between different services and over time. The basic question, therefore, is how we may ascertain in relation to any period of time the extent to which transport facilities should be established, both in the total and in specific forms and locations.

#### INVESTMENT POLICIES

19. We may address ourselves first to the question of determining the total capacity for transport to be brought into existence and then consider

how it may be allocated between alternative modes of transport, taking rail and road transport as the primary illustration. In the past different modes of transport frequently tended to be viewed separately and plans for them were not dovetailed adequately. Recently there has been greater recognition that the various transport services should be considered, both in theory and for policy and practical action, as a composite network in which each element should be complementary to the rest to the greatest extent possible. This object will be facilitated by systematic application of investment and cost benefit criteria in the transport sector. With this approach in mind the Ministries of Railways and Transport and the Planning Commission, through the Joint Technical Group for Transport Planning which they have together constituted, have initiated a series of technical and economic studies. These include investigations into the transport requirements of major commodities, transport capacities and needs of different regions in the country, comparative costs of transport in specific situations and problems of transport in relation to location of industrial and economic activities. These studies will, it is hoped, make it possible to determine, more accurately than in the past and in a manner permitting systematic review from time to time, the transport capacities needed in relation to the principal commodities moving or expected in the future to move between important centres of activity for the country as a whole as well as for different regions. The studies will help distinguish the capacities already existing, those requiring to be added, the extent to which technical considerations will determine the modes of transport and the areas in which economic choice remains to be made. It is true that, in several respects, the data which the studies will yield will at first be incomplete and no more than approximate. Nevertheless, it is expected that these studies will provide a basis for considering carefully how the expected traffic might be best allocated between different modes of transport. It should be possible on the basis of the results of these studies to draw up programmes for the development of different transport media on an integrated basis and to relate them sufficiently closely to developments in other sectors of the economy.

20. In a country like India where major developments in the transportation system are expected to take place in future as part of plans for the growth of the economy as a whole, it should be possible to take care of the problem of coordination of different transport services largely through investment policies under the plans which should be directed to build up right combinations of different transport services in keeping with the needs of growing traffic. In the future growth of the economy, both rail and road transport and, in fact, other forms of transport have a crucial rôle. As far as we can foresee, the railways will continue to be the backbone of the transport system. The future development of the railways, however, will have to be directed increasingly towards meeting the needs of traffic of basic and heavy industries, traffic in minerals like coal and iron ore and long distance movements of manufactured goods as also agricultural products. Deve-

lopment programmes for the railways will have to aim largely at augmentation of capacity on the trunk routes and introduction of technical improvements such as new forms of rolling stock including container services, and other devices like modern signalling, electrification and dieselisation to enable the railways to run faster and heavier trains. There may, on the whole, be limited additions to the railway network to meet the requirements of particular traffics or for development of particular areas. In other words, most of the new investment on the railways will have to be devoted to building up of an increasingly efficient rail transport system rather than to the expansion of the network itself. With diversification of production and expansion of consumption goods industries, road transport also will have an expanding rôle in the economy so that, together rail and road will provide an adequate composite network of services. Road transport facilities will be needed on a larger scale than even before to open up new and less developed areas, to carry economic development and social services to the farthest village, to promote the growth of agriculture and the rural economy and to provide for intra-city transport services. In the past, the growth of road transport was less rapid than it might have been, because of inadequacies of the road system and the inability of the automobile industry to produce vehicles in the numbers needed. As these deficiencies are overcome, still larger opportunities for growth will open up for the road transport industry. Indeed, the tasks which the industry will be called upon to undertake are of truly challenging dimensions. Wherever possible, inland water transport and coastal shipping should provide useful supplementary services to cater particularly for movement of bulk traffic over long distances. Further investment in these services will have to be directed to modernisation of the services and technological improvements for reducing their costs, etc. Other means of transport, such as ropeways and pipelines, have still to be developed on a significant scale and it should be possible to integrate their development into the transportation system as a whole.

#### ROLE OF PRICING POLICY

21. Given the adoption of right investment policies in future in accordance with relative social benefit and cost considerations, the next important question that arises concerns the operation of different modes of transport. The pricing or rate policies adopted by different modes of transport will obviously influence not only the distribution of traffic between different transport services but also their relative profitability and, therefore, future growth potential. What constitutes a proper pricing policy for vast enterprises such as the Railways and road transport services is not an easy question to answer. A few general guidelines, however, can be laid down so that any departures from them are made consciously for specific considerations.

It is now generally recognised, both in India and elsewhere, that pricing policy for major undertakings should be such as to yield a net return which corresponds to the scarcity value of capital in the economy in general. Taken

as a whole, the operations of each system of transport, therefore, should earn at least that rate of return which cannot be considered low in relation to the return obtained in alternative forms of investment. Equally, it can be said that the price charged for a particular transport service should cover at least the marginal cost of providing that service.

Beyond the two propositions just mentioned, it is often argued that the price charged for each particular service should bear a close relationship to the total cost of providing that service. For each mode of transport, in other words, the margin of profit charged for carrying different commodities should be the same. The theoretical justification for what might be called a fully cost-based pricing policy is that when demand is distributed between different modes of transport at prices which reflect the relative costs of providing the different services, the overall profitability of each mode of transport will reflect more adequately the extent to which that mode of transport is able to maximise social benefits or minimise social cost. In this sense, the profitability of each mode of transport, given fully cost-based pricing, will serve as an indicator for future investment decisions. While there is some theoretical justification for fully cost-based pricing systems, it has to be recognised that it is based on a number of assumptions which are not always fulfilled in real life. Apart from the fact that costs may not always measure social cost and consumer preference as expressed in the market does not always reflect social benefits, there is the consideration that the consequences envisaged above in theory can ensue in practice only under more or less perfect competitive conditions.

22. An indispensable condition for the free play of competition is the freedom on the part of the user to choose the means of transport he wishes to employ. This, no doubt, is an important consideration in practice. However, the user's freedom of choice at any time is circumscribed by the prevailing conditions of supply. The supply of transport cannot be augmented to any great extent in the short-run. This is specially true of rail transport. In the case of road transport, there is much greater scope for adjusting supply, not in the total perhaps, but in specified areas and situations, either by action of public authority or in response to the price mechanism. But even in the case of road transport, supply conditions are frozen within limits at any given time.

Again, under conditions of planning and coordinated investment of the kind that we have discussed earlier, it is not necessary to assume that future investments will be guided solely by relative profitability in the present. Nor can we overlook the fact that while a public undertaking like the Railways could be made to adopt any particular pricing policy, the operation of private road vehicles will be guided by the desire to maximise profits in the aggregate rather than by the rule to equalise profits under each separate group of transactions. Granted the fact that at any given time, competition between different modes of transport can at best be imperfect, departures from

a fully cost-based pricing system would become inevitable—in the absence of regulation—in response to the desire to take advantage of specific demand situations. As long as it remains impracticable to enforce the same set of pricing policies on all modes of transport, it would not be feasible to insist on any particular mode of transport following a particular pricing policy as far as relative prices to be charged for transporting different commodities are concerned.

23. In adopting an appropriate pricing policy in the short run, there are two other limitations to which attention may also be drawn at this stage. In the case of the railways, investment takes the form of large units, generally indivisible and associated with similar complementary investments. It has to be undertaken in relation to long and intermediate period assessments of demand rather than as a response to short term variations in demand under conditions of competition. The railways in India, as in many other countries, are a Government undertaking. They are charged with important public service obligations and function on the basis of responsibility to the community as a whole. This implies non-discrimination and stability in rates and liability to provide services in accordance with published schedules. The Indian Railways have already taken important steps towards developing their accounting system along commercial lines; yet to bring about approximation of rates to the costs of services is a process which, as the experience of France bears out, will inevitably be spread over several years. The incidence of capital costs on the railways being heavy, costs will show wide variations with changes in the density of traffic. Thus costs vary considerably between trunk routes and branch lines and indeed from one section to another, depending upon the extent of utilisation of capacity and other related factors. Because of the very wide variations in costs under different conditions of operation, which must naturally obtain in different areas, it is difficult for the railways to adjust rates on the basis of costs in all cases. The obligation to have uniform rates all over the railway system further limits the capacity of the railways to adopt cost-based rates.

The road transport industry consists of large numbers of single truck operators with a sprinkling of larger and well-organised enterprises. The smaller units need help and protection in several ways. Unlike the position in France or West Germany, there are yet no organised associations in the road transport industry which can assist public authorities in enforcing the minimum regulation of fares and freights, supervising the working of the industry from the point of view of public interest and assisting small operators in obtaining steady business. An essential condition for the operation of competition in a basic public utility like transport is that short-term imbalances between supply and demand should lead to appropriate remedial action rather than to large fluctuations in prices. Such fluctuations cannot by themselves alter the supply of the services; they can merely put additional profits in the hands of operators who happen to be in business at a particular time or lead to shortages elsewhere. The availability of vehicles and the

capacity of the automobile industry are an inevitable constraint on the supply of road transport in the short period.

24. Having regard to all these considerations and qualifications, allocation of traffic between alternative modes of transport based, as far as possible, on (a) careful technical and economic studies and (b) progressive approximation of rates to costs both for rail and road transport may be expected to offer three principal advantages. Firstly, it should provide better and more dependable guidance than is available at present for taking practical decisions and planning for investment over a period. Secondly, it should furnish a basis for recommending fiscal measures and pricing policies in support of traffic allocations in terms of which technical development plans are undertaken. Thirdly, the fact that users have a degree of choice between alternative modes of transport and the scheme of allocation of traffic provides for a measure of competition both on the side of carriers and of users should be an aid in maintaining the efficiency of all transport services and promoting technical and organisational innovations. At the same time, because transport is a public utility entailing heavy long-term investment, and the community as a whole has a vital and continuing stake in major national assets such as the railways or the coastal fleet, the principle of competition cannot go so far as to become wasteful of resources or destructive of investment. This will not, of course, exclude the possibility of adjustments over a period in keeping with long-term assessments.

25. As stated earlier, the scheme of allocation of traffic for any period, whether for the economy as a whole or for a region, and the investment plan for the transport sector and the individual services comprised in it, rest on the same foundation of facts and logic. They are essential ingredients in the plan of development. But they are not likely to be sufficient for putting the plan into effect. Three types of supporting measures have to be considered and incorporated into the development plan before an effective scheme of coordination between rail and road transport or, for that matter, any alternative modes of transport can be formulated. These are (a) fiscal measures and pricing policies, (b) regulation and (c) integration in organisation and operations. Since, in later chapters of this Report we offer some specific suggestions on these aspects, it will be sufficient here to explain briefly the approach we have in view.

#### FISCAL MEASURES

26. Assuming that we have adequate knowledge of costs and in principle rates are to be as close as may be feasible to these, there may be several considerations necessitating resort to taxes and subsidies from wider economic and social aspects. Certain kinds of traffic may be deliberately carried below cost, for instance, metropolitan and city passenger traffic with a view to reducing the congestion of population, or goods manufactured in and plant and equipment despatched to markedly under-developed regions

whose economic development is sought to be accelerated. If, for instance, it is considered that long-distance transport of goods by road involves less efficient use of resources, and that movement by road over short and medium distances should receive greater encouragement, there might be scope for differential taxation. Such a case might also exist in favour of certain less developed regions so that larger volumes of road transport could become more readily available for them. Similarly, as is the situation in a number of countries in Western Europe, there could be heavier taxation on trucks maintained by individual enterprises to carry their own goods beyond short distances in preference to use of public transport facilities.

27. Fiscal measures are, thus, a useful instrument in the hands of the Government and of Parliament and State legislatures to bring about, with conscious purpose, a rate structure within the transport industry which will correspond closely enough to the social costs of providing different services and the social benefits derived from them and, at the same time, to be able to assess the value of the burdens imposed or the concessions conferred. There are, however, three factors limiting the efficacy of fiscal measures which will need to be kept in view. The first is the inadequate knowledge of costs. Step by step, it is hoped, that more accurate data will become available, not only for rail transport, but also for road transport. Secondly, where a large number of operators are involved, as in the road transport industry, working for markets which vary widely, costs will differ over a wide range. Rating policies and fiscal measures have inevitably to be based on certain more or less representative norms, so that their incidence and effectiveness in securing the restraint or stimulus that may be intended from the larger angle of economic and social policy will not be the same for all operators or for all areas. Thirdly, there may be absolute preference for one or the other mode of transport which users may wish to exercise in their interest and be willing to pay for them accordingly. Despite these limitations, taxes and subsidies can be expected to assist in incentives or disincentives in the use of given forms of transport for specific traffic within the overall scheme of allocation of traffic. They have considerable value in securing a degree of self-regulation in the allocation of traffic between alternative modes of transport and in translating the overall economic judgment of the community as a whole into specific measures.

#### REGULATION

28. In the thirties, in India, as in several countries in Western Europe and also in U.S.A., special legislation was enacted for the regulation of road transport. Everywhere the primary motive was to safeguard the interest of the railways in face of what seemed likely to assume the form of unfair competition, depriving the railways of some of their high rated traffic, yet leaving to them the burden of their public service obligations. Since Governments had themselves a heavy stake in the financial soundness of rail

transport, they considered it necessary to regulate road transport. Invariably, this took the shape of control on road transport capacity through licensing of number of vehicles which could ply over given distances or in specified areas and, to an extent, of measures to protect the interests of road transport operators in relation to one another. In U.S.A. there is no restriction on the number of vehicles to be employed under a permit, but the use of vehicles is restricted to the carriage of specified goods on specified routes and provision is also made for regulation of rates. In the initial stages, passenger transport received even greater attention than the movement of goods by road, which had yet to assume significant proportions. These measures of regulation arose in many instances in the period of depression in the early thirties. Since the end of the second world war, while the principle of regulation has been retained and, in face of losses incurred by them, the importance of financial viability on the part of the Railways has been stressed even more than before, a two-fold approach is being adopted. Firstly, some efforts are being made to liberalise the road transport system through relaxation of distance limits and quota systems. These are often accompanied by regulation of tariffs, strengthening of organisations within the road transport industry for supervising the operations of various units and supporting the action of public authorities, and resort to differential taxation for long distance transport and transport maintained by individual enterprises for their own use. Secondly, in several countries the railway administrations are being enabled to eliminate uneconomic services, to introduce more flexible rating policies, to recover from the exchequer the cost of services which they would not institute on commercial grounds alone and, generally, to improve their capacity to compete with road transport.<sup>1</sup> In recent years, the contribution which road transport can make and is likely increasingly to make towards the promotion of mobility and economic growth has been recognised much more clearly than before the war.

29. Regulation of operations of different transport media has to be conceived as a measure in support of investment and pricing policies, aiming at securing an optimum distribution of traffic between transport services. Regulation of railways, which are a public undertaking, has to take mainly the form of control over their investment and expansion programmes in keeping with the requirements of allocation of traffic. The railways have a number of obligations of a public service character, including the obligation to give preference, in the public interest, to the transport of such goods as may be specified by Government. Their rating structure is determined,

<sup>1</sup> For instance, in West Germany, legislation provides for the "normalisation" of the accounts of the German Federal Railways, that is, compensation is to be paid to the railways if a rate reduction is imposed or if they are compelled to continue an unprofitable service. The subsidy is not to be paid if the railways make a profit. In U. K., no direct subsidy is paid to the railways for running certain uneconomic services which it may be necessary to continue on social grounds. However, the cost of keeping open such lines as have been the subject of a direction by the Minister would be covered by taking it into account (a) in the total subsidy paid to the railways, and (b) in setting financial 'targets' under the procedure outlined in the White Paper on Financial Performance of Nationalised Industries.

to some extent, on considerations of public interest, and they are expected to have a system of uniform tariffs and to publish their rates. These obligations act as constraints on the railways which cannot, on this account, function precisely in the same way as other commercial undertakings, although the future trends have to be increasingly in this direction. Regulation of road transport has to be seen as an attempt, firstly, to enable the road transport industry to expand to the extent and in directions indicated by the scheme of allocation of traffic; secondly, to strengthen the internal structure and organisation of the industry, so that it can obtain the technical and economic resources needed for its development, and thirdly, to safeguard the interests both of the small operator and of the consumer. Thus, regulation of road transport has to be thought of as a positive means for fulfilling the role assigned to industry in the total transport plan and not, as was stressed in the past, for the purpose of affording a measure of protection to a long established and mature transport service such as the railways.

30. Regulation of road transport has to be exercised largely through control over licensing. In the chapter on Road Transport (Chapter VI) we explain the need for licensing vehicles and suggest a number of changes in the existing system. In particular, we make a broad distinction between inter-State and intra-State road transport and propose that the former should be the special responsibility of the Central Government and the latter of State Governments. In view of the fast growing and changing needs of the economy, we do not favour the traditional forms of distance limits and have made a number of recommendations for liberalisation. We recognise that there are a few sizeable regions which can be identified as being markedly backward and in which transport facilities have considerably lagged behind. In these particular regions, we see the need for integrated transport plans with special emphasis on the development of the road network and to an extent licensing of vehicles on a regional basis accompanied by concessional tax rates and other incentives to operators to provide transport services in these regions.

#### INTEGRATION

31. We have now considered in relation to the scheme of allocation of traffic and of investment embodied in the transport development plan the contribution which could be made by fiscal measures and pricing policies and by regulation of the road transport industry towards coordinated development and operation of rail and road services as a composite system. In principle, this process could be carried still further if the two modes of transport were under common ownership, for, in that event there could be complete integration in services and no question of relative gain or loss would arise, provided the services were priced with due regard to the costs involved. On the other hand, an integrated concern would need to discover devices other than competition between different operators to provide incentives to continuous efficiency and technical change. In any event, the road

transport industry lends itself to small scale and dispersed operation and consists at present of more than 150,000 operators owning some 270,000 vehicles, about 89 per cent of the operators holding no more than one vehicle. More than two-thirds of passenger transport and almost all goods transport by road is in private hands. Proposals under consideration for the period of the Fourth Plan do not visualise much more than expansion of public operation of passenger transport to about two-fifths of the total number of vehicles, some steps towards Government participation in goods transport and promotional activity in favour of cooperative transport services wherever conditions are favourable. This would leave the road transport industry substantially as a private industry, organised mainly through small units, with no more than a leavening of commercial organisations and public enterprises. In the circumstances, the approach of integration can be extended with advantage in three principal directions. Firstly, wherever possible, joint rail-road transport for passengers and goods should be facilitated through arrangements arrived at mutually between the Indian Railways and State Road Transport Corporations as well as Corporations which the Central Government might set up for operating on special inter-State routes. Secondly, efforts should be made to develop the operations of the Central and State Corporations, with the participation of the Indian Railways, on a scale sufficient to give them a significant share of the traffic and, therefore, influence on the working and organisation of the road transport industry, maintenance of scheduled tariffs and services and complementary operations of rail and road transport. Thirdly, wherever at present public transport enterprises are organised as departmental undertakings they should become corporations or companies, so that they can operate on wholly commercial lines and enter into joint operations and services to the greatest extent possible with other units in the industry. More and more, road transport should take on the character of a well-organised industry, working on the basis of responsibility to the community as a whole, functioning wherever necessary in a complementary relationship to the railways, and taking generally a leading role in opening up the countryside and stimulating the growth of the less developed regions.

#### CONCLUSION

32. To sum up the foregoing discussion, coordination between different modes of transport has to be seen as an important aspect of the expansion of the economy and the growth of the transport system as a whole. Together, the various transport services have to meet a total demand, each service being complementary to the others. Investment policies should be directed to achieve the right combinations of different transport services in the country. In the measure in which prices of various services come to correspond to their social costs and benefits, it becomes possible to approach an optimum allocation of traffic between different modes. Therefore, the key to the problem of allocation of traffic is the determination of transport costs as

accurately as possible and application of fiscal measures such as would ensure a close correspondence of rates and fares to costs. In the last analysis the scheme of allocation of traffic and the investment plan for transport are derived from the same basic economic and technical data and form essential ingredients in the plan of development. Certain supporting measures are required for putting this plan into effect. These have been discussed under three heads—fiscal and pricing policies, regulation and integration of organisation and operations, and a number of specific suggestions have been offered. However, even with the aid of these devices, what is hoped for is not complete coordination but a set of conditions favourable to coordination and development progressively in the direction of a composite transport network under which various transport services become available to the extent needed and at minimum capital and operational costs to the community.

## CHAPTER IV

## RAILWAYS

BESIDES being the country's largest public undertaking and a vital national asset, the railways are rightly regarded as the lifeline of the transport system. They provide a network of services which serve to unify the country and operate not only on commercial considerations but also in terms of wider political, economic and social interests. In considering transport policy and coordination for the future, it is necessary to examine those aspects of railway operations and railway policy which have a bearing on their relative position vis-a-vis other modes of transport. In particular, we have to review the various public service obligations which the railways undertake at present and their influence on the competitive position of the railways and on current trends in railway finance. The quality of the service provided by the railways, as by other means of transport, and their operational efficiency are of great importance for the growth of the economy. Consequently, technical and administrative measures required for raising the level of performance in the railways are also matters of general concern.

2. Development under the Five Year Plans has placed a heavy burden on the transport system and more specially on the railways. As the principal and the best organised mode of transport, the railways have borne the major share of this burden. In 1964-65, the railways carried nearly two and a half times the freight traffic they carried in 1950-51. The total investment on the railways has increased from Rs. 895 crores in 1951-52 to Rs. 2,961 crores in 1964-65<sup>1</sup>.

3. Emphasis on the development of basic and heavy industries has thrown on the railways the main responsibility for carrying raw materials and finished products for these industries. Plans for expansion of rail capacities have been drawn up in terms of increased quantities of such traffic to be carried over the plan period. Within their available capacities, the railways have to accord higher priority to the movement of raw materials connected with development projects and essential commodities like foodgrains, which are comparatively low rated in preference to commodities bearing high freight rates. A large part of investment on the railways under the Five Year Plans is accounted for by works designed to increase capacity on the existing railway system so as to meet the pressure of traffic arising from the economic development of the country, and only a small part of the investment has been devoted to the extension of the railway system to new areas. Most of the new lines constructed since the beginning

<sup>1</sup>Of this, investment since Independence accounts for about Rs. 2200 crores.

of the First Plan were linked with the development of basic industries like coal and steel. A few lines, however, have been constructed to open up new areas. Some of these lines might not have been taken up on commercial considerations alone and were provided for in the interest of the economic and social development of the regions in question.

## PUBLIC SERVICE OBLIGATIONS OF THE RAILWAYS

4. Besides their role in fulfilling plan objectives, the railways have a number of obligations of a public service character. These have devolved on them partly because they are a Central Government undertaking with sole responsibility for providing rail communications, and partly because of the emphasis which has been placed over several decades on the public utility character of the railways. The more important of these obligations are described as follows:

5. *Common carrier obligations.*—According to Section 27 of the Indian Railways Act, 1890, the railways have the obligation to provide reasonable facilities for receiving and forwarding the traffic offered to them without any undue preference as defined in Section 28<sup>1</sup> of the Act. Thus, the railways cannot normally refuse to carry any goods offered to them or discriminate between what to carry and what not to carry. Such obligations are not shared by other modes of transport.

6. Until January 1962, the responsibility of the Indian Railways as carriers was limited to that of a 'bailee' only. The liability was imposed on the railways under Section 72 of the Indian Railways Act. The Act was amended in 1961 and from 1st January, 1962, the railways have assumed greater responsibility for the loss, destruction, damage, deterioration etc. of animals or goods delivered to them for carriage.

7. *Directions by the Central Government.*—Under Section 27(a) of the Indian Railways Act, the Central Government may direct any railway administration, in the public interest, to give preference to the transport of such goods or class of goods as may be specified. Such directions are generally given in respect of low rated commodities like coal, mineral ores for export, raw materials for iron and steel industry, manure, foodgrains etc. When such a direction is given, the railways have to provide transport facilities for designated items of traffic, notwithstanding high rated traffic waiting to be moved.

8. We have considered whether there are circumstances which would warrant the railways being relieved from the obligation to carry, without

<sup>1</sup>Section 28 is as follows:

".....a railway administration shall not make or give any undue or unreasonable preference or advantage to, or in favour of, any particular person or railway administration, or any particular description of traffic, in any respect whatsoever, or subject any particular person or railway administration or any particular description of traffic to any undue or unreasonable prejudice or disadvantage in any respect whatsoever."

preference or discrimination in rates, any traffic that may be offered. Development of road transport has not advanced to a stage that it can take care of all the traffic offering which the railways may not be able to carry. The requirements of traffic for development projects have a high priority in the execution of our plans. There are other high priorities to be observed from the point of view of the maintenance of the national economy. The scheme of coordination between rail and road transport and the manner in which traffic should be allocated takes into consideration the concept of public responsibility underlying railway operations and gives due weight to the financial viability of the railways. On the whole, therefore, we are of the view that there is national advantage in continuing the obligations of the railways as a public carrier and in enabling the Central Government to give such directions from time to time as may be necessary in the public interest.

9. *Construction of unremunerative lines.*—The construction of new railway lines, which may not be expected to yield a commercial return in the initial years is an obligation which, as a national undertaking, the railways may be required to undertake. The implications of this obligation are discussed later in the chapter.

10. *Operation of uneconomic branch lines.*—There are at present a number of branch lines on the railway system in India which, in varying degree, are utilised below their capacity. Most of these lines are situated on the metre and narrow gauge systems. We have not examined these individual cases. Obviously, from time to time, having regard to developments in the transport system, it is essential to review the extent to which each branch line is subserving the needs of an area and the combination of transport services which should be made available for its economic development. Suitable tests or criteria need to be evolved for considering a line uneconomic depending on the purposes it serves and the cost of providing alternative means of transport.

11. While each instance of an uneconomic branch line requires separate study on merits, certain general considerations may be stated briefly. A branch line should be viewed both as an entity in itself and as part of a wider railway network and it should be ascertained whether on either ground, its retention is necessary. Secondly, the total transport requirements and facilities in an area served by the branch line should be examined with a view to determining the nature and extent of the transport services that may be needed in the future. Thirdly, in examining the case for continuing what may be an unremunerative branch line, attention should be given both to past trends and to traffic expected over the next few years. If alternative facilities have been or are capable of being developed to a point that the requirements for transport could be met substantially by means other than the railways, and at no higher cost to the economy there should be no hesitation in giving up an existing branch line which is proving

unremunerative and will not serve any object which cannot be met otherwise and at lesser cost. In a developing economy, there cannot be undue rigidity in regard to means of transport, so long as the overall requirements can be satisfactorily met. In recent years, this conclusion has been reached in one country after another and in India also, the necessity for adjustments of this nature has to be accepted. We suggest that where road transport has to be expanded considerably to facilitate the discontinuance of unremunerative lines, the Railways may consider, in consultation with the State Government, whether and in what form they could participate or assist in the growth of road transport services. In the light of these considerations, in the wider economic interest of the country, as much as of the railways as an enterprise, the financial working of branch lines and the transport needs and plans of areas served by them should be reviewed periodically.

12. *Light Railways.*—A statement at the end of this chapter lists a number of narrow gauge light railways which are owned and managed in the main by private companies subsidised by Government. Either on account of the growth of competition from road transport or increases in operating costs, these lines have become progressively less remunerative over the last several years. Our suggestions above on unremunerative branch lines would also apply generally to the light railways. As in the past, in future also, the general approach adopted has to be to consider each case on merits and to take over such lines as would justify conversion to broad gauge or metre gauge on the basis of the traffic handled by them and the prospects of traffic growth. In other cases, the lines might be dismantled and the services provided by them might be allowed to be replaced by road transport. In regions where road transport has come up and can be further developed to meet the needs of traffic, it might be possible to abandon the light railways. In all cases, it is necessary to take a view of the total transport needs of each region and to lay out plans for period of years.

13. *Operation of suburban passenger services.*—Railway suburban passenger services which carry large numbers daily on concessional season tickets are generally unremunerative. From the statistics compiled by the railways, a clear indication of the loss incurred in carrying suburban traffic is not available. However, the Railway Board have stated that certain studies undertaken by them at Bombay on the Central and Western Railways showed that the EMU (Electrical Multiple Unit) services involved a loss of Rs. 30 lakhs per year, without taking into account the interest charges. Assuming the same proportion of the interest charges as for the railways as a whole, the loss was estimated at about Rs. 1 crore. Again, during the year 1962-63, the EMU services on the Southern and the Eastern Railways showed a net loss of Rs. 11.65 lakhs. In foreign countries also suburban passenger or commuter services have been found to be unremunerative. This is mainly due to concentration of traffic during peak

hours and cheap fares. The problem of suburban rail transport has to be dealt with in any long term solution as part of the problem of metropolitan transport, involving a coordinated approach to rail and road transport, development of roads and urban and regional development around major cities such as Calcutta, Bombay, Madras and Delhi. We consider it further in a later section.

14. *Freight concessions.*—In recent years the railways have granted freight concessions on a number of export commodities and the coverage of such concessions has gradually increased. The loss in earnings on account of freight concessions to exports has been estimated by the railways at Rs. 2 crores. We suggest that the value of freight concessions on export goods should be carefully assessed from time to time, so that the costs and the benefits may be appraised and special efforts may be made to raise the level of efficiency in the industries concerned.

15. *New railway lines.*—Construction of new lines calls for large investments. Costs of construction have been rising, the average cost at present being of the order of Rs. 6 to 10 lakhs per kilometre. With the formulation of each Five Year Plan, the question arises as to what criteria should be adopted for determining the programme for the construction of new railway lines, keeping in view considerations such as effects in the long term on financial situation of the railways, their competitive position and the efficient use of the available resources.

16. In the past when the railways represented the principal mode of transport, new lines were laid generally (a) for promoting the overall economic and social interests of the country and (b) for strategic purposes. It has been the practice of the Railway Board to undertake detailed traffic surveys and assess the financial results of the operation of new lines, taking a view of the traffic likely to be available over a sufficiently long period and, generally speaking, to take up lines only when they were considered remunerative. However, there are several instances of decisions on new railway lines being taken on considerations other than commercial, such as, administrative need or general regional development. In explaining the broad considerations which they keep in view in examining proposals for new lines, the Railway Board have classified proposals for new lines into five broad groups :

- (a) lines required for operational reasons. These lines are taken up on a priority basis;
- (b) lines required for heavy industrial, mineral and other projects included in the Five Year Plans. These lines are specifically provided for under the Plans and a long term view is taken in reckoning their financial return;
- (c) lines required for the development of backward areas and to serve general economic, social and political needs. Studies are

undertaken of the likely benefits from these lines to the areas concerned along with the likely financial return to the railways;

- (d) lines sponsored by State Governments or other agencies for construction projects or to meet restricted or local needs. Each case is examined on merits and a line is constructed, provided a working basis is found for covering the losses, if any, in the working of the line; and
- (e) lines required for meeting defence and strategic needs. These are taken up even if they are not remunerative, working losses on them being borne by General Revenues.

17. During the decade 1951-61, the total length of new lines added to the railway system amounted to about 2,000 kilometres. In addition, about 700 kilometres of lines dismantled during the war were restored. The Third Plan provided for the construction of about 2,600 kilometres of new lines, of which about 1,200 kilometres are expected to be completed during the Plan period. Out of 3,600 kilometres of new construction, including 1,000 kilometres in progress at the beginning of the Third Plan, about 2,100 kilometres are expected to be commissioned by the end of 1965-66. Under the Plans, in view of the heavy cost involved, proposals for construction of new lines are limited in the main to lines required for meeting the urgent operational requirements of the railways or of basic and heavy industries like steel, coal etc. or development of ports. To a limited extent, provision is also made for new lines undertaken for reasons of general economic development in the less developed regions.

18. In the past, almost everywhere, the railways were the basic form of transport, and construction of new railway lines was virtually synonymous with the provision of new transport facilities in an area. This is still a widely prevalent view and leads to demand for construction of new railway lines. The merits of each such proposal have to be studied carefully and schemes to be undertaken within the resources allocated by the Plan. Road development and road transport can now make a contribution to development and diversification of economic activity such as was not possible in the earlier phases. Frequently, they can help create conditions in which heavy investment on a new railway line is justified on economic criteria and offers scope for a combination of transport services best calculated to promote regional and economic advance. In studying the economic potential of a region, the design of the transport sector should take into account the relative role and sequence of different services, but investment could be so arranged that at each stage the ground is prepared for the next and benefits flow continuously. In this manner the process of development can become cumulative while retaining sufficient flexibility as to the forms of investment in transport, as in other fields, and taking full advantage of technical innovations. In the strategy of economic and industrial development, the more completely road communications and rail and road trans-

port services are thought of together, as complementary services forming part of a single integrated plan, the more rapid is the progress likely to be achieved. This is the approach behind the regional transport surveys and other technical and economic studies now under way in relation to the preparation of the Fourth Five Year Plan. As we have stated earlier, the railways are inherently better suited for long distance and bulk traffic and the extension of the railway system in future has to be directed mainly towards meeting the needs of basic and heavy industries and of traffic in minerals like coal and iron ore. The programme for construction of new railway lines has to be conceived mainly in this context and the new lines which are built in future should ordinarily be expected to yield, over a period of time, a reasonable return on the investment.

#### FINANCIAL TRENDS

19. The railways are expected to meet their operating expenses as well as overhead charges from their total earnings. In addition, they must earn a surplus. The financial commitments of the railways are determined from time to time by Parliamentary Conventions. The existing commitments are as follows :—

##### (a) Annual Dividend.

- (i) The railways have to pay to the General Revenues an annual dividend at a rate fixed as a percentage of the capital-at-charge, which includes a small element of contribution over and above interest charges. The rate of dividend, which was increased in 1961-62 from 4 to 4.25 per cent on the recommendation of the Railway Convention Committee, 1960, was further increased to 4.5 per cent from 1963-64. From 1964-65, the railways are required to pay dividend at 4.5 per cent on capital provided up to the end of 1963-64 and at a rate of 5.75 per cent on capital provided after March 1964.
- (ii) In addition, a payment was made to the General Revenues for distribution to State Governments in lieu of the tax on passenger fares at the rate of Rs. 12.5 crores per year.
- (iii) In terms of the recommendations of the Railway Convention Committee, 1965, the existing rate of dividend is to be revised from April 1966 to 5.5 per cent on the element of dividend paying capital invested up to March 1964, and 6 per cent in capital invested thereafter. Of the additional 1 per cent dividend on capital invested up to March 1964, Rs. 16.25 crores per annum is to be in lieu of the tax on passenger fares (against Rs. 12.50 crores per annum paid on this account during the Third Plan period) and the balance is to be utilised to assist the States in providing their portion of the resources required for financing safety works, such as manned level crossings, over-bridges and under-bridges.

##### (b) Depreciation Reserve Fund.

The Railways have to contribute to the Depreciation Reserve Fund at rates determined from time to time on the basis of the recommendations of Railway Convention Committees. The contribution to the Depreciation Reserve Fund increased from Rs. 45 crores per annum during the period of the Second Plan to an average of Rs. 76 crores per annum during the Third Plan period, rising from Rs. 65 crores in 1961-62 to Rs. 85 crores in 1965-66.

For the quinquennium 1966-71, the contribution to the Depreciation Reserve Fund is to be increased to an average of Rs. 130 crores per year or as close thereto as possible taking account of the financial position in terms of the recommendations of the Railway Convention Committee, 1965.

##### (c) Development Fund.

The net annual surpluses of the Railways after payment of dividend and contribution to the Depreciation Reserve Fund are credited to the Development Fund.

20. In the Railway Budget 1964-65, it was provided that a Pension Fund should be set up on the same lines as the Depreciation Reserve Fund to cover liabilities on account of ordinary, invalid and family pensions. Accordingly, a fund for this purpose has also been constituted. Contribution to this Fund are estimated at Rs. 12 crores in 1964-65 and Rs. 12.5 crores in 1965-66.

21. *Recent trends in railway finances.*—The main facts relating to investment in railways and their gross and net earnings are summarised in the Table below :

Table 1: Railways—investment, earnings and expenses

| year    | total investment at the end of the year <sup>3</sup> | gross earnings <sup>1</sup> | total working expenses <sup>1</sup> | net earnings | (Rs. crores)                               |                              |      |
|---------|------------------------------------------------------|-----------------------------|-------------------------------------|--------------|--------------------------------------------|------------------------------|------|
|         |                                                      |                             |                                     |              | earnings as percentage of total investment | operating ratio <sup>2</sup> |      |
|         |                                                      |                             |                                     |              | gross                                      | net                          |      |
| 1951-52 | 895.3                                                | 290.8                       | 224.3                               | 61.8         | 32.5                                       | 6.8                          | 77.0 |
| 1953-56 | 1102.1                                               | 316.3                       | 258.2                               | 50.3         | 28.7                                       | 4.6                          | 81.6 |
| 1956-57 | 1289.1                                               | 347.6                       | 279.3                               | 58.4         | 28.1                                       | 4.7                          | 80.3 |
| 1957-58 | 1434.2                                               | 379.8                       | 309.4                               | 57.8         | 26.5                                       | 4.0                          | 81.5 |
| 1958-59 | 1611.7                                               | 390.2                       | 321.4                               | 59.3         | 24.2                                       | 3.7                          | 82.4 |
| 1959-60 | 1732.7                                               | 422.3                       | 334.6                               | 74.6         | 24.4                                       | 4.3                          | 79.2 |
| 1960-61 | 1868.6                                               | 456.8                       | 358.2                               | 87.9         | 24.4                                       | 4.7                          | 78.4 |
| 1961-62 | 2055.5                                               | 500.5                       | 390.5                               | 99.7         | 24.3                                       | 4.8                          | 78.0 |
| 1962-63 | 2318.6                                               | 566.8                       | 429.5                               | 123.3        | 24.4                                       | 5.3                          | 75.8 |
| 1963-64 | 2634.2                                               | 632.2                       | 472.3                               | 145.2        | 24.0                                       | 5.5                          | 74.9 |
| 1964-65 | 2960.6                                               | 660.9                       | 528.1                               | 118.1        | 22.3                                       | 4.0                          | 79.7 |

<sup>1</sup> Receipts and expenditure under miscellaneous transactions are not included in these figures.

<sup>2</sup> Represents the percentage of working expenses to gross earnings.

<sup>3</sup> Includes in addition to the capital-at-charge of the railways (i.e., capital loan obtained from the Government), investments made from the Depreciation Reserve Fund (on improvement of assets replaced) Development Fund and Revenue account.

Data in the table above reflect several developments which have taken place in recent years, both on the revenue as well as the expenditure side. Thus, the contribution to the Depreciation Reserve Fund was increased to Rs. 80 crores per annum in 1963-64. Since January 1962, the railways assumed full liability of a 'common carrier' instead of a 'bailee' only as previously, which has accounted for additional expenditure of about Rs. 2 crores a year. There have been increases in allowances payable to railway staff. The rate of dividend on the capital-at-charge payable by the railways to the General Revenues was adjusted upwards in 1963-64 and again in 1964-65.

22. On the revenue side, some increases have been made from time to time in freight rates and fares. Thus, the surcharge on freight rates was increased from 5 per cent to 10 per cent from 1963-64 and to 12 per cent from 1964-65. Some adjustments were also made in 1964-65 in coal freight rates on distances beyond 500 kilometres. Certain increases in passenger fares were introduced in July 1962, so as to yield an addition of about 10 per cent in passenger earnings. In the railway budget for 1965-66, freight rates on a few selected commodities have been enhanced, rates of increase varying from 4 to 7 per cent, and some increases have also been introduced in passenger fares. Downward adjustments have simultaneously been made in the rates for several high rated commodities, mainly manufactured products including cotton piece goods, other than dangerous goods.

23. In our Preliminary Report we had referred to the contribution of the railways to the Development Fund and the Depreciation Reserve Fund and the rates at which these Funds were being drawn upon.<sup>1</sup> The closing balances in these Funds had been steadily declining during the Second Plan period because withdrawals from them have exceeded the yearly contributions made to them. To meet expenditure from the Development Fund, the railways resorted to loans from General Revenues to the extent of Rs. 10.98 crores in 1958-59, Rs. 14.85 crores in 1959-60 and Rs. 3.58 crores in 1960-61. In 1962-63, fares and freights were raised by the railways in order to provide sufficient surpluses to meet expenditures chargeable to the Fund. Freight rates were further enhanced in 1963-64. With these measures, the trend in the balances in the Development Fund commented upon earlier has now been reversed.

24. During the period 1958-61, withdrawals from the Depreciation Reserve Fund were also of a much higher order than appropriations towards the Fund. This was possible because previous balances in the Fund were available. But with increase in the rate at which the Railways contributed to the Fund in 1961-62 and again in 1963-64, the reserve is being gradually improved, although, in periods of heavy renewals, even these enhanced rates

<sup>1</sup>Committee on Transport Policy and Coordination, Preliminary Report 2, Chapter IX, pages. 65-67 (para 8).

do not leave an appreciable margin after meeting expenditures chargeable to the Fund. The closing balance in the Fund at the end of 1965-66 is estimated at Rs. 71.90 crores.

25. The broad conclusion which emerges from this analysis is that, although the railways have been showing surpluses from year to year, in some recent years they have had difficulty in meeting commitments towards the Development Fund and the Depreciation Reserve Fund out of their current earnings, and were obliged to draw either on the balances in the Funds accumulated in the past or on loans from General Revenues. The railways obviously will have to be prepared to meet heavier financial commitments in future years. The growing proportion of low rated traffic has also to be taken into consideration with all its implications for the future earnings of the railways. High rated traffic at present accounts for about one-half of the total freight earnings of the railways, contributing in 1964-65 Rs. 208 crores out of a total freight earnings of Rs. 399 crores.

26. In the planning of transport in future, the need for ensuring the financial solvency of the railways has to be kept in view. The railways should of course be expected to earn a reasonable return on capital. It has to be appreciated that a large proportion of development expenditure of the railways is for strengthening railway capacity on existing lines. Thus, over the period of the Second and the Third Plans, of the total investment on railway development programmes, about 40 per cent related to strengthening the capacities over the existing routes, 50 per cent to additions to rolling stock and only about 10 per cent to new railway lines. All additional investments on railways are determined under the Five Year Plans and are made as a result of deliberate Government decisions. These are guided largely by the consideration that additional railway facilities should be created only for those kinds of traffic for which the railways are inherently the most suitable form of transport. As mentioned in the preceding chapter, the proportion of fixed or overhead costs is very high on the railways and traffic density or the size of the traffic flows has a marked effect on railway costs. It is, therefore, in overall economic interest as also in the interest of railway finances that once the capacities for additional traffic have been built on the railways, they should be as fully utilised as possible, due advantage being taken of the economies inherent in large scale operations on the railways.

27. As regards the future of the railways' public service obligations, as we have pointed out earlier, in the conditions obtaining in India, it is inevitable that in the foreseeable future the railways should be called upon to continue with their obligations imposed on them because of larger public service considerations. It will, however, be necessary to ensure that, to the extent possible, the financial implications of these obligations are identified and are given due consideration in adopting policies for the future. As regards the obligation of a common carrier, we feel that the railways would

have to continue to discharge these obligations having regard to the present stage of development of different modes of transport in the country and in view of the requirements of a planned economy. It is necessary to reconsider the approach to be followed in the construction of new railway lines in future. We are of the view that, generally, the railways should provide for only those lines which are expected to yield, over a period of time, normal return on the investment involved in their construction. The lines which are expected to be unremunerative even after a few years of their opening should be taken up only in exceptional circumstances and in all such cases provision should be made to compensate the railways for the losses involved.

28. As regards uneconomic lines, their financial position should be reviewed periodically. The justification for the continuance of these lines should be considered taking into account the overall transport requirements of the areas in question and the extent to which these can be met more economically by alternative means of transport.

29. The concessions given by the railways in fares and freight rates have to be considered on merits. To the extent that these concessions are granted in the larger public interest and involve losses to the railways, account should be taken of them in determining the railways' commitments to the general finances. When obligations for uneconomic services arise from the executive decisions taken by the Government, the economic justification for each such decision should be critically scrutinised.

#### RAILWAY RATING POLICY

30. Historically, railway rates in India have been determined on the basis of two considerations, namely, value of service and the cost of service, the latter indicating the floor to the extent practicable. The application of these principles results in a differential structure of rates. To some extent, this approach to railway freight making is warranted by commercial considerations. Thus, railways have to adjust their rates suitably in the interest of business so as to distribute the burden of their overhead or joint costs over various commodities. In regard to bulk commodities like mineral ores or coal, which carry comparatively small values in relation to their weight, as a commercial undertaking, the railways have so far found it sufficient to meet their out-of-pocket expenses with overheads or joint costs being partially left unrecovered specially in respect of long distance traffic. The greater part of the overhead or joint costs of the railways fall on other commodities which are high priced and can bear high charges. Apart from commercial considerations, this system of differential rating has in the past been also justified by considerations of public policy. The rates were generally fixed so as to assist certain lines of trade such as coal, important raw materials and foodgrains. Because these were commodities of basic importance for the economy, low rates were also held to be in general economic interest.

31. In recent years, railway rating policies have undergone marked changes in many countries in which, in the past, railways had a virtual monopoly of inland traffic. These changes have been mainly in two directions. First, in order to meet the growing competition from road transport, railway administrations have tended to adopt cost-based rates for different kinds of traffic. This was a necessary condition for maintaining profitability under the new conditions. More accurate knowledge of costs has made it possible, secondly, to introduce greater flexibility in the rate structure and, thus, to improve the capacity of the railways to compete with road transport. In France, for example, where the railways have been progressively replacing *ad valorem* by cost-based rates, in addition to 'normal' or 'fixed' tariffs, legislation permits the administration, subject to certain conditions, to levy 'exceptional' tariffs which may be 15 per cent above or below the 'normal' tariffs and to make reductions in rates in favour of particular customers.

32. In India also, thinking on the subject of railway rates has moved steadily in favour of bringing rates closer to costs. As explained in Chapter II, the pattern of freight traffic on the railways has been changing considerably and the proportion of low rated commodities has been increasing. The problem has not assumed by any means the acute proportions reached in several advanced countries, but continuance of these trends without modification in railway rate structure and other policies will doubtless affect railway finances seriously in the coming years. Secondly, as has been urged in Chapter III, satisfactory schemes of allocation of traffic and investment in the transport sector for the economy as a whole as well as for different regions cannot be evolved without careful technical and economic studies, including systematic and continuing data on transport costs. The Railway Board have already adopted a forward-looking approach on the subject. Since the Railway Freight Structure Enquiry Committee (1957) stressed the importance of rail cost studies, several steps have been taken to improve cost data. Earlier, the only information furnished in annual railway reports related to overall average costs in terms of train kilometres, wagon kilometres and tonne kilometres. More recently, studies have been undertaken to ascertain the break-up of overall average costs into costs identifiable with such functional tasks as terminal services, marshalling, line haul, repacking, transshipment etc. The Railway Board have also issued detailed directions modifying the existing system of classification and allocation of expenditure so that the accounts should facilitate analysis of costs for passenger and goods services and for different gauges. In the course of the next year or two, improved costing data will become available. These will enable the Railway Board to determine more accurately the fixed and variable costs of freight operation under different heads and to estimate rail transportation costs for particular commodities according to pay load, length of haul, type of wagon employed, loadability factor, empty return ratio, type of traction used and other factors.

33. The process of adjusting the existing rates so that they approximate as far as feasible, both for operations and for different groups of operations, to cost basis will necessarily be spread over several years. Already, during the past two or three years, some significant adjustments have taken place. Taking advantage of such information on costs as has become available, to some extent the disparity between rates on commodities of higher and lower values has been reduced. The railway budget for 1965-66 provided for certain reductions in freights on a number of high rated commodities, which are mainly manufactured goods, and also for selective increases in freights on some low rated commodities which move in large quantities such as iron and steel, cement, stone, limestone, ores etc. The Table below<sup>1</sup> indicates changes in the spread between the highest and the lowest freight rates since 1st April 1964. Further adjustments to bring about greater correspondence between rates and costs may be expected in the future, as better cost information becomes available. It is expected that this will help in achieving the optimum use of rail capacities under changing cost and other conditions. There should be scope also for introducing greater flexibility in the railway rating structure so as to conform more closely to the scheme of allocation of traffic under conditions in which the available instruments of policy do not prove adequate. However, as explained in the preceding chapter, despite the changes and adjustments indicated or those which might be proposed in the future, there are limits to the railways' ability to adjust rates on the basis of costs fully and in all cases. These limits stem from the wide variations in costs on the railways, resulting from different conditions of operation on the different parts of the railway system and the railways' obligation, as a national undertaking, to have uniform rates all over the railway system and the various public service obligations which the railways have to fulfil.

<sup>1</sup>Ratios between the freight rates for the lowest and the highest classification for various distances

| distance<br>ranges<br>(kilometres) | before 1-4-1964    |                                      |                              | from 1-4-1964 to 31-3-65 |                                      |                              | from 1-4-1965    |                                      |                              |
|------------------------------------|--------------------|--------------------------------------|------------------------------|--------------------------|--------------------------------------|------------------------------|------------------|--------------------------------------|------------------------------|
|                                    | 32.5-A<br>(lowest) | 170-B<br>highest<br>(wagon<br>loads) | 180-B<br>highest<br>(smalls) | 32-5A<br>(lowest)        | 120-B<br>highest<br>(wagon<br>loads) | 130-B<br>highest<br>(smalls) | 35-A<br>(lowest) | 100-B<br>highest<br>(wagon<br>loads) | 110-B<br>highest<br>(smalls) |
| 100                                | 1                  | 3.7                                  | 3.9                          | 1                        | 2.61                                 | 2.82                         | 1                | 2.08                                 | 2.26                         |
| 500                                | 1                  | 4.9                                  | 5.2                          | 1                        | 3.46                                 | 3.74                         | 1                | 2.69                                 | 2.96                         |
| 1000                               | 1                  | 5.3                                  | 5.7                          | 1                        | 3.78                                 | 4.09                         | 1                | 2.93                                 | 3.22                         |
| 1500                               | 1                  | 5.5                                  | 5.8                          | 1                        | 3.89                                 | 4.22                         | 1                | 3.03                                 | 3.32                         |
| 2000                               | 1                  | 5.7                                  | 6.0                          | 1                        | 3.99                                 | 4.32                         | 1                | 3.10                                 | 3.40                         |
| 2500                               | 1                  | 5.7                                  | 6.0                          | 1                        | 4.00                                 | 4.33                         | 1                | 3.10                                 | 3.41                         |
| 3000                               | 1                  | 5.7                                  | 6.0                          | 1                        | 3.99                                 | 4.32                         | 1                | 3.09                                 | 3.40                         |

# OPERATIONAL EFFICIENCY

34. In every sector, large undertakings necessarily give a great deal of thought to evolving and applying systematic indices of efficiency for measuring performance, improving the quality of service, reducing costs and seeking better financial results from given investments. As an enterprise of vast proportions, such indicators have naturally special importance for railway administrations at the national, zonal and other levels. Maintenance and improvement of operational efficiency on the railways is a condition equally important for their success by way of economic and financial results as for their ability to fulfil the technical tasks expected of them under the scheme of allocation of traffic and the development plan for transport. A critical study of the existing methods of measuring and improving upon efficiency on the railways has not been undertaken by us. We, therefore, content ourselves with a few broad observations on aspects which appear to us to be deserving of further attention.

35. Certain indices of operational efficiency have been in use for many years, for instance, for measuring the utilisation of rolling stock such as engine usage, wagon usage, passenger train performance etc. Some of the principal indices like engine kilometre per engine day, net tonne kilometre per wagon day and million tonne kilometres moved annually per thousand kilometres of track showed appreciable improvement over the years. Between 1950-51 and 1963-64, with an increase of only 29.4 per cent in the average tractive power of engines, the net tonne kilometres per goods engine per day rose by 93.7 per cent. The number of locomotives and wagons utilised for moving 1 million tonne kilometres on the broad gauge have shown a decrease of 20 per cent and 30 per cent respectively between 1950-51 and 1963-64. Other indices like the turn round period or average speed of goods trains are in practice more difficult to interpret because speed on sections under diverse conditions tend to be aggregated and expressed together and comparisons do not always take place in respect of homogenous or similar situations and relevant factors may not readily come into the picture. Indices of efficiency may be influenced, for instance, by changes in the pattern of traffic, in the type of traction, in the capacity of wagons, in the techniques of loading and unloading, in the volume of traffic offering during a given period, etc. Similarly, when large-scale capacity works are undertaken, for a period, traffic may be obstructed and operational efficiency may suffer. Such factors have to be isolated, so that the customary statistics of efficiency in use in railway systems may be objectively interpreted, not only in themselves or for the railway system as a whole, but in relation to past trends and for specific zones and areas and under comparable conditions. From this aspect, there is scope for reviewing the present scheme of presentation of efficiency data as described in the Railway Board's annual 'Review of the Performance of the Indian Government Railways'.

36. The Railway Board have given considerable attention in recent years to technical and operational improvements which, though not always easy to

measure in terms of traditional indices, have considerable economic significance and help the railways to obtain the share of traffic due to them and reduce their carrying costs. An example of this is the effort to move bulk commodities like coal in train-loads by fast-moving trains between main points avoiding both terminal and marshalling delays. In innovations of this nature, it is important that the fullest cooperation of trade and industry should be secured. Again, in many countries considerable advance has been made in the use of devices like containers and piggy-backs which facilitate movement across different gauges as well as combined rail-road services, railways providing for through movements between railheads and road transport organisations ensuring door to door delivery. The beginnings made in this direction could be followed up and other forms of joint rail-road services could also be encouraged. In the past the railways were able to rely almost wholly on traffic coming to them without special efforts on their part. However, so many new varieties of goods in so many new centres are now being produced and are likely to be produced in the future that railway administrations at the zonal and local levels will need to study the needs of potential customers much more closely and discover, through market research and other ways, of meeting their needs more readily and in a much more flexible manner than was necessary in the earlier phases.

37. Modern large-scale enterprise in the more advanced countries is making increasing use of economic, accounting and statistical concepts for measuring efficiency, improving reporting systems, reducing capital and operational costs, securing more scientific programming and scheduling of projects and creating a great sense of personnel incentive and achievement. Indian industry is itself only beginning to make use of some of these devices. We believe that the Indian Railways are well placed to extend some of these techniques to their own operations. This would enable them to relate concepts of technical efficiency more closely to costs of construction and operation and to bring their accounting and statistical systems more into line with one another. We offer these general suggestions in the hope that they may be developed further through the efforts jointly of the Railway Board and the Joint Technical Group for Transport Planning and may assist not only the Railways but other transport services as well, such as shipping, ports and road transport organisations.

Statement showing particulars of Light Railways

| name of the railway                  | gauge        | date of first opening for traffic | route kilometre-age on 31-3-65 <sup>1</sup> | total capital at-charged as on 31-3-65 (Rs. lakhs) | net profit or loss for 1964-65 (Rs. lakhs) | date of next option for purchase | classification                                 | remarks                                                                                                                                                                    |
|--------------------------------------|--------------|-----------------------------------|---------------------------------------------|----------------------------------------------------|--------------------------------------------|----------------------------------|------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ahmadpur-Katwa                       | narrow gauge | 1917                              | 51.92 (32.26)                               | 22.32                                              | (-)-4.56                                   | 31-3-68                          | branch line under guarantee terms <sup>2</sup> | Interest at 3½ per cent on paid up capital guaranteed by Govt.                                                                                                             |
| Arrah-Sasaram Light                  | do.          | 1911                              | 104.86 (65.16)                              | 35.83                                              | 3.51                                       | 12-10-65                         | line subsidised by district board.             | Govt. have no financial interest.                                                                                                                                          |
| Bankura-Damodar River                | do.          | 1916                              | 96.48 (59.95)                               | 46.19                                              | (-)-6.24                                   | 31-3-67                          | branch line under guarantee terms <sup>2</sup> | Interest at 3½ per cent on paid up capital guaranteed by Govt.                                                                                                             |
| Burdwan-Katwa                        | do.          | 1915                              | 52.24 (32.46)                               | 27.35                                              | (-)-3.60                                   | 31-3-66                          | do.                                            | do.                                                                                                                                                                        |
| Delhi-Rohtas Light                   | do.          | 1911                              | 66.75 (41.48)                               | 109.42                                             | 17.91                                      | 10-11-71                         | line subsidised by distt. board.               | Govt. have no financial interest.                                                                                                                                          |
| Futwah-Islampur                      | do.          | 1922                              | 43.45 (27.00)                               | 20.69                                              | 2.19                                       | 31-3-68                          | branch line under guarantee terms <sup>2</sup> | Interest at 3½ per cent on paid-up capital guaranteed by Govt.                                                                                                             |
| Howrah-Amta Light                    | do.          | 1897                              | 70.31 (43.69)                               | 55.43                                              | 4.78                                       | 26-3-72                          | line subsidised by distt. board.               | Govt. have no financial interest.                                                                                                                                          |
| Howrah-Sheakhala Light               | do.          | 1897                              | 27.16 (16.88)                               | 13.64                                              | 0.94                                       | 26-3-72                          | line subsidised by distt. board.               | Govt. have no financial interest.                                                                                                                                          |
| Shahdara (Delhi)-Saharanpur Light.   | do.          | 1907                              | 148.87 (92.50)                              | 71.50                                              | 0.41                                       | 18-4-69                          | line subsidised by Govt.                       | The railway has not guaranteed any minimum return. On the other hand, Govt. is entitled to moiety of profit in excess of 4 per cent on the paid-up capital of the company. |
| <b>total non-government railways</b> |              |                                   | <b>662.04</b>                               | <b>402.37</b>                                      |                                            | <b>15.34</b>                     |                                                |                                                                                                                                                                            |

<sup>1</sup>Figures in brackets are in miles.<sup>2</sup>Guaranteed by Government of India.

## REVIEW OF PROGRESS

## CHAPTER V

## ROAD DEVELOPMENT AND ROAD POLICY

IN THIS Chapter we review briefly the progress of road development before and since the commencement of planning, the existing deficiencies in the road system and in road planning, the main problems which are now emerging, directions in which policy and planning should be reoriented in the next few years, finance of road development programmes, development of road research and construction techniques and changes in administrative and financial procedures and organisation needed for undertaking large-scale road construction programmes.

2. *The road problem.*—The state of road communications in a country, the extent to which they reach into the interior and the rural areas, the number and types of vehicles that move on them and the goods they carry and the condition in which roads are maintained are as good an indicator as any of the level of development and the quality of administrative and technical organisation sustained by it. Few things are more ardently sought by the people generally than roads capable of meeting their needs, be these marketing of agricultural produce, travel and transport to city and town, movement through or within a metropolis, accelerating development in a backward region so as to bring inaccessible areas within reach, or giving a spurt to the local economy. Allied to these economic and social needs, strategic and defence needs also loom large now, larger indeed than ever before. Yet, the construction and maintenance of roads cost a great deal. The gaps left over from the past are extraordinarily large and it has to be recognised that, with all the urgency that may be given to this task, the building up of a road system which will serve every nook and corner of India in a measure equal to the rapidly changing and growing needs of her economy will take two decades or more of sustained, intensive and carefully planned effort. As the road system develops, the burden of maintenance and continuous improvement also becomes larger and makes heavy claims on current resources. Altogether, the dimensions of the road problem in India are such that adequate progress is possible only if at each level—from the local rural community and the town and city to the region, the State and the nation—there is readiness to pay for the construction and maintenance of roads, to discover ways, both direct and indirect, of shouldering this enormous and continuing responsibility. At the same time, the possibilities of science and technological research must be exploited to the full so as to reduce the costs of construction and maintenance and promote the use of local materials and other resources to the greatest extent possible.

3. In relation to present needs, despite the effort devoted to road development since the end of the Second World War the road system is still inadequate in many ways. It is worth recalling that, before Independence, having regard to the conditions of the times, the limited aims in view and the state of economic development, few fields of public policy received the same degree of systematic attention from administrators and engineers as the construction and maintenance of roads. The Indian Roads Congress was established in 1934 and has functioned continuously at an advanced technical level. Problems of road development, as they presented themselves in the late twenties, were carefully considered by the Indian Road Development Committee as far back as 1927.

4. *The Nagpur Plan.*—In 1943, Chief Engineers incharge of roads throughout the country met at Nagpur and evolved a 10 year road development plan to meet the country's requirements over the twenty year period from December, 1943. This has since come to be known as the "Nagpur Plan". The plan proceeded on the basis that in highly developed agricultural areas no village should be more than two miles from a road, nor more than five miles from a main road, the average distance from a main road being generally less than two miles. In non-agricultural and less developed areas, no village should be more than five miles from a road, nor more than twenty miles from a main road, the average distance from a main road being 6 or 7 miles in most cases. It was reckoned that if road development proceeded along these lines, in 10 years, the length of surfaced roads could increase from 88,000 to 123,000 miles (140,800 to 196,800 kilometres) and of unsurfaced roads from 132,000 to 208,000 miles (211,200 to 332,800 kilometres).

5. Road development plans drawn up in the post-war reconstruction phase and under the First and Second Five Year Plans have broadly followed the approach of the Nagpur Plan as translated in terms of the requirements of different parts of the country. It is necessary to recall in this connection that when the Nagpur Plan was formulated the British Indian provinces and some of the larger princely States participated in it, but a number of small territories were not much in the picture. It took about six years between the integration of the princely States and the promulgation of the Constitution and the Reorganisation of States Act of 1956 for the boundaries of several States, as the constituent units of the Union of India, to assume a final shape. It was only then that in several parts of the country new road plans could begin to be drawn up in terms of five-year periods as well as for longer periods.

6. *Progress since 1951.*—By 1951, the country had about 97,000 miles (155,200 kilometres) of surfaced roads and about 151,000 miles (241,600

kilometres) of unsurfaced roads. Progress since 1951 is shown in the following table :

Table 1: Progress in road development

|                       | miles          |                  |         | kilometres     |                  |         |
|-----------------------|----------------|------------------|---------|----------------|------------------|---------|
|                       | surfaced roads | unsurfaced roads | total   | surfaced roads | unsurfaced roads | total   |
| March                 |                |                  |         |                |                  |         |
| 1951                  | 97,567         | 150,945          | 248,512 | 156,107        | 241,512          | 397,619 |
| 1956                  | 113,725        | 195,931          | 309,656 | 181,960        | 313,490          | 495,450 |
| 1961                  | 146,512        | 294,113          | 440,626 | 234,419        | 470,581          | 705,000 |
| 1962                  | 153,477        | 311,887          | 465,364 | 245,563        | 499,019          | 744,582 |
| 1963                  | 156,561        | 313,325          | 469,886 | 250,498        | 501,320          | 751,818 |
| 1966<br>(anticipated) | 177,300        | 421,400          | 598,700 | 283,680        | 674,240          | 957,920 |

Between 1951 and 1963 the length of surfaced roads increased by about 60 per cent and of unsurfaced roads by about 107 per cent. By the end of the Third Plan a further addition of 20,739 miles (33,182 kilometres) of surfaced roads is anticipated as well as a substantial length of unsurfaced roads. Over the period 1951-62 the annual expenditures on roads rose four-fold from about Rs. 18 crores to Rs. 72 crores. Since 1962, on account of the onset of the emergency, road development programmes have been accelerated still further and expenditure on roads rose from Rs. 72.4 crores in 1962-63 to Rs. 107.5 crores in 1964-65 and a budgetted outlay of Rs. 135.20 crores in 1965-66. In addition, extensive programmes of road construction in the border areas have also had to be undertaken.

7. The total length of roads during the years 1951, 1956 and 1961, classified by function, is given in the table below :

Table 2: Length of roads during the years 1951, 1956 and 1961 classified by function

|                      | 1951    |         | 1956    |         | 1961    |         |
|----------------------|---------|---------|---------|---------|---------|---------|
|                      | (miles) | (kms.)  | (miles) | (kms.)  | (miles) | (kms.)  |
| national highways    | 12,310  | 19,696  | 12,803  | 20,485  | 14,065  | 22,504  |
| state highways       | 26,600  | 42,360  | 29,302  | 46,883  | 38,557  | 61,691  |
| major district roads | 55,800  | 89,280  | 59,146  | 94,634  | 70,515  | 112,824 |
| other district roads | 50,500  | 80,800  | 54,018  | 86,429  | 69,569  | 111,310 |
| village roads        | 103,302 | 165,283 | 150,368 | 240,589 | 241,614 | 386,582 |
| unclassified roads   | ..      | ..      | 4,019   | 6,430   | 6,306   | 10,090  |
| total                | 248,512 | 397,619 | 309,656 | 495,450 | 440,626 | 705,002 |

8. *Twenty year road development plan for 1961-81.*—By the end of the Second Plan, the targets of road mileage envisaged in the Nagpur Plan had been realised for the country as a whole, although progress as between individual States and regions was by no means even and large tracts still lagged behind. Towards the end of the Second Plan, Chief Engineers from the Centre and the States met together to formulate a new twenty-year road development plan for the period 1961-81. The plan proceeded on the basis that in developed agricultural area no village should remain more than 4 miles from a metalled road or more than 1½ miles from any type of road. In working out specific proposals, factors such as area, population, regional levels of development and development needs and possibilities were to be taken into consideration. Under the Plan, compared to an average at the end of the Second Plan of 26 miles of road for every 100 square miles or of 16 kilometres for every 100 square kilometres, the plan envisaged that by 1981 the average length of road would be 52 miles per 100 square miles or 32 kilometres per 100 square kilometres of area. The plan also proposed a scheme of priorities which included, amongst others, provision of missing bridges, improvement of road surface to at least one-lane black-topped specifications for National and State Highways, widening of the main roads in the vicinity of large towns to two-lanes or more and provision of two-lane roads on the major arterial routes. The cost of completing the programme was estimated at Rs. 5200 crores, of which Rs. 630 crores were for village roads. The plan outlined by the Chief Engineers has remained a broad guide for more detailed planning in the States and its priorities have been generally kept in view. However, so far specific commitments have been made by the Central and State Governments only in terms of five-year and annual plans of development. It is far from certain whether the targets suggested by the Chief Engineers will be accomplished within the twenty year period. Even so, if it is appreciated that by March 1966, India will have only 47.6 miles of road for every 100 square miles of area (or 29.7 kilometres for every 100 square kilometres) and 109.4 miles (173 kilometres) for every 100,000 of population, the plan calls for a scale of construction and investment much greater than that attained thus far as well as for a high degree of integration between the efforts of various authorities at the national, State, regional and local levels.

#### EMERGING PROBLEMS AND NEED FOR SYSTEMATIC ROAD PLANNING

9. With the enormous lag inherited from the past, it is an extraordinarily difficult undertaking to develop the road system to enable it to meet with any degree of adequacy needs which are newly emerging or are now being more fully recognised. While larger road programmes are undertaken, the growth of the economy brings new needs and problems into relief. At the same time, the problem of allocating the limited resources available between many competing objectives becomes much more complex. Yet, roads are so crucial to national and regional development and the resources involved

are of such substantial magnitude that careful planning and constant search for economy must be regarded as the keystones of road programmes in the future, whether these are undertaken by the Centre or the States or by local authorities.

10. *Existing deficiencies in the road system.*—By any standard, the total length of roads available at present must be regarded as being meagre enough to constitute a drag on economic growth. Even with the network now existing, certain deficiencies stand out because they reduce the efficiency of the road system to an extent which is not yet sufficiently appreciated. One of the most important of these concerns the question of satisfactory maintenance, for which much larger resources need to be made available. Road crusts originally meant to carry mainly light traffic are unable to stand the heavier traffic and the greater volume of movement which have developed in recent years. If adequate funds are not made available for maintenance as well as for timely strengthening of road crusts and for reconstruction of weak bridges and culverts, the damage done gets well beyond the scope of normal repair works. Between 1952 and 1962, while expenditure on road development increased four-fold, provision for maintenance increased only from Rs. 22 crores to Rs. 44 crores. There is indeed widespread evidence of the work of upgrading the existing roads failing to keep pace with the development of traffic.

Secondly, the road system has grown up over time and on several routes there are still numerous missing links, unbridged river crossings, weak culverts and bridges and weak and inadequate road pavements. Since Independence about 2800 kilometres of missing links and 150 major bridges have been constructed, 18,000 kilometres of low grade sections improved and 5,000 kilometres widened to two lanes. Even with this effort, the National Highway system, which comprises the principal trunk roads of the country, will have at the end of the Third Plan no less than 400 kilometres of missing road links, more than 50 major bridges still to be built, nearly 19,200 kilometres of one-lane roads, and large numbers of narrow and weak culverts and bridges and large numbers of rail-road crossings due for replacement by under or over bridges and bye-passes in and around urban and industrial areas awaiting construction. Thus, lack of uninterrupted movement diminishes the contribution of the system as a whole.

Thirdly, most of the arterial highways in the country have road surfaces with a thickness of 9 to 10 inches instead of a thickness of 18 to 22 inches which heavy duty vehicles, now coming into greater use, increasingly demand. Moreover, besides being built to low specifications, most of the roads are single lane, that is, 12 feet wide, and travel along them is both slower and less safe than it need be.

Fourthly, work on the highways has proceeded over long years somewhat independently in different States and without sufficiently close attention to the need for evolving an integrated road network for the country as

a whole. The result is that, frequently, highways between neighbouring States have remained unconnected and rivers separating one territory from another or passing through more than one territory have remained unbridged at points vital from standpoints wider than those of traffic within individual States. To a limited extent, the scheme of inter-State roads and roads of economic importance, which the Central Government first sponsored in 1953, has helped to reduce this deficiency, but in turn this has tended to throw greater responsibility on the Central Government. Moreover, the resources available for this category of roads have not been adequate in relation to the size of the problem.

11. *Economic criteria in road development.*—Each of the deficiencies pointed out above has been accentuated by the growth of traffic, increase in the number of heavier vehicles and the need for faster movement. These factors mark a major qualitative change in the character of the road problem. Increasingly, aspects such as the width of the road surface and the specifications to which roads are built become key elements in the planning of roads. Road construction also becomes more costly and calls for larger resources.

12. In the past, road development plans were conceived largely in terms of increase in length of road and completion of missing links. In developing roads administrative considerations were pre-eminent, specially the need to link up the capitals of States with the headquarters of districts, tehsils, talukas and development blocks. Road development was seen less often as a major factor in economic growth or, where it was, adequate resources could not be readily provided for the systematic development of roads as a means to more rapid economic development. In a degree, decisions on which specific roads could be taken at each stage of development might be influenced by representation from different areas and by shorter-term considerations and needs. Admittedly, in this field, objective economic criteria are easier to enunciate than to apply. Nevertheless, in view of the large investments now involved, it is important to adopt economic criteria to the utmost extent possible, to undertake careful traffic surveys and forecasts and, in the choice of major road projects, to proceed on the basis of cost-benefit studies before committing substantial resources.

13. *Major emerging problems.*—It was inevitable that the approach in the earlier phases of road development should be extensive rather than intensive. From this latter aspect there are four extremely important problems which can now be identified and must increasingly influence the planning of the road system. These are (1) provision of roads related to major industrial, mining and other development projects, (2) rural market roads, (3) roads for the development of backward areas and regions, including hill areas and coastal areas, and (4) road systems in metropolitan areas and large cities and their environs. A few observations on each of these problems will be pertinent.

14. *Roads for development projects.*—In recent years, large tracts have been covered by irrigation and hydro-electric projects. New centres of industrial growth have been established. Mining projects have opened up areas which had long remained secluded and inaccessible. Roads and the transport facilities which roads make possible have a vital role in realising the full development potential of the large investments entailed in these projects. In practice, frequently, sufficient attention has not been given to the development of adequate road system in and around project areas and by way of links between a growth centre and other points. Greater coordination in planning and implementation would make for faster development as well as cheaper transport. In many States, it has been observed, in the past roads have been planned without giving sufficient priority to the needs of areas or centres of high potential growth. Sometimes, because the Central Government undertook the industrial and other investments or provided the finance needed, on the plea that the related road development should also be supported by it, States have hesitated to allow for it in their own plans. Later, such gaps in planning have assumed the shape of special problems demanding immediate action. Road plans should take full account of the industrial and other development needs as these are likely to arise over a period of years. They should be informed by the same long-term perspective of development as are programmes for agriculture, industry, power and other aspects of the economy, both for the country as a whole and within each State and region.

15. *Rural roads.*—There is growing realisation that the problem of rural roads has not been given the key importance due to it in the planning of road systems. The linking of towns and administrative centres by road is but the beginning of development. To carry development far into the interior, to bring each village into swift communication with the market, to carry fertilizers and implements and other goods and facilities into every village, to complete the system of inter-village communications so that each area develops an integrated economy of its own, and costs of transport for rural areas are reduced all along the line, the road system and road transport services must be developed in depth. To do so, the resources needed must be found as an essential element in the scheme of planned development. The economic significance of road development in relation to the strengthening and diversification of the rural economy and to social change in rural areas cannot be too greatly stressed. In the past, in the allocation of Plan funds for road development distinctive attention has not been given to the needs of rural areas and far too much has been left to such effort as local rural communities might themselves be able to muster. Nor has sufficient attention been given to the formulation of district road plans through which district roads, rural market roads and village approach roads may be developed as an integrated system capable of meeting growing local needs and accelerating the development of the rural economy of each area. We consider such district road plans to be an essential element of planning

at the district and block level and equally of planning for the road system of the State as a whole. We suggest that in each State phased programme for the development of rural roads should be drawn up on a district and area basis. Priority should be given to areas in which intensive agricultural development plans are being undertaken or where new resources, such as irrigation and power, have come into use and their fullest utilisation, along with complementary development, is likely to promote rapid economic growth. In such cases, the development of communications and of marketing facilities constitutes an integrated activity and should be undertaken as a matter of considerable urgency. In other areas, depending upon the study of conditions and assessment of needs, the development of local communications networks may be accomplished in stages over a longer period. We would further urge, as a conclusion drawn from past experience, that State Governments should definitely earmark a proportion of the allocation for roads in their plans for rural market roads and for assisting villages in the construction of approach roads connecting villages with one another and with market roads. It is for each State to consider the proportion of funds to be so earmarked, but in our view about a fifth of the State Plan allocation for roads should be regarded as the minimum. We also recommend that as part of the scheme of Central assistance for the plans of States, assistance given specifically for rural roads should take the form of a grant to the extent of 33-1/3 per cent of the actual expenditure incurred by each State under its annual plan.

16. *Roads for backward and hilly regions.*—Disparities in development between the more advanced and the less advanced regions are often reflected most glaringly in the comparative state of their road communications. In lifting the economy of the more backward areas, such as scheduled areas, hill areas, coastal areas and others, improved road communications can make a contribution far exceeding the investments needed. Such investments should, therefore, have high priority in plans for the development of markedly backward regions which should be specified in advance in the plan of each State. We also recommend that as in the case of rural roads, Central assistance should be given for road development in the specified regions by way of grant to the extent of 33-1/3 per cent.

17. *Roads in metropolitan areas.*—We may refer, finally, to the complex problems of road development in metropolitan areas, in large cities and in growing industrial towns. Cities such as Calcutta and Bombay present these problems in an extreme form, but others, like Madras, Delhi, Kanpur and Ahmedabad also demand urgent attention. In varying degree, in these cities the pressure of traffic is increasing fast, there is acute congestion and rail-road level crossings frequently cause obstruction, and neither the road system nor the road transport facilities can cope with the volume of traffic. In each of these cities, according to its circumstances, it is necessary to take an overall long-term view of transport needs, both for passengers and for goods, and to plan road development, development of road

transport services and, where necessary, suburban rail transport as parts of a comprehensive and integrated scheme. In metropolitan and other large cities, the planning of transport has to be closely related to the scheme of long-term urban planning and location of industrial and economic activities. In evolving transport plans there has to be the closest possible collaboration between the various agencies of the State Government, the local municipal administration and planning authorities and those responsible for operating road and rail transport services. In view of the increasing complexity and importance of the problems of metropolitan transport, which are likely to grow considerably over the next decade, at the suggestion of the Planning Commission and the Ministries of Railways and Transport, the Committee on Plan Projects has recently appointed an expert Study Team on Metropolitan Transport to investigate into these problems in relation to Calcutta, Madras, Bombay and Delhi. It is hoped that as part of the process of drawing up the road plans, State Governments will give similar attention to the transport problems of other large cities.

18. *Central and State Road Planning Boards.*—In the preceding paragraphs, in referring to the existing deficiencies and the needs which have now emerged so clearly, we have also drawn attention to the principles which should guide road planning in the future. We expect that the series of regional transport surveys now under way throughout the country will throw up valuable data and projections with reference to which road development programmes can be formulated, more readily than in the past, as integral parts of overall long-term transport plans, comprising all modes of transport, and closely linked with industrial and economic development plans for each region. The scheme for systematic numbering of the main highways in each State, to which effect is at present being given, will help in linking together the road systems of different States, in selecting roads which could be taken up with the greatest advantage as inter-State roads, in establishing priorities for major works and also in coordinating plans for the development of National and State Highways.

19. The various objectives in road development outlined above will call for a great deal of continuous and systematic planning at the national, State and local levels. We, therefore, strongly endorse the proposal, which the Transport Development Council approved in July, 1964, that Road Planning Boards should be set up by the Central Government as well as by State Governments. These Boards are envisaged as high-level technical advisory bodies which will consider plans for road development in the wider economic perspective and in relation to economic and other relevant criteria. It is our hope that, working in close cooperation with one another, the Central and State Road Planning Boards will help evolve an integrated national road network and will give attention in a precise manner to such aspects of planning as traffic surveys, cost-benefit studies, economies in construction costs, maintenance norms, means to maximise the benefits of road development through greater coordination with development in other

sectors, road development in backward regions, rural roads and road development in metropolitan and other cities. Road Planning Boards should take full advantage of data thrown up in the preparation of the long-term transportation plan for the period ending 1975-76 and should also initiate fresh investigations, where necessary, through various existing agencies. Above all, they are expected to serve as an important instrument for bringing a great deal of knowledge and foresight available to bear on the planning of road systems at the national, regional and local levels, so that roads can make the maximum contribution to economic development. Given this approach, if roads which exist already are maintained in good condition and greater attention is given to construction economies, it should become possible to secure larger resources for the systematic expansion and improvement of the road system. The Central and State Road Planning Boards should also consider the question of securing close coordination between road programmes in border areas and other road programmes. A project like the lateral road stretching from Bareilly to Amingaon across four States has a vast development potential if, at the same time, feeder roads and other aspects of development are simultaneously integrated with it. Road development now demands a degree of continuity, accuracy, planning in detail and freedom from arbitrary cuts in allocations once the initial allocations have been determined for a five year period, and it is hoped that through their working the Central and State Road Planning Boards will help create these essential conditions.

#### FINANCE OF ROAD DEVELOPMENT

20. *National and State Highways.*—At present the Central Government finances the construction and maintenance of National Highways, resources for new development being provided under the Five Year Plans and for maintenance from the normal budget. Depending upon the resources that can be allocated under each Plan, additional State roads are declared as National Highways in accordance with the National Highways Act, 1956, and responsibility assumed for their future development and maintenance. The National Highway system now comprises a length of 14,925 miles, (23,880 kilometres), compared to 13,800 miles (22,080 kilometres) in 1956 and 32,000 miles (51,200 kilometres) envisaged in 1981 in the Chief Engineers' proposals for the period 1961-81. It is important that the National Highway network should expand steadily. This will strengthen the trunk communications from the point of view of the country as a whole and enable States to devote greater attention to the improvement of roads in the interior, to rural roads and to roads designed to achieve rapid development in the more backward regions.

State Highways fall within the field of responsibility of State Governments. Resources for development are provided under the Five Year Plans and for maintenance under the normal budget. As part of the assist-

ance which the Centre makes available to States for financing their Five Year Plans, loans are given for road development.

For a number of years, the Central Government has aided the construction of selected roads which provided inter-State links or had special economic importance. Responsibility for maintaining these roads continues to rest with the States. In our view, road plans at the Centre should contain adequate provision for these two categories of roads. For, they represent a convenient and flexible means of removing important gaps in communications between States, ensuring coordination in planning and of assisting States in expediting the construction of costly road projects which are important both from the national and regional considerations. In regard to inter-State road schemes, we visualise the Central Government assisting, for instance, in the construction of bridges, the road lengths being provided by the States concerned in an integrated programme forming part of their respective road plans.

As stated earlier, provisions for maintenance have in recent years been less than adequate both for National and for State Highways. It is important that suitable norms should be set for this purpose and arrangements for ensuring effective maintenance strengthened further.

21. *Rural roads.*—Hitherto, the approach in respect of rural roads has been much less systematic than for State Highways and District Roads. Voluntary contributions by the people in the villages have helped build up a considerable length of unsurfaced roads, but often these can be used only in fair weather and deteriorate rapidly. It is, therefore, essential that the construction of village approach roads, undertaken through local effort, supported by a measure of assistance for masonry works, should itself be part of a larger area plan, which provides both for continuous maintenance and gradual change-over to higher specifications. Local authorities, such as Panchayat Samitis and Village Panchayats should be made responsible for village approach roads and should be placed in a position to support local voluntary effort, specially in respect of masonry works.

22. In regard to rural market roads, we have already proposed that a proportion of the State Plan allocation for roads, generally not less than 20 per cent, should be earmarked by each State Government for these roads and the Central Government should share the cost equally by way of grant as part of the total quantum of Central assistance agreed to for the State Plan. We have further recommended that this measure of assistance should be made available for road programmes in markedly backward areas, including hilly regions and coastal areas, which are specifically identified in advance at the time of formulating the State Five Year Plans.

23. *The Central Road Fund.*—In 1929, on the recommendations of the Indian Road Development Committee, the Government of India consti-

tuted a non-lapsing Central Road Fund. The Committee had recommended that an additional duty of 2 annas per gallon be levied on petrol and the proceeds credited to the Fund and utilised for road development. The proposal was accepted and the duty was raised in 1931 to 2½ annas per gallon. Of the proceeds, 80 per cent are allocated to State Governments on the basis of actual consumption of petrol within their territories and from the balance, which is retained at the Centre as the Central Road Fund (Ordinary) Reserve, grants are made for expenditure on experimental and research schemes and for specified projects for the construction of roads and bridges. There is another sub-division of the Central Road Fund, called the "Special Reserve" to which contributions made by other Central Organisations like the Ministry of Defence etc. for road works required to be executed for meeting their requirements are credited. It seems to us that the scope and financing of the Central Road Fund calls for a fresh review. We are not ourselves in a position to undertake this review because several administrative considerations and commitments entered into in the past are involved. In principle, we see considerable advantage in maintaining a non-lapsing Central Road Fund which may be utilised for financing selected schemes, such as are apt to be lost sight of in the ordinary course. We have in mind particularly research and experimental work on a much larger scale than is being currently undertaken, regional transport surveys, traffic studies and construction of bye-passes and over and under bridges at rail-road crossings on trunk roads in large cities. The portion of the Central Road Fund allotted to States has in practice become an integral part of their financial resources and it is difficult at this stage to suggest its allocation for specific purposes. At present the Central Road Fund is credited to the extent of 16 paise per gallon from the customs and excise duty levied on motor spirit, the annual proceeds being about Rs. 4 crores. Of this only 20 per cent remains with the Centre in the Central Road Fund (Ordinary) Reserve. We feel that it will be in the interest of systematic long-term road development to enlarge the resources available in this Fund at the Centre. How best this may be done is a matter for the consideration of the Ministry of Transport in consultation with the Ministry of Finance. A flexible non-lapsing source of this nature, from which specific schemes of the kind indicated earlier can be initiated by the Centre has advantages which are not to be measured only by the actual amounts allotted. We would, therefore, hope that from a larger planning objective the hands of the Ministry of Transport will be suitably strengthened through the Central Road Fund.

24. *Tolls.*—Tolls can be another useful source of finance for selected projects. Collection of tolls at numerous points could cause obstruction to traffic and add significantly to costs of movement. A general levy of tolls, therefore, is not at all desirable. However, tolls should be applied selectively to major projects involving heavy costs such as major and costly bridges, large tunnels and express highways. For these projects, special

long term loans could be advanced and costs could be recovered over a period through levy of tolls. In view of the likely benefits from such projects to the users, there should be little resistance to payment of tolls. In each case suitable arrangements should be made to ensure speedy collection with minimum slowing down of traffic.

#### ROAD RESEARCH AND CONSTRUCTION TECHNIQUES

25. In the preceding paragraphs we have drawn attention to the inadequacies of the highway system in the matter of the total mileage of the roads, their disposition, as well as their condition under the increasing stresses of present day traffic. The loads, the speeds, and the intensity of traffic on roads have increased considerably in the last few years and may be expected to increase further with the general development of the country. On many routes the existing road pavements are proving inadequate in width as well as in strength. It is becoming urgently necessary to upgrade such roads, that is, to widen their pavements, strengthen the hard crusts, and provide improved and high class surfaces with cement concrete, asphaltic carpets, etc. Long lengths of completely new roads of high standards have also to be built in some cases and the old methods of stage construction are not always applicable because traffic develops very fast soon after the road is built.

Under these circumstances, the need to adopt modern and advanced construction techniques is obvious. Techniques involving efficient use of available materials have to be introduced so as to achieve overall economy. This requires detailed testing of materials and control of quality for highway works. Continuous research for improving techniques and specifications is also essential.

26. In the past, when the volume and intensity of traffic were low, a waterbound macadam road served the needs of traffic adequately. Surface dressing with bitumen or tar was considered to be more than adequate even for the main roads. These specifications are no longer adequate on many sections of National and State Highways. It is, therefore, necessary to adopt techniques which have been evolved and found successful for highly trafficked roads such as stabilization of soil, controlled compaction of road embankments, properly designed and controlled dense bituminous carpets, properly controlled high strength cement concrete used in conjunction with high-tensile steel in prestressed concrete bridges and others. These new techniques call for precise testing of materials and quality control. In addition to facilities for research, it is necessary to provide for a chain of testing and control laboratories, so that full advantage may be taken of the new techniques evolved in India as well as in other countries.

27. At present, besides the Central Road Research Institute which serves as a national laboratory, there are road research stations in some States, as in Madras, Uttar Pradesh, Punjab and West Bengal. These

stations perform the function of testing and control, but are not always adequately equipped and staffed for research work. We consider that testing and control laboratories should be set up in all States. Progressively, they should develop research activities on their own and in association with the Central Road Research Institute. Each State should also have a number of mobile field laboratories for on-the-spot testing and quality control of road and bridge construction. It is also necessary to carry out an extensive survey of road building materials and to arrange for their systematic testing. The results of the surveys and tests should be suitably compiled and published.

28. To bring together the results of research work done in the various laboratories and to avoid unnecessary repetition and duplication, it is necessary to coordinate work undertaken at the various laboratories. The Indian Roads Congress, in cooperation with the Roads Wing of the Ministry of Transport and the Central Road Research Institute has been undertaking this function. The time has, however, come when more definite arrangements should be made for the conduct of research, for the coordination of the results of research work done in the country and for giving wide publicity to the results achieved. We recommend that a Highway Research Board should be set up for the purpose on the lines of a similar Board which exists in the United States.<sup>1</sup>

29. As stated above, the new road building techniques require a high degree of control during execution. Such control is not practicable in the case of manual methods of construction where quality depends on the personal factor of the individual workman and supervisor. The personal element has therefore to be supplemented increasingly by the use of road building machinery. Therefore, both to gain speed in operations and to ensure control over quality, special steps have to be taken to promote the manufacture of all essential road construction equipment within the country.

30. To secure sustained work in the field of road research it is essential that adequate resources should be provided on a continuing basis. Both the Central and State road plans should provide funds specifically for research. Subject to the ability of research units to utilise these funds, they should not be diverted to other purposes. The provisions made and the steps taken in the past in this connection have not been adequate. In 1957, following a recommendation by the Indian Roads Congress, the Ministry of Transport recommended to State Governments that they should

<sup>1</sup>The Highway Research Board of USA is a cooperative organisation of highway technologists which functions with the support of several highway departments, the Bureau of Public roads and many other organisations interested in the development of highway transportation. The Board seeks to encourage research and to provide a clearing house and correlation service for research activities and information on highway administration and technology. It was established in 1920 as an agency of the Division of Engineering and Industrial Research, one of the eight functional divisions of the National Research Council.

earmark at least 1 per cent of their Central Road Fund allocations for road research. This represents a meagre provision for research in highways. It is obvious that the tasks to be fulfilled through continuous research should be carefully specified from time to time in relation to the road development programme of each region and, besides provision of funds, the necessary organisations for follow-up should be established. To encourage the adoption of the results of research and promote the use of new techniques of road construction, local materials etc., the Government of India set up in 1961 a Central Assessment Committee, which underwrites any loss or excess costs incurred by a State on account of the failure of a new technique adopted by it. In the light of the experience gained so far, the work of the Committee should be reviewed and its programme and organisation strengthened.

#### ADMINISTRATIVE ORGANISATION

31. Roads in India are divided into five categories : National Highways, State Highways, Major District Roads, Other District Roads and Village Roads. Of these, National Highways fall directly within the sphere of responsibility of the Central Government, while the other categories of roads form part of the plans of States and of local authorities. The Central Government meets the entire expenditure required for the construction, improvement and maintenance of the National Highways. As stated earlier, the Central Government also assists State Governments in the construction of selected roads of inter-State and economic importance. Similar assistance is extended for roads taken up for strategic reasons. Within the States, 'Other District Roads', which include roads linking market centres, Block headquarters, etc. and village roads are looked after by local authorities such as the Zila Parishad, the Panchayat Samiti and the Village Panchayat. As part of the assistance given by the Central Government to State Governments for their Five Year Plans, loans are being made available for the road programmes of States. In the past enough attention has not been given to planning for the entire road system of a State in an integrated manner, including in it both National Highways and roads for which the State Governments are responsible. There has also been need for greater work on district road plans, so that, within the framework provided by the State road plan, roads connecting market centres, small towns and villages could be planned and executed in a systematic manner.

32. Although the Central Government is responsible for the administration and finance of National Highways, hitherto construction and maintenance of these roads have been undertaken by Public Works Departments in the States acting as agencies on behalf of the Centre. The Central Government has not had a road construction agency of its own at its disposal. With the large programmes of road construction which it has been necessary to take up in recent years in Assam, West Bengal, Rajasthan and

Gujarat, and the considerable burden thrown in consequence upon the Public Works Departments in the States, it has been felt that there should be a road construction agency with the Central Government which can supplement the State agencies to the extent necessary and, on the basis of agreed programmes, can also take up some of the difficult works. In several States the volume of road construction work is now large enough to justify the setting up of separate Highway Departments with specialised highway and bridge engineering personnel who are able to provide the technical planning and supervision needed in highway road and bridge construction and to ensure the standards required on high specification roads. Besides undertaking specific works, in cooperation with the State agencies, the proposed construction organisation at the Centre could maintain a pool of road construction machinery which could be made available as and when required by State agencies engaged in completing works of an emergency nature or works requiring superior technical standards. State Public Works Departments have been undertaking traffic surveys as part of their normal work. The stage has reached when special Traffic Engineering Cells devoted to and equipped for the task of carrying out traffic studies and giving attention to the problems of traffic engineering and road safety should become a normal feature of organisation in Public Works and Highway Departments. It is also essential that in respect of major road projects, before decisions to commit large funds are made, cost-benefit studies should be undertaken. This will assist in the application of sound economic criteria and help obtain the maximum results from an investment on road development. Each Road Planning Board to which a reference has been made earlier, should make its final recommendations regarding plans of road development after taking into consideration the requirements of the State and its different regions as well as the results of economic and technical studies.

## CHAPTER VI

## ROAD TRANSPORT

## ROAD TRANSPORT INDUSTRY

BEGINNING in a small way after the first world war, by 1938-39, commercial motor transport comprised a total fleet in 'British India' of 23,645 buses and 12,397 trucks. At the end of the second world war, in 1946-47, the number of trucks had increased to 40,107 and the number of buses, after a period of decline, reached once again the pre-war level. At the commencement of the First Plan, there were in all 34,411 buses and 81,888 trucks; by 1960-61, the number increased to 57,049 and 171,045 respectively. Thus, over the decade, buses increased by about 66 per cent and trucks by about 100 per cent. In 1960-61, buses represented 25 per cent of commercial vehicles in use.

2. State-owned services exist in varying proportions in different States. There are at present 25 State undertakings in all, of which 11 are run departmentally, 10 by corporations and 4 by municipal bodies. In 1960-61, out of a total of 57,049 buses, 17,701 or 31 per cent were operated by State undertakings. In March 1963, the total number of persons employed in these undertakings was about 141,000.

3. At the beginning of 1962, there were 172 transport cooperative societies dealing exclusively with goods traffic, 612 providing passenger services and 24 engaged in both goods and passenger transport. In all, these cooperative undertakings owned or operated 1,385 vehicles or less than one per cent of the total number of commercial vehicles in the country.

4. The road transport industry is owned at present by a large number of small operators, of whom a majority own no more than one vehicle each. According to the Ministry of Transport, in March 1963, about 89 per cent of road transport operators owned only one vehicle each. The proportion of operators owning 5 vehicles or less stood at 98 per cent. The distribution of road transport operators according to the number of vehicles owned in December 1952 and March 1963, as estimated by the Ministry of Transport, is shown in the Table below :

Table 1 : Road transport operators-distribution of vehicles (buses and trucks) owned

| size of fleet               | number of operators |            | total number of vehicles owned (estimated) |            |
|-----------------------------|---------------------|------------|--------------------------------------------|------------|
|                             | december 1952       | march 1963 | december 1952                              | march 1963 |
| one vehicle each            | 46,000              | 136,000    | 23,153                                     | 136,000    |
| 2 to 5 vehicles each        | 1,500               | 14,046     | 30,000                                     | 50,000     |
| 6 to 50 vehicles each       | 50                  | 3,187      | 3,000                                      | 61,449     |
| 51 to 100 vehicles each     | 25                  | 32         | 14,000                                     | 2,000      |
| more than 100 vehicles each | 47,575              | 153,302    | 130,153                                    | 270,449    |

The distribution in March 1963 of operators according to size of fleet in different States and in the Union Territories is shown in the following Table :

Table 2 : Distribution of road transport operators in different States according to size of fleet (buses and trucks)

(estimate for March 1963)

|                             | number of operators owning |                 |                                           |                                            |                                            |                                             |                        | total   |
|-----------------------------|----------------------------|-----------------|-------------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------|------------------------|---------|
|                             | one vehicle                | 2 to 5 vehicles | more than 5 but not more than 10 vehicles | more than 10 but not more than 20 vehicles | more than 20 but not more than 50 vehicles | more than 50 but not more than 100 vehicles | more than 100 vehicles |         |
| Andhra Pradesh              | 6,800                      | 900             | 99                                        | ..                                         | ..                                         | ..                                          | 1                      | 7,800   |
| Assam                       | 1,700                      | 136             | 9                                         | 2                                          | 1                                          | 1                                           | 1                      | 1,850   |
| Bihar                       | 8,000                      | 550             | 215                                       | 100                                        | 25                                         | 5                                           | 5                      | 8,900   |
| Gujarat                     | 11,000                     | 1,300           | 75                                        | 19                                         | 3                                          | 2                                           | 1                      | 12,400  |
| Jammu & Kashmir             | 3,500                      | 140             | 40                                        | 18                                         | 1                                          | ..                                          | 1                      | 3,700   |
| Kerala                      | 5,800                      | 350             | 170                                       | 29                                         | ..                                         | ..                                          | 1                      | 6,350   |
| Madhya Pradesh              | 8,000                      | 380             | 100                                       | 40                                         | 21                                         | 5                                           | 4                      | 8,550   |
| Madras                      | 5,900                      | 300             | 260                                       | 30                                         | 14                                         | 4                                           | 2                      | 6,600   |
| Maharashtra                 | 27,900                     | 3,600           | 250                                       | 150                                        | 95                                         | 1                                           | 4                      | 32,000  |
| Mysore                      | 7,800                      | 730             | 170                                       | 65                                         | 30                                         | 2                                           | 3                      | 8,800   |
| Orissa                      | 3,500                      | 780             | 70                                        | 30                                         | 15                                         | 3                                           | 2                      | 4,400   |
| Punjab                      | 6,300                      | 680             | 110                                       | 65                                         | 39                                         | 1                                           | 5                      | 7,200   |
| Rajasthan                   | 6,100                      | 200             | 250                                       | 40                                         | 7                                          | 2                                           | 1                      | 6,600   |
| Uttar Pradesh               | 12,700                     | 350             | 35                                        | 9                                          | 4                                          | 1                                           | 1                      | 13,100  |
| West Bengal                 | 18,000                     | 3,000           | 130                                       | 10                                         | 6                                          | 2                                           | 2                      | 21,150  |
| Delhi                       | 2,000                      | 400             | 70                                        | 20                                         | 8                                          | 1                                           | 1                      | 2,500   |
| Himachal Pradesh            | ..                         | ..              | ..                                        | ..                                         | ..                                         | ..                                          | 1                      | 1       |
| Manipur                     | 500                        | 60              | 90                                        | 90                                         | 7                                          | 2                                           | 1                      | 750     |
| Tripura                     | 500                        | 100             | 45                                        | 3                                          | 2                                          | ..                                          | ..                     | 650     |
| Andaman and Nicobar Islands | ..                         | ..              | ..                                        | ..                                         | ..                                         | ..                                          | ..                     | 1       |
| total                       | 136,000                    | 14,046          | 2,188                                     | 721                                        | 278                                        | 32                                          | 37                     | 153,302 |

5. Most of the road transport operators who own small fleets of vehicles lack resources as well as organised facilities for booking and delivery of goods. They are, therefore, handicapped in providing dependable organised services. Most operators are obliged to carry on a kind of 'tramp' trade, picking up custom as it comes. While within their limits, they are resourceful and efficient and provide a flexible service, on this basis regular scheduled freight services cannot be organised. A large proportion of operators are unable to work on the basis of previously known or established rates, though competition among them may lead to some rough norms being set up. It is known, for instance, that for return journeys and slack seasons, when there is acute competition between operators, the rates may

sometimes be reduced to uneconomic levels. At other times, they may be exorbitant. A recent development in road transport is the growth of booking agencies which act as intermediaries and accept consignments for transport. These are made over to operators on a commission basis. Booking agents are not licensed and there are no set conventions defining how they will function in relation to operators and to users of transport. It is believed that frequently the commission charged by booking agents is out of proportion to the rates actually paid to operators for haulage of goods.

#### LEGISLATIVE PROVISIONS

6. Motor transport was first regulated under the Indian Motor Vehicles Act, 1914. This legislation did not distinguish between different types of motor vehicles and imposed no restrictions on their movement. As motor transport began to grow, the need for greater control over motor transport began to be felt from the point of view of the safety and convenience of the public as well as development of a coordinated system of transport. This led to the passing of the Motor Vehicles Act, 1939. The Act created Regional and Provincial Transport Authorities which were authorised to grant permits for stage carriages and for public and private carriers, and provided for rules concerning routes, timings, specifications of vehicles, standards of maintenance and other conditions under which holders of permits were expected to operate. From the aspect of coordination between rail and road transport, the Act empowered Provincial Governments to prohibit or restrict long distance movement of goods by road and transport of specified classes of goods by public or private carriers. Under the provisions of the Act, goods vehicles were not allowed to operate outside the region in which they were registered.

7. By 1945, the question of eliminating 'wasteful competition' between rail and road transport had come into active public discussion and there were pleas from the Railways for adoption of suitable principles for the regulation of motor transport. The view was pressed that long distance goods traffic should be 'reserved' for the Railways, while road transport was better adapted to short distance haulage. In April, 1950, after a period of discussion with the States, a Code of Principles and Practice was drawn up at the instance of the Central Board of Transport and circulated to State Governments with the suggestion that its provisions should be implemented. The following were the more important provisions of the code :

- (i) State Governments should organise public passenger transport and form substantial undertakings in which the railway or railways concerned should be offered on reasonable terms a financial interest of not less than 20 per cent;
- (ii) State Governments should invite the railway or railways concerned to cooperate in setting up a Joint Committee or Committees or other suitable machinery for mutual consultations in

matters affecting road-rail coordination and the recommendations of such Committees should be given due weight by State Governments and the Railway Administrations concerned;

- (iii) A public carrier permit should normally be valid, with due regard to geographical conditions, flow of traffic and marketing centres for compact areas, within a radius of 75 miles;
- (iv) Permits, if any, issued outside such compact areas should be for specified route or routes only;
- (v) The State Transport Authority may specify the goods to be carried;
- (vi) A Regional Transport Authority should not, except in accordance with the general or specific instructions of the State Transport Authority, grant, countersign or renew any carrier's permit for a distance exceeding 75 miles between places connected by rail;
- (vii) The Regional Transport Authority should refer to the State Transport Authority any application for a permit or for renewal of a permit for a distance exceeding 150 miles between places connected by rail; and
- (viii) Except in accordance with any regular agreement between the railways and the State Government, the State Transport Authority should not normally grant or countersign or renew a carrier's permit between places connected by rail :—
  - (a) for distances exceeding 150 miles, unless the Authority is satisfied that the goods to be carried cannot be transported by rail without undue expense or inconvenience at least in the outward direction; and
  - (b) for distances exceeding 300 miles, unless the circumstances are exceptional or the goods are highly perishable or fragile.

8. A number of State Governments did not formally accept the Code and in practice most of them continued to impose a variety of restrictions on the issue of permits for motor vehicles, in particular, restrictions on distance. In the middle fifties it began to be felt that these restrictions were impeding the growth of road transport. In 1957 Transport Commissioners from the States made a series of recommendations for substantial liberalisation of licensing policies. These included the following suggestions :

- (1) Permits should be given to whosoever produced a serviceable vehicle;
- (2) Goods transport vehicles should be allowed to operate freely within a State; and

- (3) The Code of Principles and Practice for the regulation of motor transport should be suspended for a period of five years, after which the matter should be reviewed.

These recommendations were considered in the Ministries of Transport and Railways and the Planning Commission and the following proposals were conveyed to State Governments in June, 1959 :

- (a) Permits for public carriers may be issued freely for distances of 300 miles or for regions within a radius up to 150 miles;
- (b) In respect of inter-State permits, for distances beyond 300 miles, if the local Railway Administration (who should be consulted before issue of permits) objected to the issue of such permits, the matter should be referred to the Inter-State Transport Commission; and
- (c) Even in respect of permits for intra-State routes exceeding a distance of 300 miles, State Governments should consult the Inter-State Transport Commission if the Railway Administration concerned objected to the issue of such permits.

9. In 1956, the Motor Vehicles Act of 1939 was amended by Parliament. The objects of the amendments were, firstly, to remove certain defects observed in the working of the earlier legislation; secondly, to ease some of the restrictions which were holding back the road transport industry; thirdly, to provide a legislative basis for nationalisation of road transport services in which increasing interest was now being expressed; and, fourthly, to provide for inter-State movement of motor vehicles. The amended legislation empowered the Central Government to set up an Inter-State Transport Commission for the development, coordination and regulation of inter-State movement of transport vehicles. Earlier, there was no provision for the regulation of inter-State traffic with the result that on many inter-State routes passengers and goods had to be transferred to other vehicles at border points between neighbouring States. The Act of 1939 had not envisaged introduction or expansion of transport services by public authorities. Some States had amended the Act in this respect in its application to their own territories, while some others had promoted separate legislation to implement their proposals for nationalisation of road transport. The amended Act of 1956 contained uniform provisions for the operation of road transport services by State undertakings. Other important amendments introduced in 1956 included provisions for licensing of conductors, setting up of tribunals for determination and award of damages in cases of accidents and penalties for certain offences.

#### PRESENT SYSTEM OF REGULATION

10. Road transport is now regulated under the provisions of the Motor Vehicles Act, 1939, as amended in 1956. This is a Central Act, and is

administered by State Governments who, with the concurrence of the Central Government, can introduce amendments to the various provisions in the Act, keeping in view local needs and circumstances. Almost every State has introduced the special provisions in the Act for application to its territories, so that the procedures and practices followed in different States for the regulation of road transport vary in detail.

11. *Issue of permits.*—The operation of commercial motor transport vehicles is regulated through a system of permits. It is an offence to use or allow the use of any such vehicle in a public place, unless the vehicle is covered by a permit granted or countersigned by a Regional Transport Authority or a State Transport Authority or the Inter-State Transport Commission. The permit specifies not only the route or area of operation but also the manner in which the vehicle is to be used, whether as a stage carriage or contract carriage or private carrier or public carrier. Permits for stage carriages are generally issued for specified routes, while those for private and public carriers are issued for specified regions. Permits may specify the type of vehicle to be used, its carrying capacity, the rates of fare or freight to be charged and the nature of goods which are not to be carried. In the case of stage carriages, the time schedules for trips or services and standards of comfort and cleanliness to be maintained in the vehicle are also laid down. The various requirements of the permit cannot be deviated from by the permit holder without the written consent of the authority who granted or countersigned the permit. Any breach of these requirements makes the permit liable to suspension and even cancellation.

12. *Licensing authorities.*—The competent authorities to grant or countersign permits are the Regional Transport Authority, the State Transport Authority and the Inter-State Transport Commission. Each State has one State Transport Authority and as many Regional Transport Authorities as the number of regions into which the State is divided for the administration of the Motor Vehicles Act. These authorities are appointed by the State Government, subject to the condition that the Chairman of the State Transport Authority or of a Regional Transport Authority should be a person who has had judicial experience and the number of members should not be less than two. The Inter-State Transport Commission is appointed by the Central Government and should include a Chairman and such other members, not being less than two, as the Central Government may appoint.

13. A Regional Transport Authority (R.T.A.) is the primary authority for granting or countersigning permits for its region. According to the Motor Vehicles Act, "the area specified as the region of a Regional Transport Authority shall, in no case, be less than an entire district or a whole area of a Presidency town". The size of a region varies from State to State. It is co-extensive with a revenue district in the States of Assam, West Bengal (except the Presidency town of Calcutta and 24 Parganas which together constitute a region), Orissa, Andhra Pradesh, Mysore, Kerala and

Madras (except the city of Madras which itself is a region). The region corresponds to a revenue division in Maharashtra (except the Bombay region which covers Greater Bombay area only), Punjab, Madhya Pradesh and Bihar. The State of Gujarat has been divided into two regions, one comprising ten and the other seven revenue districts. Uttar Pradesh and Rajasthan have been divided into nine and five regions respectively, each region consisting of three or more districts according to administrative convenience.

14. The functions of the State Transport Authority (S.T.A.) are :—

- (i) to coordinate and regulate the activities and policies of the Regional Transport Authorities;
- (ii) to settle all disputes and decide all matters on which differences of opinion may arise between Regional Transport Authorities; and
- (iii) to perform the duties of a Regional Transport Authority where there is no such Authority (e.g. in the Union Territories) and, if it thinks fit or, if so requested by a Regional Transport Authority, to perform those duties in respect of any route common to two or more regions.

The State Transport Authority has the power to issue directions to Regional Transport Authorities for the purpose of discharging its functions and the latter are bound to carry them out. It is also competent to revise the orders of the Regional Transport Authorities in certain circumstances. In some States, the State Transport Authority or a Sub-Committee of it has been constituted as the appellate authority against appealable decisions of Regional Transport Authorities. The State Transport Authority is bound to carry out such directions as may be issued to it by the State Government in matters listed below in the interest of development of motor transport, coordination of road and rail transport, preventing the deterioration of roads and un-economic competition among motor transport operators :

- (i) fixation of fares and freights for stage carriages, contract carriages and public carriers;
- (ii) prohibition of or restriction on the conveying of long distance goods traffic generally, or of specified classes of goods, by private or public carriers;
- (iii) grant of permits for alternative routes or areas to persons in whose cases the existing permits are cancelled or the terms thereof are modified in order to enable a nationalised undertaking to operate road transport services in accordance with a scheme approved by the State Government; and
- (iv) giving effect to any agreement entered into with the Central Government or any other State Government or the Government of any other country relating to the regulation of motor transport

generally and, in particular, to its coordination with other means of transport and the conveying of long distance goods traffic.

15. State and Regional Transport Authorities are expected to ensure that transport vehicles are plied so as to serve the interest of the public and not merely that of permit holders. Since road transport operators obtain an increasing part of their business from agents, who engage in collecting or forwarding and distributing goods carried by public carriers, the Ministry of Transport circulated to the States in October 1962, draft model rules for licensing of booking, forwarding and distributing agencies. It is now proposed to make the necessary provisions in the Motor Vehicles Act itself.

16. *Inter-State Transport Commission.*—The Inter-State Transport Commission has been set up for the purpose of developing, coordinating and regulating the operation of transport vehicles in respect of any area or route common to two or more States. Its main functions are :

- (a) to prepare schemes for the development, coordination or regulation of the operation of transport vehicles and, in particular, of goods vehicles in an inter-State region;
- (b) to settle all disputes and decide all matters on which differences of opinion arise in connection with the development, coordination or regulation of the operation of transport vehicles in an inter-State region;
- (c) to issue directions to State and Regional Transport Authorities regarding the grant, revocation and suspension of permits and of countersignatures of permits for the operation of transport vehicles in respect of any inter-State area; and
- (d) to grant, revoke or suspend any permit or countersign any permit for the operation of any transport vehicle in respect of such route or area common to two or more States as may be specified in this behalf by the Central Government.

Under the Motor Vehicles Act, the functions of the Inter-State Transport Commission include the following :

- (i) division of traffic in inter-State regions among the States concerned;
- (ii) specifying the conditions which may be attached to an inter-State permit;
- (iii) fixing the maximum and minimum fares for the carriage of passengers in inter-State regions and regulating the timings of inter-State bus services so as best to serve the convenience of passengers;
- (iv) fixing the maximum and minimum freight rates for the various kinds of goods to be carried in an inter-State region, and laying down the conditions for the carriage of such goods; and

- (v) assisting in the conclusion of reciprocal arrangements amongst State Governments for the smooth and efficient operation of inter-State motor transport services.

The power to grant, revoke or suspend any inter-State permit or to countersign any such permit has not yet been vested by the Central Government in the Inter-State Transport Commission. One of the main tasks of the Commission at present is to assist States in concluding inter-State agreements on a reciprocal basis for licensing goods vehicles for inter-State traffic and to resolve such differences between States as may be referred to it. According to a convention between the Ministry of Transport and Communications and the Ministry of Home Affairs in January 1958, cases in which the Inter-State Transport Commission is unable to resolve differences between State Governments through persuasion have to be referred to the Zonal Council concerned for bringing about a settlement. According to Section 21(2) of the States Reorganisation Act, 1956, the Zonal Councils are authorised to discuss and make recommendations with regard to any matter concerning inter-State transport. It is only if the Zonal Council is unable to settle a dispute that the Inter-State Transport Commission is to issue a direction under Clause (c) of their powers.

17. *Intra-State operations.*—Section 57 of the Act lays down the procedure to be followed by the Regional Transport Authority for the issue of permits valid within any region. According to this section, “the Regional Transport Authority shall make the application available for inspection at the office of the Authority and shall publish the application or the substance thereof in the prescribed manner together with a notice of the date before which representations in connection therewith may be submitted and the date, not being less than 30 days from such application, on which and the time and place at which, the application and any representations received will be considered”. The Authority has to dispose of the application at a public hearing at which the applicant and the person making the representation shall have an opportunity of being heard.

According to Section 63 of the Act, a permit granted by the Regional Transport Authority of any region shall not be valid in any other region unless the permit has been countersigned by the Regional Transport Authority of the other region. For the grant of countersignatures for inter-regional operation, the same procedure has to be followed as for the issue of the intra-regional permits. A State Government may, however, make rules according to which a permit granted in one region shall be valid for another region within the State without countersignatures.

18. Procedures followed in different States for the issue of permits for operation of vehicles within the State vary considerably. In some States, as in Punjab, Madhya Pradesh, Mysore, Madras, Rajasthan and Orissa, a Regional Transport Authority or the State Transport Authority as the case may be, is authorised to issue permits valid for the State as a whole. In

some other States, as in Maharashtra, although permits issued by a Regional Transport Authority may be valid for the region concerned, the Authority itself can countersign for inter-regional operations. In Andhra Pradesh and Uttar Pradesh, a somewhat different procedure is followed. Andhra Pradesh consists of 16 regions, but is divided into five zones for issue of permits for public carriers, and each Regional Transport Authority can issue permits valid for the entire zone in which it is located. In Uttar Pradesh, Regional Transport Authorities are authorised to grant public carrier permits for an operational area of 150 miles radius from the base of operation or for a route not exceeding 300 miles without restriction with reference to the demarcation of the regions in the State.

19. *Inter-State operations.*—For inter-State operations of goods vehicles on a regular basis, Section 63(1) of the Act lays down that a public carrier permit in any one State is not valid in any other State unless countersigned by the State Transport Authority of that other State or by the Regional Transport Authority concerned. For the countersignature of permits, the same procedure is required to be followed as is laid down in Section 57 for the grant of new permits, that is, representations have to be invited and heard. However, an exception to this procedure is provided in the case of countersignatures granted under reciprocal agreements between States. The Act provides that “it shall not be necessary to follow the procedure laid down in Section 57 for the grant of countersignature of permits, where the permits granted in any one State are required to be countersigned by the State Transport Authority of another State or by the Regional Transport Authority concerned as a result of any agreement arrived at between the States.” Under Section 43(1) (iv), of the Act, a State Government, having regard, among other considerations, to the desirability of coordinating road and rail transport may, by notification, issue a direction to the State Transport Authority for giving effect to any agreement entered into with any other State Government. No such notification can be issued unless a draft of the proposed directions is published in the official Gazette and objections or suggestions received in this connection are considered, after giving an opportunity to be heard to the parties interested. The relevant provision, as at present worded, is of a permissive nature. A few State Governments, such as, Andhra Pradesh, Madras, and Mysore issue such directions and notify the draft agreements. However, in a number of States no directions are issued or notified by the State Government to the State Transport Authority concerned. The consequence is that, under the present agreements, often the railways do not obtain advance information about the permits countersigned for inter-State routes common between two or more States and are unable to represent their views in respect of such countersignatures.

20. *Reciprocal agreements between States.*—Several State Governments have entered into reciprocal agreements with the neighbouring States and in a few cases, with non-adjoining States as well, in regard to inter-State

operations of motor vehicles. The number of permits to be countersigned for inter-State operations is fixed on a reciprocal basis by the State Governments concerned having regard, as far as possible, to the assessment of demand and traffic potential and applications submitted by road transport operators for running services. It cannot be said that any systematic procedures for the assessment of traffic needs have yet been evolved. There are many instances in which the Inter-State Transport Commission has not been consulted before agreements have been reached between individual States. Some reciprocal agreements, as between Orissa and Bihar, Madhya Pradesh and Orissa and Madhya Pradesh and Gujarat, are subject to review at the instance of either State after a specified period of time, which may be six months or a year. In some other cases, as in the agreements between Gujarat and Rajasthan and Uttar Pradesh and Maharashtra, the number of permits fixed under the agreements is reviewed when considered necessary on both sides.

21. Reciprocal agreements generally cover all types of motor vehicles. As regards stage carriages, the number of regular permits and, in some cases, temporary permits also, is fixed between the States concerned for operation on specified inter-State routes. The number of buses is fixed on the basis, broadly, of parity of mileage lying within the territories of the two States. In some cases, as in the agreement between Madras and Andhra Pradesh, the number of buses to be introduced on inter-State routes is determined on the basis of an equal share for each State.

22. In respect of public carriers, reciprocal agreements provide for a fixed number of goods vehicles from each State plying on regular permits on inter-State routes. In the majority of cases, the number of temporary permits to be issued is also fixed though, in some instances, the number of temporary permits has not been defined. The movement of public carriers engaged in inter-State operations is generally restricted. For instance, agreements entered into by Andhra Pradesh with Orissa and Maharashtra provide for countersignatures of permits for not more than three specified routes connecting particular terminal points by the shortest routes, the maximum distance to be covered on any route in either State being limited to 350 miles from the border of the respective States. The agreement between Orissa and Madhya Pradesh provides that the area of operation of public carriers operating on regular permits shall be the contiguous districts of the two States in addition to which not more than two routes out of the agreed inter-State routes are to be allowed. Out of 100 regular public carrier permits to be issued by Orissa, 10 may be reserved for being issued from any point in Orissa to Bhilai in Madhya Pradesh and, likewise, 10 permits may be issued from any point in Madhya Pradesh to Rourkela.

Reciprocal agreements between States generally provide that public carriers shall not be used for picking up or dropping goods between any two points lying within the respective jurisdictions of the States concerned. These instances illustrate the kind of detail into which reciprocal agreements enter.

In respect of private carriers also, reciprocal agreements as between Andhra Pradesh and Maharashtra, Gujarat and Rajasthan and Madhya Pradesh and Gujarat, indicate the numbers and restrict the movement to specified routes. In some instances, as between Orissa and Bihar, Rajasthan and Uttar Pradesh, Andhra Pradesh and Orissa and Maharashtra and Madhya Pradesh, the number of private carrier permits is not fixed and permits may be countersigned on the recommendation of the State Transport Authority of either State.

23. *Permits for long distances.*—To meet the continuing needs of long distance traffic, the Government of India decided in 1963 that an adequate number of regular permits should be issued for these routes, the actual number being determined by the Inter-State Transport Commission. Accordingly, in October, 1963, the Inter-State Transport Commission issued a directive to the State Transport Authorities under powers conferred by clause (c) of Section 63 A(2) of the Motor Vehicles Act for the issue of a specified number of regular public carrier permits on inter-State routes. The Commission also laid down conditions for the grant of regular public carrier permits by State and Regional Transport Authorities for inter-State routes exceeding 300 miles in length between two terminal points situated in different States. Among the conditions proposed were that the owner or undertaking receiving the permit should own at least five public carriers, should maintain a proper schedule of rates and a time schedule and should pick up or drop goods only at the two terminal points of the route. The Commission's directive concerning the issue of regular permits on long distance inter-State routes could not come into effect on account of petitions filed by operators before the High Court in Mysore and in the Punjab concerning criteria for selection of applicants. In the judgement of the Mysore High Court, in *K. Ramchandra Hegde versus Regional Transport Authority, Bangalore and others*, it has been held that the directive issued by the Inter-State Transport Commission encroached on the quasi-judicial jurisdiction which Regional and State Transport Authorities have under the Motor Vehicles Act.

#### COMMENTS AND RECOMMENDATIONS

24. This brief description of the practices now in vogue for the regulation of road transport suggests that far from there being a common approach for the country as a whole or an adequate rationale, in several respects policies and, even more, the manner of their implementation differ greatly from State to State. Briefly, the conclusions which emerge from our study are as follows :

(1) By and large, there is no restriction placed at present in any State on the number of permits issued for motor vehicles. Operators who are able to secure vehicles are also able to obtain permits, although the procedures involved are often cumbersome and entail delays and frustration.

(2) Distance restrictions for the grant of permits are observed in varying degrees. In some States permits issued by the State Transport Authority are valid for the State as a whole and no distance restrictions are insisted upon for intra-State movements. In other States, distance restrictions are overcome in practice through liberal grant of countersignatures of permits, thus permitting inter-regional operations. In a few States, however, countersignature of permits for inter-regional operations is still beset with procedural difficulties. Among States falling within the first group we may mention Madhya Pradesh, Punjab, Mysore and Orissa; in the second, Andhra Pradesh, Bihar, Gujarat, Kerala, Maharashtra, Rajasthan and West Bengal; and in the third, Uttar Pradesh. The limit of 150 miles (240 kilometres) for radius of operation or of 300 miles (480 kilometres) for the total length of the route, which the Ministry of Transport had recommended in 1950, is scarcely observed in any State.

(3) In several States, a large number of temporary permits are being issued. These fall broadly into the following categories :—

- (a) temporary permits for newly acquired vehicles for a short period pending grant of regular permits;
- (b) temporary permits for inter-regional operations;
- (c) temporary permits for inter-State operations in the case of States which have not been able to conclude reciprocal agreements;
- (d) temporary permits provided for in reciprocal agreements between State Governments for issue of permits for inter-State routes, in addition to regular permits provided for in these agreements; and
- (e) temporary permits issued by arrangement between terminal States for haulage on important long distance routes passing through the territories of more than two States under which motor vehicles pay taxes in each of the States concerned.

(4) Road transport operations on inter-State routes are at present being regulated mainly under reciprocal agreements arrived at between the State Governments concerned. These arrangements have been generally reached directly between the States and are subsequently notified to the Inter-State Transport Commission. The information given in the Annexure to this Chapter showing numbers of permits issued for inter-State permits on the basis of reciprocal agreements between States illustrates the extremely cumbersome and unsatisfactory nature of the system as it has evolved. The Inter-State Transport Commission has recently asked State Governments to intimate the agreements they propose to enter into before finalising them.

(5) The scheme of regulation embodied in the Motor Vehicles Act was intended to secure the development of motor transport with due regard to the desirability of (a) coordinating road and rail transport services, (b) preventing the deterioration of the road transport system, and (c) preventing uneconomic competition within the road transport industry. In practice,

the aims of regulation have been interpreted in a limited sense, the main consideration being to prevent undue competition within the road transport industry *inter se*, and the question of coordinating road and rail transport or of matching road development and road transport development has not received sufficient attention. The principal means adopted have been the imposition of restrictions (a) on the number of motor vehicles permitted to operate in any region or route and (b) on the distance over which vehicles might operate.

(6) There is imperative need to simplify and introduce greater uniformity in the existing approach to procedures for regulation of road transport and to bring these into conformity with the changing and growing transport requirements of an economy developing in a planned manner.

25. In our discussion on the working of the existing scheme of regulation, we have explained at length the drawbacks from which the system suffers. There is no doubt that the requirements of the future differ greatly in scale and composition from those in the past and that the present system of regulation calls for large changes. There are three issues to be considered. The first is whether, without some measure of regulation of operations, it will be possible to evolve and put into effect a common scheme of allocation of traffic or a development plan for transport, which provides for various modes of transport as a composite network serving the needs of the economy, as assessed on the basis of careful technical and economic studies and investigations into costs and benefits. The second consideration is whether, without some measure of regulated and planned development of road transport, as of other forms of transport, there may not be a degree of misallocation of scarce resources, including materials, foreign exchange and long-term credit. If the objective is to achieve a considerable measure of coordination between different transport services at the regional level, both in planning and in operation, will it be possible to achieve this without some form of regulation? In the third place, we have to consider whether certain priorities for the development of road transport can be realised without regulation. A vast increase in road transport services is called for, for instance, for integrating the large rural sector of the economy with the country's urban and industrial economy, for opening up isolated and under-developed regions and for providing cheap and efficient mass transport in the towns. For several years to come, there will be limitations on the supply of vehicles. Special steps will be needed to ensure that the transport requirements of under-developed and backward regions in the country and of rural areas generally are adequately met. From these several considerations, the conclusion which emerges is that regulation of road transport, conceived as a tool of planned and coordinated development, rather than as a restrictive device, has a functional role in the development of road transport in keeping with the growing needs of the economy and as an integral part of the total transport system of the country. The more detailed proposals which follow are formulated within the framework of this broad objective.

26. *Regulation of passenger transport.*—Since passenger transport services have to be operated in accordance with pre-determined schedules, licences to individual operators have to be issued in relation to specified routes. There are two recommendations which we wish to make for the future development of passenger services. First, in the past, road and road transport development have tended to be considered separately rather than as related aspects of a scheme of development for an area or region as a whole. Although passenger services have to be licensed for specified routes, a regional approach has value in as much as it stresses the requirements of the local economy, helps adapt the forms of investment to the needs as established, ensures closer coordination with railway services and provides a continuing test of progress in reaching into the interior. The second recommendation that we wish to make is that special steps should be taken to encourage the rapid growth of passenger road transport in the more backward districts and regions. This object has to be achieved by accelerating road development in these regions and eliminating the large deficiencies in the road system which now exist. There would be need also for concessional terms such as charging lower rates of taxes for road transport services in these regions.

In the main, passenger services operate within the territories of individual States. Permits for passenger services between connecting points situated in different States should in future be issued under the authority of the Inter-State Transport Commission, which must no doubt act in consultation with the States concerned. In the scheme of regulation which we envisage, the system of reciprocal agreements between different States for determining the numbers of permits to be issued will be given up.

The present practice under which licensing authorities invite and hear objections from operators, including the Railways, before they grant permits for the operation of passenger services, serves a useful purpose and provides an assurance of a fair deal to operators and should, therefore, be continued.

27. *Regulation of goods transport.*—In the light of the analysis of the existing system of regulation of road transport presented in this Chapter, it appears to us that the concept of 'region' as defined in the Motor Vehicles Act and as operated in practice in many States is not suited to present needs. Regions should be determined not only on considerations of administrative convenience, as at present, but even more on economic considerations which take into account the natural flows of traffic. While the present system of inviting and hearing objections before granting fresh permits should be continued, the procedure by which the Regional Transport Authorities are required to function, involving frequently a system of countersignature of permits is cumbrous, leads to vexatious delays and needs to be changed. From these two propositions follows a third, namely, that in the States, the focus in the regulation of road transport should shift from the region and the Regional Transport Authority to the State and its economic needs and

to the State Transport Authority which should function as an organ assisting in formulating and implementing the State's economic development plan.

The amendments which were introduced in the Motor Vehicles Act in 1956 brought into the legislation, although tardily, the notion of inter-State road transport and also created a new authority at the national level in the shape of the Inter-State Transport Commission. In any system of regulation of road transport modified to meet present needs, inter-State movement of goods by road, which must be in the main long-distance movement, will call for special attention and study in the scheme of allocation of traffic. It will also require adequate machinery for implementation. This is the fourth proposition that we should advance at this stage. Finally, within the scheme of road transport regulation, it would be necessary to treat the problems of rapid development of transport in large under-developed regions and in metropolitan cities as special problems calling for somewhat wider planning and for provision of adequate resources for development. In making specific proposals, it is necessary to bear in mind that the details of regulation should be in line with the objective of providing cheap, efficient and expanding transport facilities and of obtaining the utmost value from all available modes of transport.

28. *Inter-State movement.*—We have referred already at some length to the part played by reciprocal agreements between States for issue of inter-State permits for the operation of road transport services. In our view, a system under which States have to negotiate and bargain with one another to determine the number of permits which each may issue to its own operators is bad in principle and proves even worse in practice. It allows little scope for a well-considered assessment of the transport needs to be met or of the part which different services should play in meeting them or of the costs involved, both for the road transport industry and for the economy as a whole. Considerations such as rail-road coordination are often ignored. If there are States intervening between those entering into a reciprocal agreement, the system lends itself readily to numerous restrictions, tax levies and imposts and affords opportunity for abuse. In our view, therefore, such reciprocal agreements between States should no longer be the principal means for inter-State operation. Their place should be taken by a system of inter-State permits issued under the authority of the Inter-State Transport Commission which, in the interest of precision, could be redesignated as the Inter-State Road Transport Commission. This body, working in close collaboration with State Transport Authorities and the Railways, should assess at intervals of two to three years the requirement of long-distance and inter-State road transport and should determine the volume of transport and the number of vehicles which should be made available and the broad terms on which the services should be provided. The requirements should be arrived at on the basis of careful technical and economic studies, with progressively greater knowledge of relative costs, keeping in view the needs

of coordination between different services and the relative contribution due from each. The proposals should be always conceived with reference to a total plan of development. Having decided upon the quantum of road transport to be provided over a given period on any long-distance or inter-State route, the permits could be issued by the State Transport Authorities on behalf of the Inter-State Transport Commission. To what extent each State should be able to issue permits to applicants from among its own operators could be determined on some agreed principle of equity such as route mileage, volume of traffic originating etc. If the requisite number of operators are not forthcoming in a State at one stage, either the permits could be issued when suitable applicants are available or, for the time being, applicants from outside the State could be attracted. For all inter-State permits, as proposed in a later chapter, there would be uniform rules for motor taxation. There would be no question of seeking special authority to pass through the territory of any State lying *en route* or of obtaining countersignatures. To distinguish vehicles operating on inter-State routes under permits issued on the authority of the Inter-State Transport Commission, it would be useful to prescribe a common colour to be adopted throughout the country. Action on this aspect has already been initiated by the Inter-State Transport Commission.

29. Earlier in this Chapter we have described the functions of the Inter-State Transport Commission. For implementing the recommendations relating to inter-State movement by road, it is essential that the Commission should be considerably strengthened. It should have a full-time **Chairman** of high status preferably drawn from public life. The complete range of powers contemplated for the Commission under Section 63A(2) of the Motor Vehicles Act, including the power to grant, revoke or suspend permits for the operation of transport vehicles on inter-State routes, should be given to the Commission and its existing powers should be utilised effectively. In its present mode of functioning the Inter-State Transport Commission is unable to fulfil the role assigned to it under the Motor Vehicles Act. In future the Commission should be equipped with machinery to elicit information concerning traffic requirements on inter-State routes and should be placed in a position to coordinate plans of road transport development with the States as well as with the Railways.

30. *Intra-State movement of goods.*—The second main class of permits to be issued would be for undertaking goods transport within the territories of a State. In licensing road transport vehicles for intra-State operations, we do not favour the traditional forms of distance limits, particularly in view of the fast growing and changing needs of the economy. Having due regard to the various means of transport which can be harnessed—rail network, road system and inland water transport—and the assessment of present and future traffic, the State Transport Authority should propose the extent to which road transport facilities are to be expanded in any given period, the distribution in different parts of the State, the kind of vehicles required etc. Such

assessment forms an integral part of the scheme of transport planning for the future as envisaged by us and has the advantage of furnishing a sound basis for the allocation of traffic and development of transport. Naturally, since in the past assessments of this nature have not been made and the functions of State Transport Authorities have been almost wholly administrative or regulatory without real opportunity to formulate guiding principles, these organisations will need to be equipped with appropriate personnel.

31. As a general rule, we visualise that permits for intra-State operations will be valid for the State as a whole. However, there appear to us to be a few large regions in the country which are markedly under-developed in terms of transport facilities. In these it would be desirable to formulate integrated regional transport plans within the framework of the transport plan of the State as a whole. The regions we have in view are the Telangana districts in Andhra Pradesh, North Bihar, Chhatisgarh Division and the eastern districts in Madhya Pradesh, Vidarbha and Marathwada in Maharashtra, the coastal and hill districts of Mysore, Uttarakhand and eastern districts in U.P. In these regions particular stress should be laid on accelerated development of the road network. State Governments should also consider whether facilities for procuring vehicles and some measures of concessions in taxes levied on motor vehicles could not also be usefully given in respect of permits for operation within the region as distinguished from operation over the State as a whole. If such concessions were available for a period of, say, upto 5 years, levels of development in transport in these regions should come up to the general level in the State more speedily than might otherwise be possible.

32. *Temporary permits.*—In view of the proposed scheme for the issue of permits, both for intra-State and inter-State operations of public carriers, we expect that the scope for temporary permits will diminish considerably. Basically, temporary permits should be issued for special temporary purposes to meet unexpected requirements. The same authority which issues regular permits should also be the one which issues temporary permits as and when needed. Under our recommendations, temporary permits will become an exception, to be resorted to only for meeting special and short-term needs, as was in fact envisaged in Section 62 of the Motor Vehicles Act. Resort to issue of temporary permits pending decision on an application for the renewal of a permit, though allowed under the law, should be comparatively rare.

33. In putting forward these proposals for two sets of permits—inter-State permits and intra-State permits—we have in view the approach of planned and coordinated development of all modes of transport. The principal consideration is how every part of the country may be helped to obtain as fully and as speedily as possible the communications and the transport services needed for its overall economic development. In this task all modes of transport have a vital role, each by itself as well as in support of the others.

Where the entire economy is in the process of growth and large areas are still but scantily served, the area of conflict<sup>1</sup> between different modes of transport is by no means considerable. Even such conflict as there may be can be practically eliminated by a system of planning based on careful assessment of needs and costs and recognition of common interest and on active cooperation at each stage between those responsible for different media at the regional, State and national levels. We feel confident that, properly implemented, the changes in the existing system of regulation of road transport and the consequential proposals for coordination between rail and road transport which we outline in this and other chapters will be of material value in enabling the transport sector as a whole and each of the services comprised in it to provide the necessary support and stimulus to plans for economic development at the national, State and regional levels.

#### FARES AND FREIGHT RATES

34. Under Section 43(i) (i) of the Motor Vehicles Act, 1939 (as amended in 1956), the State Government can issue directions to the State Transport Authority, "regarding the fixing of fares and freights for stage carriages, contract carriages and public carriers". The current practice in this respect varies in different States and, in some cases, between regions in the same State. In a number of States maximum freight rates are fixed, as in Bihar, Punjab, Rajasthan, Kerala and the Bhopal and Mahakoshal regions of Madhya Pradesh. In Orissa, general freight rates are fixed by Regional Transport Authorities within their respective jurisdictions irrespective of the nature of the commodities carried, and the rates vary from region to region. In West Bengal freight rates are not fixed.

35. In respect of passenger fares, a somewhat greater measure of regulation has been attempted and the practice varies at one end from West Bengal, where fares are not regulated, to Punjab and Mysore and the hilly areas of Uttar Pradesh, where both maximum and minimum fares are fixed. Only the maximum fares are prescribed in Andhra Pradesh, Rajasthan, Maharashtra, Gujarat, Bihar, Kerala, Madras and the greater part of Uttar Pradesh. In Orissa, the State Government fixes the fares charged by State operated services, leaving it to Regional Transport Authorities to prescribe fares for private operators. In Madhya Pradesh, maximum fares are prescribed for State-operated services in the Madhya Bharat and Mahakoshal regions. Maximum fares are fixed for privately operated services in the Madhya Bharat and Bhopal regions, but in Mahakoshal minimum fares are also prescribed. In the Rewa and Sironj areas there is no regulation of passenger fares at all.

<sup>1</sup> Australian Transport Advisory Council, Report of Committee of Transport Economic Research Relating to Road and Rail Transport—Part II—Railways Costs and Coordinating Summary—February, 1958, page 52: "It is reiterated that this problem of dividing up traffic relates only to a comparatively small proportion of total freight movement. The Committee estimates that not more than 15% to 20% of the total would comprise traffic for which road and rail transport are really competitive."

36. For inter-State passenger services, the common practice is to provide in reciprocal agreements entered into by States for charging at rates obtaining in the States concerned in respect of distances falling within their respective territories.

37. The existing legislation gives such powers as are needed to ensure that freights and fares are regulated in the public interest. In respect of passenger services it is ordinarily sufficient to prescribe maximum fares, having regard to the physical terrain and volume of traffic in different regions. In regard to freight rates, ordinarily it might be sufficient to prescribe maximum rates. In certain situations, however, the objective of road-rail coordination could be served more effectively if minimum rates were also laid down. The legislation should clearly empower the State Transport Authority to fix both maximum and minimum as well as specific fares and freights as might be necessary. The main problem in respect of fares and freights, specially the latter, concerns the means by which the prescribed rates can be enforced. It is necessary to ensure that in each State a sufficient number of goods vehicles should be licensed to prevent scarcity. A satisfactory solution to the problem of enforcement of freight rates in particular cannot be found without establishment, on a State and regional basis, of Road Transport Associations which are capable of performing a responsible role in advising on freight rates and in giving effect to rates fixed by State Transport Authorities.

#### REORGANIZATION OF THE ROAD TRANSPORT INDUSTRY IN THE PRIVATE SECTOR

38. The growth of road transport services and the dimensions of the tasks to be carried out in the coming years call for a measure of reorganisation of the private industry engaged in road transport. At the end of the Third Plan, there will be some 360,000 commercial vehicles on the road and the number is likely to increase to 680,000 by the end of the Fourth Plan. To secure this measure of expansion as well as to obtain higher standards of efficiency in the services rendered, it is essential that a steadily increasing proportion of the industry should take the form of viable and well-organised units. It is not intended to suggest that there should be large private units owned by individuals or that joint stock companies should be allowed to expand at the expense of small units. Reorganisation of the road transport industry has to be considered in three main directions. Firstly, small operators should be helped to join together to form viable units. For practical purposes, a fleet of 10 or more vehicles may be held to constitute a viable unit. To encourage operators to merge into viable units capable of rendering efficient service, certain concessions and facilities could be offered. For instance, in the issue of permits for long-distance services, scheduled services and for the less developed regions, preference could be given to viable units and to cooperative undertakings fulfilling the conditions of viability. Secondly, as suggested later, cooperative transport undertakings should be actively promoted as a matter of public policy. Thirdly, it is

essential to provide in the legislation for the formation at the State and regional level of associations of transport operators with specific functions and responsibilities. Such associations could undertake to provide common facilities for booking and forwarding of goods, workshops for repairing and servicing of their vehicles and purchase and supply of spare parts and accessories and other requisites, and could assist in the settlement of claims for motor vehicles and other taxes, insurance etc. They could also provide legal assistance for settling claims and liabilities involving their vehicles, arrange for cooperative insurance schemes and for recruitment and training and terms of service for drivers, mechanics and other personnel. To work out suggestions on these lines and evolve specific schemes to facilitate the formation of representative road transport associations the Ministry of Transport have recently constituted a special study group.

39. A major source of weakness on the part of the road transport industry and of the position of vulnerability in which the vast majority of small operators are placed lies in the sphere of finance. By and large, operators depend on private financiers for credit facilities for purchase of vehicles. Many financiers lend on extortionate terms so as to cover uncalculated risks, including possible malpractices on the part of operators. A number of abuses have crept into this system for want of standard terms of agreement between lenders and borrowers. In the arrangements which are often in force at present, certain sanctions are built in, which militate against the development of a sound transport industry and affect adversely the interests of small operators. The total volume of finance available to the industry is quite meagre and, in relation to future needs, must be considered utterly inadequate. Amendments undertaken in 1962 in the State Finance Corporations Act, 1951, to permit these Corporations to lend and guarantee loans to the road transport industry have so far brought little help to operators. Unless banks and other financial institutions come forward to provide financing and refinancing facilities in a big way, it will not be possible to secure the development of the road transport industry along sound and efficient lines, or to realise the measure of development envisaged for the Fourth Five Year Plan. In our view this is a problem of such critical importance and dimensions as to demand the special attention of the Ministries of Finance and Transport and of the Reserve Bank of India and the State Bank of India. We are, therefore, glad to note that the Ministry of Transport have recently set up a study group with a view to examining the problem of financing the road transport industry. The group is expected to survey the existing arrangements for advancing money to road transport operators for purchase of motor vehicles and the difficulties experienced by them in fulfilling the conditions under which advances are made and assess the extent to which the existing financing agencies are likely to satisfy the requirements of the transport operators in the next 10 or 15 years. The group will also examine the existing arrangements for providing financial assistance to other organised industries in the country.

#### SCOPE OF THE PUBLIC SECTOR IN ROAD TRANSPORT

40. Road transport was placed in the second schedule of the Industrial Policy Resolution, 1956, because it was recognised that in the growth of this industry both the private and the public sectors had a significant contribution to offer. The primary unit of investment in the road transport industry is small and the service offered has an element of personal attention which gains from flexibility of organisation and convenience of delivery. Therefore, provided (a) financing arrangements are satisfactory, (b) road transport associations undertake a responsible role in the due observance of standards of service and freight and fare structures, and (c) a reasonable measure of coordination between road and rail transport is secured, private operators can undertake a considerable part of the development consistently with the overall interest of the community. This is specially the case with the movement of goods by road. In considering various problems of transport policy, our Committee is called upon to identify the nature of the tasks to be undertaken by the road transport industry in relation to passenger transport and goods transport and to suggest the role which private operators and undertakings and public and cooperative undertakings should be enabled to play in the future, keeping in view the direction of public policy embodied in the Industrial Policy Resolution.

41. As stated earlier, at the end of the Second Plan, about 31 per cent of commercial vehicles employed in passenger transport were operated by State and Municipal undertakings. The proportion at the end of the Third Plan is expected to increase to 33 per cent and, on present estimates, to 40 per cent at the end of the Fourth Plan. In a few States a considerable part of the system is publicly operated. For instance, the proportion is about 90 per cent in Gujarat, 98 per cent in Western Maharashtra and 50 per cent in Uttar Pradesh. There has been so far no formal statement of policy that passenger transport should eventually be developed entirely through State owned, municipal and cooperative undertakings. However, in varying degrees, most State Governments have moved in the direction of public participation in passenger transport and have on the whole succeeded in providing more efficient and wider services than were otherwise available. But for difficulties in providing the resources needed and procedural complexities under the existing legislation and rules, the advance towards public participation could have been greater.

42. With the growth of towns and cities and more rapid development in the countryside, passenger transport services constitute a business completely free from risk, highly profitable as an investment and essentially a public utility suitable for operation on a public and semi-public basis. Therefore, there are valid economic grounds in favour of State Governments proceeding towards enlargement of their own share and the share of municipal and cooperative undertakings in passenger transport. We are in favour of State Government giving a due place in their Five Year Plans to the development of passenger transport in the State, municipal and cooperative sectors, each State determining the extent of advance in any given period according

to its assessment of development needs in different regions, specially those still inadequately developed, and the resources it can make available. To a large extent, such development can and should be self-financing, the profits and reserves of existing undertakings being ploughed back into the industry. From this aspect, we attach very great importance to the question of forms of management of road transport undertakings owned and operated by State Governments. This is the crucial factor in the rapid development of road transport as a public enterprise and it would be an error to consider the expansion of Government's role and the form of organisation as separate and unrelated issues.

43. As distinguished from passenger transport, goods transport has been confined almost entirely in the private sector and has, in fact, remained as a more or less unorganised industry to whose development detailed thought has yet to be given. In Himachal Pradesh, goods transport is undertaken by a Government undertaking. For short periods State services for transport of goods have been operated in Maharashtra and Mysore. Since November 1962 a Central road transport organisation has operated goods services to Assam and the northern parts of West Bengal. This organisation has now been constituted into a company with an authorised capital of Rs. 2 crores, and its vehicles ply to some extent between Gauhati and Calcutta and on a larger scale in the Siliguri-Gauhati area. In some States, nationalised passenger services also carry goods on a limited scale as unaccompanied parcels. These are the only instances at present of public participation in goods transport.

44. The main explanation for the small advance made by State Governments and the Centre so far in the field of goods transport is that the problems presented by road transport in terms of the scale of development called for, the requirements of the more backward regions, coordination in relation to rail transport and other services and the question of finance of operators have not received sufficient consideration. These are some of the basic issues in transport policy at the national level. It has been apparent for several years that the Motor Vehicles Act, even as amended in 1956, has done little more than prevent uneconomic competition within the road transport industry. In any event, in view of the limited supply of vehicles, the scope for such uneconomic competition so far was not considerable. The existing legislation has failed to secure the development of the industry along sound and efficient lines, or achieve proper coordination between rail and road transport, or cater adequately to the needs of the less developed regions. Instead, it has provided the basis for a restrictive and unintegrated approach to the development of road transport. In retrospect, it seems to us to have been a weakness that at successive stages, the problem has not been viewed comprehensively in relation to the tasks to be carried out and how best they could be accomplished. Thus, towards the end of the First Plan the Central Government proposed to States that, until the end of the Second Plan, nationalisation of goods transport services should not be undertaken. In 1958, the Central Government again recommended that during

the period of the Third Plan the policy of nationalisation need not be extended to goods transport. However, in the Report on the Third Plan, in view of the likely pressure on transport, specially on the railways, the possibility of extending the activities of the public sector in the field of goods transport by road was envisaged in the following terms :

"In view of the great pressure on railway transport and the need for coordinated development of various forms of transport in the course of the Third Plan, it may be necessary for the public sector to extend its activities in the field of transport of goods by road. A number of questions, such as the forms of organisation and the scope of the programme, will be considered further in the light of the recommendations of the Committee on Transport Policy and Coordination and in consultation with the State Governments."

45. As a Committee, we have endeavoured to consider the subject afresh and in relation to certain objective facts.

Firstly, according to the tentative estimates for the Fourth Plan, goods traffic is likely to increase over the five years 1965-66 to 1970-71 by about 70 per cent, from 40 to 68 billion tonne kilometres and the production of vehicles to rise from 40,000 to 100,000. It is hoped that the private sector will be able to undertake a large part of this development, but it may well be necessary to supplement this effort. Private operators, many of whom are persons of small means and inadequately equipped, will need financial resources on an enormous scale, and it is at best uncertain if these will become available except over a period of sustained effort and organisation.

Secondly, in several States, there are substantial regions in which development has lagged behind and in whose future growth road transport can make an important contribution. It is precisely in these areas that private industry does not always move in readily; for the services take time to build up and much preliminary effort is needed. The question arises whether, even after allowing such encouragement and concessions to existing and potential private operators as may be feasible, there may not be further need in certain situations for promoting State and cooperative enterprise.

Thirdly, the economy of the region comprising Assam and the neighbouring territories and of Jammu and Kashmir is affected adversely by high costs of transport as well as by inadequacy of transport. In these regions, among others, experience has demonstrated conclusively enough that private services are more likely to be developed and maintained on a reasonable scale if, at the same time, there is a significant area of public activity, such as will continue uninterrupted even under difficult circumstances.

Fourthly, public undertakings, besides filling important gaps in the network of services needed in a complex and growing economy which is yet lacking in balance in many ways, could help speed the reorganisation of the road transport industry along sound and economic lines. They could set standards of performance, which could be applied progressively to the industry as a whole, for instance, in the matter of services to be provided,

freights and fares, use of booking agencies and maintenance of schedules. In particular, it is necessary to establish a pattern of work in the road transport industry which provides fair opportunity to small operators, encourages them to come into viable units and helps to link up their operations more closely with those of the larger undertakings, thus assuring them steady and continuous business and reducing both their risks and their costs. In this direction also public undertakings could set the pace and induce other large operators to join in schemes of value to the industry as a whole.

Finally, we come to perhaps the most conclusive element in the situation. We have referred at length in earlier chapters to the nature of the problem of road-rail coordination, specially over long distance operations. Proposals for allocation of traffic, having due regard to social costs and benefits, are likely to remain largely on paper, unless appropriate instruments are devised for giving effect to them, both directly and through influence exerted indirectly on other agencies. From this aspect, we consider that the active participation of the railways in long distance goods transport by road is a necessary step in the interest of overall transport development and the economic use of resources. Such participation can be facilitated by establishing public corporations to share in the growth of road transport.

The problem of coordination will arise on a larger scale than at present if our proposals for liberalising the existing system of road transport regulation are accepted and inter-State and intra-State permits are introduced. We hope that at the State level the question of road-rail coordination and the need for expansion of road transport services will be seen as connected developments and in a much broader perspective than in the past. From this aspect we envisage that, as their resources permit, State Governments may be in a position to make a beginning in the operation of goods transport services, associating the Railways as partners in this activity. They may do so, as a first step, by extending the scope of existing State road transport undertakings and, where necessary, by setting up new corporate undertakings. We visualise such public participation in goods transport, not as a scheme of nationalisation, to be put through now or in the future, but as an attempt to forge a necessary means for the strengthening of the road transport industry as a whole and achieving coordination between different forms of transport in the interest of the national economy. How far this effort may proceed will depend on the economic results achieved and the efficiency with which the services are operated. We appreciate of course that in the early years of the Fourth Plan, because of the many claims on resources which have to be met, the advance in most States in the direction of public participation in goods transport is not likely to be on any significant scale. Nevertheless, it is desirable to stress the general approach.

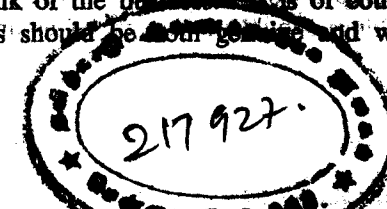
The case for coordination between road and rail transport on long distance inter-State routes stands on a special footing. Here we are faced with a difficult problem which, in the absence of an agreed and forward-looking approach on the part of all concerned, may in future become a

cause of wrong policies, not only in the States, but also at the national level. We consider that it is necessary to promote some measure of public participation in long distance goods transport as a way of bringing the Central and State Governments and the Railways as partners in an effort to achieve such coordination between road and rail transport as will help expand road transport, reduce the existing restrictions, bring about cheaper and more efficient transport, induce suitable adjustments in railway rating policies and promote a coordinated and planned approach to the development of transport services. From this aspect, we recommend the formation of a corporation to operate long distance goods transport services on selected inter-State routes, in which the Central Government through the Ministry of Transport, the Railway Board and the States concerned may provide capital in suitable proportions, for instance, in the ratio of 30, 30 and 40 respectively. Provided it begins on sound lines and proceeds step by step, such a corporation will be of the greatest value to the Inter-State Road Transport Commission in the regulation and expansion of inter-State services. The pace of expansion can be determined by circumstances and needs as these develop. We visualise the corporation working in close cooperation with undertakings sponsored by the States and with associations of road transport operators and, in particular, giving special support to small operators.

In making these recommendations in favour of public participation in goods transport by road, we wish to refer once again to the important role assigned to private operators and to the need to give to them such financial and other assistance as will enable them to expand their activities on the scale foreshadowed in the Fourth Plan. In our recommendations we are guided by the overall needs of national and regional economic development and of coordinated development of road and rail transport and have avoided thinking in terms of rigid demarcation of activity or conflict of interest between the public and private sector. In the light of these observations it is our hope that our proposals may become the basis of constructive action and consideration by the Central and State Governments, by the Railways and by private operators.

46. It is already Government's policy to encourage the formation of cooperative transport organisations. These could be of value in several fields, notably, in the transport of agricultural produce, for instance, in association with food trading organisations set up by the Central and State Governments and in association with cooperative and other processing industries. In hilly regions and other areas where existing road transport services are inadequate, road transport should be developed along cooperative lines with the support and participation of Government and even permitted to develop for a period largely on the basis of monopoly. Similarly, for carrying fruits and vegetables, milk, fish and perishable goods, cooperative transport undertakings could supplement other services and, where necessary, could be given the bulk of the business. It is of course important that cooperative organisations should be well managed and well

R  
X4-2 1591  
N66



managed, and every care must be taken to see that the support and concessions which it is necessary to give to cooperatives are not misused.

#### MANAGEMENT OF STATE TRANSPORT SERVICES

47. As we have suggested already, the contribution which the public sector can make to the growth of a healthy and progressive road transport industry turns out a little on the forms and efficiency of management which it is able to provide. There is at present no uniform practice in regard to the management of the State Road Transport Undertakings. Some of them are managed through Corporations set up under the Road Transport Corporations Act, 1950, while, in certain other States, they are being run departmentally. In Orissa, in one region nationalised services are managed through a joint stock company in which the railways also participate. In the larger cities road transport services are commonly run by Municipal Corporations.

With the gradual expansion of passenger road transport services in the public sector, the question of the form of management of the nationalised undertakings has drawn repeated comments. In its Preliminary Report, the Committee studied this question in some detail and recommended that Corporations should be constituted by State Governments and that the Railways should be enabled to participate in the share capital. The most important consideration which weighed with the Committee in making this recommendation was that as a form of management corporation would facilitate coordination through mutual agreement between State Road Transport Undertakings on the one hand and the Railways on the other. In the view of the Committee, experience of the working of Corporations, with which the Railways had been associated, had demonstrated this proposition.

48. We adhere to the conclusion reached in the Preliminary Report and consider that, in addition to bringing about greater coordination in services, Corporations are essential for mobilising the internal resources needed for the continuous expansion of road transport undertakings and for measuring and enforcing standards of efficient management. Corporations would have much greater autonomy in the management and operation of commercial services, in the use of internal resources and in mobilising resources for future development than obtains in the case of departmental undertakings. The Road Transport Corporations Act, 1950, under which Corporations are set up, provides considerable scope for Corporations to function on commercial lines and enables them to take and implement decisions speedily without being tied down by rigid procedures. State Governments sometimes take the view that inasmuch as departmental undertakings are not liable to income tax and corporation tax, which accrue mainly to the Central Government, this form of organisation is more profitable to them. If this argument was to be considered really valid, all enterprises established by States should be organised departmentally and no State Government should set up a corporate body to operate on its behalf. Road transport undertakings should be thought of as an important ingredient in that part of the

public sector activities in which State Governments have the largest share. As such, precedence should be given to sound and economic management, attainment of the highest standards of efficiency and continuity of growth and expansion from within rather than to the short term consideration of enlarging receipts through not having to pay such Central taxes as are borne by all enterprises, public or private, under the appropriate legislation. Clearly, the issue should be looked upon in a broader frame of reference than has been done in some States in recent years.

49. We are glad to note that these arguments are being increasingly appreciated by State Governments. States which have already set up corporations are: (1) Andhra Pradesh, (2) Bihar, (3) Gujarat, (4) Kerala, (5) Madhya Pradesh, (6) Maharashtra, (7) Mysore, (8) Punjab (for erstwhile PEPSU area), (9) Rajasthan, (10) West Bengal (except the Durgapur city service), and (11) Himachal Pradesh (Mandi-Kulu Road Transport Corporation). The Government of Orissa also propose to constitute a Corporation in the near future. Governments of four States—Assam, Madras, Punjab (for regions other than the former PEPSU area) and Uttar Pradesh have yet to constitute corporations. It is our hope that these States will agree to re-examine their earlier views, specially in the context of future development and expansion of goods transport services as recommended by us. This would facilitate planned and coordinated development of road transport in which both public and private operators and the Railways have a valuable part to play.

50. A useful recent development is the formation of the Association of State Road Transport Undertakings. The Association has the following aims and objects:

- (i) to undertake and promote research studies in transport economics and engineering etc., affecting the transport industry;
- (ii) to secure and provide a technical consultancy service for the benefit of the State Transport Undertakings;
- (iii) to render common service to the members of the Association and to assist them in such matters as standardisation of equipment, purchase of materials at economic prices, promotion of efficiency of road transport services and reduction in the operational costs;
- (iv) to provide facilities for instruction, training and research for the persons employed in these undertakings;
- (v) to encourage the adoption of modern tools of scientific management like work-study, budgetary control etc.;
- (vi) to publish bulletins, notices, journal for the dissemination of useful information and to arrange seminars, inter-unit visits etc.

The work of the Association should help in bringing about uniformity of practices and better tests of efficiency among State and municipal transport undertakings and promote schemes for strengthening the economy of small operators and achieving greater coordination with the services offered by the Zonal Railways.

# ANNEXURE

Statement showing the number of regular and temporary inter-State public and private carrier permits agreed to be issued by the various States according to the terms of reciprocal agreements as in July, 1965

| Serial number | state          | neighbouring states | number of permits |                    |                    |
|---------------|----------------|---------------------|-------------------|--------------------|--------------------|
|               |                |                     | regular permits   | temporary permits  | private carriers   |
| 1             | 2              | 3                   | 4                 | 5                  | 6                  |
| 1             | Andhra Pradesh | Delhi               | 25                | 20                 | no limit specified |
|               |                | Madhya Pradesh      | 75                | 100                | ..                 |
|               |                | Maharashtra         | 300               | 100                | 30                 |
|               |                | Mysore              | 600               | no limit specified | 75                 |
|               |                | Orissa              | 200               | 50                 | no limit specified |
|               |                | Punjab              | ..                | 20                 | 5                  |
|               |                | Uttar Pradesh       | ..                | 20                 | ..                 |
|               |                | West Bengal         | ..                | 10                 | ..                 |
|               |                | Madras              | 2000              | ..                 | ..                 |
| 2             | Assam          | Manipur, Tripura    | 70                | 30                 | ..                 |
|               |                | Nagaland            | 320               | 15                 | ..                 |
|               |                | West Bengal         | 60                | 50                 | no limit specified |
|               |                |                     |                   |                    |                    |
| 3             | Bihar          | Delhi               | 10                | 5                  | ..                 |
|               |                | Madhya Pradesh      | 50                | 100                | ..                 |
|               |                | Maharashtra         | 25                | 50                 | 20                 |
|               |                | Orissa              | 60                | 25                 | no limit specified |
|               |                | Punjab              | 25                | 30                 | 10                 |
|               |                | Uttar Pradesh       | 50                | no limit specified | no limit specified |
|               |                | West Bengal         | 630               | no limit specified | ..                 |
| 4             | Delhi          | Andhra Pradesh      | 25                | 20                 | no limit specified |
|               |                | Bihar               | 10                | 5                  | ..                 |
|               |                | Gujarat             | ..                | 10                 | ..                 |
|               |                | Goa                 | 6                 | 2                  | 2                  |
|               |                | Jammu & Kashmir     | 10                | 365*               | ..                 |
|               |                | Madhya Pradesh      | 75                | no limit specified | ..                 |
|               |                | Maharashtra         | 100               | 75                 | 20                 |
|               |                | Mysore              | 10                | 20                 | 5                  |
|               |                | Punjab              | 7500              | ..                 | ..                 |
|               |                | Rajasthan           | 322               | no limit specified | ..                 |
|               |                | Uttar Pradesh       | 60%               | ..                 | ..                 |
|               |                | West Bengal         | 75                | 50                 | ..                 |
|               |                |                     |                   |                    |                    |

\* per year; each permit for single trip.

## ROAD TRANSPORT

| 1  | 2                 | 3              | 4              | 5                  | 6                  |
|----|-------------------|----------------|----------------|--------------------|--------------------|
| 5  | Gujarat           | Delhi          | ..             | 10                 | ..                 |
|    |                   | Madhya Pradesh | 75             | 100                | 50                 |
|    |                   | Maharashtra    | 360            | 200                | 100                |
|    |                   | Rajasthan      | 125            | 100                | 30                 |
| 6  | Goa               | Gujarat        | 6              | 2                  | 2                  |
|    |                   | Maharashtra    | 50             | 60                 | 20                 |
|    |                   | Mysore         | 100            | 250                | 25                 |
| 7  | Himachal Pradesh  | Punjab         | 88             | 250                | 59                 |
| 8  | Jammu & Kashmir   | Delhi          | 10             | 365*               | ..                 |
|    |                   | Punjab         | 77             | 35                 | 10                 |
| 9  | Kerala            | Mysore         | 400            | 25                 | 25                 |
|    |                   | Madras         | 800            | ..                 | ..                 |
| 10 | Madhya Pradesh    | Andhra Pradesh | 75             | 100                | ..                 |
|    |                   | Bihar          | 50             | 100                | ..                 |
|    |                   | Delhi          | 75             | no limit specified | ..                 |
|    |                   | Gujarat        | 75             | 100                | 50                 |
|    |                   | Maharashtra    | 750            | 400                | 200                |
|    |                   | Orissa         | 100            | 50                 | no limit specified |
|    |                   | Punjab         | 50             | 150                | 15                 |
|    |                   | Rajasthan      | 130            | no limit specified | ..                 |
|    |                   | Uttar Pradesh  | 750            | 300                | ..                 |
|    |                   | West Bengal    | ..             | 20                 | ..                 |
| 11 | Maharashtra       | Andhra Pradesh | 300            | 100                | 30                 |
|    |                   | Bihar          | 25             | 50                 | 20                 |
|    |                   | Delhi          | 100            | 75                 | 20                 |
|    |                   | Gujarat        | 360            | 200                | 100                |
|    |                   | Goa            | 50             | 60                 | 20                 |
|    |                   | Madhya Pradesh | 750            | 400                | 200                |
|    |                   | Mysore         | 1100           | 300                | 100                |
|    |                   | Punjab         | 80             | 100                | 15                 |
|    |                   | Rajasthan      | ..             | 25                 | ..                 |
|    |                   | Uttar Pradesh  | 100            | 100                | 25                 |
|    |                   | West Bengal    | 50             | 25                 | 25                 |
| 12 | Manipur & Tripura | Assam          | 70             | 30                 | ..                 |
|    |                   | Nagaland       | no restriction | ..                 | ..                 |
| 13 | Mysore            | Andhra Pradesh | 600            | no limit specified | 75                 |
|    |                   | Delhi          | 10             | 20                 | 5                  |
|    |                   | Goa            | 100            | 250                | 25                 |
|    |                   | Kerala         | 400            | 25                 | 25                 |
|    |                   | Maharashtra    | 1100           | 300                | 100                |
|    |                   | Punjab         | ..             | 20                 | ..                 |
|    |                   | Madras         | 700            | ..                 | 50                 |
|    |                   |                |                |                    |                    |

\* per year; each permit for single trip.

| 1                | 2                | 3 | 4              | 5                  | 6                  |
|------------------|------------------|---|----------------|--------------------|--------------------|
| 14 Nagaland      | Assam            |   | 320            | 15                 | ..                 |
|                  | Manipur, Tripura |   | no restriction | ..                 | ..                 |
| 15 Orissa        | Andhra Pradesh   |   | 200            | 50                 | ..                 |
|                  | Bihar            |   | 60             | 25                 | no limit specified |
|                  | Madhya Pradesh   |   | 100            | 50                 | no limit specified |
|                  | West Bengal      |   | 40             | 70*                | ..                 |
| 16 Punjab        | Andhra Pradesh   |   | ..             | 25                 | 5                  |
|                  | Bihar            |   | 25             | 30                 | 10                 |
|                  | Delhi            |   | 2500           | ..                 | ..                 |
|                  | Himachal Pradesh |   | 88             | 250                | 59                 |
|                  | Jammu & Kashmir  |   | 385            | 165                | 40                 |
|                  | Madhya Pradesh   |   | 50             | 150                | 15                 |
|                  | Maharashtra      |   | 80             | 100                | 15                 |
|                  | Mysore           |   | ..             | 20**               | ..                 |
|                  | Rajasthan        |   | 250            | ..                 | ..                 |
|                  | Uttar Pradesh    |   | 100            | 200                | 50                 |
|                  | West Bengal      |   | 25             | 30                 | 10                 |
| 17 Rajasthan     | Delhi            |   | 322            | no limit specified | ..                 |
|                  | Gujarat          |   | 125            | 100                | 30                 |
|                  | Madhya Pradesh   |   | 130            | no limit specified | ..                 |
|                  | Punjab           |   | 443            | 100                | 20                 |
|                  | Uttar Pradesh    |   | 202            | 200                | ..                 |
| 18 Uttar Pradesh | Andhra Pradesh   |   | ..             | 20                 | ..                 |
|                  | Bihar            |   | 50             | no limit specified | no limit specified |
|                  | Delhi            |   | 40%            | ..                 | ..                 |
|                  | Madhya Pradesh   |   | 750            | 300                | ..                 |
|                  | Maharashtra      |   | 100            | 100                | 25                 |
|                  | Punjab           |   | 100            | 200                | 50                 |
|                  | Rajasthan        |   | 202            | 200                | no limit specified |
|                  | West Bengal      |   | 100            | 100                | no limit specified |
| 19 West Bengal   | Andhra Pradesh   |   | ..             | 10                 | ..                 |
|                  | Assam            |   | 60             | 50                 | no limit specified |
|                  | Bihar            |   | 390            | no limit specified | ..                 |
|                  | Delhi            |   | 75             | 50                 | ..                 |
|                  | Madhya Pradesh   |   | ..             | 20                 | ..                 |
|                  | Maharashtra      |   | 50             | 25                 | 25                 |
|                  | Orissa           |   | 40             | 70*                | ..                 |
|                  | Punjab           |   | 25             | 30                 | 10                 |
|                  | Uttar Pradesh    |   | 100            | 100                | no limit specified |
| 20 Madras        | Andhra Pradesh   |   | 2000           | ..                 | ..                 |
|                  | Kerala           |   | 800            | ..                 | ..                 |
|                  | Mysore           |   | 700            | ..                 | 50                 |

\* Inclusive of 30 seasonal permits.

\*\*per month.

## CHAPTER VII

## TAXATION OF COMMERCIAL MOTOR TRANSPORT

THE broad approach to the taxation of commercial motor transport should be in line with the principles which determine the regulation and development of road transport. Public policy in respect of these related issues has, however, developed independently. From time to time, in forums such as the Transport Development Council, recommendations have been made for bringing about improvements and simplification in the prevailing system of motor taxation with a view to easing restrictions on the movement of vehicles, but little practical action has ensued. Question concerning the level and quantum of taxation falling upon the road transport industry and its incidence are undoubtedly of great importance for future development, but they do not fall fully within the terms of reference of our Committee and are, with greater advantage, enquired into separately.<sup>1</sup> The aspects with which we feel concerned are, (a) whether the various taxes which motor transport bears cannot be consolidated and their diversity reduced, (b) whether means can be found to bring about greater uniformity in taxation prevailing in different parts of the country, and (c) whether the system of motor taxation can be brought into closer harmony with the scheme of regulation which we have recommended. In this Chapter we consider these issues against the background of a short factual review of the existing system of motor taxation.

2. We may begin by stating the constitutional position concerning the levy of taxes on motor transport. Under Entry 35 of the Concurrent List in the Seventh Schedule of the Constitution, Parliament has the power to legislate in respect of mechanically propelled vehicles, including the principles on which taxes on such vehicles are to be levied. But such legislation cannot determine the quantum of these taxes. Taxes on vehicles, whether mechanically propelled or otherwise, are in the exclusive competence of State Legislatures. Entry 56 of the State List in the Seventh Schedule provides for taxes on goods and passengers carried by road or on inland waterways, Entry 57 for taxes on vehicles, and Entry 59 for tolls. A consequence of this distribution of powers is that every State is free to determine the types of taxes on motor transport which it levies, their quantum and the changes effected from time to time. Gradually, variations between State and State have tended to

<sup>1</sup>In September 1965, a Road Taxation Enquiry Committee was constituted by the Ministry of Transport under the Chairmanship of Dr. B. V. Keskar to undertake detailed examination of all aspects of taxation on motor vehicles with a view to recommending procedural, legal and constitutional remedies necessary for ensuring development of road transport consistently with the general development of the country. The terms of reference of the Committee include examination of costs of operation, principles on which motor vehicles taxation is based and questions relating to law, procedure and administrative machinery connected with the levy of taxes, tolls, etc.

increase. It has not been possible so far for the Central Government to propose any uniform principles of motor taxation because, in the field of taxation, principles and criteria are difficult to lay down in concrete form except as part of a definite scheme of taxation. Similarly, although Parliament can legislate under Entry 42 of the Union List for inter-State trade and commerce, hitherto no attempt has been made to regulate inter-State road transport or to propose principles of taxation appropriate to such transport. Inevitably, therefore, the existing system of motor taxation presents a picture of extreme variety with little concerted effort to ensure that the tax system should be so devised as to contribute to the maximum extent to the development of an efficient, well-organised and technologically progressive road transport industry.

#### MAIN FEATURES OF EXISTING TAXATION

3. The principal taxes levied at present on commercial vehicles are (a) the motor vehicles tax, (b) taxes on passengers and goods, and (c) local taxes, such as octroi, tolls and wheel tax.

4. *Motor vehicles tax*.—This tax is levied in all States, both on public carriers and on stage carriages. The rates at which the tax is levied in different States and its basis are set out in Table 1 in the Annexure to this Chapter. Rates of motor vehicle taxation have varied as between States. The Motor Vehicles Taxation Enquiry Committee, which was set up in 1950 to make a comprehensive study of taxation of motor transport, recommended fixation of a ceiling on motor vehicles taxation of 75 per cent of the tax then prevailing in Madras State. This suggestion was, however, not followed by State Governments and eventually the Transport Development Council at its meeting in March, 1960 proposed that the question of fixation of the ceiling should not be pressed and that State Governments should consult the Ministry of Transport at the Centre before finalising their taxation proposals.

5. For stage carriages, the basis of the tax commonly adopted is the number of seated passengers which a vehicle is permitted to carry. In Madras, Kerala and Mysore, besides seating capacity, the distance which a vehicle is permitted to ply is an additional basis for determining the quantum of the tax. However, in each of these States different distance ranges are adopted. In Uttar Pradesh, routes are divided into three classes, 'A', 'B' and 'C' and for each there is a different rate of tax.

6. For public carriers, as a rule, the motor vehicles tax is fixed with reference to the registered laden weight. However, in the Punjab the unladen weight is adopted as the basis. In Rajasthan the motor vehicles tax is based on payload and area of operation. In Uttar Pradesh, as in the case of stage carriages, public carriers are taxed according to the class of routes on which they operate. In Gujarat, Maharashtra and Kerala, different rates of taxation prevail for vehicles using petrol and those using diesel oil.

7. It will be seen from Table 1 in the Annexure that rates on stage carriages vary from less than Rs. 1,000 per year for a vehicle with a seating capacity of 40 in some territories to more than Rs. 5,000 in others. Similarly, for public carriers, the variation is from less than Rs. 1,000 to about Rs. 3,000 or more.

8. *Taxes on passengers and goods*.—Taxes on passengers and goods are being levied in Assam, Bihar, Gujarat, Kerala, Madhya Pradesh, Madras, Maharashtra, Mysore, Punjab, Rajasthan, Uttar Pradesh, Himachal Pradesh and Jammu and Kashmir. Details of these taxes and the basis on which they are levied are set out in Table 2 in the Annexure. The tax on passengers is usually a proportion of the fare. In one State a lower rate is charged in hilly areas than in the plains, in another for kutcha roads compared to pucca roads. Similarly, the tax on goods is usually fixed as a percentage of the freight. In one State, a further distinction is made on the basis whether a truck operates in a specified region or over the whole State.

9. Taxes on passengers are easier to explain than taxes on goods. Both are in the nature of surcharge. They are inconvenient forms of taxes because of the petty calculations involved and the small amounts to be realised. In a few States formulae have been devised to enable operators to compound for the amounts due on account of the passenger tax and the goods tax through the payment of a lumpsum. From the details given in Table 3 in the Annexure it will be seen that the basis adopted for compounding these taxes is often cumbrous. Clearly, satisfactory principles and a rational system for passenger and goods taxes have still to be evolved. Another source of inconvenience, specially applicable to goods taxes, is that where a route passes through more than one State, these taxes have to be paid separately within each State and for each trip, even though the operator may not be authorised to pick up or deliver goods in the intermediate territories. More recently, this difficulty has been reduced in the case of regular permits through arrangements for compounding the tax on an annual or quarterly basis.

10. *Octroi and other local taxes*.—Local bodies still levy octroi duties in a number of States, as in Andhra Pradesh, Gujarat, Maharashtra, Mysore, Orissa and Punjab. In some others, octroi duties have been given up and the State Governments have evolved schemes for compensating local bodies for the loss of this source of revenue. There has been general agreement on the vexatious and inhibitory nature of octroi duties and the abuses to which they are prone, but action leading to its abolition has proceeded very slowly. Octroi duties continue to be levied in most States much to the disadvantage of free movement of goods by road.

11. We have referred earlier to tolls on vehicles as a means of financing the repayment of special loans obtained by State Governments and municipal bodies for the construction of a limited number of major bridges, tunnels and other works. Tolls no doubt slow down traffic, but can be justified under

certain circumstances, as in the case of costly works which might not otherwise be undertaken. Tolls levied at hill stations, where considerable expenditures have to be incurred on roads and municipal authorities have to provide special amenities in view of large numbers of visitors during summer months, are a somewhat special problem.

12. The wheel tax is a local tax levied on a vehicle at the place at which it is registered. It is being imposed by municipal bodies in Maharashtra. A tax such as this could as well be realised along with the motor vehicles tax taking, if necessary, the form of a small surcharge recovered on behalf of the municipal body. Alternatively, a portion of the income derived from the motor vehicles tax could be made over to local bodies to enable them to do away with the wheel tax. On the whole, however, since the State Government levies a motor vehicles tax to enable a vehicle to operate on various specified routes, the imposition of a further wheel tax is hardly justified.

#### CONSOLIDATION OF TAXES AND OTHER REFORMS

13. Modifications in the existing system of motor taxation may be considered from two different aspects: firstly, in relation to the movement of vehicles within a State; and secondly, in relation to inter-State movement.

14. From the point of view of intra-State movement, the first recommendation we would reiterate concerns the need to do away with octroi duties. Such a step would also assist the movement of vehicles engaged in inter-State operations.

15. Apart from local taxes, the next issue in the reform of the existing system of motor taxation concerns the desirability and mode of levying passenger and goods taxes. As noticed earlier, while a State like West Bengal, does not impose taxes on passengers and goods, a number of other States do. In our view, where such taxes exist, they should be levied on a simplified basis as a lumpsum paid along with the motor vehicles tax for periods such as a year or a quarter or even on monthly basis. The practice of collecting passenger and goods taxes, vehicle by vehicle, has nothing to commend it; indeed, this method of collection leads to greater evasion and may be vexatious. From this would follow another reform, which has been urged for several years in the Transport Development Council and other forums, namely, that the same agency should be responsible for the collection both of the motor vehicles tax and of passenger and goods taxes.

16. These are modest and rather elementary changes to effect. In fact, we would recommend that passenger and goods taxes should not be levied separately and should be consolidated with the motor vehicles tax, as has been done in Andhra Pradesh. In no other State has such consolidation of taxes been undertaken. In a few States, as in Uttar Pradesh and Kerala, the two sets of taxes are collected by or under the authority of the same agency. In Bihar, the Transport Department collects the motor vehicles tax, but the Commercial Taxes Branch of the Finance Department is responsible for

passenger and goods taxes. Some State Governments are considering proposals for entrusting the collection of various taxes paid by motor vehicles to a single agency.

#### MOTOR TAXATION AND INTER-STATE MOVEMENT

17. In respect of vehicles operating on inter-State routes, the problem of single-point taxation has come up for consideration on more than one occasion. In principle, all State Governments have agreed to single-point taxation only in the case of motor vehicles operating on regular permits on inter-State routes. Regular permits, it will be recalled, are at present issued on a very limited scale, mainly as a result of bilateral agreements between States. The greater part of inter-State traffic is undertaken on the basis of temporary permits, which tend to be renewed for further periods. Except for three States (Orissa, West Bengal and Bihar) which have accepted the principle of single-point taxation in respect of temporary permits issued under arrangements with neighbouring States, when vehicles operate on inter-State routes on temporary permits, (as the larger proportion among them in fact do) motor vehicles and other taxes have to be paid in the State of origin as well as in States along the route.

18. A situation of this character has naturally become the subject of much legitimate complaint, for, besides the financial burden, it leads to a great deal of harassment. There are two basic difficulties. First, inter-State movement of goods suffers from all the consequences of bilateral arrangements between individual States instead of being recognised, as it should be, as an important and distinct category of traffic for the issue of permits for the operation of commercial vehicles. Secondly, arrangements under which each State exercises its local authority to tax motor vehicles and movement of goods and passengers by mechanised transport become particularly inapt when extended to movement along inter-State routes. In our proposals we have endeavoured to deal with the first problem by recommending a separate class of permits for inter-State movement issued under the authority of a considerably strengthened Inter-State Road Transport Commission as part of a scheme of road-rail coordination. Unless, at the same time, the system of taxation of commercial motor transport is modified to meet the requirements of inter-State traffic, it will not be possible to implement effectively the proposals which we have made for the regulation and development of road transport. Therefore, certain minimum changes in the tax system become a necessary ingredient in the scheme of development of road transport which we have proposed.

19. This brings us back to the constitutional problem outlined at the beginning of this Chapter. It is essential that in the scheme of distribution of powers of taxation in the Seventh Schedule of the Constitution there should be a suitable counterpart to Entry 42 under which Parliament can legislate for inter-State trade and commerce. In other words, it is not enough for the Centre to be able to prescribe, under Entry 35 of the

Concurrent List, the principles on which taxes on mechanically propelled vehicles may be levied. Three possible courses can be considered. Taxes on goods and passengers carried by road or on inland waterways and taxes on mechanically propelled vehicles (Entries 56 and 57 in the State List) may be placed on the Concurrent List or on the Union List in the Seventh Schedule. Or, as a third possible approach, Entry 35 in the Concurrent List may be amended so as to enable Parliament to levy taxes on mechanically propelled vehicles operating on routes declared as inter-State routes. Whichever course is adopted, the proceeds of taxation would accrue to the States. There would be greater uniformity in levels of taxation if taxation of motor vehicles throughout the country were regulated under Union legislation and this would assist the development of road transport. For reasons explained earlier, in our view, the minimum change needed is to bring taxation, now under the exclusive jurisdiction of States Legislatures under Entries 56 and 57 of the State List within the concurrent jurisdiction of the States and the Centre under the Seventh Schedule of the Constitution. Where taxes are levied and collected under the authority of Parliament, the proceeds should be assigned to the States, for which the necessary provision already exists in Article 269 of the Constitution as amended a few years ago. We envisage Parliamentary authority being used to determine taxation pertaining to inter-State movement and to support, thus, the scheme of regulation of inter-State road transport and road-rail coordination which we have recommended. In accordance with the general principles of motor vehicles taxation laid down by Parliament, individual States should be free to determine tax rates as applicable to operations on intra-State routes.

20. The necessary authority for Parliament can be obtained either by an amendment of the Constitution or by action under Article 252 of the Constitution. For the latter procedure to be adopted, initiative has to be taken by the Legislatures of such States as are desirous of empowering Parliament to make laws respecting the relevant entries in the State List. The unanimous agreement of all States in the country will be required; otherwise, only those States whose Legislatures pass the necessary resolutions would be subject to the Parliamentary legislation which might be undertaken. Moreover, in the event of any amendment being required, the same elaborate procedure would have to be followed over again. In the circumstances, we consider that an amendment of the Constitution on the lines proposed above will be in the best national interest and we trust that the Central Government will find it possible to take the necessary initiative in the near future. Our proposal retains the existing legislative powers of the States, without making them exclusive and, at the same time, it safeguards their financial interest in as much as the proceeds of any taxation which is imposed by virtue of Parliament's authority will be distributed wholly to the States.

21. The advantages of the proposals we have outlined above may be briefly stated. First, the scheme of road transport regulation which we have recommended will become capable of practical implementation. To

distinguish vehicles operating under inter-State permits from others we have already recommended that they should bear a specified colour. Secondly, on inter-State routes there will be a single motor vehicles tax, the rates being adjusted according to capacity and distance of operation, but applicable uniformly throughout the country. The tax will be paid at the place of registration, although the proceeds will be distributed among various States according to the general criteria adopted for the issue of permits to operators from different States to which reference has been made in Chapter VI. On inter-State routes, there should be no need to levy separate passenger and goods taxes. Vehicles operating on these routes, being distinctive also in colour, can be exempted from octroi and local taxes other than special tolls on bridges, tunnels etc. Thirdly, since, uniform principles of motor vehicles taxation will be adopted, tax rates proposed by the Centre for inter-State routes will provide a broad guide and as some kind of upper limit for taxes levied directly by State Governments on vehicles operating on permits issued under their own authority. Finally, with greater uniformity in motor taxation and more common norms being established, it should be possible also to devise suitable concessions and incentives to stimulate the growth of road transport in the more backward regions, in hilly areas and in tracts in which, in the past, transport facilities have tended to lag behind.

## ANNEXURE

Table 1 : Rates of motor vehicles tax on public carriers and stage carriages (1963-64)

| state/territory        | public carriers                |                                | stage carriages         |                                                                                                                                                          |
|------------------------|--------------------------------|--------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                        | basis of taxation <sup>1</sup> | maximum rate of tax prescribed | (rate of tax-40 seater) |                                                                                                                                                          |
| 1                      | 2                              | 3                              | 4                       |                                                                                                                                                          |
| Andhra Pradesh         | R.L.W.                         | 2940                           | 10,800                  | in addition Rs. 22.50 for every standing passenger for which the vehicle is licensed.                                                                    |
| Assam                  | payload                        | Rs. 900 for 9 tonnes           | 1,600                   |                                                                                                                                                          |
| Bihar                  | R.L.W.                         | 1760                           | 1,460                   |                                                                                                                                                          |
| Gujarat                | R.L.W.                         | Rs. 2684 for 13 tonnes         | 1,392                   |                                                                                                                                                          |
| Jammu & Kashmir        | R.L.W.                         | 300                            | 320                     |                                                                                                                                                          |
| Kerala                 | R.L.W.                         | 2900                           | (i) 5,600               | vehicles do not exceed 200 kms. a day.                                                                                                                   |
|                        |                                |                                | (ii) 6,400              | vehicles exceeding 200 kms. a day.                                                                                                                       |
| Madras                 | R.L.W.                         | 3200                           | (i) 5,600               | vehicles covering 210 kms. per day.                                                                                                                      |
|                        |                                |                                | (ii) 6,400              | vehicles exceeding 210 kms- but not 270 kms. day.                                                                                                        |
|                        |                                |                                | (iii) 7,200             | vehicles plying more than 270 kms. a day.                                                                                                                |
| Maharashtra            | R.L.W.                         | Rs. 2487 for 13 tonnes.        | 1,824                   |                                                                                                                                                          |
| Madhya Pradesh         | R.L.W.                         | 1825                           | 2,025                   |                                                                                                                                                          |
| Mysore                 | R.L.W.                         | Rs. 2980 for 13 tonnes         | (i) 4,800               | vehicles covering upto 97 kms. a day.                                                                                                                    |
|                        |                                |                                | (ii) 5,600              | vehicles covering more than 97 kms. a day. For every other passenger other than seated for which the vehicle is permitted the rate is Rs. 40 per person. |
| Orissa                 | R.L.W.                         | 2100                           | 4,800                   |                                                                                                                                                          |
| Punjab                 | U.L.W.                         | 1000                           | 2,150                   | maximum rate prescribed at Rs. 2750.                                                                                                                     |
| Rajasthan <sup>2</sup> | payload                        | 2000                           | 1,500                   |                                                                                                                                                          |

<sup>1</sup>R.L.W.—Registered Laden Weight.

U.L.W.—Unladen Weight.

<sup>2</sup>In Rajasthan, rates are lower for vehicles operating within a region. For a payload of 5 tonnes the tax is Rs. 1,000 and for all above Rs. 1,250.

| 1                 | 2                    | 3                                                                    | 4                               |
|-------------------|----------------------|----------------------------------------------------------------------|---------------------------------|
| Uttar Pradesh     | U.L.W.               |                                                                      |                                 |
|                   | 'A' class route—1920 | 1,452                                                                | 'A' class route.                |
|                   | 'B' class route—1564 | 1,160                                                                | 'B' class route.                |
|                   | 'C' class route—1212 | 856                                                                  | 'C' class route.                |
| West Bengal       | R.L.W.               | Rs. 2575 for 13 tonnes.                                              | 2,190                           |
| Delhi             | R.L.W.               | Rs. 700 upto 10 tonnes and Rs. 100 for every tonne and part thereof. | 1,720 maximum rate is Rs. 2220. |
| Himachal Pradesh. | U.L.W.               | 400                                                                  | 800                             |
| Manipur           | payload              | Rs. 600 for 9 tonnes                                                 | 625                             |
| Tripura           | U.L.W.               | 300                                                                  | 161                             |

Table 2 : Taxes on passengers and goods

| state           | passenger tax          |                                                                                           | goods tax              |                                                                       |
|-----------------|------------------------|-------------------------------------------------------------------------------------------|------------------------|-----------------------------------------------------------------------|
|                 | year from which levied | rate as percentage of fare                                                                | year from which levied | rate as percentage of freight                                         |
| Assam           | 1962                   | 10                                                                                        | 1962                   | 10                                                                    |
| Bihar           | 1950                   | 12.5                                                                                      | 1950                   | 12.5                                                                  |
| Gujarat         | 1958                   | 17.5                                                                                      | 1962                   | 3                                                                     |
| Kerala          | 1963                   | 10                                                                                        | 1963                   | 5                                                                     |
| Madras          | 1952                   | 10                                                                                        | 1952                   | 5                                                                     |
| Maharashtra     | 1958                   | 15                                                                                        | 1962                   | 3                                                                     |
| Madhya Pradesh  | 1959                   | 10                                                                                        | 1962                   | 10                                                                    |
| Mysore          | 1961                   | 10                                                                                        | 1961                   | 5                                                                     |
| Punjab          | 1952                   | (i) 25 per cent of fares in plains; and<br>(ii) 16.66 per cent of fares in hilly regions. | 1952                   | Rs. 1215 per annum for plains.<br>Rs. 810 per annum for hilly region. |
| Rajasthan       | 1962                   | (i) 20 per cent of fare on pucca routes; and<br>(ii) 15 per cent of fare in other cases.  | 1961                   | 15                                                                    |
| Uttar Pradesh   | 1962                   | 10                                                                                        | ..                     | not available                                                         |
| Jammu & Kashmir | 1963                   | not available                                                                             | —                      | not levied.                                                           |

Table 3 : Rates for compounded levy of passengers and goods taxes in certain States

| state             | rate of compounded levy for passenger tax                                                                                                                                                                                                                  | rate of compounded levy for goods tax                                                                                                                                                           |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Assam             | not available                                                                                                                                                                                                                                              | ..                                                                                                                                                                                              |
| Bihar             | 10 paise per mile on the basis of 25 seating capacity of a bus.                                                                                                                                                                                            | not available.                                                                                                                                                                                  |
| Gujarat           | composition is not admissible                                                                                                                                                                                                                              | Rs 90 per month for carriers with carrying capacity upto 9 tons.                                                                                                                                |
| Kerala            | Rs. 25 per seat per quarter                                                                                                                                                                                                                                | (i) Rs. 22·50 per month for Malabar Distt. alone;<br>(ii) Rs. 112·50 per quarter.                                                                                                               |
| Madras            | Rs. 25 per seat per quarter                                                                                                                                                                                                                                | Rs. 22·50 per month.                                                                                                                                                                            |
| Maharashtra       | composition is not available                                                                                                                                                                                                                               | Rs. 120/- per month is maximum and is according to the carrying capacity of the vehicle.                                                                                                        |
| Madhya Pradesh    |                                                                                                                                                                                                                                                            | (i) Rs. $\frac{RLW \cdot ULW^2}{10}$ for holders of regional permits; and<br>(ii) Rs. $\frac{RLW \cdot ULW}{6}$ for holders of inter-regional permits;<br>(weights are expressed in kilograms). |
| Mysore            | not available                                                                                                                                                                                                                                              | ..                                                                                                                                                                                              |
| Punjab            | not admissible                                                                                                                                                                                                                                             | { Rs. 1215 per annum for plains.<br>Rs. 810 per annum for hilly regions.                                                                                                                        |
| Rajasthan         | composition is not admissible                                                                                                                                                                                                                              | (i) Rs. 660 per annum for trucks above 5 tons having all Rajasthan permits.<br>(ii) Rs. 580 per annum for trucks above 5 tons having permits for one region.                                    |
| Uttar Pradesh     | rate is based on the following formula :<br>$F \times T \times R$<br>where F=fare<br>T=number of one way trips to be made during the period.<br>R=rate of tax<br>the sum so determined should not be less than 75% of the normal tax assessable otherwise. | not available                                                                                                                                                                                   |
| Himachal Pradesh. | no composition                                                                                                                                                                                                                                             | no composition.                                                                                                                                                                                 |

<sup>1</sup>The option for compounding is available only for operators having not more than four vehicles.

<sup>2</sup>R.L.W.—Registered Laden Weight. U.L.W.—unladen Weight.

## CHAPTER VIII

## COASTAL SHIPPING AND RAIL-SEA COORDINATION

IN 1950, Government accepted the policy of reservation of coastal shipping for Indian tonnage and, by 1952, coastal trade was being catered for entirely by Indian companies. In August 1965, the total tonnage operating on the coast was 4.2 lakh GRT and consisted of 112 coastal ships, including three tankers. About 60 per cent of the ships were more than 15 years old. Coastal traffic is divided broadly into two categories : (a) the West Coast trade, that is, trade between Kandla and Tuticorin, and (b) the Wider Coast trade, that is, between the East Coast and the West Coast, and also the purely East Coast traffic. The main commodities which are carried by ships around the coast are coal, salt, cement and general cargo comprising foodgrains, fertilizers, jute, tea, iron and steel products, refinery products, cotton and piecegoods, etc. The port of Calcutta plays a crucial role in coastal shipping. Coal, which is the principal item of traffic on the coast, is loaded from Calcutta for shipment to the Southern and Western India, while salt, which is the next most important item of coastal traffic is unloaded at Calcutta.

2. Coastal shipping is predominantly in the hands of private companies and most of the shipping companies operating on the coast are members of the Indian Coastal Conference. Under the Merchant Shipping Act, 1958, the Central Government have powers to fix shipping rates. Any proposal to revise rates on coal and other commodities which are of importance to the economy as a whole require Government's prior approval. The Coastal Conference prepares monthly programmes for lifting of coal and arranges shipment of bulk cargo like salt and for meeting *ad hoc* demands for movement of foodgrains and other commodities. In general it attempts to protect the interests of the member lines.

## GROWTH OF COASTAL TRAFFIC

3. The growth of coastal traffic carried by the Conference and non-Conference lines together in recent years is shown in the following Table.

Table I : Coastal traffic in India—dry cargo

| year | coal  | salt | general cargo | total |
|------|-------|------|---------------|-------|
| 1951 | 7·70  | 4·54 | 12·90         | 25·14 |
| 1952 | 10·89 | 4·71 | 12·19         | 27·79 |
| 1953 | 12·63 | 4·18 | 11·97         | 28·78 |
| 1954 | 12·28 | 4·79 | 11·98         | 29·05 |
| 1955 | 10·64 | 4·71 | 11·69         | 27·04 |
| 1956 | 10·97 | 4·78 | 10·17         | 25·92 |
| 1957 | 10·51 | 4·80 | 10·46         | 25·77 |
| 1958 | 10·86 | 3·93 | 11·87         | 26·66 |
| 1959 | 10·16 | 3·99 | 11·42         | 25·57 |
| 1960 | 11·03 | 4·17 | 12·25         | 27·45 |
| 1961 | 13·73 | 4·73 | 15·03         | 33·49 |
| 1962 | 19·80 | 4·58 | 16·39         | 40·77 |
| 1963 | 18·95 | 4·76 | 16·58         | 40·29 |

Coal constituted about 47 per cent of the total coastal traffic in 1963 and salt about 12 per cent. Coastal traffic increased substantially after 1961, mainly because coal movement was stepped up and there was also a significant increase in the traffic in general cargo. Apart from dry cargo, account should also be taken of the movement of oil on the coast which is of recent origin. Oil traffic on the coast increased from 8.17 lakh tonnes in 1955 to 29.59 lakh tonnes in 1962.

4. Problems of coastal shipping and rail-sea coordination were examined by the Rail-Sea Coordination Committee, which reported in 1957. The Committee considered at length the difficulties and handicaps of coastal shipping and recommended that Government should take steps to ensure the attainment of coastal tonnage of 4.12 lakh GRT by the end of the Second Plan against the then existing tonnage of 2.40 lakh GRT. Corresponding to the tonnage of 4.12 lakh GRT, the requirements of coastal cargo were estimated by the Committee at 4 million tons per annum. It was assumed that coastal traffic would increase by 10 per cent in the course of the Second Plan, thus reaching the level of 31.6 lakh tons in 1960-61. The Committee recommended that by promotional means additional traffic to the extent of 8.4 lakh tons should be created so as to make up a total traffic of 40 lakh tons. In the Committee's view, additional cargo of 6 lakh tons on the wider coast could be created almost entirely by diverting coal traffic from rail to sea. The Committee recommended suitable freight equalisation arrangements being worked out with a view to ensuring that users of coal in the coastal areas obtained coal by the sea route at the same rate as by the all-rail route. There was scope also for additional cargo in other items like foodgrains, fertilizers, iron and steel etc. The Committee, however, did not favour any forced diversion to the sea route of general cargo moving on private account.

5. The anticipations of the Rail-Sea Coordination Committee in regard to the expansion of coastal traffic were not fulfilled. The bulk of coal moving to the south by the sea route was intended to meet the requirements of the Southern Railway. The railways did not agree to take any additional quantity of coal by the sea route since coastal freight rates were higher than railway freight rates and diversion of coal from the all-rail route to the rail-cum-sea route would have involved a financial burden for the railways.

6. Transport shortages began to be felt towards the end of the Second Plan and were specially acute in respect of movement of coal by the railways to the southern and western parts of the country. To relieve pressure on the railways, Government decided in 1961 to divert an additional quantity of one million tonnes of coal from the railways to coastal shipping for movement to destinations in Southern India and Western India. At the same time, by means of a subsidy to be paid by Government, freight by the rail-cum-sea route was to be equalised with freight by the all-rail route. Coal shipments remained at the level of about 2 million tonnes per annum until

recently when they began to decline. With the easing of the rail transport position, there has been a tendency on the part of the industrial users of coal to switch back to the rail route. There has also been a reduction in the movement of railway coal, particularly to the western region, on account of the progress of dieselisation on the railways. The present rate of movement of coal by coastal shipping has come down to about 1.12 lakh tonnes per month or about 1.35 million tonnes per annum.

#### PROSPECTS OF COASTAL TRAFFIC

7. Since a considerable part of coastal traffic is accounted for by a small number of commodities, for assessing future trends in coastal traffic, it will be useful to review the special features of each major component of coastal cargo separately. The commodities to be considered are coal, salt, cement, oil and general cargo.

#### COAL

8. The present scheme of movement of coal by the sea route is supported by a subsidy from Government which is being met from an increase in excise duty introduced in 1961. In considering long term trends in the coastal movement of coal, the main tests to be applied are the comparative costs of movement by sea and by the all-rail route, and the future pattern of production and consumption of coal in different regions in the country, the scope for diverting traffic to the southern and western regions to the coastal route and the consequent requirements for transportation of coal to these regions. It is also necessary to consider in this connection the possibility of substitution of coal by other sources of energy during the next decade or more.

9. *Economics of coal movement by sea.*—There are several important factors influencing the economics of coastal movement. Ships going from the East Coast to the West Coast have to make a detour around Ceylon since the passage between the Gulf of Mannar and the Palk Bay is not navigable. The voyage by sea from Calcutta to the ports on the West Coast is substantially longer than the corresponding distance by rail. Thus, for instance, the distance from Calcutta to Bombay is about 3,000 kilometres by sea as against 2,000 kilometres by rail. Similarly, the distance to Kandla is 4,700 kilometres by sea as against 2,400 kilometres by rail. The longer distance by the sea route naturally increases both transit time and the costs of haulage. Again, since collieries are located inland some distance from the coast, coal has first to be brought to the Calcutta port by rail. At destination points, except for coal consumed in the port towns, another handling is involved by rail or other modes of transport. Thus, the coastal movement of coal involves handling by more than one means of transport, raising the total cost of transport.

10. Moreover, as a river port situated about 126 miles inland from the sea, Calcutta presents peculiar difficulties. Ships have to cross about 15 bars to reach the port and have to wait for a favourable tide to navigate

them. Thus, it takes from two to three days for ships to move up to the river and back. As ships have to wait for the favourable tide, on certain days there is concentration of ships, which inevitably leads to congestion and delays in berthing at the port.

11. There has been some deterioration in the draft in the river Hooghly in recent years and limitations of draft affect the extent to which the capacity of ships can be utilised. On an average, a ship with a carrying capacity of about 10,000 tons can utilise only about two-thirds of its total capacity in the loaded direction, and the larger the ship, the greater is the extent of under-utilization of capacity on account of limitation of draft. The draft limitation in the Hooghly is, thus, an important factor affecting the costs of coastal shipping.

12. Among other factors influencing the costs of coastal movement of coal, mention may specially be made of (a) limitation of available space for raising adequate dumps of coal in the dock area in Calcutta, which necessitates loading of coal directly from wagons to the ships, thus, making it difficult to reduce the turn-round time of ships; and (b) lack of suitable facilities at the unloading ports which leads to detention of ships at these ports. In particular, small ports at the destination end have inadequate berthing facilities and either lack sufficient lighters for unloading coal or have no space for dumping coal.

13. *Comparative freight rates.*—Coal constitutes a low rated commodity in the tariff schedule of the railways and, on account of the telescopic basis of charging, rates on coal are specially low over long distances. Freight rates on coal charged by the rail-cum-sea route and those by the all-rail route from Raniganj to the ports of destination in southern and western India are compared in the following Table.

Table 2 : Freight rates on coal

| freight from Raniganj to | (Rs. per tonne)                       |                           |                                           |                            |                                     |                                                      |
|--------------------------|---------------------------------------|---------------------------|-------------------------------------------|----------------------------|-------------------------------------|------------------------------------------------------|
|                          | rail freight to Calcutta <sup>1</sup> | sea freight from Calcutta | incidental charges including port charges | total rail-cum-sea freight | all rail route freight <sup>1</sup> | difference between rail-cum-sea and all rail freight |
| Madras . . . . .         | 7.52                                  | 33.63                     | 10.00                                     | 51.15                      | 35.63                               | +15.52                                               |
| Cuddalore . . . . .      | 7.52                                  | 34.85                     | 10.00                                     | 52.37                      | 37.94                               | +14.43                                               |
| Tuticorin . . . . .      | 7.52                                  | 34.85                     | 10.00                                     | 52.37                      | 41.81                               | +10.56                                               |
| Cochin . . . . .         | 7.52                                  | 37.96                     | 10.00                                     | 55.48                      | 41.81                               | +13.67                                               |
| Bombay . . . . .         | 7.52                                  | 39.69                     | 10.00                                     | 57.21                      | 36.92                               | +20.29                                               |
| Bhavnagar . . . . .      | 7.52                                  | 39.69                     | 10.00                                     | 57.21                      | 40.10                               | +17.11                                               |

<sup>1</sup>As on 1st April, 1965.

Freight rates charged by the railways on the all-rail route are lower than the rates charged on the rail-cum-sea route for all the ports. The rail-cum-sea rates indicated in the table above do not include freight charges from unloading ports to consuming points. These would further increase the coastal charges, depending on lengths of haulage from unloading ports to consuming points.

14. In an earlier chapter, we have pointed to the need over a period of time for adjusting railway rates on low rated commodities like coal so as to bring them nearer the actual costs of haulage. If railway freight rates on coal and other low rated bulk commodities are adjusted on the basis of costs, the existing disparity between rail and coastal shipping rates might be somewhat reduced. The comparative economics of rail and coastal routes, in any case, should be judged in terms of costs rather than the existing rates.

15. *Rail and sea costs.*—The principal data on rail and sea costs at present available are those computed recently by the World Bank Coal Transport Study Team. The following table, which is taken from the Study Team's report, compares the estimated cost per ton of moving coal from the coalfields to Calcutta and from there by 10,000 ton ships to ports, with the full costs of rail haulage by the all rail route.

Table 3 : Cost of coal transport via Calcutta port

| from West Bengal-Bihar to | full costs | Rs. per ton                             |
|---------------------------|------------|-----------------------------------------|
|                           | all rail   | rail-cum-sea via Calcutta present ships |
| Madras . . . . .          | 34.81      | 44.21                                   |
| Tuticorin . . . . .       | 58.70      | 48.12                                   |
| Cochin . . . . .          | 40.67      | 54.54                                   |
| Goa . . . . .             | 56.65      | 52.97                                   |
| Bombay . . . . .          | 37.02      | 58.54                                   |
| Kandla . . . . .          | 59.53      | 56.61                                   |

Costs on the all-rail route are higher than those on the rail-cum-sea route for the ports of Tuticorin, Goa and Kandla. This is partly due to the fact that a part of the rail route is covered by metre gauge which entails higher costs. It should, however, be mentioned that, unlike estimates of broad gauge costs, metre gauge costs indicated in the World Bank Study Team's report are not based on a detailed cost analysis of metre gauge operations. Further, the figures of sea transport costs are based on the present accounting practices of steamship companies which do not always, include adequate depreciation on the old ships employed.

16. The various limitations on coastal shipping at Calcutta, to which we have referred already, are expected to be overcome to an appreciable extent when the proposed Haldia port has been built and is used for loading of coal instead of Calcutta. The docks at Haldia, which is being designed as a deep draft port, 63 miles below Calcutta, will be fully equipped with mechanical loading facilities. The Haldia port will be accessible all the year round to large and deep draft ships with full cargoes. The distance from the sea to the port will be reduced as compared with Calcutta. There will be very few *bars* and ships will be able to make a trip from the sea to the port and back in one day as compared to two or three days taken at present. Ships will not have to wait for the favourable tide, and there will be no occasion for the bunching of ships. With adequate berthing and mechanical loading facilities, no time need be lost through ships having to wait for wagons. All these factors should lead to considerable saving in the costs of coastal transport. Furthermore, significant economies in the costs of operation of coastal ships may be realised by suitable improvements in the design of ships assigned for coastal traffic.

17. The World Bank Coal Transport Study Team has worked out 'the cost to the economy' of the rail-cum-sea movement of coal, assuming the use of Haldia and of modern 15,000 ton colliers. These costs compare with the costs of all rail movement as in the table below :—

Table 4 : Cost to economy of coal transport via Haldia port

| from West-Bengal-Bihar to | (Rs. per ton) |              |
|---------------------------|---------------|--------------|
|                           | all rail      | rail-cum-sea |
| Madras . . . . .          | 36.55         | 35.43        |
| Tuticorin . . . . .       | 61.64         | 46.16        |
| Cochin . . . . .          | 42.70         | 44.30        |
| Goa . . . . .             | 59.48         | 44.61        |
| Bombay . . . . .          | 38.87         | 41.69        |
| Kandla . . . . .          | 62.51         | 44.41        |

It will be seen that rail costs to the economy are lower than the costs of coastal shipping to Cochin and Bombay and higher in respect of the other ports namely Madras, Tuticorin, Goa and Kandla. According to the World Bank Study, the approximate distances that coal could be transported inland from Tuticorin and Kandla to points at which the cost advantage of the rail-cum-sea route would be dissipated are : Tuticorin, 80 kilometres and Kandla, 120 kilometres.

18. The Sethusamudram Canal project, which is expected to be taken up in the Fourth Plan, may have a significant impact on the costs of coastal shipping, for, the canal will make it possible for coastal ships to negotiate the passage between the Gulf of Mannar and Palk Bay and, thus, reduce the lead of shipment between the two coasts by about 600 kilometres. The precise economies that may be possible in the costs of coastal movement on account of the opening of the canal have of course to be worked out in detail.

19. The comparison above is in terms of full costs of coastal shipping and railways. The World Bank Study Team has pointed out that the rail costs refer to the present density and that unit costs of handling an additional two to four million tons annually would be less than the present costs. With the projects now underway, there would be adequate route capacity to handle the added traffic without capital expenditure, except for equipment. In the judgement of the Study Team, therefore, although the total rail costs to the economy are approximately the same or higher than sea costs via Haldia, the additional rail costs for transporting coal to southern and western ports are probably somewhat lower.

20. *Requirements of coal in southern and western India.*—An important determinant of the total quantum of coal to be shipped by the sea route in future is the volume of coal which has to be carried from the Bengal-Bihar coalfields to the southern and western parts of the country. As production of coal is dispersed over the outlying coalfields, supplies from these fields will gradually replace supplies from the Bengal-Bihar coalfields except, of course, in higher grades of coal, which are not likely to be available in the outlying coalfields. The railways are the most important consumers of coal which at present moves by the sea route, other substantial consumers being power stations, cement factories and other industrial concerns. Of the total quantity of about 2 million tonnes of coal moving by the sea route, about one million tonnes consist of selected grades and the remaining one million tonnes of Grade I. The prospecting of mines in the outlying coalfields suggests that coal in grades other than selected grades may be available in appreciable quantities in these fields. In future, it appears that the southern and western parts of the country will have to depend largely upon the Bengal-Bihar coalfields only in respect of selected grades of coal. The railways have been trying to reduce the consumption of these grades of coal. Moreover, the Southern and Western Railways have a sizeable programme for dieselisation in the Fourth and the Fifth Plans, and this will materially reduce their consumption of coal.

21. Sufficient data are not available at this stage for a detailed study of the likely patterns of production and consumption of coal in different regions of the country. As programmes for the Fourth Plan are formulated in detail, it should be possible to work out more accurate estimates of requirements of coal which will have to be supplied from the Bengal-Bihar coalfields to the southern and western parts of the country. In determin-

ing these requirements, it is desirable to look ahead over a period of 10 to 15 years. On the basis of the available information the Department of Mines and Metals has made the following estimates of requirements of coal of selected and grade I qualities to be supplied in 1970-71 from the Bengal-Bihar coalfields to consumers in southern and western India.

Table 5: Quantity of coal to be supplied from Bengal-Bihar fields in 1970-71

| consumer                         | (million tonnes) |
|----------------------------------|------------------|
| <b>southern India</b>            |                  |
| <i>central priorities</i>        |                  |
| southern railway                 | 0.26             |
| basin bridge power house, Madras | 0.29             |
| other industries                 | 0.23             |
| <i>state priorities</i>          | 0.01             |
| total                            | 0.79             |
| <b>western India</b>             |                  |
| <i>central priorities</i>        |                  |
| western railway                  | 0.67             |
| other industries                 | 0.47             |
| <i>state priorities</i>          | 0.57             |
| total                            | 1.71             |
| grand total                      | 2.50             |

In addition, about 0.75 million tonnes of coking coal may be needed, in case coal for a steel plant has to be supplied through Mormugao port. Thus the total requirements of the Bengal-Bihar coal in southern and western India may be estimated at about 3.25 million tonnes. As mentioned earlier, movement of coal by coastal shipping is more economical to the ports of Madras, Tuticorin, Goa and Kandla. It could thus be broadly assumed that the entire coal requirements of the Southern Railway estimated at 0.26 million tonnes could be moved more economically by coastal shipping than by rail. Even the coal requirements of the Bombay Division of the Western Railway, which come to 0.06 million tonnes, could possibly move by the coastal route. Similarly, 0.29 million tonnes of coal required by the Basin Bridge Power House, Madras and 0.75 million tonnes which might be required for a steel plant could be moved more economically by coastal shipping. Thus, transportation of about 1.36 million tonnes of coal could be justified by coastal shipping on the basis of comparative costs. The exact location of the other consumers in southern and western India requiring Bengal-Bihar coal are not known in detail. Moreover, the coal requirements of consumers under State priorities would be small and scattered over various places and they are likely to find it convenient to obtain their requirements by rail. However, it might be possible to move

at least some small quantities of coal by the sea route for these consumers also. The total movement of coal by the sea route by 1970-71 may thus be estimated at about 1.5 million tonnes.

22. In considering the future requirements of coal in the southern and western parts of the country, it is important to examine the possibility of consumers of coal in these regions switching over to other sources of energy. We have referred above to the programme of dieselisation on the Western and Southern Railways. These Railways have also limited programmes for electrification. Programmes for dieselisation and electrification are formulated by the Railways with due regard to the density of traffic on individual sections and comparative economics of different forms of traction. In regions far removed from coalfields, dieselisation and electrification have a clear advantage over steam traction, particularly for heavy density traffic. It is conceivable, therefore, that in future the railways in these regions would wish increasingly to switch over to dieselisation and electrification. Estimates of requirements of coal of the Southern and Western Railways, which have been cited earlier, take into account such programmes of dieselisation and electrification as have been already formulated for the Fourth Plan.

23. In this context, it is also necessary to consider the possibility of industrial users of coal switching over to fuel oil. The World Bank Study Team has examined the economics of such substitution in some detail. In the view of the Study Team, at "the existing selling price of fuel oil and at the existing railway rates, replacement of coal by fuel oil would ordinarily be uneconomic, even at these southern and western points farthest distant from the coalfields." The Team, however, also compared the economics of substitution of coal by fuel oil in terms of real costs to the economy and came to the conclusion that there would be significant savings in substituting fuel oil for coal moved over long distances to southern and western India. From the figures cited earlier, it will be seen that the requirements of coal to be moved from the Bengal-Bihar coalfields for industrial users are at present small. Substitution of coal by fuel oil will keep the future needs of these consumers for coal at relatively low levels.

24. Thus, having regard to the likely trends over the next few years, it would appear that the shipment of coal from the Bengal-Bihar coalfields to southern and western India could be assumed at a level of 1.5 million tonnes in 1970-71. Under existing conditions, the cost of coastal shipment, no doubt, exceeds the cost of rail movement. After the facilities at Haldia come into commission, the disadvantages suffered by coastal shipping will be overcome to a large extent and the cost of coastal shipment should come down considerably. Further economies in costs are possible if appropriate types of ships are introduced. It is also necessary to examine possible operational economies in coastal shipping through planned improvement in utilisation of available capacities. From the point of view of the

economy as a whole, it is the comparative costs of coastal and rail haulage which should provide the basis for taking a decision on future of coastal movement of coal. So long as rates cannot be brought in closer conformity with costs, the existing subsidy on coastal shipment should continue. Since coal is the single most important component of coastal cargo, it is necessary to take long term considerations fully into account while deciding on the future of coastal shipment of coal.

#### SALT

25. The main variety of salt produced in the country is sea salt which is produced along the entire coast route from Kutch to Orissa, the most important salt producing areas being in the coastal region of Gujarat, Maharashtra, Madras and Andhra. The total quantity of sea salt produced in the country in 1963 was 45.44 lakh tonnes. The movement of salt by coastal shipping is mainly from the ports in Gujarat and Maharashtra and Tuticorin port in Madras to Calcutta which is the salt distributing centre for North and North Eastern India. Substantial quantities of salt also move by rail. The following table shows the quantities of salt moved annually by various means of transport.

Table 6 : Movement of salt in India

( lakh tonnes )

| year | by rail | by road | by river | by sea to Calcutta |                |       | grand total |
|------|---------|---------|----------|--------------------|----------------|-------|-------------|
|      |         |         |          | from west coast    | from Tuticorin | total |             |
| 1957 | 16.9    | 6.0     | 3.4      | 3.1                | 1.4            | 4.5   | 30.8        |
| 1958 | 16.1    | 8.9     | 2.3      | 2.4                | 1.6            | 4.0   | 31.3        |
| 1959 | 17.0    | 8.6     | 2.6      | 1.2                | 2.2            | 3.4   | 31.6        |
| 1960 | 19.1    | 8.9     | 3.9      | 1.3                | 2.8            | 4.1   | 36.0        |
| 1961 | 16.6    | 7.1     | 2.7      | 2.8                | 1.4            | 4.1   | 30.5        |
| 1962 | 19.5    | 7.5     | 2.9      | 2.6                | 1.6            | 4.2   | 34.1        |
| 1963 | 19.5    | 9.0     | 3.0      | 3.1                | 1.0            | 4.1   | 35.6        |

Movement of salt by rail and road has somewhat increased in recent years. The movement of salt by the sea route has been more or less stationary, the decreases or increases in the quantities moving from the West Coast being balanced by inverse changes in the movement from Tuticorin. The quantum of movement of salt from the West Coast and Tuticorin to Calcutta is, on the whole, related closely to the shipment of coal in the reverse direction from Calcutta. With increases in the movement of coal from 1961, and availability of empty tonnage in the reverse direction,

shipment of salt on the west coast ports considerably improved. However, with reduction in the shipment of coal during 1964, there has been shortage of shipping space for movement of salt from the West Coast to Calcutta and the volume of salt carried on the coast in this sector showed a striking reduction. The shipping opportunities for the West Coast salt therefore seem to depend on the continuance of coal shipment from Calcutta at an adequate level.

The increase in the movement of salt by the all-rail route, is of course, accounted for, among other factors, by the fact that freight rates for salt by the rail-cum-sea route are considerably higher than the corresponding freight rates on the all-rail route, as will be seen from the table below :

Table 7 : Rail freight and rail-cum-sea freight for movement of salt

( rupees per tonne )

| station   |          | all rail freight as on 1-4-65 | rail-cum-sea freight via calcutta |             |                    | total rail cum-sea freight | difference between rail-cum sea and all rail freight |
|-----------|----------|-------------------------------|-----------------------------------|-------------|--------------------|----------------------------|------------------------------------------------------|
| from      | to       |                               | rail freight as on 1-4-65         | sea freight | Incidental charges |                            |                                                      |
| Jamnagar  | Patna    | 56.78                         | 24.19                             | 39.10       | 8.13               | 71.42                      | (+) 14.64                                            |
| Jamnagar  | Cuttack  | 65.30                         | 23.62                             | 39.10       | 8.13               | 70.85                      | (+) 5.55                                             |
| Jamnagar  | Siliguri | 65.72                         | 26.80                             | 39.10       | 8.13               | 74.03                      | (+) 8.51                                             |
| Tuticorin | Patna    | 66.30                         | 24.19                             | 32.50       | 14.48              | 71.17                      | (+) 4.87                                             |
| Tuticorin | Cuttack  | 56.70                         | 23.62                             | 32.50       | 14.48              | 70.60                      | (+) 13.90                                            |
| Tuticorin | Siliguri | 67.90                         | 26.80                             | 32.50       | 14.48              | 73.78                      | (+) 5.88                                             |

To some extent the disparity between rail freight and sea freight is due to the fact that salt is a relatively low rated item of traffic on the railways. Being a low rated commodity and requiring bulk transport over long distances, salt seems to be an appropriate cargo for the coast. Moreover, salt shipments are in the direction of empty movement of coal carrying ships and, to the extent that salt can be carried by colliers, their unutilized capacity in the return direction could be put to use and additional costs to be incurred on the transport of salt could be kept to the minimum. This general proposition would of course be subject to assessment of the requirements of salt to be moved from the various producing centres to the port of Calcutta having due regard to consumption trends over the next 10 or 15 years.

## CEMENT

26. Cement is another important item of cargo on the coast, the quantity of which has been increasing in recent years. The quantum of movement in the last few years, as compared to 1951, is shown below :

|      | (lakh tonnes) |
|------|---------------|
| 1951 | 2·07          |
| 1960 | 2·63          |
| 1961 | 3·40          |
| 1962 | 5·00          |

Shipment of cement is mainly to Bombay and originates from Saurashtra ports and from Tuticorin. Small quantities of cement also move by sea from Tuticorin and Cuddalore to Calcutta. There is likely to be considerable expansion in the capacity of cement factories in the coastal area of Gujarat during the Third and the Fourth Five Year Plans. In terms of projects already approved or established, the installed capacity of cement in the Gujarat area is likely to go up from about 1.1 million tonnes in 1962-63 to nearly 2 million tonnes by the end of the Third Plan and to 2.3 million tonnes by the end of the Fourth Plan. It is estimated that a large surplus will be available to meet the requirements of the adjoining States of Maharashtra and Madhya Pradesh. On the basis of estimates worked out by the Joint Technical Group for Transport Planning, by 1965-66, about 5 lakh tonnes of cement are likely to be moved by the coastal route, and this movement may increase to about 8 lakh tonnes by 1970-71. Movement of cement to Calcutta is also likely to increase from the present level of 50,000 tonnes per annum to as much as 6 lakh tonnes in 1970-71. These are sizeable quantities and if coastal shipping facilities are to be provided for these, it will be necessary to ensure that the traffic in cement at this level will continue for several years to come. Movement of cement by sea has also the advantage of providing for return movement. However, the quantities likely to move by rail and by sea can be estimated more precisely only after considering the comparative costs of production and transport of cement in different regions and the likely pattern of production and consumption over a period of 10 years or more.

## OIL TRAFFIC

27. The total volume of oil products moving on the coast was about 3 million tonnes in 1963. Oil moves mainly from Bombay to Kandla and Okha and to Cochin, Madras and Calcutta. Some oil also moves from Visakhapatnam to Calcutta. The movement of oil by sea is cheaper than by rail. For instance, the freight rate from Visakhapatnam to Calcutta by rail for non-dangerous petroleum other than kerosene oil is Rs. 61.90 per tonne, Rs. 57 per tonne for kerosene oil and Rs. 108.10 per tonne for petroleum dangerous, whereas by sea, the rate is Rs. 14 per tonne. The sea route is

also more direct between certain ports than the rail route, as for instance, between Bombay and Cochin.

As regards future movement of oil by sea, an important factor that will affect the position is the projected location of refineries at Cochin, Madras and Haldia (near Calcutta). These are the principal intake ports for sea borne oil and it can be reasonably assumed that with new refineries coming up at these places, the scope for the movement of oil by sea will be considerably reduced.

## GENERAL CARGO

28. Coastal traffic in general goods, that is, for commodities other than coal, salt and cement, was more or less stationary between 1955 and 1960, but has increased somewhat since 1961. The future scope for traffic in general cargo on the coast will depend mainly upon the development of industry and trade in and around the coastal towns and the extent to which coastal shipping is able to attract traffic resulting from such development. Coastal traffic in general cargo includes commodities such as fertilizers, cotton, cotton piecegoods, hessian, tea, coir, structural steel, hardware, rice etc. Table 8 on page 130 shows the comparative freight rates on various items of general cargo by the rail-cum-sea and the all-rail routes. For the purpose of calculation, it has been assumed that cargo moving on the coast has also to be carried inland by rail (or road) over distances of about 125 miles. For several commodities which are high rated on the railways, rates on the rail-cum-sea route are lower than those on the all-rail route.

29. For promotion of coastal movement of general goods it will be desirable to take steps to establish through booking facilities for rail-cum-sea movement of goods. Through booking facilities existed in the pre-war period for certain traffic moving to Sind through the Port of Karachi to the Kathiawar States through the Saurashtra ports and to Goa through Mormugao. The Coastal Conference has been urging the creation of through booking facilities for development of coordinated rail-cum-sea services. We would urge early action on this proposal.

30. It is necessary also to evolve rationalised sailing schedules with a view to ensuring regular sailings and calls at as many ports as possible. It has been stated by the Coastal Conference that the Conference lines have been giving regular sailings as far as practicable and that the Conference vessels have always served the needs of ports which offer cargo in quantities which may be considered economic.

31. The future of general cargo by the coastal route will depend to some extent on measures taken for the economic and industrial development of the coastal areas. There is a great deal of poverty in the coastal areas and their accelerated development is itself a national problem of some significance.

Table 8: Freight rates by rail and rail-cum-sea route for general cargo

| commodity          | from     | to       | rail freight as on 1-4-65 | rail freight for 201 kilometres as on 1-4-65 | rail-cum-sea freight |                                           | total  | (Rs. per tonne) |
|--------------------|----------|----------|---------------------------|----------------------------------------------|----------------------|-------------------------------------------|--------|-----------------|
|                    |          |          |                           |                                              | sea freight          | incidental charges including port charges |        |                 |
| rice               | Kakinada | Cochin   | 37.83                     | 11.30                                        | 39.00                | 20.00                                     | 70.30  | (-)-32.47       |
| fertilizers        | Calcutta | Madras   | 51.10                     | 13.00                                        | 39.00                | 20.00                                     | 72.00  | (-)-20.90       |
| cotton             | Bombay   | Calcutta | 157.40                    | 23.20                                        | 71.43                | 20.00                                     | 114.63 | (+)-42.77       |
| cotton piece-goods | Bombay   | Calcutta | 175.20                    | 26.10                                        | 87.20                | 20.00                                     | 133.30 | (+)-41.90       |
| hessian            | Calcutta | Bombay   | 151.00                    | 26.10                                        | 55.82                | 20.00                                     | 101.92 | (+)-49.08       |
|                    | Calcutta | Madras   | 132.70                    | 26.10                                        | 49.32                | 20.00                                     | 95.42  | (+)-37.28       |
| tea                | Calcutta | Bombay   | 177.40                    | 30.50                                        | 95.98                | 20.00                                     | 146.48 | (+)-30.92       |
| coir               | Cochin   | Bombay   | 89.80                     | 17.20                                        | 48.50                | 20.00                                     | 85.70  | (+)-4.10        |
|                    | Cochin   | Calcutta | 107.30                    | 17.20                                        | 50.25                | 20.00                                     | 87.45  | (+)-19.85       |
| structural steel   | Calcutta | Bombay   | 120.10                    | 20.90                                        | 55.00                | 20.00                                     | 95.90  | (+)-24.20       |
|                    | Calcutta | Madras   | 105.60                    | 20.90                                        | 44.75                | 20.00                                     | 85.65  | (+)-19.95       |
| hardware           | Calcutta | Bombay   | 177.40                    | 30.50                                        | 53.75                | 20.00                                     | 104.25 | (+)-73.15       |
|                    | Calcutta | Madras   | 155.90                    | 30.50                                        | 53.75                | 20.00                                     | 104.25 | (+)-51.65       |

## FUTURE OF COASTAL SHIPPING

32. The future role of coastal shipping has to be considered in relation to its overall national and strategic importance. Coastal shipping has a certain basic importance for a country like India with its geographical position and its long coastline. In times of emergency, coastal shipping may have a special role in national defence and economic strategy. While these aspects deserve to be given weight in considering the future development of coastal shipping, an essential determinant of the place of coastal shipping as part of an integrated transport network in the country is its comparative economics in relation to other modes of transport. From the foregoing analysis, it is clear that the future expansion of coastal shipping has to be planned with reference to a few selected commodities which constitute important components of coastal cargo, namely, coal, salt and cement. These together account for the bulk of the traffic along the coast.

33. As regards the future of coastal shipment of coal, in principle, there is a good case for continuing shipment from the Bengal-Bihar coal-fields to southern and western India at the level of about 1.5 million tonnes per annum subject to minor variations. In the existing conditions costs of coastal shipping compare unfavourably with the railway costs except in the case of Tuticorin, Goa and Kandla. However, with the development of Haldia port and with suitable improvements in the design of ships, significant economies in costs of coastal shipping should be possible. The policy for building up of coastal tonnage and programmes for giving effect to it have to be based on long-term national considerations.

34. As regards traffic in salt and cement, in so far as this could be carried by colliers in the direction of empty movement, it should considerably help the economics of coastal shipping. The quantities to be moved by the sea route should be assessed after considering the comparative costs of production and movement in different regions of the country and changes in the patterns of production and consumption anticipated over the next decade or so.

35. The advantages of coastal shipping for the movement of general cargo will increase if steps are taken to arrange for through booking facilities with the railways and the necessary facilities are developed at a number of ports in the country. It would also be desirable to provide for specially designed vessels suited for carrying general cargo from port to port. Having regard to low incomes and standards of living in the coastal areas, it is essential to evolve programmes for promoting economic and industrial development in these areas. General cargo services touching on as many minor ports as possible could be encouraged and, to begin with, such services might be organised for selected ports.

## THE COASTAL SHIPPING INDUSTRY

36. A general problem which deserves careful consideration concerns the future organisation of the coastal shipping industry. The shipping tonnage on the coast is at present owned by a large number of shipping companies. Although most of these companies are members of the Coastal Conference, the Conference arrangement does not provide adequately for pooling of cargo or freight. It does not also provide for scheduled sailings by member lines in any sector of the coast or for quotas for the member lines for the movement of any commodity. Subject to certain restrictions regarding the size of vessels to be employed on the West Coast or the Wider Coast, which have been imposed in order to protect the interests of small shipping companies, each member line is free to employ its tonnage in any sector for the movement of any commodity it chooses. Under this arrangement, frequently there can be wasteful competition between member lines. There have been complaints of some companies resorting to undesirable practices such as offer of private rebates to shippers for canvassing cargoes. There have also been occasions in the past when there was shortage of tonnage for the movement of essential commodities like salt, timber etc., mainly because the shipowners were reluctant to accept such cargoes when more paying cargoes were available on the coast. The Conference arrangement does not also stipulate that the member lines should retain any minimum tonnage on the coast. Under the present arrangement there is lack of coordination between member lines in programming their vessels. The absence of an evenly phased and co-ordinated programme for the presentation of colliers has often led to bunching of vessels at Calcutta. This, in turn, results in wastages of tonnage owing to detention, losses to shipowners and disruption of the coal movement programme. Besides, it results in the wastage of the berthing capacity of the ports, as vessels may not be presented on those days which are not favourable to the shipowners. Deficiencies in the ports, such as there may be, are accentuated under the existing system of operation of the coastal fleet.

37. Of the existing tonnage on the coast, more than 2 lakhs or nearly 55 per cent is more than fifteen years old. In addition to 25 ships with a tonnage of 80,000 GRT already more than 20 years old, 34 more ships with a tonnage of 127,000 GRT will become overaged by the end of the Fourth Plan. In other words, during the course of next five years, as much as 207,000 GRT would need to be replaced. Thus, even assuming that a proportion of ships for the coastal trade are obtained second hand, investment of the order of Rs. 30 to 40 crores will be necessary for maintaining the present size of the coastal fleet in an efficient condition. Many of the existing coastal shipping companies have obtained loans from Government or from the Shipping Development Fund Committee and, in the ordinary course, will find it difficult to secure resources for replacing old ships. It will be desirable for the Government to ensure that a certain

minimum of tonnage is retained on the coast so that the requirements of coastal traffic are not starved. At the same time, the composition of the coastal fleet should be such that a proportion of the ships can be shifted to overseas trade if there is not sufficient demand for them on the coast. This will help to ensure efficient utilisation of the ships.

38. For an adequate coastal fleet to be maintained and employed efficiently in national interest, it will not be sufficient merely to assure the requisite cargo in commodities like coal, salt and cement. It is essential also to consider whether important economies in capital cost and operational expenses will not be secured if, in place of as many as 27 companies of varying size, many of them operating their small fleets in an indifferent manner round the coast, a scheme for unified control and operation cannot be evolved with the cooperation of the industry. This could take the form of a Corporation promoted by the Central Government to which the Central Government and the existing shipping companies might subscribe. The existing operators could then transfer their fleets to the Corporation and receive, in turn, shares equivalent to the current value of their contribution. Adjustments could be made in respect of loans advanced by Government or by the Shipping Development Fund Committee. A single Corporation operating the coastal fleet will be in a position to secure fuller utilisation of the existing ships, provide regular services, improve operational efficiency, both directly and through improvement of facilities at the ports, and take steps to replace overaged ships. It is certain that this will help improve the comparative costs of coastal shipping and facilitate coordination in rates and traffic with the railways. On the analogy of the Indian Airlines Corporation, the Corporation could also operate shipping services to neighbouring countries. Considerable quantities of crude oil are now being imported. This traffic is still mainly carried by foreign ships. Progressively, the Corporation should endeavour to carry a larger share of this traffic. Since a part of the movement of coal by sea is sustained by the Railways, if they so desired, the Railways could also subscribe towards the capital of the Corporation. In the last analysis, it will be by creating conditions in which coastal sea transport can be operated more efficiently and at lower cost that it can become a viable national industry. When the basic facts of the situation are clearly established, in our view, it would be an error to let the coastal shipping industry continue with its present unorganised and ill-equipped structure.

## CHAPTER IX

## PORTS AND HARBOURS

EXPANSION in port capacities has been among the most important aspects of transport development under the Five Year Plans. India has a coastline of about 5,000 kilometres and has seven major ports, 20 intermediate ports and 150 minor ports. The total capacity of the major ports of Calcutta, Bombay, Madras, Visakhapatnam, Cochin, Kandla and Mormugao is expected to be around 57 million tonnes at the end of the Third Plan. The capacity of the minor ports is reckoned at over 8 million tonnes. The table below compares traffic handled at the major ports at different dates :

Table 1 : Traffic at major ports

|               | (million tonnes) |         |         |         |
|---------------|------------------|---------|---------|---------|
|               | 1950-51          | 1955-56 | 1960-61 | 1964-65 |
| Calcutta      | 7.6              | 8.0     | 9.5     | 11.1    |
| Bombay        | 7.0              | 10.3    | 14.7    | 17.3    |
| Madras        | 2.2              | 2.4     | 3.0     | 4.4     |
| Visakhapatnam | 1.0              | 1.3     | 2.9     | 3.9     |
| Cochin        | 1.4              | 1.6     | 2.1     | 2.8     |
| Kandla        | 0.1              | 0.3     | 1.6     | 2.3     |
| Mormugao      | ..               | ..      | ..      | 6.6     |
| total         | 19.3             | 23.9    | 33.8    | 48.4    |

2. In the main, port capacity has been developed under the Five Year Plans in response to the new needs which have arisen as a consequence of economic and industrial development. As will be seen from Table 2, while increases in traffic in petroleum products and iron ore and other ores have been striking, there have been also substantial increases in the volume of fertilizers and machinery handled by the major ports.

Table 2 : Changes in composition of traffic in major ports

|                              | (million tonnes) |         |
|------------------------------|------------------|---------|
|                              | 1951-52          | 1964-65 |
| foodgrains                   | ..               | ..      |
| fertilizers                  | 3.2              | 6.5     |
| iron and steel and machinery | 0.3              | 1.8     |
| coal                         | 0.6              | 2.1     |
| iron ore and other ores      | 3.8              | 2.8     |
| ..                           | 1.5              | 9.3     |
| petroleum products           | 6.9              | 9.6     |
| ..                           | 3.9              | 16.3    |
| total                        | 22.2             | 48.4    |

Capacity for handling foodgrains has received critical attention during the past year and is now reckoned at about 10 to 12 million tonnes a year.

3. Table 3 shows the distribution of traffic by commodities between different ports in 1964-65.

Table 3 : Distribution of traffic between ports—1964-65

|               | (million tonnes)   |                         |      |                                       |             |                              |               |       |
|---------------|--------------------|-------------------------|------|---------------------------------------|-------------|------------------------------|---------------|-------|
| port          | petroleum products | iron ore and other ores | coal | fertilizer/rock phosphate and sulphur | food-grains | iron and steel and machinery | general cargo | total |
| Calcutta      | 1.8                | 0.9                     | 1.8  | 0.1                                   | 1.7         | 1.0                          | 3.8           | 11.1  |
| Bombay        | 9.8                | 0.6                     | 0.1  | 0.8                                   | 2.3         | 0.8                          | 2.9           | 17.3  |
| Madras        | 0.8                | 1.0                     | 0.5  | 0.3                                   | 0.8         | 0.1                          | 0.9           | 4.4   |
| Cochin        | 1.1                | ..                      | 0.3  | 0.3                                   | 0.4         | 0.1                          | 0.6           | 2.8   |
| Visakhapatnam | 2.1                | 0.5                     | 0.1  | 0.1                                   | 0.4         | 0.1                          | 0.6           | 3.9   |
| Kandla        | 0.6                | 0.1                     | ..   | 0.1                                   | 0.9         | ..                           | 0.6           | 2.3   |
| Mormugao      | 0.1                | 6.2                     | ..   | 0.1                                   | ..          | ..                           | 0.2           | 6.6   |
| total         | 16.3               | 9.3                     | 2.8  | 1.8                                   | 6.5         | 2.1                          | 9.6           | 48.4  |

4. Prior to the Five Year Plans, investments in the major ports, specially in Calcutta and Bombay, were financed through market borrowings and the internal resources of the Port Trusts. These two sources accounted for almost the entire investment of Rs. 39 crores in Calcutta before the First Plan. In Bombay, out of a total investment of Rs. 27 crores before the First Plan, more than Rs. 20 crores were financed from borrowings and the First Plan, under the Plans the pattern of financing has changed markedly. Table 4 below shows that out of a total estimated investment of about Rs. 111 crores in the older ports of Calcutta, Bombay and Madras during the First, Second and Third Plans, Rs. 52 crores came from internal resources and Rs. 58 crores were found through loans from Government and international agencies, with market borrowings making an altogether negligible contribution.

Table 4 : Sources of port finance during the First, Second and Third Plans

(Rs. crores)

|                              | Calcutta | Bombay | Madras | Cochin | Visakha-<br>patnam | Kandla | Mor-<br>mugao | total |
|------------------------------|----------|--------|--------|--------|--------------------|--------|---------------|-------|
| loans from Govt.             | 19.8     | 9.9    | 5.3    | 3.0    | 12.5               | 0.9    | 0.6           | 52.0  |
| loans from foreign agencies  | 19.1     | ..     | 4.0    | ..     | ..                 | ..     | 0.8           | 23.9  |
| market borrowings            | 0.9      | ..     | ..     | ..     | ..                 | ..     | ..            | 0.9   |
| internal and other resources | 12.5     | 27.3   | 11.9   | 2.8    | 5.3                | 1.6    | 2.6           | 64.0  |
| total                        | 52.3     | 37.2   | 21.2   | 5.8    | 17.8               | 2.5    | 4.0           | 140.8 |

We are of the view that the Central Government should insist on Port Trusts, specially in the larger ports, finding all the internal resources they can for development. They should also be encouraged to seek loans directly from the market and to this end they should receive the necessary support from the Reserve Bank of India and the Government of India. Loans from the Government of India should not constitute in the future as large a proportion of total port finances as may have been necessary during the period of accelerated development under the Five Year Plans when substantial new capacities had to be established over a short period. Indeed, as a matter of policy, Port Trusts should be expected so to manage their operations as to be able to draw at least part of their capital from the market.

5. Side by side with expansion in the capacity of the major ports, each of the Plans has also provided for the development of selected intermediate and minor ports. Among the ports at which significant projects have been undertaken are Paradeep, Kakinada, Cuddalore, Negapatam and Tuticorin on the East Coast and Porbandar, Bhavnagar, Okha, Mirya Bay (Ratnagiri), Karwar, Calicut and Neendakara on the West Coast. Paradeep and Mangalore are being developed into major ports. Porbandar, Mirya Bay and Neendakara are being developed into all-weather ports. By the end of the Third Plan, the total investment on Paradeep port will be about Rs. 20 crores, at Mangalore and Tuticorin over Rs. 9 crores and at other intermediate and minor ports of the order of Rs. 19 crores.

6. There are several important questions of policy and approach in relation to port development in the Fourth Plan. These arise as much from the nature of the expansion of capacities required as from the character of

the investment needed. Table 5 below sets out traffic in 1964-65 under major commodities at each port and that projected for 1970-71 :

Table 5 : Provisional estimates of traffic at major ports in 1970-71<sup>1</sup>

(million tonnes)

| major port           | petroleum products | iron and other ores | coal | fertilizers, rock phosphate and sulphur | food-grains | general cargo | total |
|----------------------|--------------------|---------------------|------|-----------------------------------------|-------------|---------------|-------|
| <b>Calcutta</b>      |                    |                     |      |                                         |             |               |       |
| 1964-65              | 1.8                | 0.9                 | 1.8  | 0.1                                     | 1.7         | 4.8           | 11.1  |
| 1970-71              | 2.8                | 3.2                 | 2.0  | 1.7                                     | 2.3         | 6.9           | 18.9  |
| <b>Bombay</b>        |                    |                     |      |                                         |             |               |       |
| 1964-65              | 9.8                | 0.6                 | 0.1  | 0.8                                     | 2.3         | 3.7           | 17.3  |
| 1970-71              | 6.9                | 0.3                 | ..   | 1.0                                     | 1.2         | 7.1           | 16.5  |
| <b>Madras</b>        |                    |                     |      |                                         |             |               |       |
| 1964-65              | 0.8                | 1.0                 | 0.5  | 0.3                                     | 0.8         | 1.0           | 4.4   |
| 1970-71              | 3.5                | 3.2                 | 0.2  | 0.8                                     | 0.4         | 1.5           | 9.6   |
| <b>Cochin</b>        |                    |                     |      |                                         |             |               |       |
| 1964-65              | 1.1                | ..                  | 0.3  | 0.3                                     | 0.4         | 0.7           | 2.8   |
| 1970-71              | 2.8                | ..                  | ..   | 0.8                                     | 0.2         | 2.0           | 5.8   |
| <b>Visakhapatnam</b> |                    |                     |      |                                         |             |               |       |
| 1964-65              | 2.1                | 0.5                 | 0.1  | 0.1                                     | 0.4         | 0.7           | 3.9   |
| 1970-71              | 1.5                | 6.6                 | ..   | 0.5                                     | 0.1         | 1.0           | 9.7   |
| <b>Kandla</b>        |                    |                     |      |                                         |             |               |       |
| 1964-65              | 0.6                | 0.1                 | ..   | 0.1                                     | 0.9         | 0.6           | 2.3   |
| 1970-71              | 2.7                | ..                  | 0.3  | 0.2                                     | 0.8         | 1.5           | 5.5   |
| <b>Mormugao</b>      |                    |                     |      |                                         |             |               |       |
| 1964-65              | 0.1                | 6.2                 | ..   | 0.1                                     | ..          | 0.2           | 6.6   |
| 1970-71              | 0.2                | 6.3                 | 0.8  | 0.4                                     | ..          | 0.6           | 8.3   |
| <b>total</b>         |                    |                     |      |                                         |             |               |       |
| 1964-65              | 16.3               | 9.3                 | 2.8  | 1.8                                     | 6.5         | 11.7          | 48.4  |
| 1970-71              | 20.4               | 19.6                | 3.3  | 5.4                                     | 5.0         | 20.6          | 74.3  |

It will be seen that large-scale expansion of capacity is required for handling iron ore, general cargo, petroleum products as well as fertilizers, rock phosphate and sulphur. In addition to the provision of the special facilities needed and modernisation of port equipment for quick handling of bulk commodities, it will also be essential to secure all possible improvement in the operational efficiency of the ports and in labour productivity. In each of the major ports efforts are under way in these directions. With the assistance of

<sup>1</sup>The estimates for 1970-71 are drawn from the report of the Haldia Study Team. For Bombay Port, the Bombay Port Trust has estimated the likely traffic for 1970-71 as 20.7 million tonnes comprising 10.5 million tonnes of petroleum products, 0.3 million tonnes of iron and other ores, 0.3 million tonnes of coal, 1.0 million tonnes of fertilizer, 1.6 million tonnes of foodgrains and 7.0 million tonnes of other cargo.

the Central Labour Institute, the administrations of major ports have recently initiated a study of labour productivity and incentives, so that the lessons of experience in different ports may be applied more widely. The Ministries of Transport and the Planning Commission have also initiated a special case study of Visakhapatnam port from the aspects of management and organisation, operational efficiency, financial management, labour productivity and development, so as to assist both this and other ports in working towards higher levels of efficiency and service. This study is being undertaken jointly by the Indian Institute of Management, Calcutta and the Management Group of the Committee on Plan Projects, Planning Commission.

7. To secure increases in capacity required at the major ports, outlays have to be undertaken under five main heads, namely :—

- (a) Docks and berths, including dry docks, slipways and ship repairing facilities and navigational facilities;
- (b) Transit sheds and warehouses;
- (c) Housing and social services;
- (d) Equipment, including (i) floating craft, (ii) bulk cargo and other cargo handling equipment, (iii) workshop facilities, (iv) other port equipment; and
- (e) Development of connected rail and road capacities.

Various forms of equipment required by the ports, including cargo handling equipment and floating craft, will in future entail even larger investments than in the past. They account already for much of the foreign exchange expenditure in port development. A technical committee set up by the Ministry of Transport is at present engaged in working out standard specifications for certain selected port equipment. We believe that the industrial and engineering capacities available in the country can be harnessed to much greater advantage than at present and, if this is done, most of the equipment required by ports can be provided within the country within a comparatively short period. This will not only reduce foreign exchange expenditure, but will also ensure accelerated port development. For this purpose, it is essential to strengthen the existing technical arrangements available within the Central Government. In view of the considerable volume of port equipment which is required for increasing present capacities as well as for raising the level of efficiency in the ports, we would urge that a special unit be established within the Department of Technical Development to assist the Ministry of Transport, Port Administrations and the industry in mobilising indigenous manufacturing capacity for meeting the requirements of ports. To this end, Port Administrations should be enabled to prepare forward plans continuously for three or four years ahead and place firm orders on indigenous manufacturers. It would be worthwhile to explore the possibility of establishing groups of manufacturers of different categories of port equipment and other related

equipment and assist them with the balancing plants needed as well as the minimum supply of components and spares.

8. In respect of works of different kinds which have to be undertaken, such as construction of docks and berths, provision of ship repairing facilities and installation of navigational aids, considerable experience has been gained in recent years in several of the major ports. On the whole, however, there is still excessive dependence on foreign consulting firms. Engineering organisations in the Ports should be strengthened and each Port Administration should be asked to lay down a phased programme for this purpose. In our view it is also essential to take steps to establish a central technical organisation which can assist the major ports in preparing designs and specifications and in working out detailed project reports and will also be in a position to assist State Governments in drawing up projects and, where necessary, in supervising construction operations in selected intermediate and minor ports. Although it is conceivable that such an organisation could be built up jointly by the administrations of major ports, which are represented in the Inter-Port Consultations Committee, the meagre progress made in this direction during the past two years has led us to the conclusion that the technical organisation we envisage must now be constituted directly under the Ministry of Transport. The office of the Development Adviser under the Ministry provides a nucleus for the technical organisation which we envisage but, as at present organised, it is clearly inadequate. We regard the building up of an adequate technical organisation for port construction and development to be a basic national need and a matter calling for urgent action on the part of the Central Government.

9. During the past decade, extensive port construction and development programmes have been undertaken, far exceeding those carried out during the two decades prior to the Plans. The fact that the total traffic presently handled at some of the major ports is below the estimated capacity suggests that there are some reserves in the system which can be drawn upon more adequately if port equipment is modernised, essential ancillary works needed for raising efficiency undertaken and the necessary operational improvements effected. Generally speaking, it would be an advantage if the period of rapid and accelerated construction now coming to a close could be followed by a period of consolidation and efforts to improve operational efficiency. At the same time new construction projects would have to be taken up. We would suggest that a port development plan should embody schemes for increasing capacities as well as programmes for efficient utilisation of the capacities created.

10. Each port should have a long-term programme of development, extending at least to a period of ten to fifteen years. The plan should be supported by more adequate economic studies and projections than have been available in the past. Ports like Calcutta, Bombay, Madras, Visakhapatnam and Cochin should be equipped with economic intelligence units of adequate quality so that, to a large extent, they are themselves able to

undertake and prepare studies and projections and also to review them critically from time to time. The hinterland of a major port extends well beyond the State in which it is situated. It is difficult for one major port to evolve its long-term plan without reference to industrial and economic developments affecting other major ports. It is, therefore, suggested that the Ministry of Transport, in consultation with the Planning Commission and the Ministries concerned, should initiate a concerted effort, in which all the major ports should cooperate, for formulating a long-term plan for port development for the country as a whole. Within this broad framework, which will of course need to be revised at appropriate intervals, it should be possible for each port to determine its own plan in fuller detail. As stated earlier, the long-term development plan for ports should include not only estimates of requirements on different assumptions and proposals for expanding capacities and modernising equipment, but should also outline measures for attaining steadily rising standards of efficiency in management and operation, the financial policies to be followed and building up surpluses for future development.

11. By the end of the Third Plan, the total capacity of the major ports will be three times their capacity at the beginning of the First Plan. In the case of older ports like Calcutta, Bombay and Madras, the capacity will have risen about twofold, but at Visakhapatnam, Cochin and Kandla, virtually the greater part of the existing capacity represents new additions. A physical programme of expansion on this scale must involve a large increase in the demand for trained technical and administrative manpower. The older ports, specially Calcutta and Bombay, had built up a sizeable reserve of trained personnel. Some of the personnel at other ports have been drawn from these ports. Their own expansion has also made new and heavy demands. Thus, in one way or another, all the ports now need to be better equipped in the matter of personnel and organisation. Since conditions of salary and opportunities for promotion in different ports vary widely, it is now becoming difficult to attract a sufficient number of persons with talent and ambition to take up careers in the technical and administrative services of major ports. Common systems of recruitment of officer cadres should be evolved. For the higher levels of technical and administrative personnel there should be some kind of common 'pool' jointly maintained by the major ports. Such a 'pool' will provide all ports with trained and experienced personnel to fill positions involving higher responsibilities. From the aspect of efficiency of management, it is essential that a considerable proportion of the top positions in the ports should be filled by individuals who have spent the greater part of their careers working in the ports. The 'pool' which we recommend could also provide personnel to serve on deputation with State Governments as Port Officers and as administrative and technical officers at intermediate ports and the more important minor ports. We hope the Ministry of Transport will take early steps to evolve a suitable scheme in consultation with the Port authorities. In this connection, we

would also stress the need for developing institutional facilities for harbour engineering at the Indian Institute of Technology in Bombay, but such facilities should be planned on a larger scale and utilised more adequately than at present. There is scope also for close cooperation between the major ports in providing in-service training programmes for various categories of personnel.

12. We have referred earlier to the increasing significance of efficient port management in formulating and implementing plans for port development. In this connection, we note that the Ministry of Transport and the Calcutta and the Bombay Port Trusts have under examination proposals for bringing about changes in their accounting systems. It is important that costs of various services rendered by port authorities should be known precisely and that port charges should be related to known costs. It is also essential that each port should have a cell for pursuing programmes for reducing the time taken and the costs incurred in different operations. Such a programme must necessarily be undertaken with the support of labour and should be based on efforts to raise the level of labour productivity through incentive schemes and other means.

13. There is one final aspect of port development to which we would like to draw attention. It has frequently happened that plans formulated in relation to each Five Year Plan have been commenced and completed much later than scheduled and, consequently, the relief they were expected to provide was deferred, congestion and bottlenecks tending in the meanwhile to be accentuated. It seems to us that development of port capacities and efforts to increase operational efficiency should be regarded as continuous processes. Essential port development schemes should be approved at the earliest stage feasible and their execution expedited, so that the capacity of the ports to handle traffic should be developed in advance of actual need. Since ports may be called upon to deal with substantial volumes of additional traffic at short notice and port development programmes take considerable time to execute, at the larger ports, and specially in Bombay and Calcutta (of which Haldia will be a subsidiary port), there should be a fair amount of reserve capacity which can be drawn upon readily. In this connection, we wish to express concern over the fact that there has been already a measure of delay in initiating advance action on several port development schemes in anticipation of the Fourth Five Year Plan. We would, therefore, suggest an early review by the Ministry of Transport, of the position in all the ports, and specially at Bombay, Calcutta and Visakhapatnam, so that appropriate action may be taken at an early date.

## CHAPTER X

## INLAND WATER TRANSPORT

INDIA has a total length of about 13,500 kilometres of inland waterways, of which about a fifth is navigable by steamers. Inland water transport services are operated at present mainly in Assam, West Bengal, Bihar, Orissa, Kerala, Andhra Pradesh and Madras. The introduction of steam navigation in the north east region of India in the early part of the nineteenth century gave a strong fillip to water transport and assisted in the development of a number of industries. In the latter part of the century, with the development of railways, diversion of waters from the rivers for irrigation and deforestation on the hilly ranges leading to erosion and accumulation of silt in the rivers, the comparative importance of inland water transport diminished somewhat. The Industrial Commission (1916) drew pointed attention to the need to improve the existing waterways and recommended the creation of a Waterways Trust. However, no sustained efforts were made to maintain and improve the waterways and there was no coordinated development of inland water transport and other means of transport. Nevertheless, in spite of adverse factors, inland water transport continued to have an important role in regions in which it offered natural advantages, as on the Brahmaputra and the Ganga in the north east region, in Kerala and in the deltas of the Krishna and the Godavari. In recent years, interest in the possibilities of inland water transport in India has revived because of the need to utilise all the available transport facilities for meeting the growing transport requirements of the country.

2. The Central Government has exclusive legislative jurisdiction in respect of navigation by mechanically propelled vessels on such inland waterways as may be declared by Parliament to be National Waterways. Some proposals are presently under consideration in this connection. Navigation by mechanically propelled vessels on waterways other than National Waterways is a concurrent subject. Navigation on all waterways by vessels other than mechanically propelled vessels falls within the State List. The States have exclusive legislative powers to impose taxes on goods and passengers carried on all inland waterways. The executive authority for all inland waterways also rests with the States.

3. The problems of inland water transport in different regions in India were studied by the Inland Water Transport Committee (1959). The Committee drew attention to the almost complete absence, both at the Centre and in the States, of expert technical organisations conversant with and having practical experience of the complexities of inland water transport. The Committee, therefore, recommended the creation of an adequate technical organisation at the Centre. It suggested that while the actual execution of

inland water transport projects might be left to State Governments, who would be in the best position to provide direct supervision, responsibility for investigations and planning, coordination and overall control as well as the financing of inland water transport projects should be undertaken by the Government of India for at least ten years. As an immediate objective there should be concentration on regions where inland water transport facilities had and would continue to have an essential role. The Committee referred to the contribution of country boats and proposed measures for arresting their decline. Recommendations were also made for making the operation of ferries safer and more efficient.

## DEVELOPMENT UNDER THE FIRST THREE PLANS

4. The main developments under the Five Year Plans can be briefly stated. During the First Plan, the Ganga Brahmaputra Water Transport Board was set up as joint venture of the Central Government and the Governments of Uttar Pradesh, Bihar, West Bengal and Assam. Its object was to coordinate the efforts of the participating Government in developing water transport on the Ganga and Brahmaputra systems and to carry out pilot projects to test the feasibility of operating modern craft in shallow waterways.

The more important projects taken up during the Second Plan included construction of an inland port at Pandu (Gauhati), extension of the West Coast Canal from Badagara to Mahe in Kerala and certain navigational works on the Damodar Valley. Provision was made for experimental dredging of the Buckingham Canal in Andhra Pradesh and Madras.

The Third Plan included the establishment of an organisation at the Centre to provide technical advice and guidance on the development of inland water transport. The programme also provided for the completion of the inland port at Pandu and of the navigational works on the Damodar Valley Corporation Canal. The Third Plan included schemes for a pilot towing project to be undertaken by the Ganga-Brahmaputra Board in the Sunderbans, purchase of dredgers and launches for Sunderbans and Brahmaputra, improvement of the foreshores at Gauhati, and provision for training. Extension of the West Coast Canal in Kerala and improvement of the Takkanda and Kendrapara Canals in Orissa to facilitate export of iron ore through Paradeep formed part of the plans of the two States.

## PROBLEMS OF DEVELOPMENT

5. Problems of development of inland water transport have to be considered in different regions separately according to the nature of the waterways and the conditions of traffic available in each region. Waterways offer a cheap means of transport, particularly for certain kinds of traffic, both over long and short distances. The most important factor in the economics of waterways is the relatively low proportion of track costs. Waterways being

provided by nature, the track costs comprise mainly costs of preventing the siltation and maintaining navigability. In the interest of overall economic development and utilisation of available communication facilities, it is important that the waterways potential of different regions should be put to productive use. Advantage should be taken of recent technological advances to achieve possible economies offered by this natural mode of transport, for instance, of better mechanically operated craft with greater power and capacity to move traffic in bulk.

6. Development of inland water transport has to be viewed in each region in the context of integrated regional transport plans within the framework of the transport plan of the country as a whole. It is of the utmost importance that in each region, to the extent necessary, water transport services should be fully coordinated with the services provided by the railways and by road transport. In the first place, where waterways run parallel to railway and road systems, it is necessary to have policies and programmes such as would ensure optimum distribution of overall traffic and maximum benefit being derived from each mode of transport from the point of view of the economy as a whole. Secondly, where inland water transport, either by river or canal, has to be combined with rail or road transport to serve places located away from the waterways, it is necessary to find ways of reducing the time and cost of transshipment between waterways and other modes of transport. For, often, it is these costs of transshipment that prevent full use being made of waterways.

7. To ensure development of waterways potential where natural conditions are favourable, it is necessary to work out long-term plans, keeping in view a perspective of at least ten to fifteen years. These plans should take a coordinated view in each region of waterways and other transport services against projected traffic requirements. These requirements have to be assessed in terms of the likely industrial and agricultural development in the region. A beginning with the setting up of an organisation for inland water transport has been recently made by the Ministry of Transport. If this organisation is adequately developed, it should be possible for the Centre to assist the States in evolving suitable plans for future development. These plans should not merely be in the nature of technical schemes, but should consider costs of development and maintenance of waterways, choice of craft, organisations for operating waterways services and policies as well as measures to ensure that related transport services operate on a complementary basis. It is conceivable that, having regard to initial costs of development, some of the waterways may not be financially viable at least for a period. Efforts, therefore, should be made to work into the plans of regional development of waterways principles and methods of direct or indirect financial support to be given to waterways services, say, for a period of five years or so. The necessary resources for development should be provided under the Five Year Plans. In view of the considerable lag in the development of waterways which has occurred over nearly two decades, it

will be necessary to provide resources on a fair scale in the Fourth Plan so that the impetus given may yield early results.

#### WATERWAYS IN THE NORTH EAST REGION

8. The north-eastern region is served by the Brahmaputra river system which is of central importance in the economy and transport of the Assam region. Out of a total annual traffic of about 2.5 million tonnes between Assam and Calcutta, water transport accounted in recent years for about one million tonnes. The State of Assam and other adjoining territories are linked with the rest of the country through a narrow strip of territory. The railway and road systems serving the region are exposed to floods and their maintenance presents considerable difficulty. Waterways in the region run along the main drainage line and are, therefore, less susceptible to disruption by floods. However, the river has problems such as seasonal fluctuations in discharges and instability of channels and banks. Also, since the principal waterway link between the region and the rest of India passes through East Pakistan, operations in this waterway are affected from time to time by the state of relations between India and Pakistan.

9. The principal inland water transport operator in the Assam region, the River Steam Navigation Company (formerly India General Steam Navigation Company) has long operated inland water transport services not only between Calcutta and Assam in the Brahmaputra river system, but also between Calcutta and Bihar and Uttar Pradesh in the Ganga river system. Even after partition, the Company has been carrying about two-thirds of the water-borne traffic of Assam, Cachar and Tripura, the remaining traffic being carried by other operators in the region. On account of several factors which adversely affected the economics of operation of the Company, particularly over recent years, the Company has been running into heavy losses. Early in 1965, the Government of India took over the Company by acquiring majority participation in its capital. Following the recent conflict with Pakistan, for the time being the Company's operations are restricted to waterways situated in Assam.

10. Over the past three years several important developments have occurred in the north east region and these are likely to transform the transport system of the region. The broad gauge line has now been extended to Bongaigaon and further to Jogigopa on the northern bank of the Brahmaputra. National Highways, both on the northern and the southern banks of the river, have been developed and, with the completion of the Lateral Road and other connecting roads, the road network of the region will be considerably strengthened. With these facilities established, even more than in the past, inland water transport has necessarily to be viewed as an integral part of a composite transport network serving the region as a whole. Except for the recent construction of the broad gauge line to Jogigopa, the railway system in the Assam region consists entirely of the metre gauge. Plans for development of an inland port at Jogigopa have already been

finalised and are to be put into execution shortly. At Pandu (Gauhati), an inland port has been developed under programmes taken up in the Third Five Year Plan. After the emergency in 1962, the Government of India set up the Central Road Transport Corporation, which operates goods transport services both within the Assam region and between Assam and Calcutta. The various developments outlined above suggest a role for inland water transport which may be somewhat different in scale and purpose from that in the past.

11. Problems of transport in the north east region are being studied at present with a view to evolving an integrated transport plan for the region as a whole. A transport survey for the region is already in progress. The broad lines on which plans have to be worked out can be briefly stated. Railways and waterways are the two most important means for transporting goods from and to Assam. Road communications are also of great importance but, for moving goods, they provide essentially a service complementary to rail and river transport. While railway services on the metre gauge line could be made self-contained, the broad gauge services have necessarily to be integrated with waterways and road services. Traffic terminating on the broad gauge line at Jogigopa has to be carried further inside the region by waterways and road services. Similarly, certain types of traffic originating in the region such as are intended for destinations in India on the broad gauge railway system could best be carried up to Jogigopa by road and river. The traffic in respect of which integrated transport services have specially to be organised will consist largely of jute, tea and wax in the outgoing direction, and cement, foodgrains, fertilisers and salt in the incoming direction. In order that rail, road and water transport services function as parts of a composite transport network in the region, it will be necessary to work out arrangements for pooling their operations and also to have facilities like common booking and transshipment and through freights and fares. Having regard to the location of Assam and other adjoining States in the north east region, it is of the utmost importance that costs of transport of essential goods moving from or to the region are kept to the minimum. It is from this point of view that it will be desirable to work progressively towards a scheme of pooling of rates and fares, and to consider possibilities of cross-subsidisation of different transport services so that, over a period, as the economy of the Assam region develops, the system can pay for itself. Plans for the development of waterways have to be thought of in this wider perspective. We stress this approach because we think that, even apart from the specific question of inland water transport, it is an imperative condition for the successful and rapid development of the economy of the Assam region that costs of transport should be reduced to the extent possible. This should, therefore, be the common focus of policy for all the transport services in the region, whether these are operated by Central or by State agencies.

12. Two questions which need to be considered in the context of development plans for waterways in future are (a) arrangements for conservancy

of river system, and (b) organisation for development and maintenance of waterways. Having regard to the nature of conservancy work involved in the Brahmaputra and its tributaries, and, for that matter in other major river systems in the country, overall responsibility for conservancy should be accepted by the Central Government. It will be necessary to ensure systematic study of the methods of river training and conservancy, the improvements needed, the capital required for conservancy works, and the organisational arrangements which may be required. The costs of conservancy have to be carefully worked out. In addition to the technical organisation at the Centre, it will be essential also to have an adequate organisation at the State level, and to assign to it effective responsibility for developing and maintaining the waterways in the region.

#### THE GANGA RIVER SYSTEM

13. The Ganga river system which, excluding the Hooghly, is navigable by boats over a length of more than 2000 miles, has been from times immemorial an important route connecting upper India with West Bengal. On account of several developments since the latter half of the 19th Century, such as the coming of railways and the building of road networks and, more recently, the Partition of the country which broke off the direct link of this waterway from Calcutta, the importance of Ganga from navigation point of view has been greatly reduced. The Joint Steamer Companies which continued to operate services between Calcutta and Patna via East Pakistan route, even after Partition, had to close their services in January 1958 because of losses involved in operating the services. Experimental services in the river Ganga between Buxar and Rajmahal have been operated in recent years with the help of specially designed shallow-draft vessels by the Ganga-Brahmaputra Water Transport Board. The experiments conducted by the Board established the technical feasibility of push-tow services operated by shallow craft on the river Ganga. It has, however, not been possible yet to organise services on a commercial basis and experimental services have recently been discontinued.

14. In 1962, on account specially of shortage of the railway capacity for movement of coal to upper India, the Government of India evolved proposals for development of services in the river Ganga. These, however, could not be carried through. The World Bank Team which studied transport problems in some detail in 1963-64 examined the feasibility of coal transport by waterway on the Ganga and came to the conclusion that the cost of moving coal by the river route in the region was much higher than by rail, principally because, in the case of water transport, coal had first to be transported overland by other means of transport. The Study Team, however, suggested consideration of the possibility of organising river services for other commodities. Earlier in 1959-60, on behalf of the Ganga Brahmaputra Board, the National Council of Applied Economic Research had conducted a detailed survey of traffic

potential on the river Ganga between Allahabad and Rajmahal and also on the river Gogra between Daurali and its confluence with Ganga. The survey disclosed a traffic potential of about 200,000 tonnes per annum on these rivers. According to the survey, traffic of this magnitude could be developed on these rivers if certain facilities were provided, such as maintenance of the navigable channel, landing ghats and connecting road links, etc. The Government of Bihar have had under consideration proposals for organising commercial services on the river Ganga. It is to be hoped that the detailed plans for the development of these waterways will be evolved in the near future.

15. As in other regions, development of the waterways in the Ganga and its tributaries has to be considered as part of the overall transport system in the region through which these rivers flow. The railway and road transport systems in this region, no doubt, are developing fast. It should be possible to supplement them to an extent by harnessing the potential of waterways in this region. Having regard particularly to the needs of the relatively undeveloped areas such as Eastern Uttar Pradesh and North Bihar served by these rivers, we hope that plans for developing navigation in the rivers will be drawn up and integrated with the general economic development plans of comparatively less developed areas in which every resource offered by nature needs to be stretched to the maximum advantage. It is also necessary to dovetail these plans with programmes for development of industries based on natural resources available in the region and decisions on the locations of these industries should take fully into account the potential uses of waterways. The success of plans for development of inland services in the Ganga river system will depend, in a large measure, on the feasibility of maintaining navigable channels in the rivers, a serious problem in this connection being bank erosion. River training works and adequate conservancy arrangements are, therefore, of great importance.

The construction of the Farakka Barrage and the connected development of the river Bhagirathi provide an entirely new perspective for the development of waterways in this region in so far as these works will make it possible to connect the river Ganga with the Hooghly through Bhagirathi by the direct route passing through Indian territory. With this in view, it is necessary to make a fresh appraisal of the potential of the all-India waterway between Calcutta through Patna and Uttar Pradesh. Technical and economic problems connected with this development should be considered as part of this appraisal.

#### WATERWAYS IN KERALA

16. Next only to the northeast region, inland water transport has the most important role in Kerala, where natural facilities of inland navigation are provided by lakes and backwaters sprawling along the West Coast. Canals have been built artificially to connect the backwaters with one

another, the most important among these being the West Coast Canal which runs over a distance of about 480 kilometres along the West Coast except for a missing link of about 50 kilometres. Inland water transport services in Kerala, however, are largely provided by traditional country boats called *valloms*. It is only the section between Cochin and Quilon on the West Coast Canal which is at present suitable for operation of powered boats. Some of the more important centres of commerce and industry in the State, namely, Ernakulam, Alleppey, Quilon and Trivandrum are situated along the waterways. It is estimated that about 1.5 million passengers and over 2 million tonnes of goods traffic are carried by waterways every year. The goods traffic consists mainly of agricultural products like coconut, food-grains, timber, rubber and industrial raw materials and manufactured goods. Of the total goods traffic in the State, about one half is estimated to move by water, the rest being distributed between road and rail. The State Government set up a Water Transport Corporation in the State in April 1958 which took over passenger boat services operating between Quilon and Ernakulam. For several reasons, chief among these being the heavy expenditure on crew and staff, the Corporation incurred losses amounting to over Rs. 22 lakhs over a period of about 5 years between 1958-59 and 1963-64. The Corporation was abolished in March 1965. Arrangements to set up a fresh organisation to take its place are under consideration.

17. Inland water transport in Kerala has certain natural advantages in so far as the backwaters provide navigable channels which do not involve much expenditure on maintenance. These backwaters link up with various ports on the coast, so that goods can be transhipped directly from the boats to the ships. An important problem of development of waterways in Kerala is to make them navigable by powered craft and to introduce technological improvements with a view to reducing costs and improving the economics of inland water services. An essential step is to build up a suitable organisation which can undertake responsibility for developing and maintaining the waterways, including introduction of better craft and for organising and assisting boatmen with a view to enabling them to provide services on a commercial basis. In association with the Directorate of Inland Water Transport at the Centre, this organisation should work out detailed plans for the development and operation of waterways as an integral part of the transport system in the State covering a period of ten to fifteen years.

#### WATERWAYS IN OTHER REGIONS

18. Some of the other regions in which waterways offer a potential source of navigation to be developed further are : (1) Goa, (2) Orissa, (3) Andhra Pradesh, (4) Madras, (5) Maharashtra, (6) Gujarat and (7) West Bengal. The river and canal systems in Goa have been used traditionally for carrying iron ore from the mines to Mormugao port. Iron ore is transhipped from boats direct to ships and this accounts for substantial economies in the cost of handling iron ore. Of the total quantity of about

6 million tonnes of iron ore being exported through Mormugao annually, as much as 5 million tonnes is carried by boats. A detailed project for the development of Mormugao port is now under preparation. Along with this project, it is necessary to prepare a plan for the development of waterways with a view to realising their economies in the transport of iron ore to the maximum extent possible.

19. In Orissa also waterways have been used on a limited scale for carrying iron ore for export through Paradeep port. The Mahanadi river and the Taldanda and Kendrapara canals, constitute the main waterways. Some works were undertaken in the Third Plan on these waterways with a view to given effect to a programme for export of 5 lakh tonnes of iron ore annually through Paradeep. However, Paradeep has since been developed as an all-weather port with alongside facilities and an express highway which will provide a direct road link from the mines to the port is about to be completed. The future of waterways, particularly from the point of view of export of iron ore through Paradeep, has to be assessed afresh in the context of these developments.

20. In Andhra Pradesh and Madras, experimental dredging is being done with a view to drawing up a plan for making the Buckingham Canal navigable by powered craft. In Andhra Pradesh, the Krishna and the Godavari delta canals provide the vital lines of communication connecting the Kakinada and Masulipatnam ports and suggestions have been made for development of these waterways. In other States also, particularly Maharashtra and Gujarat, there are waterways whose potential could be developed further. In Rajasthan, the economic feasibility of providing navigation in the new Rajasthan Canal is under study.

21. In West Bengal, the Damodar Valley Corporation Canal which extends from Durgapur to the Kunti river at a distance of about three kilometres from its confluence with the Hooghly, was built primarily for flood control and irrigation but was also designed for navigation. Operations on a limited scale have already been started in the canal. Measures have to be considered for utilising the potential offered by the canal.

22. In this chapter we have attempted briefly to indicate the more important directions for the development of waterways in the country and the lines along which detailed projects may be formulated for the Fourth Five Year Plan. The broad approach we have suggested is that development of waterways should be viewed as an integral part of the overall transportation system in each region and plans should be drawn up for development of waterways in the perspective of developments in other fields anticipated over the next ten to fifteen years. These plans should provide not merely for development and maintenance of waterways, but also for organisation of waterways services on a commercial basis, including technological improvements, such as choice of better craft and measures to assist boatmen and

coordinated operation with other transport services. In this context we wish to stress the need to rehabilitate boatmen by taking concerted measures to improve country boats and develop an expanding industry for manufacture of improved types of boats. Resources for carrying out these tasks should be provided under the Fourth Five Year Plan.

## CHAPTER XI

### PIPELINES AND ROPEWAYS

To a considerable extent, general transport services such as rail transport, roads and road transport have to be provided in anticipation of requirements and serve to strengthen the development process as a whole. However, with the growth of industry, even in regard to these aspects of transport, more specialised needs emerge. These may be for particular types of rolling stock or motor vehicles or for higher road specifications. A still greater degree of specialisation in the provision of means of transport is represented by such comparatively recent developments as pipelines, ropeways and conveyor belts which are directly related to certain specific needs. Such specialised methods of moving certain commodities in bulk follow directly from developments like movement of crude oil, oil exploration, oil refining and petro-chemical industries. In these, the industrial objectives in view, suitability of particular modes of transport and their relative capital and operating costs determine the manner in which the transport needed is provided. It is, therefore, easy to see why in India pipelines have come into increasing use in recent years and also the reasons for the larger role they may be expected to play in the future.

2. Experience in other countries has also been similar.<sup>1</sup> In the United States, for instance, oil pipelines carried over 10 per cent of the total inter-city freight in 1950 and carried more than 17 per cent in 1960. Projections for future years suggest that the proportion of the total freight carried by oil pipelines may well be of the order of 20 per cent in 1980.<sup>2</sup> In Eastern Europe also there has been considerable development of pipelines. Crude oil from the Urals moves by pipeline over a distance of some 4,500 kilometres through Poland and East Germany to Hungary and Czechoslovakia.

3. In India, the principal pipeline projects so far executed or under way fall into four groups :

- (i) *The Naharkatiya-Nunmati-Barauni crude oil pipeline*, (1152 kilometres) constructed at a cost of about Rs. 41.45 crores, including foreign exchange cost of Rs. 15.29 crores.
- (ii) *The Gauhati-Siliguri product pipeline*, (420 kilometres) constructed by the Indian Oil Corporation at a cost of about Rs. 7 crores,

<sup>1</sup>"It (pipeline) provides a means of substituting oil or gas movement for the haulage of coal and other fuel in wheeled vehicles, especially by rail. Continuing improvements in the quality of pipe and in the ease of installation and operation have resulted in the rapid expansion of pipeline transport of liquids and gases, and there are important potentials for moving solids by pipelines."

"The feasibility of pipelines for developing countries lies in their ability to traverse even the most difficult terrain, to be practically unaffected by weather, and to furnish transport of petroleum and petroleum products at low unit costs. Where volumes are sufficiently great, the pipeline is more economical for these purposes than other forms of transport". (Wilfred Owen, "Strategy for Mobility", The Brookings Institution, 1964, Page 106.)

<sup>2</sup>Landsberg, Fischman and Fisher. Resources in America's Future : Patterns of Requirements and Availabilities: 1960-2000 (1963), Page 141.

including foreign exchange cost of Rs. 1.7 crores.

- (iii) *The Haldia-Barauni-Kanpur pipeline*, being constructed by the Indian Oil Corporation. The section between Haldia and Barauni (530 kilometres) has been completed as a two-way pipeline, carrying crude from Haldia to Barauni and petroleum products from Barauni to Haldia. The section between Barauni and Kanpur (680 kilometres), which will carry petroleum products from Barauni refinery, is expected to be completed early in 1966. The total cost of the project is estimated at about Rs. 26 crores with foreign exchange component exceeding Rs. 10 crores.
- (iv) *The Gujarat pipeline system*, providing for movement of oil from Ankleshwar and gas from Cambay, comprises gas lines between Cambay and Dhuvaran (26 kilometres), between Ankleshwar and Uttaran (42 kilometres), between Ankleshwar and Baroda (98 kilometres), a crude pipeline between Ankleshwar and Koyali (98 kilometres) and a product pipeline between Koyali and Ahmedabad (120 kilometres). The project is nearing completion. Its total cost is reckoned at Rs. 6.68 crores with foreign exchange component of Rs. 1.79 crores.

4. Investment costs of pipelines and costs of operation vary with the size of the pipeline, the length, the area to be served, throughput volume and products to be carried, and balancing tanks or storage tanks required at either end of the pipeline and at intermediate offtake points. Pipelines entail heavy fixed costs, but their operating costs are low, average costs per tonne kilometre depending largely on the throughput. Given adequate volume of traffic, transportation through pipelines is reckoned to be more economical than through other modes. Pipeline capacity can be augmented through installation of boosters. However, since pipelines must be used for specific products, it is important that projections of future traffic requirements should be made with special care.

5. Indian experience in the working of pipelines is yet too short to throw up data regarding actual operational costs. In view of the capital intensive character of investment in pipelines, we suggest that the Ministry of Petroleum and Chemical Industries should make an early appraisal so as to establish operational cost data which may provide guidance in future projects. Even though the experience gained so far is limited, it should still be possible to verify the assumptions and estimates made at the time of taking the initial investment decisions and to set appropriate norms for future development and operation of pipelines. Such an appraisal will also suggest ways of keeping down capital and operational costs and ensuring the conditions necessary for optimum utilisation. Where the movement involved is in bulk and its direction reasonably fixed over a long period, pipelines are readily believed to be the most economic means of transport for carrying oil and gas, but certain other aspects may require greater consideration in the light of actual experience. For instance, in respect of product pipelines, it is

not enough to consider movement in bulk from the refinery to a prescribed destination. Distribution costs in relation to various consuming centres should be assessed and an attempt made to ascertain the cost to the economy as a whole. Again, in comparing the economics of pipelines and rail or road transport, in given situations, it may be important to assess the extent of capacity already available and the desirability of putting existing investments to full use. The fact that the foreign exchange costs of pipelines are likely to be heavy for a long time to come is also a pertinent consideration.

6. Pipelines will have a significant role in India in the case of petrochemical industries and of fertilizer production. The World Bank Study Team on Coal Transport investigated the relative costs of carrying coal by rail and by pipeline. The conclusion reached by them was that while, in certain special situations in which rail facilities are not available, pipelines might be economical for distances between 60 and 225 kilometres, speaking generally, rail costs were likely to be lower. It has been suggested that there might be some scope for the use of pipelines to supply coal from washeries to nearby steel plants and power houses. This aspect deserves closer investigation.

7. Ropeways are used mainly for carrying bulk materials like sand, coal, stone, ore, etc. They are suitable for comparatively short hauls over terrain where construction of roads or provision of other transport is either not feasible or is too expensive, provided also that there is a steady flow of material to be moved. The initial cost of construction of ropeways is high compared to other modes of transport, but running costs are cheaper because their normal working and care require less manpower than other modes of transport. In the eastern region there are at present 28 ropeways with a total length of 120 kilometres and installed capacity of 2,447 tonnes per hour, the largest capacity being in the districts of Dhanbad in Bihar and Burdwan in West Bengal. In these latter districts, ropeways are used for transporting sand from the bed of Damodar river to the various collieries for back-stowing and for moving coal from the collieries to rail-heads for loading into railway wagons. Of the total capacity of ropeways, 71 per cent is for carrying sand, about 16 per cent for iron ore, about 11 per cent for coal and the rest for bauxite and other commodities. The total annual capacity of the existing ropeways in the region is estimated at 12 million tonnes, the traffic now carried being of the order of 8 million tonnes. Thirteen more ropeways with a total capacity of 4,640 tonnes per hour and a total length of 205 kilometres are expected to be commissioned by 1969 in the Jharia and Raniganj coalfields, their total estimated cost being Rs. 24 crores. It is reckoned that when these ropeways are installed, the total capacity of ropeways in the eastern region will rise to 7,000 tonnes per hour or 33.5 million tonnes per annum. In view of the high capital cost and the large foreign exchange component, the economic feasibility of the costlier ropeway projects should be examined closely before approval is given.

## CHAPTER XII

### AIR TRANSPORT

THE WORLD over, expansion of civil air transport has been in the main a post-war phenomenon. During the period 1948-63, passenger kilometres flown by domestic and international air services of member countries of the International Civil Aviation Organisation increased from 21,000 to 147,000 million. Passenger kilometres flown by Indian air services increased from 284 million to 1689 million, India's share in the world total being 1.35 percent in 1948 and 1.2 percent in 1963. Over the same period freight carried by air increased from 420 million ton kilometres to 3270 million. The share of air services registered in India increased from 5 million ton kilometres to 53 million or from 1.2 percent to 1.6 percent of the world total. Though, in comparison with world totals and developments in other large countries with a considerable internal network, the progress of Indian air services has kept pace, the actual magnitudes of traffic are still comparatively modest. This is seen from the table below :

Table 1 : Total scheduled services (domestic and international)—volume of traffic<sup>1</sup>  
(in millions)  
Index 1948=100

|                    | Passenger traffic |        |          | Passenger kilometres |      |       |
|--------------------|-------------------|--------|----------|----------------------|------|-------|
|                    | 1948              | 1958   | 1963     | 1948                 | 1958 | 1963  |
| World <sup>2</sup> | 21,000            | 85,000 | 1,47,000 | 100                  | 405  | 700   |
| United States      | 12,698            | 50,698 | 81,048   | 100                  | 399  | 638   |
| Canada             | 596               | 3,232  | 5,785    | 100                  | 542  | 971   |
| Australia          | 1,049             | 2,189  | 3,892    | 100                  | 209  | 371   |
| Brazil             | 677               | 2,438  | 3,080    | 100                  | 360  | 455   |
| India              | 284               | 864    | 1,689    | 100                  | 304  | 595   |
|                    | Freight           |        |          | Cargo ton-kilometres |      |       |
|                    | 1948              | 1958   | 1963     | 1948                 | 1958 | 1963  |
| World <sup>1</sup> | 420               | 1,670  | 3,270    | 100                  | 398  | 779   |
| United States      | 233               | 863    | 1,662    | 100                  | 370  | 713   |
| Canada             | 5                 | 32     | 74       | 100                  | 640  | 1480  |
| Australia          | 25                | 63     | 94       | 100                  | 252  | 376   |
| Brazil             | 31                | 87     | 111      | 100                  | 280  | 358   |
| India              | 5                 | 31     | 53       | 100                  | 620  | 1,060 |

2. Domestic air services are operated by the Indian Airlines Corporation, but there are also eight small air companies which operate non-scheduled services in the Assam region. International air services are operated by Air India. Air India's fleet consists of 8 Boeings. The Indian Airlines Corporation, having been constituted in 1953 out of a number

<sup>1</sup>Source.—United Nations Statistical Year Book, 1964.

<sup>2</sup>Includes member countries of the International Civil Aviation Organisation.

of separate companies operating a variety of aircraft, needed time to build up a fleet composed of a few standard types suited to different categories of operations undertaken by the Corporation. In March 1965, the fleet of Indian Airlines consisted of 4 Caravelles, 12 Viscounts, 10 Fokker Friendships, 3 Skymasters and 36 Dakotas. As at present envisaged, by the end of the Fourth Plan, the Corporation's fleet will comprise 10 Caravelles (or Caravelle types of aircraft), 11 Fokker Friendships, 7 aircraft to replace Viscounts and Skymasters, and 15 Avros and 15 small feeder route aircraft.

3. Air India and Indian Airlines together had in 1964-65 a total capacity of about 487 million tonne-kilometres and carried nearly 1.5 million passengers. They flew 2,097 million passenger kilometres and carried about 59 million tonne-kilometres of cargo. Table 2 below gives statistics separately for Air India and Indian Airlines for the years 1955-56, 1960-61 and 1964-65 :

Table 2 : Indian air services—capacity and operations

|                                              | total traffic |         |         | index   |         |         |
|----------------------------------------------|---------------|---------|---------|---------|---------|---------|
|                                              | 1955-56       | 1960-61 | 1964-65 | 1955-56 | 1960-61 | 1964-65 |
| <i>Available tonne-kilometres (millions)</i> |               |         |         |         |         |         |
| Air India . . .                              | 56.1          | 161.4   | 328.6   | 100.0   | 287.7   | 582.2   |
| IAC . . .                                    | 84.3          | 113.1   | 157.0   | 100.0   | 134.2   | 186.2   |
| total . . .                                  | 140.4         | 274.5   | 485.6   | 100.0   | 195.5   | 345.9   |
| <i>Passenger kilometres (millions)</i>       |               |         |         |         |         |         |
| Air India . . .                              | 248.0         | 582.6   | 1139.8  | 100.0   | 234.9   | 460.0   |
| IAC . . .                                    | 338.0         | 614.0   | 957.6   | 100.0   | 181.6   | 283.3   |
| total . . .                                  | 586.0         | 1196.6  | 2097.4  | 100.0   | 204.1   | 357.9   |
| <i>Passengers carried (thousands)</i>        |               |         |         |         |         |         |
| Air India . . .                              | 56.4          | 123.3   | 238.0   | 100.0   | 218.6   | 422.0   |
| IAC . . .                                    | 500.4         | 787.2   | 1235.3  | 100.0   | 157.3   | 245.9   |
| total . . .                                  | 556.8         | 910.5   | 1473.3  | 100.0   | 163.5   | 264.6   |
| <i>Cargo tonne-kilometres (millions)</i>     |               |         |         |         |         |         |
| Air India . . .                              | 8.9*          | 18.8    | 44.2    | 100.0   | 211.2   | 496.6   |
| IAC . . .                                    | 20.7*         | 19.5    | 15.0    | 100.0   | 94.2    | 72.5    |
| total . . .                                  | 29.6*         | 38.3    | 59.2    | 100.0   | 129.4   | 200.0   |

It will be seen that the total capacity of domestic air services, excluding the non-scheduled operations of small private companies, increased by 183 percent over the ten years from 1955-56 to 1964-65. Private air companies accounted in 1964 for a total freight of about 42.5 million tonne-kilometres. During the same period the corresponding increase for Air India amounted to 360 per cent. Between 1960-61 and 1964-65, with

\*for 1957-58.

the introduction of the Boeing on international routes, Air India doubled their total capacity.

4. While operational efficiency is a factor of the greatest importance for the profitability of air services, the experience of both Air India and Indian Airlines bears testimony to the crucial significance of the right choice of aircraft for the success of the air transport industry. Indeed, this consideration is likely to condition future developments both in domestic and in international services to an even greater extent than in the past.

5. In the operation of domestic air services, while such considerations as the quality of civil aviation and aeronautical facilities available, efficiency of management and training and morale of personnel are extremely important, two major factors which finally determine the profitability of the industry and its rate of growth are the costs of operating different types of aircraft and the nature of the routes served. The seating capacity of different aircraft varies a great deal, the number of seats ranging from 84 on the Caravelle, 50 to 60 on the Skymaster and 48 on the Viscount to 36 on the Fokker Friendship and 21 to 28 on the Dakota. Available tonne kilometres per flying hour provide a useful overall measure of the capacity of an aircraft and allow for all relevant factors. Table 3 below compares for the four years, 1961-62 to 1964-65, available tonne kilometres per flying hour for five principal types of aircraft presently employed by Indian Airlines as well as their unit costs.

Table 3 : Available tonne kilometres per flying hour and costs of operating different types of aircraft

|                                                       | 1961-62 | 1962-63 | 1963-64 | 1964-65 |
|-------------------------------------------------------|---------|---------|---------|---------|
| <i>(a) Available tonne-kilometres per flying hour</i> |         |         |         |         |
| Dakota (passenger) . . .                              | 510     | 506     | 481     | 491     |
| Skymaster . . .                                       | 1,901   | 1,965   | 1,809   | 1,839   |
| Viscount . . .                                        | 1,758   | 1,729   | 1,729   | 1,685   |
| Fokker Friendship . . .                               | 1,110   | 1,260   | 1,079   | 1,079   |
| Caravelle . . .                                       | *       | *       | 4,713   | 4,923   |
| <i>(b) Cost in rupees</i>                             |         |         |         |         |
| <i>(i) per flying hour</i>                            |         |         |         |         |
| Dakota . . .                                          | 834.14  | 878.14  | 1044.49 | 1103.07 |
| Skymaster . . .                                       | 1723.74 | 2091.31 | 2194.51 | 2362.84 |
| Viscount . . .                                        | 1817.98 | 1802.49 | 2145.15 | 2267.03 |
| Fokker Friendship . . .                               | 1289.29 | 1487.13 | 1540.31 | 1715.26 |
| Caravelle . . .                                       | *       | *       | 5596.90 | 5465.85 |
| <i>(ii) per available tonne kilometre</i>             |         |         |         |         |
| Dakota . . .                                          | 1.50    | 1.54    | 1.95    | 2.13    |
| Skymaster . . .                                       | 0.91    | 1.06    | 1.21    | 1.28    |
| Viscount . . .                                        | 1.03    | 1.04    | 1.24    | 1.35    |
| Fokker Friendship . . .                               | 1.16    | 1.18    | 1.43    | 1.59    |
| Caravelle . . .                                       | *       | *       | 1.19    | 1.11    |
| <i>iii) per aircraft kilometre</i>                    |         |         |         |         |
| Dakota . . .                                          | 3.65    | 3.86    | 4.71    | 5.06    |
| Skymaster . . .                                       | 6.06    | 7.26    | 7.66    | 8.00    |
| Viscount . . .                                        | 4.74    | 4.58    | 5.59    | 6.07    |
| Fokker Friendship . . .                               | 4.15    | 4.86    | 5.20    | 5.86    |
| Caravelle . . .                                       | *       | *       | 9.17    | 8.75    |

\* Caravelles were introduced in 1963-64

In considering the data given above, it has to be remembered that air transport has special characteristics which distinguish it from other modes of transport. Air travel is necessarily very costly. Costs are related to the standard of service which has to be provided. A significant proportion of the costs of operation are outside the control of the operators, for instance, costs of manufacture, taxes and duties on fuel, etc. The economics of air transport improves with higher utilisation and unit costs diminish on longer runs. Nevertheless, there is need for continuous study of key elements of costs and for establishing effective systems of cost control and cost reduction.

6. Some aspects of the problem of management of domestic air services have been recently investigated in a study of Physical and Financial Programming in the Indian Airlines Corporation undertaken by the Management Group of the Committee on Plan Projects, Planning Commission. The Management Group has also made a number of recommendations bearing on the existing system of long range planning, estimation of traffic, route analysis, preparation of capital budget, general and administrative costs, inventory control, materials planning and other aspects of planning and control of operations currently undertaken by the Indian Airlines. The Management Group study has not undertaken in any detail an examination of the fare and freight structure of Indian Airlines. The present structure is based on recommendations made in 1957 by the Air Transport Council, a body which was itself abolished in 1962. The Air Transport Council had recommended a pattern of what they described as Design 'A' fares for all types of aircraft then in use. Certain improvements and adjustments were made in subsequent years, the last set of changes having been effected in 1963. It seems to us that the composition of the fleet, the scale and conditions of operation and several other factors have altered greatly as a result of the developments of recent years. Therefore, the present is an appropriate time to undertake a fresh review of the existing fare and freight structure, the principles of pricing followed as well as the system of cost and budgetary control employed by Indian Airlines, having regard specially to the programmes of development envisaged for the Fourth Plan period. We would also recommend that while there might be marginal adjustments from year to year, as a matter of policy, these various aspects should receive fresh and systematic scrutiny on the part of the Corporation and the Government at regular intervals.

7. The routes operated by an airline cannot all be equally profitable, and indeed a number of them may have to be worked at least for a period at a loss. Where uneconomic aircraft have to be employed, the disadvantages associated with particular routes are further accentuated. Traffic carried by Indian Airlines is classified at present into four main categories :

- (1) Trunk routes,
- (2) Regional routes of (a) high density, (b) average density and (c) low density,

- (3) Charter services and non-scheduled operations, and
- (4) Freighter operations.

The trunk and regional routes operated by Indian Airlines comprise 138 sectors, of which 27 account for 70 per cent of the passengers. Of these latter, only 18 showed a profit in 1963-64. The following table shows passenger traffic density in 1963-64 :

Table 4 : Passenger traffic density

| daily passengers | number of sectors | route miles | percent of route miles | average daily passenger miles performed | percent of passenger miles |
|------------------|-------------------|-------------|------------------------|-----------------------------------------|----------------------------|
| 300 plus         | 1                 | 712         | 2                      | 226,400                                 | 18                         |
| 200—300          | 0                 | ..          | ..                     | ..                                      | ..                         |
| 100—200          | 2                 | 1,130       | 3                      | 171,752                                 | 14                         |
| 50—99            | 9                 | 5,082       | 12                     | 387,848                                 | 31                         |
| 30—49            | 15                | 5,541       | 13                     | 215,181                                 | 18                         |
| 10—29            | 35                | 9,496       | 23                     | 163,286                                 | 13                         |
| Under 10         | 76                | 19,293      | 17                     | 77,065                                  | 6                          |
| Total            | 138               | 41,254      | 100                    | 1,241,532                               | 100                        |

The table shows that traffic density in the domestic air services is at present concentrated on comparatively few routes. From the aspect of profitability Indian Airlines divide their routes into four groups :

- (1) routes on which revenue exceeds operating costs;
- (2) routes on which revenue meets direct operating costs; but does not cover total operating costs;
- (3) routes on which revenue meets only variable direct operating costs but fails to cover indirect operating costs and overhead costs; and
- (4) routes on which revenue fails to cover variable direct operating costs.

8. As a commercial undertaking, the Indian Airlines Corporation has to pay special attention to the more profitable routes. Although the Air Corporation Act now permits private parties to operate scheduled services on routes other than those served by the two national air lines, the main responsibility for ensuring that the different regions of the country are adequately served must fall on Indian Airlines. The existing network of services is relatively adequate in relation to trunk routes. These are operated with comparatively greater efficiency and provide a higher level of service than the regional routes. While steps are being taken by the Ministry of Civil Aviation to bring about improvements on many of the regional routes, civil aviation and communication facilities are admittedly deficient. Several new

and growing centres of economic and industrial importance need to be better served, for instance, the industrial complexes of the coal-steel belt. Economic development in a number of regions in the country could be accelerated and their administration greatly facilitated if more adequate air services could be provided. Of these, the most important instance is that of the Assam region where a regional network of services based on the area itself is a priority requirement equally from the economic, administrative and political aspects. Large tracts in the country, specially in Madhya Pradesh, Orissa and parts of Andhra Pradesh need to be served more effectively than at present. Similarly, as the air traffic survey undertaken in 1962 by the National Council of Applied Economic Research showed, in the southern region also, there is scope for developing new sources of traffic. We suggest, therefore, a reappraisal by the Indian Airlines Corporation in consultation with the Government of the existing structure of air services. We are aware that the Air Transport Council (1957) and the Costs Structure Committee (1959) recommended the payment of a subsidy to the Corporation for operating essential but unremunerative services in the wider national interest. While this proposal was not accepted, Government agreed to grant an outright subsidy to wipe off losses incurred by the Corporation up to 1958-59 and to treat one-half of the capital as equity capital and the balance as debenture capital on which payment of interest was to be waived up to October 1966. Beginning from 1959-60, the Corporation was able to break even. Therefore, the objectives of development and profitability would have to be carefully reconciled in the context of the present economic and industrial requirements and likely developments over the next few years.

9. By its very nature, air transport service offers somewhat limited scope for coordination with other modes of transport. Nevertheless, specially in the regions mentioned above, it would be desirable to study air transport requirements along with the requirements of other transport services so that, to the extent possible, plans of development could take such assessments into account. We realise that replacement of existing aircraft which may be costly to operate and procurement of additional aircraft will take time. Nevertheless, it would be desirable to evolve a carefully worked out overall plan for the future development of domestic air services. Along with these, complementary civil aviation and aeronautical facilities will also need to be planned for. We also appreciate that, for a period, it would be necessary to take special steps to diminish possible losses. Fares and freights might vary in different regions. As a matter of policy, various measures may be necessary to assure the volume of traffic needed to facilitate economic operation. Composite cargo-passenger services may be found feasible. Decisions of this nature must be taken by the Government as part of co-ordinated regional transport plans.

10. The recent decision taken by the Government of India to set up a Civil Aviation Development Fund with an initial grant of Rs. 1 crore, from which it will be possible to subsidise the Indian Airlines Corporation for

operating services which are undertaken at the instance of the Government in the interest of tourist promotion or to meet the regional requirements of a particular area or for construction of air strips and provision of ancillary facilities for the operation of services in addition to those provided under the general programme of the Civil Aviation Department, should assist in developing services along the lines proposed above. We may add, however, that the introduction or discontinuance of a particular air service should in each case be considered in relation to the total transport requirements of a region and the requisite traffic and the possibilities of economic operation should be explored as far as possible through a coordinated scheme of development which encompasses all the principal modes of transport. As resources permit and favourable technological developments occur, over a period, the effort should be to introduce aircraft which can operate at low cost even over short distances.

11. While on the subject of profitability of different routes, we would also suggest a re-examination by the Indian Airlines Corporation and the Government of existing arrangements for the operation and control of domestic air services at the regional level. It is realised that trunk air services account for about 70 per cent of the total revenue and there are limits to the regionalisation of services. However, if regional organisations were more adequately equipped and could serve as semi-autonomous and self-contained units for costs, profits, etc., there might be gains in performance both operationally and in economic terms. Taking Delhi, Bombay, Calcutta and Madras as the principal centres for regional operation, as recommended in the Management Group's study, it would be appropriate also to separate headquarters costs from those of the Delhi, Bombay and Calcutta regions. Also, specially in the case of Calcutta, in view of the difficulties of operation and other problems which have come into prominence more recently, there would be advantage in establishing a subordinate unit for operations within the Assam region. If need be, within the Assam region, the resources of private operators could also be pooled and utilised as part of a wider system under the control and direction of the Indian Airlines Corporation.

12. In the past, when domestic air transport served only limited objectives and was confined mainly to trunk routes or some selected regional routes, it was not necessary to pay special attention to problems of coordination between air transport and other modes of transport. However, with the economic and industrial development now under way and that projected for the future, air transport will have a larger and more significant role. Questions bearing on coordinated operations of air services along with other services will now call for closer study. More specially, in relation to the requirements of large parts of the country, such as the Assam region, the coal-steel belt and the southern region, the possible contribution of air transport to future development will have to be identified and provided for in future plans. Air services have a vital role in the promotion of tourism.

From this aspect we would stress the quality of service available, both on regional and on trunk routes, and the need to improve the existing travel facilities, transport, accommodation, catering and other conveniences, specially outside the metropolitan centres.

### CHAPTER XIII

#### MACHINERY FOR COORDINATING TRANSPORT PROGRAMMES AND POLICIES

IN THE preceding chapters we have considered a wide range of problems affecting different transport services and have stressed at each point the importance of viewing these services as parts of a composite network to be developed in keeping with the changing and growing needs of the economy and the perspective of development over a period of years. In Chapter III we have set out at length the approach to problems of coordination, with special reference to rail and road transport and have developed the theme in some detail in subsequent chapters. In this chapter we consider what is perhaps the most difficult aspect of all, namely, the machinery, the organisation and the instruments through which transport programmes and policies may be developed continuously along the lines indicated, given effect to and reviewed from time to time as part of a functioning system in which all the agencies concerned, both at the Centre and in the States, act as partners working within a framework of common policies and assumptions. We are aware that the gap between policy objectives and the practical means for fulfilling them may not be altogether bridged, and any machinery that may be devised must change and grow over a period until it becomes more adequate to the tasks entrusted to it and more capable of operating with knowledge of facts and understanding of problems affecting those who are responsible for different services and with a degree of flexibility in dealing with changing situations.

#### POLICY ASSUMPTIONS

2. Before considering the scope for coordination and the machinery that may be appropriate, we may recall certain key propositions made earlier in the Report :

(1) Planning for transport involves judgements concerning the distribution of traffic between different modes of transport. On these judgements depend the quantum of resources devoted to the development of different services during any given period, the prices at which the services are made available and the return on investment in the development of transport.

(2) The central purpose of transport policy is to create such technical, economic and other conditions for the distribution of traffic between different modes of transport as will help ensure that facilities in each mode are developed and operated in keeping with the requirements of traffic at minimum cost to the community. The essential condition is that the various transport services should be considered, both for policy and practical action, as a composite network in which to the greatest extent possible, each

element is complementary to the rest. Only in this context does it become possible to apply investment and cost benefit criteria in the transport sector.

(3) The first step is to arrive at a correct estimate of transport requirements over a period of years in the total and in specific forms and locations. The allocation of traffic between alternative modes of transport has to be based on (a) carefully ascertained technical and economic data and projections and (b) progressive approximation of rates to costs. The scheme of allocation of traffic for any period, for the economy as a whole as well as for each region, and the investment plan for the transport sector and the services it comprises are essential ingredients in the plan of development and rest on the same foundation of facts and logic.

(4) For an effective scheme of coordination to be evolved, for instance, between rail and road transport, certain supporting measures must also be incorporated into the plan of development. These fall under three heads : (a) fiscal measures and pricing policies, (b) regulation and (c) integration of organisation and operations. These have been considered fully in Chapters III, IV, VI, and VII. The aspects to which attention may be drawn here are :

(i) Fiscal and pricing policies can assist in bringing about a rate structure within the transport industry which corresponds more closely to the social costs of providing different services, provided the latter are known with sufficient accuracy. For ascertaining costs there must be suitable accounting systems at each level in the industry permitting analysis of costs for specific flows of traffic. For accurate comparisons of costs on different modes of transport a common approach on questions of definition, criteria and methods of analysis has to be evolved between the authorities responsible for different services.

(ii) Measures for regulation proposed in this Report are intended to assist the distribution of traffic between different transport services on economic consideration. They have to be applied increasingly on the basis of careful economic studies and estimates of demand for different services undertaken continuously and in a scientific manner. The existing machinery for regulation of transport, both at the Centre and in the States, is not adequate, and regulation is undertaken largely on an *ad hoc* basis, without sufficient knowledge of the quantum and composition of traffic or of comparative costs of operation or of the requirements of coordination from the standpoint of the economy as a whole. Policies adopted at present for the taxation of commercial transport are not related to the scheme of regulation. The road transport industry itself is not organised on a sound commercial basis, nor are there representative associations which can support public policies, maintain standards, assist small operators and protect the interests of users.

(iii) Having regard to the present structure of the road transport industry and the fact that, apart from a leavening of public undertakings and of organised commercial enterprises, the industry will continue substantially

as a private industry, mainly composed of small units; there are nevertheless some directions in which it should be possible to develop integrated operations between rail and road services to the mutual advantage of both.

#### SCOPE OF COORDINATION

3. It is essential to devise suitable machinery within the Central Government as well as at the State level for carrying out the policies outlined in our Report and, more specially, for assessing the volume and composition of traffic, coordinating investments, obtaining data on relative costs, fares and freights, proposing from time to time appropriate fiscal measures and pricing policies and changes in the scheme of regulation and promoting greater integration between different services. In considering the nature of the machinery that may be required for achieving coordination of transport in its various aspects, it is useful to distinguish three different but related concepts, namely, 'planning', 'coordination' and 'operations'. 'Planning', involves, in the first place, determination of the volume, composition and phasing of investments in different transport services over a period, which may be the period of, say, a Five Year Plan, or even a longer term. Investment decisions have to be taken by the Government specifically and in detail in respect of services provided by public undertakings. Similar decisions have to be taken by private agencies engaged in providing transport services. To facilitate these decisions, public policy and plans formulated by Government provide a broad framework within which private agencies can largely determine their own action. It may be that in some fields, as in shipping, the role of public policy and of measures by which it is supported may be quite decisive even for the plans of private parties. The second aspect of 'planning' consists in the formulation in broad terms of policies and measures by which investment decisions, to be taken by Government and Government undertakings as well as by private agencies, are to be given effect. As distinct from 'planning', the concept of 'operations' would refer to the actual running of a service or undertaking within the general system provided by the scheme of 'planning' and 'coordination', which together constitute the substance of a national policy for transport.

4. Action by way of 'coordination' lies between 'planning' at one end and 'operations' at the other. The principal tasks to be undertaken by way of coordination may be said to be :

- (a) to study from time to time the relative costs of providing different transport services and Government's fiscal and pricing policies and related fare and freight structures, having regard to the scheme of allocation of traffic under the approved plan of development;
- (b) to propose measures for correcting imbalances between availability of transport and the requirements of the economy in respect of different modes of transport both in the aggregate and in different parts of the country; and

- (c) to suggest specific measures for the regulation of transport in pursuance of principles and policies approved by Government, including traffic envisaged for different services.

This may be taken as a broad statement of the scope of coordination. As stated earlier, coordination is necessarily in the nature of an approach, a progressive approximation, and it may be only after considerable practical experience has been gained and a body of accurate economic and statistical information has accumulated that an adequate degree of coordination between different services, specially in relation to particular regions and particular commodities may take the shape of a functioning system. Efforts should be made to devise machinery which may, over a period, succeed in attaining such coordination, but the task is admittedly difficult.

5. For planning, the necessary machinery already exists to a large extent. The Planning Commission, acting in close cooperation with the Central Ministries concerned and the States, formulates plans which, on receiving the approval of the Central and State Governments and of Parliament, are implemented by the administrative and other agencies concerned. Information and data required for planning flow ultimately from information which arises in the course of 'operations' and is utilised for actual implementation. There is considerable scope for improving such information and for processing it so that it serves more readily the requirements both of better management and of better coordination and planning. In Chapter XIV we offer suggestions for organisation and collection of data on traffic flows and transport costs. Such data have to be further supplemented by special technical and economic studies. A beginning in this direction has been made through the setting up three years ago of a Joint Technical Group for Transport Planning, which is at present staffed by personnel drawn from the Planning Commission and the Ministries of Railways and Transport, and is intended to assist all the agencies concerned with transport in the study of problems of common interest. The Joint Technical Group functions under the aegis of the Planning Committee for Transport, which has the Member of the Planning Commission concerned with Transport as Chairman and includes the Secretaries of the Ministries of Railways and Transport as well as of the other Ministries concerned. The Group has been engaged in studies relating to transportation requirements of major commodities, has initiated, in cooperation with State Governments and the Ministries of Railways and Transport, a series of regional transport surveys, and proposes to undertake studies of comparative costs for different media of transport under given situations as well as studies of industrial location in relation to transport. The results of these studies are expected to contribute significantly towards the formulation of the transport plans of the Central as well as State Governments and to help in drawing up a long-term transportation plan for the country as a whole. Progressively, the Joint Technical Group is equipping itself for the study of relative costs and of fare and freight structures and of such other aspects as may assist in achieving greater and more precise

planning and coordination within the transport sector. Whatever machinery may be set up for securing coordination at the national level, in the Joint Technical Group, which is at present concerned with studies relating to preparation of long term transport plans, there exists already the nucleus of an organisation which can be developed further for providing the continuing economic and statistical appraisals needed for effective coordination in the field of transport.

6. As stated above, data needed for coordination and planning of transport will, in the main, flow from information which is thrown up in the course of operations undertaken by various transport agencies, both public and private. While there is necessarily a great deal of scope for improving such current information and enhancing its value for the wider objectives of coordination and planning, it is important to stress the distinctive place of 'operations' in the organisation of transport. The machinery for operating a transport service lies within each appropriate executive agency. The responsibility of each agency for implementing its programme of development, maintaining its services and, in general, achieving efficient management cannot be too greatly stressed. Corresponding to this responsibility, there must be a large measure of freedom and autonomy and any interference in the name of coordination or planning in the actual operation of a transport service must be sedulously avoided. This is not to say that within each operating agency there will not be need for continuous efforts to raise the level of efficiency, to set higher norms of productivity, to build up surpluses for further development and to adopt appropriate pricing and other policies. In a large measure, these are matters to be determined by each agency for itself although, in their wider aspects, they are also an important element in planning at the national and State level.

7. We have referred above to the nature and machinery for 'planning' and for 'operations' and have drawn attention to the fact that, while the data required for planning and coordination may need to be supplemented by special technical and economic studies, in the main they will flow from current operations. In any given period 'coordination' for transport as defined earlier has to be achieved in the following principal contexts :

- (a) between the network of transport services taken together and the requirements of transport for the economy as a whole;
- (b) between different transport services *inter se* and, more specially, between—
  - (i) rail and road transport,
  - (ii) rail, road and inland water transport and
  - (iii) rail and coastal sea transport;
- (c) within the Central Government, between the Ministries concerned with transport and problems of policy affecting transport;
- (d) between the Central Government and each of the State Governments; and

- (c) within each State or region, between different transport services, specially rail, road, inland water transport and ports.

In a sense, these are different facets of a common problem which arise inevitably as between various modes of transport and at different levels within the national economy. Special attention has been drawn above to those transport services which could frequently get out of step with one another and would, therefore, call for deliberate measures and policies for achieving coordinated and complementary action on a continuing basis. There are other transport services such as ports, air transport and shipping in relation to which, in the main, coordination is best achieved through the planning of investments to meet the requirements of the economy as a whole. However, from time to time, even in respect of these services, there will be specific problems which will call for closer study of costs, fare and freight structures and related policies. These problems will fall within the purview of whatever machinery is set up at the national level for achieving coordination of transport.

#### SOME GENERAL CONSIDERATIONS

8. The question of devising suitable machinery for coordination has to be considered from two different angles. Firstly, for any given transport service, there has to be coordination at different levels in the economy or in the administrative structure of the country. Thus, for roads and road transport, there should be close coordination between the Central and the State Governments. There should also be coordination between them in respect of the operations of major ports, which are directly the concern of the Central Government, and those of intermediate and minor ports, which are under the administration of State Governments. Each connected group of major and intermediate and minor ports should function as a system in which the role of each unit is clearly envisaged. Secondly, taking different transport services together, there should be a coordinated approach between them (a) for the country as a whole and (b) for different regions and States. Responsibility for securing coordination should follow the level at which the appropriate authority functions. Thus, in the field of transport, the overall responsibility of the Central Government is a necessary condition of planned and coordinated development. The Central Government is in a position to see the picture as a whole in relation to the present and future needs of the economy and to integrate with these the requirements of national defence. It can provide an appropriate framework of policy—economic, social and legal—within which State Governments may undertake development in the spheres assigned to them and ensure the necessary coordination between different transport services.

9. Within the Central Government, three main agencies are at present responsible for providing transport services—the Ministry of Railways, the Ministry of Transport and the Ministry of Civil Aviation.<sup>1</sup> In principle, it

is possible that functions entrusted to these three Ministries could be assigned to a single Ministry in charge of Transport. Such a Ministry would then be called upon not only to operate a variety of transport services now administered by several different agencies, such as rail transport, air transport, shipping and ports, but also to secure the necessary coordination with State Governments, for instance, in road development, road transport, inland water transport, etc. Too often, the problem of transport tends to be seen in terms of separate modes of transport. As we have repeatedly stressed, the various media of transport have to be viewed as a composite network, as a total service to be provided in adequate quantity and at a level of efficiency in keeping with the growing requirements of the national economy as well as the economies of different regions. In other words, the problems of coordination of transport go far beyond the limited issue whether, at the national level, all transport services should be assigned to one Ministry or to more than one Ministry. It is true that a number of administrative problems affecting coordination of transport could be resolved more swiftly if one Ministry were to be made responsible for all media of transport at the national level and were able to take a total view of the requirements of the economy and to plan for them accordingly. At the same time, for a single Minister to bear responsibility for so large a segment of the national economy would be an extremely heavy burden to carry, and the organisation under his control would have to be most complex and elaborate. In fact, there would be need for special arrangements for achieving coordination on a continuing basis whether one Ministry were held responsible for all transport services or various modes of transport were assigned to different Ministries. In this sense, the problem of creating suitable machinery for the coordination of transport and equipping it adequately with resources in personnel for reviewing relative fare and freight structures, bringing together data on costs, framing policies for the regulation of transport and anticipating and correcting short-term imbalances is a distinctive one. It is against the background of these general considerations that we make our specific proposals for establishing what may be regarded as the minimum machinery needed for achieving coordination of transport programmes and policies.

#### RECOMMENDATIONS CONCERNING MACHINERY FOR COORDINATION

10. Recommendations concerning machinery for coordination in the field of transport may be grouped under two main heads, namely arrangements at the national level and arrangements at the State level. Under each head we envisage establishment of certain new agencies as well as strengthening and re-organisation of existing agencies.

11. *Machinery at the national level.*—At the national level, coordination of transport programmes and policies is secured partly through investment and other decisions taken in the context of Five Year and Annual plans

<sup>1</sup>Subsequent to the completion of our Report, on January 24, 1966 the Ministries of Transport and Civil Aviation were merged into a new Ministry of Transport, Aviation, Shipping and Tourism.

and partly through inter-departmental consultations. From time to time, important matters of policy are considered by the Cabinet or by a Committee of the Cabinet. There is, however, no standing machinery for coordination of transport within the existing structure of the Central Government.

12. For any coordination machinery to function effectively, the first condition is the building up of an organisation capable of undertaking independent studies and economic appraisals, providing data on relative costs and following up decisions with authorities responsible for implementation. The nucleus of such an organisation is now available in the Joint Technical Group for Transport Planning. We recommend that this unit should be strengthened and equipped adequately for undertaking studies and collection of data required for coordinating development programmes and rating policies in respect of different modes of transport.

13. The Joint Technical Group for Transport Planning at present functions under the direction of the Planning Committee on Transport, which includes the Secretaries of the Ministries of Transport and Civil Aviation and Chairman, Railway Board, as well as Secretaries concerned with industrial and mineral development. The Member of the Planning Commission concerned with Transport serves as Chairman of the Committee. We recommend that the Planning Committee on Transport should be reconstituted and should function as the Transport Planning and Coordination Committee. It should consist of the Member of the Planning Commission concerned with Transport as Chairman, and have as members the Secretaries of the Ministries of Transport and Civil Aviation, the Chairman of the Railway Board, the Secretaries of the Department of Coordination in the Ministry of Finance, Planning Commission, Ministry of Industry & Supply and the Department of Mines & Metals in the Ministry of Steel and Mines and the Chairman of the Inter-State Transport Commission. The Joint Technical Group for Transport Planning should serve as the Technical Secretariat of the Transport Planning and Coordination Committee. The Committee should meet at regular intervals and consider reports and studies prepared by the Joint Technical Group and research organisations in the Ministries of Railways, Transport and Civil Aviation as well as in the States.

14. In most matters, the Transport Planning and Coordination Committee may be expected to reach agreed decisions but there will be issues which the Ministries will wish to place before the Cabinet or before a Cabinet Committee. To facilitate consideration of important questions of policy and to provide guidance from time to time to the Transport Planning and Coordination Committee and to the Ministries, we suggest that the Prime Minister may constitute a Committee of Ministers, consisting of the Ministers in-charge of Railways, Transport and Civil Aviation, Minister of Industry, Minister of Planning, Minister of State in the Ministry of Finance and the Member of the Planning Commission in charge of Transport. The Prime Minister may appoint a member of the Committee to serve as Chairman. It should be

mentioned that the composition suggested here for the Committee of Ministers is on the basis of the present set up of the Ministries.

15. The existing agencies for development and coordination at the national level include the National Harbour Board and the Transport Development Council, the latter being supported by the Advisory Committee for Roads and Inland Water Transport. The National Harbour Board is presided over by the Union Minister of Transport and includes Ministers from the States as well as representatives of major ports. The Advisory Committee for Roads and Inland Water Transport includes a few official representatives from the States as well as individuals representing private interests engaged in road transport and inland water transport. Its recommendations are placed before the Transport Development Council, which is presided over by the Union Minister of Transport and is composed of State Ministers in-charge of Roads, Road Transport and Inland Water Transport. The Transport Development Council was set up in August 1958 as a high level body to advise the Government of India on matters of policy relating to roads, road transport and inland water transport. The Council has served as a useful forum for the consideration of common problems affecting the development specially of those sectors of transport which fall within the plans of States. In relation to these it has done much to help evolve a consensus from the point of view of the country as a whole.

16. The existing arrangements for coordination of transport programmes and policies at the Centre will be strengthened through the setting up of the proposed Committee of Ministers and the Transport Planning and Coordination Committee supported by a Technical Secretariat jointly established and maintained by the Planning Commission and the Ministries concerned. There are, however, important directions in which a national transport policy encompassing all modes of transport, cannot be evolved, much less implemented in detail, without complete coordination between the Centre and the States. In a federal structure such coordination has to be based, in the last analysis, on common objectives and on plans of development formulated after full consultation and based on careful study of needs and problems. To secure an adequate measure of coordinated action by way of implementation, the necessary machinery should exist and should be in a position to function continuously and with the support of the Centre and the States. These considerations have led us to recommend the setting up of the Council for Transport Coordination. This body would be concerned with the general and overall problems of coordination and, besides reviewing implementation of measures and policies pertaining to the coordination of transport, would provide direction and guidance to the road transport industry and other interests as well as advise on programmes of studies to be undertaken by the Joint Technical Group for Transport Planning, by research organisations in the Ministries and technical units established in the States. The Council would be composed of members of the Committee of Ministers on Transport at the Centre and State Ministers in-charge of Transport and Roads. As

we see it, the Council for Transport Coordination would supplement and carry further the work of the Transport Development Council, specially in fields where larger considerations of policy demand unified action between the Centre and the States and problems of the transport sector as a whole have to be considered in their wider setting. The Chairman of the Committee of Ministers would serve as Chairman of the Council for Transport Coordination. The three organisations proposed above, namely, the Transport Planning and Coordination Committee, the Central Committee of Ministers on Transport and the Council for Transport Coordination may be set up under a Resolution of the Government of India in the Cabinet Secretariat.

17. At the operational level, in accordance with our recommendations, the Inter-State Transport Commission, constituted under the Motor Vehicles Act, 1939 (as amended in 1956), would be responsible for determining the requirements of mechanised motor transport on inter-State routes, preparing plans for meeting these requirements, coordinating these with the road transport plans in the States and, generally recommending measures and policies for achieving coordination of road transport with the railways and other modes of transport. We have also proposed that the Inter-State Transport Commission should be strengthened through the appointment of a full-time Chairman drawn from public life and the provision of adequate staff for maintaining information and studies concerning road transport throughout the country and pursuing such administrative action as may be necessary. We have also suggested the redesignation of the Inter-State Transport Commission as the Inter-State Road Transport Commission.

18. *Machinery for coordination at the State level.*—In the scheme of coordination for road transport which we have proposed, the broad line of distinction is between inter-State road traffic and intra-State road traffic. Corresponding to this, responsibility for coordinating road transport within a State would devolve on the State Transport Authority. Since an overall view has to be taken of the requirements of road transport in terms of the integrated development of transport facilities, State Transport Authorities should function increasingly on the basis of systematic assessment of requirement for road transport made by them and, for the country as a whole, by the Inter-State Road Transport Commission. On wider questions bearing on policy and coordination, the Transport Planning and Coordination Committee at the Centre could provide a measure of support to the State Transport Authorities.

19. At present there is some kind of overall transport plan for the country as a whole, but nothing in the nature of an integrated transport plan is drawn up for individual States or regions. Planning for road and road transport development in the States takes place without adequate assessment of requirements for transport as a whole in relation to the growth of the regional economy and without deliberate coordination in relation to other means of transport, specially the railways, inland water transport and ports.

Consequently, at the State level, the economic and statistical data on which the plans of agencies concerned with road development and rail and road transport development are based cannot be said to be adequate. If a systematic body of information were available and there were closer coordination between States, the Zonal Railways and the port authorities, it would be possible to formulate in relation to each State fully coordinated development plans for all modes of transport in relation to economic and industrial programmes and the long-term perspectives of development. To facilitate this we recommend that each State Government should constitute a State Advisory Transport Board. Besides the principal agencies of the State Government, such as the Road Planning Board, the State Transport Authority, the Transport Commissioner or Secretary of the Transport Department and the Development Commissioner, others to be represented on the Board might be the General Managers of the main Zonal Railways, the Chairman of the Port Authority of the Major port (if one exists in the State) and persons drawn from the road transport industry, both public and private. State Advisory Transport Boards are expected to give material help in the formulation and review of composite transport plans for the Fourth and Fifth Plan periods which, it is hoped, will emerge as a consequence of the regional transport surveys which are now under way in different parts of the country.

#### RESEARCH AND TRAINING IN TRANSPORT

20. In concluding our recommendations concerning the setting up of an adequate machinery for coordinating transport programmes and policies, we feel the need to look beyond the question of organisation to the kind of facts and analyses which will be needed in the future and the outlook and training which it will be necessary to impart to those who have to view the transport system and its problems as a whole. It is not generally realised that the field of transport studies has remained comparatively neglected, not only within the agencies concerned with different modes of transport, but also, in its general aspects, in the universities and in research institutions. For most of the regional transport surveys which are now being undertaken personnel has been drawn from the railways and the States. The principal research institution which has been able so far to give a significant lead in relation to transport studies is the National Council of Applied Economic Research, which accepted responsibility for regional transport surveys in Madras, Kerala and Mysore and has also initiated other studies. Two promising developments which have occurred are the constitution by the Research Programmes Committee of the Planning Commission of a Committee on Transport Research and the transport survey of the Punjab, Himachal Pradesh and Delhi region which the Punjab University are at present undertaking. The work on commodity studies, now being undertaken by the Joint Technical Group for Transport Planning, is comparatively new, but useful experience is being built up. There are aspects of transport research,

such as studies of transport costs and cost-benefit appraisals of transport projects, for which qualified personnel have yet to be trained and problems of methodology and data will need careful investigation. We have, therefore, come to the conclusion that to stimulate transport research and studies, both within the Government and the universities, it would be desirable to promote the development of a Centre for Transport Research and Training.

21. Such a Centre could be set up as a non-government institution fully supported by the Planning Commission and the Ministries of Railways, Transport and Civil Aviation and Finance and also the States. The Centre should undertake research into the basic problems of long-term transport development, including studies of comparative costs, and should assist the Central Ministries and the States, in undertaking special investigations and surveys. It should provide facilities for work and training to persons drawn from Central and State organisations concerned with different transport services, from the road transport and other transport industries and from universities. The Centre for Transport Research and Training could be set up by itself or as an extension of an appropriate existing organisation such as the Institute of Rail Transport. After it has made some headway, the Centre could provide not only intensive training courses for specialised personnel engaged in or required for research in transport problems, but also shorter orientation courses for senior personnel drawn from the railways, from road transport organisations, port administrations, shipping and major industrial projects. In due course, the work of the Centre should come to exert increasing influence on the quality of data available for planning and coordination and on methods of planning in the transport sector. There is much to be gained if, increasingly, different modes of transport can be seen in their mutual relationships in the context of inter-dependent growth and as a composite transport system serving a rapidly developing economy, rather than as distinct and isolated services, as has happened too frequently in the past. A detailed project on these broad lines should be drawn up by the Transport Planning and Coordination Committee in consultation with the Planning Commission and the Ministries concerned and provided for as a specific scheme in the Fourth Five Year Plan.

## CHAPTER XIV

### ORGANISATION AND COLLECTION OF DATA ON TRAFFIC FLOWS AND TRANSPORT COSTS

IN THE discussion in this Report of problems of planning and coordination of different transport services the need for two sets of key data has emerged repeatedly. These relate to traffic flows and transport costs.<sup>1</sup> The object of this Chapter is to suggest the first phase of a programme for obtaining these data in a systematic manner and on a continuing basis and the organisation through which the task may be accomplished. In the light of experience, a more comprehensive scheme of work can be evolved and the organisation strengthened further.

2. Deficiencies in respect of essential data concerning movements of commodities and the costs to operators of different transport services as well as costs to the economy are by no means peculiar to India. Several investigations in India as well as in other countries have drawn pointed attention to them.<sup>2</sup>

Knowledge of the quantities of various categories of goods moving by different modes of transport is a pre-requisite for any considered scheme of allocation of traffic. Given these data, it is possible to examine in relation to operating costs as well as social costs how best the anticipated traffic could be distributed between different modes of transport in given regions as well as in the country as a whole. Even though the process may be a gradual one, there is general recognition that an allocation of traffic nearer the optimum is more likely to be achieved if the prices of different transport services are adjusted with reference to their social costs, and benefits.<sup>3</sup> In the case of rail transport, it has been envisaged that, while allowing for its special characteristics and obligations, rail rating policies would move steadily in the direction of the principles discussed earlier.<sup>4</sup> A similar approach has to be applied in other transport services, though the

1. See Chapter III: paragraphs 5—13, 17—27; Chapter IV: paragraphs 31—34, 38; Chapter VIII: paragraph 15; Chapter IX: paragraph 12; Chapter XI: paragraphs 4—5, 7; Chapter XII: paragraphs 5—6; and Chapter XIII: paragraphs 4—7, 13, 20—21.

2. See

For India: The Report of the Freight Structure Enquiry Committee (1958) pages 79—81 and India Coal Transport Study (1964) Vol. III, pages 196—208 and Appendix 'D' pages 1—15 and 34—44;

For Australia: Report of Committee on Transport Economic Research relating to road and rail transport (1958) Part II, paragraph 174;

For Canada: Royal Commission on Transportation (1961), Vol. II, pages 169—175 and Vol. III (1962) pages 411—425; and

For U.S.A.: Federal Transportation Policy and Program (1960) pages 9—10.

3. See Chapter III: paragraph 21.

4. See Chapter IV: paragraphs 32—33.

special features of each mode of transport have always to be borne in mind. The conclusion to be stressed is that for achieving a rational allocation of traffic and, therefore, a plan of investment in the interest of the economy as a whole, it is of the greatest importance to obtain accurate information regarding the demand for the movement of commodities by different modes of transport and the relative costs of carrying them. Without these, it is not possible to work out pricing policies which may be justified on economic criteria or to know fully the implications of pricing policies which may in practice be followed.

3. Pricing policies are essentially a tool for giving effect to the scheme of planning and coordination of transport. It will be recalled that the tasks to be undertaken by way of coordination include, specifically, the study from time to time of the development of demand, relative transport costs for different modes of service, Government's fiscal and pricing policies and the related fare and freight structures, having regard to the scheme of allocation of traffic under the approved plan of development.<sup>1</sup> Further, to know the cost at which a given service is being provided is a necessary step in controlling costs, in other words, in ensuring efficiency of management. Given control over costs and appropriate pricing policies, the transport sector could itself mobilise a large proportion of the resources needed for further development. The influence of transport costs on the location of many industries is also an aspect of great importance in industrial planning. Unless it becomes possible to establish and compare costs for given flows of traffic for different modes of transport, the essential objective of transport policy, namely, to develop the various modes as complementary services in such proportion and combinations as will meet the total need of the community at a minimum cost to the economy, cannot be secured. As stated earlier, it is essential also to view this central objective in the context of growth, more specially of changes in volume and composition in the services needed by the economy from period to period and, having regard to technological and other changes, the costs at which these services can be provided.<sup>2</sup>

#### TRAFFIC FLOWS

4. Lacune in data relating to movements of commodities are necessarily far more serious in relation to road transport than for rail transport. At an early stage of its work, the Committee on Transport Policy and Coordination found it necessary to arrange for a special survey of road traffic along six important routes, the results of which are given in Appendix 3. Appendix 4 contains the results of a survey undertaken in 1963 by the Ministry of Transport of goods traffic on sixteen long distance trunk routes. Estimates of road traffic for 1962-63 and forecasts for 1970-71 for five major

<sup>1</sup>See Chapter XIII: paragraph 4.

<sup>2</sup>See Chapter III: paragraphs 1-3.

commodities—iron ore, limestone, cement, petroleum products and coal—have been prepared by the Joint Technical Group for Transport Planning and are sent out in Appendix 5. Thus, apart from traffic surveys undertaken in the States in connection with road development programmes and data which are at present being gathered for the first time through the work of the Joint Technical Group for Transport Planning and the regional transport surveys in different parts of the country, the information available at present regarding movements by road is extraordinarily scanty.

5. Data concerning movements of commodities by rail are available in the Statistical Supplement to the annual 'Report by the Railway Board on Indian Railways.' These provide information on the movement of principal commodities by broad gauge, metre gauge and narrow gauge and for different Zonal Railways in terms of tonnes originating and carried, net tonne kilometres and average lead. Traffic densities for different sections on the Zonal Railways are also available. Beyond these, if it is sought to establish the quantum of movement by commodities along a specific route or section, the information needed has to be processed afresh from primary data. With the mechanisation of traffic accounts and statistics on the Indian Railways and the simplification of procedures now in progress it should become relatively easier in the future to obtain such data both more speedily and at regular intervals.

6. The Joint Technical Group for Transport Planning is at present engaged in estimating future transportation requirements for 15 major commodities. The survey extends to all modes of transport and covers the year 1962-63 with estimates for 1965-66, 1970-71 and 1975-76. The commodities selected for these studies are:

|                            |                               |
|----------------------------|-------------------------------|
| 1 coal                     | 9 salt                        |
| 2 products of steel plants | 10 foodgrains                 |
| 3 cement                   | 11 sugar                      |
| 4 iron ore                 | 12 raw jute                   |
| 5 limestone                | 13 raw cotton                 |
| 6 petroleum oil products   | 14 tea                        |
| 7 manganese                | 15 timber and timber products |
| 8 fertilizers              |                               |

This programme of work is expected to be completed by the end of 1966. As a result of these investigations, a great deal of new and valuable information regarding traffic flows in relation to important commodities will become available. It will also be possible to identify these traffic flows where problems of coordination between different modes of transport have important policy and economic implications and, therefore, call for closer study of relative transport costs.

7. Side by side with information on traffic flows yielded by commodity studies, a considerable body of information is also becoming available from the regional transport surveys which are now in progress. These surveys

form part of an all-India programme which includes the following specific surveys :

- (a) Regional transport surveys of Madras, Mysore and Kerala by the National Council of Applied Economic Research, supported by Survey Units appointed by the State Governments of Mysore and Kerala. The survey for Madras has been recently completed. The work done will now be carried further.
- (b) Regional transport survey for the Eastern Region, including the States of West Bengal, Bihar and Orissa and the adjoining districts of Madhya Pradesh and Andhra Pradesh, by a team constituted by the Joint Technical Group for Transport Planning with which specialists provided by the World Bank are also associated. The team is supported by State Units appointed by the State Governments.
- (c) Transport survey of the Punjab, Himachal Pradesh and Delhi region by the Punjab University, supported by Survey Units in the Punjab and in the Union Territories.
- (d) State transport surveys in Maharashtra, Andhra Pradesh, Uttar Pradesh, Madhya Pradesh, Rajasthan, Gujarat, Assam and Jammu & Kashmir by State Survey Units working in collaboration with units under senior Railway officials provided by the Ministry of Railways.

The regional transport surveys involve enquiries into all aspects of transport, including railways, roads, road transport, inland water transport and ports as well as studies of the growth of the regional economy, investigations in the transport requirements of large industrial projects and major construction projects as well as studies of the growth of the regional economy during the Fourth and Fifth Plan periods. For the purpose of ascertaining flows of traffic and relating them to available capacities, each of the regional transport surveys defines certain focal points. These are defined as points on the railway system or on the road system where a substantial volume of traffic originates or terminates. Thus, for instance, within the Eastern Region, highway traffic flows are being studied with reference to 60 focal points. The regional transport surveys also make use of the concept of 'section', a road section being defined as a stretch of road connecting any two consecutive focal points or a focal point with another road section and a rail section being defined as a portion of the railway line connecting two consecutive engine changing stations or yards. On the basis of data concerning traffic flows between focal points on different sections, it is possible to build up a picture of movements of principal commodities within different regions as well as for the country as a whole. For the purpose of the regional surveys, movements of more than 40 commodities are being studied but, for the country as a whole, as mentioned earlier, 15 major commodities are being kept in view. It is expected that information concerning move-

ments of commodities which the series of studies now under way will throw up will also help establish areas in which it will be useful to undertake the study of costs of providing additional capacities by alternative modes or combinations of modes of transport as well as relative transport costs of operating different services.

8. While commodity studies and regional transport surveys will provide information of value for the planning of transport in the immediate future, these studies have also a wider objective, namely, the drawing up of a long-term transportation plan for India as a whole, which will encompass all modes of transport and will embody a number of regional transportation plans. Where a region comprises more than one State or territory, for each such unit, there will be a coordinated transportation plan in sufficient detail to facilitate decisions concerning investment and allocation of traffic and pricing decisions. In the work of the Joint Technical Group for Transport Planning it has been envisaged that with the preparation of each Five Year Plan, opportunity should be taken to review progress, collect afresh the basic data needed and project the long-term transportation plan for a further period of ten or fifteen years. It is expected that the studies now in progress will enable the Central Ministries concerned, in cooperation with the Planning Commission and the States, to implement with fuller knowledge of detail and to elaborate further plans formulated for the development of transport for the Fourth Plan period. They should also assist the Planning Commission and other agencies in working out a broad plan for the period 1971-76, sufficient at least to facilitate some of the basic decisions, and perhaps also to suggest certain guidelines for the period 1976-81. On the basis of the work already initiated, we propose that the Government of India should organise an all-India transportation survey at five-yearly intervals. We would suggest that the survey should collect data for the last year of each plan period. It should take advantage of all available data and should be undertaken as far as possible through existing research organisations in the Central Ministries and in the States. The help of research organisations outside the Government should also be taken. The detailed scope and methodology of the survey will need to be considered carefully in the light of the experience gained in commodity studies and the regional transport surveys. We believe that such a survey of transportation, covering all modes of transport and undertaken at regular intervals, will be of great value in the planning and development of transport as well as in projecting the long-term transportation requirements of the country and of different regions.

#### APPRAISAL OF TRANSPORT COSTS

9. In comparison with industry, so far the study of costs in the transport sector has not received adequate emphasis. This is partly because, in some aspects, transport services are provided by comparatively small and dispersed units. Historically, the Railways, which account for the bulk of transport, have based rating policies on the principle of charging what the traffic will bear rather than with reference to the costs of services provided by them.

Again, organisations like ports provide a service in the nature of a monopoly. Several State road transport undertakings also operate under monopoly conditions. Thus, until recently, on the whole there were no strong compelling factors in favour of organising accounts and statistics so as to yield detailed cost data and facilitate cost control. However, the importance of establishing accurate data on costs is now increasingly recognised.

10. In our discussion on Ports, we have stressed that costs of various services rendered by port authorities should be known precisely and that port charges should be related to costs. In the Chapter on Air Transport, we have referred to costs of operating different types of aircraft and the wide variation in the profitability of different routes operated by Indian Airlines. In a recent study of the existing system of planning and control in a State-owned shipping company carried out by the Management Group of the Committee on Plan Projects, a number of suggestions have been offered for establishing unit costs of operation and identifying elements which could lend themselves to a studied programme of cost reduction. In another study of a State road transport undertaking, which is being undertaken by the Management Group of the Committee on Plan Projects, an attempt is being made to evolve an improved costing system and to suggest methods of ascertaining the profitability of different routes and services, so that the management may devise ways of making the enterprise more profitable. Thus, it has now become incumbent on every transport enterprise, specially those operated by State undertakings, and indeed in the transport sector as a whole, to develop adequate costing systems and to pursue the objective of cost reduction continuously and as a matter of general policy. This is a necessary condition if investments in the development of transport capacities are to make the contribution due from them to the rapid growth of the national economy.

11. To establish transport costs accurately as a means to effective cost control is a necessary step even where a commodity moves only by a single mode of transport, for the effort here must be to ensure transport at the lowest cost feasible. Where the commodity moves to a destination by more than one mode of transport, for instance, to a port by road and rail or, by a rail-cum-river route, there is need to break down the various elements of cost, so that those which can be controlled or avoided may be identified. Again, accurate cost data are required where there is a possible choice between alternative modes or combinations of modes of transport. In each of these situations, comparisons between costs of different modes of transport or their aggregation in a meaningful way call for a degree of uniformity in the basic accounting and statistical concepts which are adopted as well as in methods of analysis. It is in this sense that the introduction of the practices of management accounting has become a matter of high priority in several fields, notably, in the management of ports. Also, for similar enterprises, such as road transport undertakings, there is need for uniform accounting systems.

12. The tasks ahead in the area of transport cost studies seem to us to be of such significance for the national economy that special steps should now be taken to strengthen the necessary administrative and technical arrangements. The Ministry of Railways have a small cell within the Directorate of Statistics in the Railway Board for the study of costs which could be readily strengthened. The Ministry of Transport have a Directorate of Transport Research which should now be equipped with a unit for cost studies which could study specially costs of services provided in different ports and by different road transport undertakings and also undertake cost-benefit studies. Port authorities, road transport undertakings and other public enterprises in the field of transport should also organise adequately for cost studies, so that continuous efforts may be made to reduce costs and enlarge surpluses for development. Within the Joint Technical Group for Transport Planning also, there is need to set up a cell for cost studies which could interpret the results of studies concerning costs of different modes of transport. In cooperation with the Ministries of Railways and Transport and the Management Group of the Committee on Plan Projects, this cell could help evolve a common approach to questions of definition, criteria and methods of analysis in the presentation of basis cost and accounting data in the field of transport.

13. In the ordinary course, because of lack of data and the weakness of existing technical agencies, progress in establishing accurate information on costs is likely to prove much too slow. This makes it all the more essential to make a special effort to develop sound methods and procedures for analysis and suggest improvements in data which will facilitate systematic cost studies in the future. From this aspect we recommend that the Transport Planning and Coordination Committee should initiate a series of case studies. These should relate to specific movements of commodities in which transport costs constitute a significant element, as in exports of iron ore, or where greater knowledge of costs will assist in evolving policies for coordination between different modes of transport.

## CHAPTER XV

## CONCLUDING OBSERVATIONS

THIS REPORT has covered wide ground. We have submitted a large number of policy recommendations concerning different modes of transport. In putting forward our proposals we have limited ourselves to internal transport services. Thus, we have not referred to overseas shipping, which in fact represents the greater part of the growth of shipping in recent years, and have made only a brief reference to India's international air service. Besides discussion of specific problems concerning different modes of transport, we have also considered wider questions of coordination, administrative and other arrangements for achieving coordination between different transport programmes and policies, and the scheme of technical and economic studies which is intended to assist in the formulation of a long term transportation plan for the country as a whole, accompanied by integrated transport plans for different regions and States.

2. Transport is one of the most widely pervasive services within the economy. It can be rightly described as a vital sector of growth. Well-conceived, forward-looking and technologically progressive developments in transport not only make for savings in costs in other sectors, but can also do much to speed their growth. There are, however, important conditions if this objective is to be realised. Transport is a highly capital intensive field of development. Therefore, application of appropriate cost-benefit criteria for selecting projects, careful attention to their preparation and execution according to schedule, the building up of adequate technical organisations, collection on a continuing basis of economic and statistical data and projections of future growth, determination of costs, adoption of programming techniques and sound management practices, correct pricing policies and studied efforts to reduce costs of transport and foreign exchange expenditures are essential to the successful operation of transport services and the generation of internal resources for future development to the greatest extent possible.

3. There is an important common area of planning between transport, industry and energy to which, in our view, the Planning Commission and the Ministries should give much greater attention in the future. Its two main aspects are the promotion of indigenous manufacture of various types of equipment required in transport operations and fuel policies in relation to transport development. The latter issue has been recently examined in the Report of the Energy Survey of India Committee (1965). Similarly, while manufacturing developments bearing on rail transport and road transport are receiving considerable attention, much remains to be done in respect of road construction equipment, cargo handling equipment,

harbour craft and different types of marine engines. It is beyond the scope of our Report to deal with these subjects, but we wish to draw attention to them. They have an important bearing, both on the growth of industries within the country, on which depends the uninterrupted development of transport services, and on reduction in the foreign exchange costs of transport projects, which is at present an urgent aspect of transport planning.

4. The Committee has had the advantage at every stage of the close association with its work of senior officials of the Ministries of Industry, Finance, Railways, Transport and Civil Aviation, and was able to draw on the advice and assistance of experts in these Ministries and in the States as well as others outside the Government. It is, therefore, our earnest hope that the recommendations of the Committee, which have been evolved mutually after careful consideration of all aspects of the subject, will receive early consideration on the part of the Government of India and the States, so that implementation may be facilitated.

|                 |                  |
|-----------------|------------------|
| TARLOK SINGH    | <i>Chairman</i>  |
| R. L. GUPTA     | <i>Member</i>    |
| S. RANGANATHAN  | <i>Member</i>    |
| KRIPAL SINGH    | <i>Member</i>    |
| S. BHOOHALINGAM | <i>Member</i>    |
| NAGENDRA SINGH  | <i>Member</i>    |
| I. G. PATEL     | <i>Member</i>    |
| K. L. LUTHRA    | <i>Secretary</i> |

January 10, 1966.

## MAIN CONCLUSIONS AND RECOMMENDATIONS

CHAPTER II—*Trends in the development of transport—A broad view*

1. The capacity of each mode of transport has to be developed to meet the specific demands for it as well as in relation to the rest of the transport system. The system as a whole has to be viewed at each step both as an integrated structure as well as in terms of relationships between different transport services. (Para 1)

2. As part of a planned national economy, looking to continuous and cumulative growth, with deep-rooted structural problems being resolved step by step, the transport system has now to subserve a much wider range of purposes than before and has a crucial role in economic, social and technical development at the national and regional levels as well as in the expansion of international trade. (Para 2).

3. Since transportation requirements are always of a specific nature, much depends on the accuracy with which they are assessed in advance. The requirements may also change at short notice on account of changes in the industrial and economic situation. Thus, even within a few weeks or months, in particular sections of the transport system, bottlenecks may develop or spare capacities may be shown up. (Para 4)

4. Assessment of transport needs calls for close and continuous appreciation of the progress of plans for industrial development and the functioning of the entire industrial and agricultural economy as well as for systematic and consistent projections for the future. In determining ahead and planning for capacities to meet the requirements for transport, a coordinated view has to be taken of various media and, in particular, of rail and road transport. (Para 17)

5. A national transport policy must seek to build a transport structure of the right size and pattern, consistent with the scheme of economic development envisaged under the Plans and capable of meeting the demands of the future. (Para 25)

6. In seeking the objective of coordination, it will be necessary not only to establish appropriate criteria for the distribution of traffic between different modes of transport, but also to consider, in the given conditions of India, the economic policies and the organisation and structure through which these criteria can be given practical effect in the day to day working of the transport system. (Para 25)

CHAPTER III—*Approach to problems of coordination*

1. If the transport system is viewed as an integrated network, disregarding the fact that each service may be operated by a different agency, frequently under diverse ownership, the objective of coordination may be stated to be to develop the various modes of transport as complementary services in such proportions and combinations as will meet the total need of the community at each given stage at minimum cost to the economy. (Para 1)

2. The problem of coordination in transport has to be considered in the dynamic context of growth, the essential elements to be reckoned being changes in the volume and composition from period to period of the services needed by the economy and the costs at which these services can be established and operated. (Para 2)

3. As between different transport services, the more important aspect is complementarity, though within a range determined by users' preferences and the prices at which individual services become available, there is also a significant element of substitutability. (Para 2)

4. In considering the problem of coordination in transport, the social costs are decisive. While reckoning social costs, the social benefits derived from the services must also be considered. These are not always easy to measure. They may reflect the social values and judgement of the community functioning through its various organs and may in fact be of great importance in reaching conclusions on public policy for transport. (Para 2)

5. Planning for transport involves decisions, which often remain only implicit, concerning the distribution of traffic between different modes of transport. These determine the quantum of resources—capital, foreign exchange, scarce materials and personnel—which should be devoted to the development of different services during any given period, the prices at which the services are made available and the return on investment in the development of transport. (Para 3).

6. The central purpose of transport policy is to create such technical, economic and other conditions for the distribution of traffic between different modes of transport as will help ensure to the greatest extent feasible that facilities in each mode are developed in such proportions and operated in such manner as would meet the total needs of the economy at minimum cost to the community. It is important that every effort be made to achieve progressively as close an approximation to the objective as may be possible and, to this end, to develop systematically the necessary economic and statistical information for different modes of transport, to utilise such information in making the main decisions and to keep under constant review the facts concerning costs of transport and changes in the demand for various services and in the composition of traffic. (Para 3)

7. Both for rail and road transport, it is necessary to conduct over a period a series of investigations into costs, both total and marginal, for specific sections and specific streams of traffic so as to build up a body of data on which dependable policy judgements may be based. (Para 5)

8. In comparing rail and road costs, it is somewhat risky to generalise on the basis of average costs. Therefore, it is necessary to obtain comparative data on costs pertaining to specific flows of traffic. (Para 12)

9. Basic to any scheme of cost determination is the existence of a suitable accounting system at each level of the industry which will permit ready ascertainment and analysis of costs for specific flows of traffic.

For accurate comparisons to be made between rail and road transport costs, it is essential that on key issues of definition, criteria and methods of analysis, a common approach should be developed between the authorities concerned. (Para 13)

10. Account will need to be taken, through appropriate money values being set, where possible, on the social aspects of costs and benefits of alternative modes of transport, such as, in the case of road transport, door to door service or saving in time, employment possibilities or developmental role in relation to rural areas or hilly tracts. (Para 13)

11. In interpreting cost data due attention has to be given to the different economic and technological characteristics of rail and road transport since these necessarily influence their suitability for different types of traffic. (Para 14)

12. In allocating traffic in terms of the economy as a whole or for different regions, or in relation to different classes of goods, it is necessary to take a forward looking view regarding the technical and economic possibilities presented by alternative modes of transport. While being checked in terms of performance from time to time, this view should be, at each stage, for a period of years and should not be restricted too closely to the effects of the current transport situation or to trends over very short periods. (Para 16)

13. In the less developed economies, the role of transport is even more fundamental and dynamic than in the more advanced countries. The growth of basic capacities in transport, increase in mobility, diffusion of industry and economic activity and changes in the structure of production and consumption will call for adjustments in the perspectives and instruments of policy for the future. (Para 17)

14. Recently there has been greater recognition that the various transport services should be considered, both in theory and for policy and practical action, as a composite network in which each element should be complementary to the rest to the greatest extent possible. This objective will be facilitated by systematic application of investment and cost benefit criteria in the transport sector. With this approach in mind the Ministries

of Railways and Transport and the Planning Commission, through the Joint Technical Group for Transport Planning, have initiated a series of technical and economic studies. These studies will, it is hoped, make it possible to determine more accurately than in the past the transport capacities needed in relation to principal commodities moving or expected in the future to move between important centres of activity for the country as a whole as well as for different regions. It should be possible on the basis of the results of these studies to draw up programmes for the development of different transport media on an integrated basis and to relate them sufficiently closely to developments in other sectors of the economy. (Para 19)

15. In a country like India where major developments in the transportation system are expected to take place in future as part of plans for the growth of the economy as a whole, it should be possible to take care of the problem of coordination of different transport services largely through investment policies under the Plans. These should be directed towards building up right combinations of different transport services in keeping with the needs of growing traffic. (Para 20)

16. Most of the new investment on the railways will have to be devoted to building up an increasingly efficient rail transport system rather than to the expansion of the network itself. Road transport facilities will be needed on a much larger scale than even before to open up new and less developed areas, to carry economic development and social services to the farthest village, to promote the growth of agriculture and the rural economy and to provide for intra-city transport services. Wherever possible, inland water transport and coastal shipping should provide useful supplementary services to cater particularly for movement of bulk traffic over long distances. Further investments in these services will have to be directed to modernisation of the services and technological improvements for reducing their costs etc. Other means of transport such as ropeways and pipelines, have still to be developed on a significant scale and it should be possible to integrate their development into the transportation system as a whole. (Para 20)

17. The pricing or rate policies adopted by different modes of transport will influence not only the distribution of traffic between different transport services, but also their relative profitability and, therefore, future growth potential.

Pricing policy for major undertakings should be such as to yield a net return which corresponds to the scarcity value of capital in the economy in general. Taken as a whole, the operations of each system of transport, therefore, should earn at least that rate of return which cannot be considered low in relation to the return obtained in alternative forms of investment. Equally, it can be said that the price charged for a particular transport service should cover at least the marginal cost of providing that service.

The profitability of each mode of transport, given fully cost-based pricing, will serve as an indicator for future investment decisions. While there is some theoretical justification for fully cost-based pricing systems, it is based on a number of assumptions which are not always fulfilled in real life. Costs may not always measure social costs and consumer preference as expressed in the market do not always reflect social benefits and the consequences envisaged in theory can ensue in practice only under more or less perfect competitive conditions. (Para 21)

18. Granted the fact that at any given time, competition between different modes of transport can at best be imperfect, departures from a fully cost-based pricing system would become inevitable—in the absence of regulation—in response to the desire to take advantage of specific demand situations. (Para 22)

19. In the case of railways, investment takes the form of large units, generally indivisible and associated with similar complementary investments. The railways are a Government undertaking and are charged with important public service obligations. This implies non-discrimination and stability in rates and liability to provide services in accordance with published schedules. The Indian Railways have already taken steps to develop their accounting system along commercial lines; yet to bring about approximation of rates to the costs of services is a process which will inevitably be spread over several years. Because of the very wide variation in costs in different conditions of operation, it is difficult for the railways to adjust rates on the basis of costs in all cases.

The road transport industry consists of a large number of single truck operators and there are yet no organised associations in the industry which can assist public authorities in enforcing the minimum regulation of fares and freights, supervising the working of the industry from the point of view of public interest and assisting small operators in obtaining steady business.

An essential condition for the operation of competition in a basic public utility like transport is that short-term imbalances between supply and demand should lead to appropriate remedial action rather than to large fluctuations in prices. The availability of vehicles and the capacity of the automobile industry are an inevitable constraint on the supply of road transport in the short period. (Para 23)

20. For any period, both for the economy as a whole and for regions, the essential ingredients in the plan of development for transport are the scheme of allocation of traffic and the investment plan. But, by themselves, they are not likely to be sufficient for putting the plan into effect. Three types of supporting measures have to be considered and incorporated into the development plan before an effective scheme of coordination between rail and road transport or for that matter any alternative mode of transport can be formulated. These are : (a) fiscal measures and

pricing policies, (b) regulation, and (c) integration in organisation and operations. (Para 25)

21. Despite their limitations, taxes and subsidies can be expected to assist by way of incentives or disincentives in the use of given forms of transport for specific traffics within the overall scheme of allocation of traffic. They have considerable value in securing a degree of self-regulation in the allocation of traffic between alternative modes of transport and in translating the overall economic judgement of the community as a whole into specific measures. (Para 27)

22. Regulation of road transport has to be thought of as a positive means for fulfilling the role assigned to the road transport industry in the total transport plan and not, as was stressed in the past, for the purpose of affording a measure of protection to a long established and mature transport service such as railways. (Para 29)

23. Regulation of road transport has to be exercised largely through control over licensing. We make a broad distinction between inter-State and intra-State road transport and propose that the former should be the special responsibility of the Central Government and the latter of State Governments. We recognise that there are a few sizeable regions which can be identified as being markedly backward and in which transport facilities have considerably lagged behind. In these particular regions, we see the need for integrated transport plans with special emphasis on the development of the road network and to an extent licensing of vehicles on a regional basis, accompanied by concessional tax rates and other incentives to operators to provide transport services in these regions. (Para 30)

24. The approach of integration can be extended with advantage in three principal directions. Firstly, wherever possible, joint rail-road transport for passengers and goods should be facilitated through arrangements arrived at mutually between the Indian Railways and State Road Transport Corporations as well as Corporations which the Central Government might set up for operating on specified inter-State routes. Secondly, efforts should be made to develop the operations of the Central and State Corporations, with the participation of the Indian Railways, on a scale sufficient to give them a significant share of the traffic. Thirdly, wherever at present public transport enterprises are organised as departmental undertakings, they should become corporations or companies so that they can operate on wholly commercial lines. (Para 31)

25. More and more, road transport should take on the character of a well-organised industry, working on the basis of responsibility to the community as a whole, functioning, wherever necessary, in a complementary relationship to the railways and taking generally a leading role in opening up the countryside and stimulating the growth of the less developed regions. (Para 31)

CHAPTER IV—*Railways*

1. On the whole, there is national advantage in continuing the obligations of the railways as a public carrier and in enabling the Central Government to give such directions to the railways from time to time in the public interest, for according preference to the transport of such goods or class of goods as may be specified. (Para 8)

2. Having regard to the developments in the transport system, it is essential to review from time to time the extent to which each branch line is subserving the needs of an area and the combination of transport services which should be made available in its economic development. Suitable tests or criteria need to be evolved for considering a line uneconomic depending on the purposes it serves and the cost of providing alternative means of transport. (Para 10)

3. If alternative facilities have been or are capable of being developed to a point that the requirements for transport can be met substantially by means other than the railways at no higher cost to the economy, there should be no hesitation in giving up an existing branch line which is proving unremunerative and will not serve any object which cannot be met otherwise and at lesser cost. (Para 11)

4. Where road transport has to be expanded considerably to facilitate the discontinuance of unremunerative lines, the railways may consider, in consultation with State Governments, whether and in what form they could participate or assist in the growth of road transport services. (Para 11)

5. In the light of these considerations, in the wider economic interests of the country, as much as of the railways as an enterprise, the financial working of branch lines and the transport needs and plans of areas served by them should be reviewed periodically. (Para 11)

6. Suggestions concerning unremunerative branch lines would also apply generally to the light railways. As in the past, in future also, the general approach adopted has to be to consider each case on merits and to take over such lines as would justify conversion to broad gauge or metre gauge on the basis of the traffic handled by them and the prospects of traffic growth. In other cases, the lines might be dismantled and the services provided by them might be allowed to be replaced by road transport. (Para 12)

7. The problem of suburban railway transport has to be dealt with in any long-term solution as part of the problem of metropolitan transport, involving a coordinated approach to rail and road transport, development of roads and urban and regional development around major cities such as Calcutta, Bombay, Madras and Delhi. (Para 13)

8. The value of freight concessions on export goods should be carefully assessed so that the costs and the benefits may be appraised and from

time to time special efforts may be made to raise the level of efficiency in the industries concerned. (Para 14)

9. In the past, almost everywhere, the railways were the basic form of transport, and construction of new railway lines was virtually synonymous with the provision of new transport facilities in an area. This is still a widely prevalent view and leads to demands for construction of new railway lines. The merits of each such proposal have to be studied carefully and schemes to be undertaken within the resources allocated by the Plan. (Para 18)

10. In the strategy of economic and industrial development, the more completely road communications and rail and road transport services are thought of together, as complementary services forming part of a single, integrated plan, the more rapid is the progress likely to be achieved. The railways are inherently better suited for long distance and bulk traffic and the extension of the railway system in future has to be directed principally towards meeting the needs of basic and heavy industries and of traffic in minerals like coal and iron ore. The programme for construction of new railway lines has to be conceived mainly in this context and the new lines which are built in future should ordinarily be expected to yield, over a period of time, a reasonable return on the investment (Para 18).

11. In the planning of transport in future, the need for ensuring the financial solvency of the railways has to be kept in view. The railways should be expected to earn a reasonable return on capital. (Para 26)

12. It is in the overall economic interest as also in the interest of railway finances that once the capacities for additional traffic have been built on the railways, they should be as fully utilised as possible, due advantage being taken of the economies inherent in large scale operations on the railways. (Para 26)

13. In the foreseeable future the railways should be called upon to continue to bear obligations imposed on them because of larger public service considerations. The financial implications of such obligations should be identified and given due consideration in adopting policies for the future. Having regard to the present stage of development of different modes of transport and in view of the requirements of a planned economy, the obligations of a common carrier will have to be maintained. However, it is necessary to reconsider the approach to be followed in the construction of new railway lines in future. Lines which are expected to be unremunerative even after a few years of their opening should be taken up only in exceptional circumstances. In all such cases provision should be made to compensate the railways for the losses involved. (Para 27)

14. The concessions given by the railways in fares and freight rates have to be considered on merits. To the extent that these concessions are granted in the larger public interest and involve losses to the railways,

account should be taken of them in determining the railways' commitments to the general finances. When obligations for uneconomic services arise from executive decisions taken by the Government, the economic justification for each such decision should be critically scrutinised. (Para 29)

15. During the past two or three years, the railways have introduced significant changes in the direction of adjusting the existing rates from *ad valorem* to cost basis, but the process will necessarily be spread over several years. Further changes and adjustments may be proposed in the future. However, there are limits to the railways' ability to adjust rates on the basis of costs fully in all cases. These limits stem (a) from the wide variations in costs on the railways, and (b) their obligation, as a national undertaking, to have uniform rates all over the railway system. (Para 33)

16. The present scheme of presentation of efficiency data as described in the Railway Board's annual "Review of the Performance of the Indian Government Railways" should be reviewed so as to facilitate objective interpretation not only for the railway system as a whole, but also for specific zones and areas, under comparable conditions and in relation to past trends. (Para 35)

17. The fullest cooperation of trade and industry should be secured by the railways in introducing technical and operational improvements which can help them to reduce their carrying costs. (Para 36)

18. The beginnings, which have been already made in the use of devices like containers and piggy-backs should be followed up and other forms of joint rail-road services should be encouraged. (Para 36)

19. In the past, the railways were able to rely wholly on traffic coming to them without special effort on their part. However, with many new varieties of goods being produced and likely to be produced in the future in many new centres, railway administrations at the zonal and local levels should study the needs of potential customers much more closely.

Through market research and other ways, they should study the needs of potential customers much more closely and find ways of meeting them more readily and in a more flexible manner than was necessary in the earlier phases. (Para 36)

20. The Indian Railways are well placed for extending to their operations modern economic accounting and statistical concepts such as are coming increasingly into use in large-scale enterprise for measuring efficiency, improving reporting systems, reducing capital and operational costs, securing more scientific programming and scheduling of projects and creating a greater sense of personal incentive and achievement. This would help to bring the accounting and statistical systems more into line with one another. (Para 37)

# CHAPTER V—Road Development and Road Policy

1. The dimensions of the road problem in India are such that adequate progress is possible only if at each level—from the local rural community and the town and the city to the region, the State and the nation—there is readiness to pay for the construction and maintenance of roads, to discover ways both, direct and indirect, and of shouldering this enormous and continuing responsibility. At the same time, the possibilities of science and technological research must be exploited to the full so as to reduce the costs of construction and maintenance of roads and promote the use of local materials and other resources to the greatest extent possible. (Para 2)

2. Roads are so crucial to national and regional development and the resources involved are of such substantial magnitude that careful planning and constant search for economy must be regarded as the keystones of road programmes in the future, whether these are undertaken by the Centre or the States or by local authorities. (Para 9)

3. In view of the large investments now involved, it is important to adopt economic criteria to the utmost extent possible, to undertake careful traffic surveys and forecasts and, in the choice of major road projects, to proceed on the basis of cost-benefit studies before committing substantial resources. (Para 12)

4. Road plans should take full account of the industrial and other development needs as these are likely to arise over a period of years. They should be informed by the same long-term perspective of development as are the programmes for agriculture, industry, power and other aspects of the economy, both for the country as a whole and within each State and region. (Para 14)

5. In each State phased programmes for the development of rural roads should be drawn up on a district and area basis. Priority should be given to areas in which intensive agricultural development plans are being undertaken or where new resources, such as irrigation and power, have come into use and their fullest utilisation, along with complementary development, is likely to promote rapid economic growth. In such cases, the development of communications and of marketing facilities constitutes an integrated activity and should be undertaken as a matter of considerable urgency. In other areas, depending upon the study of conditions and assessment of needs, the development of local communications networks may be accomplished in stages over a longer period. (Para 15)

6. State Governments should definitely earmark a proportion of the allocation for roads in their plans for rural market roads and for assisting villages in the construction of approach roads connecting villages with one another and with market roads. Each State has to consider the proportion of funds to be so earmarked, but about a fifth of the State Plan allocation for roads should be regarded as the minimum. As part of the scheme of

Central assistance for the plans of States, assistance given specifically for rural roads should take the form of a grant to the extent of one-third of the actual expenditure incurred by each State under the annual plan. (Para 15)

7. In lifting the economy of the more backward areas, such as scheduled areas, hill areas, coastal areas and others, improved road communications can make a contribution far exceeding the investments needed. Such investments should, therefore, have high priority in plans for the development of markedly backward regions which should be specified in advance in the plan of each State. As in the case of rural roads, Central assistance should be given for road development in the specified regions by way of grant to the extent of one-third of the outlay incurred by the State Government. (Para 16).

8. In metropolitan and other large cities, it is necessary to take an overall long-term view of transport needs, both for passengers and for goods, and to plan road development, development of road transport services and, where necessary, suburban rail transport as parts of a comprehensive and integrated scheme. In these cities, the planning of transport has to be closely related to the scheme of long-term urban planning and location of industrial and economic activities. In evolving transport plans there has to be the closest possible collaboration between the various agencies of the State Government, the local municipal administration and planning authorities and those responsible for operating road and rail transport services. The Committee on Plan Projects has recently appointed an expert Study Team on Metropolitan Transport to investigate these problems in relation to Calcutta, Madras, Bombay and Delhi. It is hoped that as part of the process of drawing up the road plans, State Governments will give similar attention to the transport problems of other large cities. (Para 17)

9. The Transport Development Council has recommended the setting up of Road Planning Boards by the Central Government and the States. These Boards are intended to be high-level technical advisory bodies, which will consider plans of road development in the wider economic perspective and in relation to the economic and other criteria. Working in close cooperation with one another, the Central and State Road Planning Boards are expected to evolve an integrated national road network and to give attention to various important aspects of planning such as traffic surveys, cost-benefit studies, economies in construction costs, maintenance norms, maximisation of the benefits of road development through greater coordination with development in other sectors, road development in backward regions, rural roads and road development in metropolitan and other cities. Their task is to ensure that roads can make the maximum contribution to economic development. Road development now demands a degree of continuity, accuracy, planning in detail and freedom from arbitrary cuts in allocations,

once the initial allocations have been determined for a five-year period. It is hoped that through their working the Central and State Road Planning Boards will help create these essential conditions. (Para 19).

10. It is important that the National Highway network should expand steadily. This will strengthen the trunk communications from the point of view of the country as a whole and enable States to devote greater attention to the improvements of roads in the interior, to rural roads and to roads designed to achieve rapid development in the more backward regions. (Para 20)

11. Road plans at the Centre should contain adequate provision for selected roads which provide inter-State links or have special economic importance. These roads are a convenient and flexible means of removing important gaps in communications between States, ensuring coordination in planning and assisting States in expediting the construction of costly road projects which are important both from the national and regional considerations. In inter-State road schemes, the Centre could assist, for instance, in the construction of bridges, the road lengths being provided by the States concerned in an integrated programme forming part of their respective road plans. (Para 20)

12. Provisions for maintenance have in recent years been less than adequate both for National and for State Highways. It is important that suitable norms should be set for this purpose and arrangements for ensuring effective maintenance strengthened further. (Para 20)

13. It is essential that the construction of village approach roads, undertaken through local effort, supported by a measure of assistance for masonry works, should itself be part of a larger area plan, which provides both for continuous maintenance and gradual change-over to higher specifications. Local authorities, such as Panchayat Samitis and Village Panchayats should be made responsible for village approach roads and should be placed in a position to support local voluntary effort, specially in respect of masonry works. (Para 21)

14. The scope and financing of the Central Road Fund calls for a fresh review. In principle, there is considerable advantage in maintaining a non-lapsing Central Road Fund which may be utilised for financing selected schemes, such as are apt to be lost sight of in the ordinary course. These may include specially research and experimental work on a much larger scale than is being currently undertaken, regional transport surveys, traffic studies and construction of bye-passes and over and under-bridges at rail road crossings on trunk roads in large cities. (Para 23)

15. In the interest of systematic long-term road development, the resources available from the Central Road Fund at the Centre need to be enlarged. How best this may be done should be considered by the Ministry of Transport in consultation with the Ministry of Finance. A flexible

non-lapsing source of this nature, from which certain types of specific schemes can be initiated by the Centre has advantages which are not to be measured only by the actual amounts allotted. (Para 23)

16. A general levy of tolls is not desirable. However, tolls should be applied selectively to major projects involving heavy costs such as major and costly bridges, large tunnels and express highways. (Para 24)

17. On many routes the existing road pavements are proving inadequate in width as well as in strength. Long lengths of completely new roads of high standards have also to be built in some cases and the old methods of stage construction are not always applicable because traffic develops very fast soon after the road is built. Under these circumstances, there is need to adopt modern and advanced construction techniques. Techniques in evolving efficient use of available materials have to be introduced so as to achieve overall economy. This requires detailed testing of materials and control of quality for highway works. In addition to facilities for research, it is necessary to provide for a chain of testing and control laboratories, so that full advantage may be taken of the new techniques evolved in India as well as in other countries. (Para 25-26)

18. Testing and control laboratories should be set up in all States. Progressively, they should develop research activities on their own and in association with the Central Road Research Institute. Each State should also have a number of mobile field laboratories for on-the-spot testing and quality control of road and bridge construction. It is also necessary to carry out an extensive survey of road building materials and to arrange for their systematic testing. The results of the surveys and tests should be suitably compiled and published. (Para 27)

19. A Highway Research Board should be set up at the national level for bringing together the results of research work done in various laboratories and disseminating them. (Para 28)

20. Both to gain speed in operations and to ensure control over quality, special steps have to be taken to promote the manufacture of all essential road construction equipment within the country. (Para 29)

21. The tasks to be fulfilled through continuous research should be carefully specified from time to time in relation to the road development programme of each region and, besides provisions of funds, the necessary organisations for follow-up should be established.

To encourage the adoption of the results of research and to promote the use of new techniques of road construction, local materials etc., the Government of India set up in 1961 a Central Assessment Committee, which underwrites any loss or excess costs incurred by a State on account of the failure of a new technique adopted by it. In the light of the experience gained the work of the Committee should be reviewed and its programme and organisation strengthened. (Para 30)

22. In the past enough attention has not been given to planning for the entire road system of a State in an integrated manner, including in it both National Highways and roads for which the State Governments are responsible. There has also been need for greater work on district road plans, so that, within the framework provided by the State road plan, roads connecting market centres, small towns and villages could be planned and executed in a systematic manner. (Para 31)

23. There is need for a road construction agency with the Central Government which can supplement the State agencies to the extent necessary and, on the basis of agreed programmes, can also take up some of the difficult works. The construction organisation at the Centre could maintain a pool of road construction machinery which could be made available as and when required by State agencies engaged in completing works of an emergency nature or works requiring superior technical standards. (Para 32)

24. In several states the volume of road construction work is now large enough to justify the setting up of separate Highway Departments with specialised highway and bridge engineering personnel who are able to provide the technical planning and supervision needed in highway road and bridge construction and to ensure the standards required on high specification roads. (Para 32)

25. Special Traffic Engineering Cells devoted to and equipped for the task of carrying out traffic studies and giving attention to the problems of traffic engineering and road safety should become a normal feature of organisation in Public Works and Highway Departments. (Para 32)

26. In respect of major road projects, before decisions to commit large funds are made, cost benefit studies should be undertaken. This will assist in the application of sound economic criteria and help obtain the maximum results from investment on road development. (Para 32)

27. Each Road Planning Board should make its final recommendations regarding plans of road development after taking into consideration the requirements of the State and its different regions as well as the results of economic and technical studies. (Para 32)

## CHAPTER VI—Road Transport

1. The practices now in vogue for the regulation of road transport suggest that far from being a common approach for the country as a whole or an adequate rationale, in several respects policies and, even more, the manner of their implementation differ greatly from State to State. There is, therefore, imperative need to simplify and introduce greater uniformity in the existing approach to procedures for regulation of road transport and to bring these

into conformity with the changing and growing transport requirements of an economy developing in a planned manner. (Para 24)

2. The requirements of the future differ greatly in scale and composition from those in the past. The existing scheme of regulation of road transport suffers from many drawbacks and calls for large changes. Some measure of regulation of operations, appears necessary for the following reasons :

- (i) the need to evolve and put into effect a common scheme of allocation of traffic or a development plan for transport, which provides for various modes of transport as a composite network serving the needs of the economy;
- (ii) safeguards against mis-allocation of scarce resources, including materials, foreign exchange and long-term credit; and
- (iii) ensuring priorities in the development of road transport.

A vast increase in road transport services is called for, for instance, for integrating the large rural sector of the economy with the country's urban and industrial economy, for opening up isolated and underdeveloped regions and for providing cheap and efficient mass transport in the towns. But, for several years to come, there will be limitations on the supply of vehicles. Special steps will be needed to ensure that the transport requirements of underdeveloped and backward regions in the country and of rural areas are adequately met.

The conclusion which emerges, therefore, is that regulation of road transport, conceived as a tool of planned and coordinated development, rather than as a restrictive device, has a functional role in the development of road transport in keeping with the growing needs of the economy and as an integral part of the total transport system of the country. (Para 25)

3. In the future development of passenger services, although passenger services have to be licensed for specified routes, a regional approach has value in as much as it stresses the requirements of the local economy, helps adapt the forms of investment to the needs as established, ensures closer coordination with railway services and provides a continuing test of progress in reaching into the interior. Secondly, special steps should be taken to encourage the rapid growth of passenger road transport in the more backward districts and regions. This object has to be achieved by accelerating road development in these regions and eliminating the large deficiencies in the road system which now exist. There would be need also for concessional terms such as charging lower rates of taxes for road transport services in these regions. (Para 26)

4. Passenger services between connecting points situated in different States should in future be licensed under the authority of the Inter-State Transport Commission, which must no doubt act in consultation with the States concerned. In the scheme of regulation, the system of reciprocal

agreements between different States for determining the number of permits to be issued will be given up. (Para 26)

5. The present practice under which licensing authorities invite and hear objections from operators, including the Railways, before they grant permits for the operation of passenger services, serves a useful purpose and provides an assurance of a fair deal to operators and should, therefore, be continued. (Para 26)

6. In the regulation of goods transport, the concept of 'region' as defined in the Motor Vehicles Act and as operated in practice in many States is not suited to present needs. Regions should be determined, not only on considerations of administrative convenience, as at present, but even more on economic considerations which take into account the natural flows of traffic. While the present system of inviting and hearing objections before granting fresh permits should be continued, the procedure by which the Regional Transport Authorities are required to function, involving frequently a system of countersignature of permits is cumbrous, leads to vexatious delays and needs to be changed. Moreover, in the States, the focus in the regulation of road transport should shift from the region and the Regional Transport Authority to the State and its economic needs, and to the State Transport Authority which should function as an organ assisting in formulating and implementing the State's economic development plan. (Para 27)

7. In any system of regulation of road transport modified to meet present needs, inter-State movement of goods by road, which must be in the main long-distance movement, will call for special attention and study in the scheme of allocation of traffic. It will also require adequate machinery for implementation. (Para 27)

8. Within the scheme of road transport regulation, it would be necessary to treat the problems of rapid development of transport in large underdeveloped regions and in metropolitan cities as special problems calling for somewhat wider planning and for provision of adequate resources for development. (Para 27)

9. In making specific proposals, the details of regulation should be in line with the objective of providing cheap, efficient and expanding transport facilities and of obtaining the utmost value from all available modes of transport. (Para 27)

10. A system under which States have to negotiate and bargain with one another to determine the number of permits which each may issue to its own operators is bad in principle and proves even worse in practice. The place of reciprocal agreements should be taken by a system of inter-State permits issued under the authority of the Inter-State Transport Commission which, in the interest of precision, could be redesignated as the Inter-State Road Transport Commission. This body, working in close collaboration with State Transport Authorities and the Railways, should assess at intervals of

two to three years the requirements of inter-State road transport and should determine the volume of transport and the number of vehicles which should be made available and the broad terms on which the services should be provided. The requirements should be arrived at on the basis of careful technical and economic studies, with progressively greater knowledge of relative costs, keeping in view the needs of coordination between different services and the relative contribution due from each. The proposals should be always conceived with reference to a total plan of development. (Para 28)

11. Having decided upon the quantum of road transport to be provided over a given period on any long distance or inter-State route the permits could be issued by the State Transport Authorities on behalf of the Inter-State Transport Commission. (Para 28)

12. To what extent each State should be able to issue permits to applicants from among its own operators could be determined on some agreed principle of equity such as route mileage, volume of traffic originating etc. If the requisite number of operators are not forthcoming in a State at one stage, either the permits could be issued when suitable applicants are available or, for the time being, applicants from outside the State could be attracted. (Para 28)

13. For all inter-State permits, there would be uniform rules for motor taxation. There would be no question of seeking special authority to pass through the territory of any State lying *en route* or of obtaining counter-signatures. To distinguish vehicles operating on inter-State routes under permits issued on the authority of the Inter-State Transport Commission, it would be useful to prescribe a common colour to be adopted throughout the country. Action on this aspect has already been initiated by the Inter-State Transport Commission. (Para 28)

14. It is essential that the Inter-State Transport Commission should be considerably strengthened. It should have a full-time Chairman of high status preferably drawn from public life. The complete range of powers contemplated for the Commission under Section 63A(2) of the Motor Vehicles Act, including the power to grant, revoke or suspend permits for the operation of transport vehicles on inter-State routes, should be given to the Commission and its existing powers should be utilised effectively.

In its present mode of functioning the Inter-State Transport Commission is unable to fulfil the role assigned to it under the Motor Vehicles Act. In future the Commission should be equipped with machinery to elicit information concerning traffic requirements on inter-State routes and should be placed in a position to coordinate plans of road transport development with the States as well as with the Railways. (Para 29)

15. In view of the fast growing and changing needs of the economy, in licensing goods road transport vehicles for intra-State operations, the traditional forms of distance limits are no longer appropriate. Having due regard to the various means of transport which can be harnessed—rail network, road system and inland water transport—and the assessment of present and future traffic, the State Transport Authority should propose the extent to which road transport facilities are to be expanded in any given period, the distribution in different parts of the State, the kind of vehicles required etc. Such assessment should form an integral part of the scheme of transport planning for the future and would have the advantage of furnishing a sound basis for the allocation of traffic and development of transport. State Transport Authorities should be equipped with appropriate personnel. (Para 30)

16. As a general rule, it is visualised that permits for intra-State operations will be valid for the State as a whole. However, there are a few large regions in the country which are markedly underdeveloped in terms of transport facilities. In these, it would be desirable to formulate integrated regional transport plans within the framework of the transport plan of the State as a whole. The regions in question are the Telangana districts in Andhra Pradesh, North Bihar, Chhatisgarh Division and the eastern districts in Madhya Pradesh, Vidarbha and Marathwada in Maharashtra; the coastal and hill districts of Mysore, Uttarakhand and the eastern districts in Uttar Pradesh. In these regions, particular stress should be laid on accelerated development of the road network. State Governments should also consider whether facilities for procuring vehicles and some measure of concessions in taxes levied on motor vehicles could not also be usefully given in respect of permits for operation within the region as distinguished from operation over the State as a whole. If such concessions were available for a period of, say, up to five years, levels of development in transport in these regions should come up to the general level in the State more speedily than might otherwise be possible. (Para 31)

17. Under the proposed scheme of regulation, the scope for temporary permits will diminish considerably. Basically, temporary permits should be issued only for special temporary purposes to meet unexpected requirements. The same authority which issues regular permits should also be the one which issues temporary permits as and when needed. Thus, temporary permits should become an exception to be resorted to only for meeting special and short terms needs. (Para 32)

18. In putting forward proposals for two sets of permits—inter-State permits and intra-State permits—the approach is that of planned and co-ordinated development of all modes of transport. The principal consideration is how every part of the country may be helped to obtain as fully and as speedily as possible the communications and the transport services needed for its overall economic development. The area of conflict between different modes of transport is by no means considerable. Even such conflict as there

may be, can be practically eliminated by a system of planning based on careful assessment of needs and costs and recognition of common interest and on active cooperation at each stage between those responsible for different media at the regional, State and national level. (Para 33)

19. While the existing powers for regulating fares and freights in the public interest are generally adequate, in certain situations the objective of road-rail coordination could be served more effectively if minimum rates were also laid down. Therefore, legislation should clearly empower the State Transport Authority to fix both maximum and minimum as well as specified fares and freights as might be necessary. The main problem in respect of fares and freights, specially the latter, concerns the means by which the prescribed rates can be enforced. It is necessary to ensure that in each State a sufficient number of goods vehicles are licensed to prevent scarcity. A satisfactory solution to the problem of enforcement of freight rates in particular cannot be found without establishing, on a State and regional basis, of Road Transport Associations which are capable of performing a responsible role in advising on freight rates and in giving effect to rates fixed by State Transport Authorities. (Para 37)

20. To secure the required measure of expansion as well as to obtain higher standards of efficiency in the services rendered, it is essential that a steadily increasing proportion of the private industry engaged in road transport should take the form of viable and well-organised units. (Para 38)

21. Reorganisation of the road transport industry has to be considered in three main directions. Firstly, small operators should be helped to join together to form viable units. For practical purposes, a fleet of 10 or more vehicles may be held to constitute a viable unit. To encourage operators to merge into viable units capable of rendering efficient service, certain concessions and facilities could be offered. Secondly, cooperative transport undertakings should be actively promoted as a matter of public policy. Thirdly it is essential to provide in the legislation for the formation at the State and regional level of associations of transport operators with specific functions and responsibilities. (Para 38)

22. Unless banks and other financial institutions come forward to provide financing and refinancing facilities in a big way, it will not be possible to secure the development of the road transport industry along sound and efficient lines, or to realise the measure of development envisaged for the Fourth Five Year Plan. This is a problem of such critical importance and dimensions as to demand the special attention of the Ministries of Finance and Transport and of the Reserve Bank of India and the State Bank of India. (Para 39)

23. With the growth of towns and cities and more rapid development in the countryside, passenger transport services constitute a business completely free from risk, highly profitable as an investment and essentially a public utility suitable for operation on a public and semi-public basis. Therefore,

there are valid economic grounds in favour of State Governments proceeding towards enlargement of their own share and the share of municipal and cooperative undertakings in passenger transport. State Governments should give a due place in their Five Year Plans to the development of passenger transport in the State, municipal and cooperative sectors, each State determining the extent of advance in any given period according to its assessment of development needs in different regions, specially those still inadequately developed, and the resources it can make available. To a large extent, such development can and should be self-financing, the profits and reserves of existing undertakings being ploughed back into the industry. From this aspect, the question of forms of management of road transport undertakings owned and operated by State Governments is of very great importance. The quality of management is the crucial factor in the rapid development of road transport as a public enterprise. The expansion of Government's role and the form of organisation should not be considered to be separate and unrelated issues. (Para 42)

24. In the field of goods transport, so far, the problems presented by road transport has not received sufficient consideration in terms of the scale of development called for, the requirements of the more backward regions, coordination in relation to rail transport and other services and the question of finance of operators. These are some of the basic issues in transport policy at the national level. The existing legislation has failed to secure the development of the industry along sound and efficient lines, or to achieve proper coordination between rail and road transport. Instead, it has provided the basis for a restrictive and unintegrated approach to the development of road transport. (Para 44)

25. The question whether Government should participate in goods services has to be considered with reference to certain objective facts :

- (i) During the Fourth Plan, goods traffic is likely to increase by about 70 per cent. It is hoped that the private sector will be able to undertake a large part of this development, but it may well be necessary to supplement this effort.
- (ii) In several States, there are substantial regions in which development has lagged behind and in whose future growth road transport can make an important contribution. Private industry does not always move readily into such areas. Even after allowing for suitable encouragement and concessions to existing and potential private operators there may be need in certain situations for promoting State and cooperative enterprises.
- (iii) In the Assam region and in Jammu & Kashmir, the economy is affected adversely by high costs of transport as well as by inadequacy of transport. Experience suggests that private services in these regions are more likely to be developed and maintained on a reasonable scale if, at the same time, there is

a significant area of public activity, such as will continue uninterrupted even under different circumstances.

- (iv) Reorganisation of the road transport industry along sound and economic lines in public undertakings could fill important gaps in the network of the services in a complex and growing economy, which is yet lacking in balance in many ways, and could help speed the reorganisation of the road transport industry along sound and economic lines. They could set standards of performance which could be applied progressively to the industry as a whole, besides providing fair opportunity to small operators, encouraging them to come into viable units and helping to link up their operations more closely with the larger undertakings.
- (v) Public undertakings can facilitate the active participation of the railways in long distance goods transport by road and thus promote overall transport development.

For these reasons, as the resources permit, State Governments should make a beginning in the operation of goods transport services, associating the railways as partners in this activity. As a first step, they may extend the scope of existing State Road Transport Undertakings and, where necessary, new corporate undertakings could be set up. Such public participation in goods transport is visualised, not as a scheme of nationalisation to be put through now or in the future, but as an attempt to forge a necessary instrument for the strengthening the road transport industry as a whole and achieving coordination between different forms of transport in the interest of the national economy. How far this effort may proceed will depend upon the economic results achieved and the efficiency with which the services are operated. However, considering all the facts and the claims on their resources, in most States, the advance in the direction of public participation in goods transport during the Fourth Plan is not likely to be on any significant scale. (Para 45)

26. In relation to long-distance inter-State routes, it is considered necessary to promote some measure of public participation so as to bring together the Central and State Governments and the Railways as partners in an effort to achieve such coordination between rail and road transport as will help expand road transport, reduce the existing restrictions, bring about cheaper and more efficient transport, induce suitable adjustments in railway rating policies and promote a coordinated and planned approach to the development of transport services. Therefore, it is proposed that a Corporation to operate long-distance goods transport services on selected inter-State routes may be formed. In this the Central Government, through the Ministry of Transport, the Railway Board and the States concerned, may provide capital in suitable proportions, for instance, in the ratio of 30, 30 and 40 respectively. The Corporation should work in close cooperation with under-

takings sponsored by States and with associations of road transport operators and should, in particular, give special support to small operators. (Para 45)

27. It is already Government's policy to encourage the formation of cooperative transport organisations. These could be of value in several fields, notably, in the transport of agricultural produce, in hilly regions and other areas where existing road transport services are inadequate, and for carrying fruits and vegetables, milk, fish and perishable goods. It is of course important that cooperative organisations should be both genuine and well managed and every care must be taken to see that the support and concessions which it is necessary to give to cooperatives are not misused. (Para 46)

28. In addition to bringing about greater coordination in services, Corporations are essential for mobilising the internal resources needed for the continuous expansion of road transport undertakings and for measuring and enforcing standards of efficient management. Corporations would have much greater autonomy in the management and operation of commercial services, in the use of internal resources and in mobilising resources for future development than obtains in the case of departmental undertakings.

It is hoped that States which have not so far set up Corporations will agree to re-examine their earlier views specially in the context of future development and expansion of goods transport services. This would facilitate planned and coordinated development of road transport in which both public and private operators and the Railways have a valuable part to play. (Paras 48 and 49)

29. The work of the Association of State Transport Undertakings should help in bringing about uniformity of practices and better tests of efficiency among State and municipal transport undertakings and promote schemes for strengthening the economy of small operators and achieving greater coordination with the services offered by the Zonal Railways. (Para 50)

## CHAPTER VII—*Taxation of commercial motor transport*

1. Question concerning the level and quantum of taxation falling on the road transport industry and its incidence are being enquired into by another Committee constituted by the Ministry of Transport. The issues for consideration in this Report are (a) whether the various taxes which motor transport bears cannot be consolidated and their diversity reduced, (b) whether means can be found to bring about greater uniformity in taxation prevailing in different parts of the country, and (c) whether the system of motor taxation can be brought into closer harmony with the scheme of regulation recommended in the Report. (Para 1)

2. The broad approach to the taxation of commercial motor transport should be in line with the principles which determine the regulation and development of road transport. The tax system should be so devised as to

contribute to the maximum extent to the development of an efficient, well-organised and technologically progressive road transport industry. (Paras 1 and 2)

3. Both in respect of taxes on passengers and taxes on goods, satisfactory principles have still to be evolved. In a number of ways these taxes are a source of inconvenience. In particular, in the case of goods taxes, where a route passes through more than one State, taxes have to be paid separately within each State and for each trip, even though the operator may not be authorised to pick up or deliver goods in the intermediate territories. This difficulty has recently diminished in the case of regular permits through arrangements for compounding the tax on an annual or quarterly basis. (Para 9)

4. Octroi duties should be abolished. There has been general agreement on the vexatious and inhibitory nature of octroi duties and the abuses to which they are prone, but action leading to their abolition has proceeded very slowly. (Para 10)

5. Tolls slow down traffic, but can be justified under certain circumstances, as in the case of costly works which might not be otherwise undertaken. (Para 11)

6. Since the State Government levies a motor vehicles tax to enable a vehicle to operate on various specified routes, the imposition of a further wheel tax is hardly justified. (Para 12)

7. Where passenger and goods taxes exist, they should be levied on a simplified basis as a lumpsum paid along with the motor vehicles tax for periods, such as, a year, or a quarter or even on monthly basis. In fact, passenger and goods taxes should not be levied separately and should be consolidated with the motor vehicles tax as has been done in Andhra Pradesh. Further, the same agency should be responsible for the collection of the motor vehicles tax and of passenger and goods taxes. (Paras 15 and 16)

8. In respect of vehicles operating on inter-State routes, all State Governments have agreed to single point taxation, but this applies only to vehicles operating on regular permits. The greater part of inter-State traffic is being undertaken on the basis of temporary permits, which tend to be renewed for further periods. Besides the financial burden, the system leads to a great deal of harassment. (Para 17)

9. Unless the system of taxation of commercial motor transport is modified to meet the requirements of inter-State traffic, it may not be possible to implement the recommendations made in the Report for regulation and development of road transport. Therefore, certain minimum changes in the tax system are a necessary ingredient in the scheme of road transport development. (Para 18)

10. There would be greater uniformity in levels of taxation if taxation of motor vehicles throughout the country were regulated under Union legis-

lation and this would assist the development of road transport. For reasons explained earlier, it is felt that the minimum change needed is to bring taxation, now under the exclusive jurisdiction of State Legislatures, under Entries 56 and 57 of the State List within the concurrent jurisdiction of the States and the Centre under the Seventh Schedule of the Constitution.

Where taxes are levied and collected under the authority of Parliament, the proceeds should be assigned to the States, for which the necessary provision already exists in Article 269 of the Constitution as amended a few years ago.

It is envisaged that Parliamentary authority will be used to determine taxation pertaining to inter-State movement and to support, thus, the scheme of regulation of inter-State road transport and road-rail coordination which we have recommended.

In accordance with the general principles of motor vehicles taxation laid down by Parliament, individual States should be free to determine tax rates as applicable to operations on intra-State routes.

An amendment of the Constitution on the lines proposed above (item 9) will be in the best national interest. It is hoped that the Central Government will find it possible to take the necessary initiative in the near future. This proposal retains the existing legislative power of the States, without making it exclusive and, at the same time, it safeguards their financial interest in as much as the proceeds of any taxation which is imposed by virtue of Parliament's authority will be distributed wholly to the States.

The advantages of the proposals outlined above would be that the scheme of road transport regulation which is recommended here will become capable of practical implementation. On inter-State routes there will be a single motor vehicles tax, the rates being adjusted according to capacity and distance of operation, but applicable uniformly throughout the country. The tax will be paid at the place of registration, although the proceeds will be distributed among various States according to appropriate criteria. (Paras 19—21)

11. On inter-State routes, there should be no need to levy separate passenger and goods taxes. Vehicles operating on these routes, being distinctive also in colour, can be exempted from octroi and local taxes other than special tolls on bridges, tunnels etc. Moreover, since, uniform principles of motor vehicles taxation will be adopted, and tax rates proposed by the Centre for inter-State routes will provide a broad guide and some kind of upper limit for taxes levied directly by State Governments on vehicles operating on permits issued under their own authority. (Para 21)

12. With greater uniformity in motor taxation and more common norms being established, it should be possible also to devise suitable concessions and incentives to stimulate the growth of road transport in the more back-

ward regions, in hilly areas and in tracts in which, in the past, transport facilities have tended to lag behind. (Para 21)

### CHAPTER VIII—*Coastal shipping and rail sea coordination*

1. The future role of coastal shipping has to be considered in relation to its over all national and strategic importance.

The future expansion of coastal shipping has to be planned with reference to a few selected commodities which constitute important components of coastal cargo, namely, coal, salt and cement. (Para 32)

2. As regards the future of coastal shipment of coal, in principle, there is a good case for continuing shipments from the Bengal-Bihar coalfields to southern and western India at the level of about 1.5 million tonnes per annum, subject to minor variations. In the existing conditions, costs of coastal shipping compare unfavourably with railway costs except in the case of Tuticorin, Goa and Kandla. However, with the development of Haldia port and with suitable improvements in the design of ships, significant economies in costs of coastal shipping should be possible. The policy for building up a coastal tonnage and programmes for giving effect to it have to be based on long-term national considerations. (Para 33)

3. As regards traffic in salt and cement, in so far as this could be carried by colliers in the direction of empty movement, it should considerably help the economics of coastal shipping. The quantities to be moved by the sea route should be assessed after considering the comparative costs of production and movement in different regions of the country and changes in the patterns of production and consumption anticipated over the next decade or so. (Para 34)

4. The advantages of coastal shipping for the movement of general cargo will increase if steps are taken to arrange for through booking facilities with the railways and the necessary facilities are developed at a number of ports in the country. (Para 35)

5. It would be desirable to provide for specially designed vessels suited for carrying general cargo from port to port. (Para 35)

6. Having regard to low incomes and standards of living in the coastal areas, it is essential to evolve programmes for promoting economic and industrial development in these areas. General cargo services touching on a large number of minor ports could be encouraged and, to begin with, such services might be organised for selected ports. (Para 35)

7. It will be desirable for the Government to ensure that a certain minimum of tonnage is retained on the coast so that the requirements of coastal traffic are not starved. At the same time, the composition of the coastal fleet should be such that a proportion of the ships can be shifted to over-

seas trade if there is not sufficient demand for them on the coast. This will help ensure efficient utilisation of the ships. (Para 37)

8. It is essential to consider whether important economies in capital cost and operational expenses will not be secured if, in place of as many as 27 companies of varying size, many of them operating their small fleets in an indifferent manner round the coast, a scheme for unified control and operation cannot be evolved with the cooperation of the industry. This could take the form of a Corporation promoted by the Central Government to which the Central Government and the existing shipping companies might subscribe. A single Corporation operating the coastal fleet will be in a position to secure fuller utilisation of the existing ships, provide regular services, improve operational efficiency, both directly and through improvement of facilities at the ports, and take steps to replace overaged ships. The Corporation could also operate shipping services to neighbouring countries. The Corporation should endeavour to carry a large share of the imported crude oil. Since a part of the movement of coal by sea is sustained by the railways, if they so desired, the railways could also subscribe towards the capital of the Corporation. Steps along these lines will help improve the comparative costs of coastal shipping and facilitate coordination in rates and traffic with the railways. (Para 38)

9. In the last analysis it will be by creating conditions in which coastal sea transport can be operated more efficiently and at lower cost that it can become a viable national industry. When the basic facts of the situation are so clearly established, it would be an error to let the coastal shipping industry continue with its present unorganised and ill-equipped structure. (Para 38)

### CHAPTER IX—*Ports and Harbours*

1. The Central Government should insist on Port Trusts, specially in the larger ports, finding all the internal resources they can for development. They should be encouraged to seek loans directly from the market and to this end they should receive the necessary support from the Reserve Bank of India and the Government of India. As a matter of policy, Port Trusts should be expected so to manage their operations as to be able to draw at least part of their capital from the market. (Para 4)

2. The industrial and engineering capacities available in the country can be harnessed to much greater advantage than at present. If this is done, most of the equipment required by ports can be provided within the country in a comparatively short period. For this purpose, it is essential to strengthen the existing technical arrangements available within the Central Government. It is suggested that a special unit should be established within the Department of Technical Development to assist the Ministry of Transport, Port Administrations and the industry in mobilising indigenous

manufacturing capacity for meeting the requirements of ports. Port Administrations should be enabled to prepare forward plans continuously for three or four years and place firm orders on indigenous manufacturers. It would be worthwhile to explore the possibility of establishing groups of manufacturers of different categories of port equipment and other related equipment and assist them with the balancing plants needed as well as the minimum supply of components and spares. (Para 7)

3. Engineering organisations in the Ports should be strengthened and each Port Administration should be asked to lay down a phased programme for this purpose. (Para 8)

4. It is essential to take steps to establish a central organisation which can assist the major ports in preparing designs and specifications and in working out detailed project reports and where necessary in supervising construction operations in selected intermediate and minor ports. The office of the Development Adviser under the Transport Ministry provides nucleus for such a technical organisation but, as at present organised, it is clearly inadequate.

The building up of an adequate technical organisation for port construction and development is a basic national need and a matter calling for urgent action on the part of the Central Government. (Para 8)

5. It would be an advantage if the period of rapid and accelerated port construction now coming to a close could be followed by a period of consolidation and efforts to improve operational efficiency. At the same time as new construction projects have to be taken up, it is suggested that port development plans should embody schemes for increasing capacities as well as programmes for efficient utilisation of the capacities created. (Para 9)

6. Each port should have a long-term programme of development, extending at least to a period of ten to fifteen years. The plan should be supported by more adequate economic studies and projections than have been available in the past. Ports like Calcutta, Bombay, Madras, Visakhapatnam and Cochin should be equipped with economic intelligence units of adequate quality. (Para 10)

7. The Ministry of Transport, in consultation with the Planning Commission and the Ministries concerned, should initiate a concerted effort in which all the major ports would cooperate in formulating a long-term plan of port development for the country as a whole. Within this broad framework, which will need to be revised at appropriate intervals, it should be possible for each port to determine its own plan in fuller detail. (Para 10)

8. For the higher levels of technical and administrative personnel there should be some kind of common 'pool' jointly maintained by the major ports. Such a 'pool' will provide all ports with trained and experienced personnel to fill positions involving higher responsibilities. Common systems for recruitment of officer cadres should also be evolved. From the aspect of efficiency of management, it is essential that considerable proportion of

the top positions in the ports should be filled by individuals who have spent the greater part of their careers working in the ports. It is hoped that the Ministry of Transport will take early steps to evolve a suitable scheme in consultation with Port authorities. (Para 11)

9. It is necessary to develop institutional facilities for training in harbour engineering. A beginning in this direction has been made at the Institute of Technology in Bombay, but there is need to plan facilities on a larger scale and to utilise them more adequately than at present. There is scope also for close cooperation between the major ports in providing in-service training programmes for various categories of personnel. (Para 11)

10. It is important that costs of various services rendered by port authorities should be known precisely and that port charges should be related to known costs. It is also essential that each port should have a cell for pursuing programmes for reducing the time taken and the costs incurred in different operations. Such a programme must necessarily be undertaken with the support of labour and should be based on efforts to raise the level of labour productivity through incentive schemes and other means. (Para 12)

11. Development of port capacities and efforts to increase operational efficiency should be regarded as continuous processes. Essential port development schemes should be approved at the earliest stage feasible and their execution expedited, so that the capacity of the ports to handle traffic should be developed in advance of actual need. At the larger ports, and specially in Bombay and Calcutta (of which Haldia will be a subsidiary port), there should be a fair amount of reserve capacity which can be drawn upon readily. (Para 13)

12. There has been already a measure of delay in initiating advance action on several port development schemes in anticipation of the Fourth Five Year Plan. It is suggested that an early review should be made by the Ministry of Transport of the position in all the ports and specially at Bombay, Calcutta and Visakhapatnam, so that appropriate action may be taken at an early date. (Para 13)

#### CHAPTER X—*Inland Water Transport*

1. Problems of development of inland water transport have to be considered in different regions separately according to the nature of the waterways and conditions of traffic available in each region.

In the interest of overall economic development and utilisation of available communication facilities, it is important that the waterways potential of different regions should be put to productive use. Advantage should be taken of recent technological advances to achieve possible economies offered by this natural mode of transport, for instance, of better mechanically

operated craft with greater power and capacity to move traffic in bulk. (Para 5)

2. Development of inland water transport has to be viewed in each region in the context of integrated regional transport plans within the framework of the transport plan of the country as a whole. It is of the utmost importance that in each region, to the extent necessary, water transport services should be fully coordinated with services provided by the railways and by road transport. (Para 6)

3. To ensure development of waterways potential, where natural conditions are favourable, it is necessary to work out long-term plans, keeping in view a perspective of at least ten to fifteen years.

A beginning with the setting up of an organisation for inland water transport has been recently made by the Ministry of Transport. If this organisation is adequately developed, it should be possible for the Centre to assist the States in evolving suitable plans for future development.

Having regard to initial costs of development, some of the waterways may not be financially viable at least for a period. Efforts, therefore, should be made to work into the plans of regional development of waterways, principles and methods of direct or indirect financial support to be given to waterways services, say, for a period of five years or so. The necessary resources for development should be provided under the Five Year Plans. (Para 7)

4. In the north-eastern region, while railway services on the metre gauge line could be made self-contained, the broad gauge services have necessarily to be integrated with waterways and road services. Traffic terminating on the broad gauge line at Jogigopa has to be carried further inside the region by waterways and road services. Similarly, certain types of traffic originating in the region such as are intended for destinations in India on the broad gauge railway system could best be carried up to Jogigopa by road and river. The traffic in respect of which integrated transport services have specially to be organised will consist largely of jute, tea and wax in the outgoing direction and cement, foodgrains, fertilisers and salt in the incoming direction. In order that rail, road and water transport services function as parts of a composite network in the region, it will be necessary to work out arrangements for pooling their operations and also to have facilities like common booking and transshipment and through freights and fares. (Para 11)

5. Having regard to the location of Assam and other adjoining States in the north-east region, it is of the utmost importance that costs of transport of essential goods moving from or to the region are kept to the minimum. It is from this point of view that it will be desirable to work progressively towards a scheme of pooling of rates and fares, and to consider possibilities of cross-subsidisation of different transport services so that,

over a period, as the economy of the Assam region develops, the system can pay for itself. Plans for the development of waterways have to be thought of in this wider perspective. (Para 11)

6. Having regard to the nature of conservancy work involved in the Brahmaputra and its tributaries, and, for that matter in other major river systems in the country, overall responsibility for conservancy should be accepted by the Central Government. It will be necessary to ensure systematic study of the methods of river training and conservancy, the improvements needed, the capital required for conservancy works, and the organisational arrangements which may be required. The costs of conservancy have to be carefully worked out. It will also be essential to have an adequate organisation at the State level, and to assign to it effective responsibility for developing and maintaining the waterways in the region. (Para 12)

7. Having regard particularly to the needs of the relatively undeveloped areas such as eastern Uttar Pradesh and north Bihar served by the Ganga river system, we hope that plans for developing navigation in the rivers will be drawn up and integrated with the general economic development plans of comparatively less developed areas in which every resource offered by nature needs to be stretched to the maximum advantage. (Para 15)

8. The success of plans for development of inland services in the Ganga river system will depend, in a large measure, on the feasibility of maintaining navigable channels in the rivers, a serious problem in this connection being bank erosion. River training works and adequate conservancy arrangements are, therefore, of great importance. (Para 15)

9. In view of the construction of the Farakka Barrage and the connected development of the river Bhagirathi, it is necessary to make a fresh appraisal of potential of the all-India waterways between Calcutta through Patna and Uttar Pradesh. Technical and economic problems connected with this development should be considered as part of this appraisal. (Para 15)

10. An essential step is to build up a suitable organisation which can undertake responsibility for developing and maintaining the waterways in Kerala, including introduction of better craft and for organising and assisting boatmen with a view to enabling them to provide services on a commercial basis. This organisation should work out detailed plans for the development and operation of waterways as an integral part of the transport system in the State covering a period of ten to fifteen years. (Para 17)

11. A detailed project for the development of Mormugao port is now under preparation. Along with this project, it is necessary to prepare a plan for the development of waterways with a view to realising their economies in the transport of iron ore to the maximum extent possible. (Para 18)

12. Paradeep has been developed as an all-weather port with alongside facilities and an express highway which will provide a direct road link from the mines to the port is about to be completed. The future of water-

ways particularly from the point of view of export of iron ore through Paradeep, has to be assessed afresh in the context of these developments. (Para 19)

13. In Andhra Pradesh, the Krishna and the Godavari delta canals provide vital lines of communication connecting the Kakinada and Masulipatnam ports and suggestions have been made for development of these waterways. In other States also, particularly Maharashtra and Gujarat, there are waterways whose potential could be developed further. (Para 20)

14. Measures have to be considered for utilising the potential offered by the Damodar Valley Corporation Canal. (Para 21)

#### CHAPTER XI—*Pipelines and Ropeways*

1. In India pipelines have come into increasing use in recent years and may be expected to play a larger role in the future due to developments like movement of crude oil, oil exploration, oil refining and petro-chemical industries. (Para 1)

2. Pipelines entail heavy fixed costs, but their operating costs are low, average costs per tonne-kilometre depending largely on the throughput. However, since pipelines must be used for specific products, it is important that projections of future traffic requirements should be made with special care. (Para 4)

3. (i) In view of the capital intensive character of investment in pipelines, it is suggested that the Ministry of Petroleum and Chemical Industries should make an early appraisal so as to establish operational cost data which may provide guidance in future projects.

(ii) Though the experience gained so far is limited, it should still be possible to verify the assumptions and estimates made at the time of taking the initial investment decisions and to set appropriate norms for future development and operation of pipelines.

(iii) In respect of product pipelines, distribution costs in relation to various consuming centres should be assessed and an attempt made to ascertain the cost to the economy as a whole.

(iv) While comparing the economics of pipelines and rail or road transport it will be important to assess the extent of capacity already available and the desirability of putting existing investments to full use, taking into account the foreign exchange costs of pipelines. (Para 5)

4. Pipelines have also a significant role to play in respect of petro-chemical industries and fertiliser production. Scope or use of pipelines to supply coal from washeries to nearby steel plants and power houses deserves closer investigation. (Para 6)

5. (i) Ropeways are used mainly for carrying bulk materials like sand, coal, stone, ore etc. They are suitable for comparatively short hauls

over terrain where construction of roads or provision of other transport is either not feasible or is too expensive, provided also that there is a steady flow of material to be moved.

(ii) In view of the high capital cost and the large foreign exchange component, the economic feasibility of costlier ropeway projects should be examined closely before approval is given. (Para 7)

#### CHAPTER XII—*Air Transport*

1. The present is an appropriate time to undertake a fresh review of the existing fare and freight structure, the principles of pricing followed as well as the system of cost and budgetary control employed by Indian Airlines Corporation, having regard specially to the programme of development envisaged for the Fourth Plan period. While there might be marginal adjustments from year to year, as a matter of policy, these various aspects should receive fresh and systematic scrutiny on the part of the Corporation and the Government at regular intervals. (Para 6)

2. The existing network of services is relatively adequate in relation to trunk routes. These are operated with comparatively greater efficiency and provide a higher level of service than the regional routes. While steps are being taken by the Ministry of Civil Aviation to bring about improvements on many of the regional routes, civil aviation and communication facilities are admittedly deficient. (Para 8)

3. Several new and growing centres of economic and industrial importance need to be better served, for instance, the industrial complexes of the coal-steel belt. Economic development in a number of regions in the country could be accelerated and their administration greatly facilitated if more adequate air services could be provided. Of these, the most important instance is that of the Assam region, where a regional network of services based on the area itself is a priority requirement equally from the economic, administrative and political aspects. Large tracts in the country, specially in Madhya Pradesh, Orissa and parts of Andhra Pradesh need to be served more effectively than at present. In the southern region also, there is scope for developing new sources of traffic. It is, therefore, suggested that a reappraisal of the existing structure of air services should be undertaken by the Indian Airlines Corporation in consultation with the Government.

The objectives of development and profitability would have to be carefully reconciled in the context of the present economic and industrial requirements and likely development over the next few years. (Para 8)

4. By its very nature, air transport offers somewhat limited scope for coordination with other modes of transport. Nevertheless, specially in the regions referred to above, air transport requirements need to be studied along with the requirements of other transport services so that, to the extent possible, plans of development could take such assessment into account. It

would be desirable to evolve a carefully worked out overall plan for the future development of domestic air services. Along with these, complementary civil aviation and aeronautical facilities will also need to be planned for.

For a period, it would be necessary to take special steps to diminish possible losses. Fares and freights might vary in different regions. As a matter of policy various measures may be necessary to assure the volume of traffic needed to facilitate economic operation. Composite cargo passenger services may be found feasible. Decisions of this nature have to be taken by the Government as part of coordinated regional transport plans. (Para 9)

5. The Civil Aviation Development Fund recently set up by the Government of India should assist in developing services along the lines proposed above.

The introduction or discontinuance of a particular air service should in each case be considered in relation to the total transport requirements of a region and the requisite traffic and the possibilities of economic operation should be explored as far as possible through a coordinated scheme of development which encompasses all the principal modes of transport. As resources permit and favourable technological developments occur over a period, the effort should be to introduce aircraft which can operate at low cost even over short distances. (Para 10)

6. It is suggested that there should be a re-examination by the Indian Airlines Corporation and the Government of existing arrangements for the operation and control of domestic air services at the regional level. It is realised that trunk air services account for about 70 per cent of the total revenue and there are limits to the regionalisation of services. However, if regional organisations were more adequately equipped and could serve as semi-autonomous and self-contained units for costs, profits, etc. there might be gains in performance both operationally and in economic terms. Taking Delhi, Bombay, Calcutta and Madras as the principal centres for regional operation, it would be appropriate also to separate headquarters costs from those of the Delhi, Bombay and Calcutta regions. Also, specially in the case of Calcutta, in view of the difficulties of operation and other problems which have come into prominence more recently, there would be advantage in establishing a subordinate unit for operations within the Assam region. If need be, within the Assam region, the resources of private operators could also be pooled and utilised as part of a wider system under the control and direction of the Indian Airlines Corporation. (Para 11)

7. With the economic and industrial development now under way and that projected for the future, air transport will have a larger and more significant role. Questions bearing on coordinated operations of air services along with other services will now call for closer study. More

specially, in relation to the requirements of large parts of the country, such as the Assam region, the coal-steel belt and the southern region, the possible contribution of air transport to future development will have to be identified and provided for in future plans. (Para 12)

8. Air services have a vital role in the promotion of tourism. From this aspect it is necessary to stress the quality of service available, both on regional and on trunk routes, and the need to improve the existing travel facilities, transport, accommodation, catering and other conveniences, specially outside the metropolitan centres. (Para 12)

### CHAPTER XIII—*Machinery for coordinating transport programmes and policies*

1. For achieving coordination between transport programmes and policies, it is essential to develop adequate machinery, organisation and instruments for giving effect to approved programmes and policies and reviewing them from time to time as part of a functioning system, in which all the agencies concerned, both at the Centre and in the States, act as partners working within a framework of common policies and assumptions. Any machinery that may be devised must change and grow over a period until it becomes more adequate to the task entrusted to it and can operate with the necessary knowledge of facts and problems and a degree of flexibility in dealing with changing situations. (Para 1)

2. It is essential to devise suitable machinery within the Central Government as well as at the State level for carrying out the policies outlined in the Report and, more specially, for assessing the volume and composition of traffic, coordinating investments, obtaining data on relative costs, fares and freights, proposing from time to time appropriate fiscal measures and pricing policies and changes in the scheme of regulation, and promoting greater integration between different services. (Para 3)

3. Action by way of 'coordination' lies between 'planning' at one end and 'operations' at the other. The principal tasks to be undertaken by way of coordination are :

- (a) to study from time to time the relative costs of providing different transport services and Government's fiscal and pricing policies and related fare and freight structures, having regard to the scheme of allocation of traffic under the approved plan of development;
- (b) to propose measures for correcting imbalances between availability of transport and the requirements of the economy in respect of different modes of transport both in the aggregate and in different parts of the country; and

- (c) to suggest specific measures for the regulation of transport in pursuance of principles and policies approved by Government, including traffic envisaged for different services (Para 4)

4. 'Coordination' has to be achieved in the following principal contexts :

- (a) between the network of transport services taken together and the requirements of transport for the economy as a whole;
- (b) between different transport services *inter se* and, more specially between—
  - (i) rail and road transport;
  - (ii) rail, road and inland water transport; and
  - (iii) rail and coastal sea transport;
- (c) within the Central Government, between the Ministries concerned with transport and problems of policy affecting transport;
- (d) between the Central Government and each of the State Governments; and
- (e) within each State or region, between different transport services, specially rail, road, inland water transport and ports.

In a sense, these are different facets of a common problem which arise inevitably as between various modes of transport and at different levels within the national economy. (Para 7)

5. In the field of transport, the overall responsibility of the Central Government is a necessary condition of planned and coordinated development. The Central Government is in a position to see the picture as a whole in relation to the present and future needs of the economy and to integrate with these the requirements of national defence. It can provide an appropriate framework of policy—economic, social and legal—within which State Governments may undertake development in the spheres assigned to them and ensure the necessary coordination between different transport services. (Para 8)

6. Within the Central Government, three main agencies are at present responsible for providing transport services—the Ministry of Railways, the Ministry of Transport and the Ministry of Civil Aviation. In principle, it is possible that functions entrusted to these Ministries could be assigned to a single Ministry incharge of transport. This would be in itself an extremely heavy burden to carry. While such a course may make it easier to view the various media of transport as a composite network and as a total service to be provided in adequate quantity and at the appropriate level of efficiency, problems of coordination of transport go far beyond this limited issue. In either case, there will be need for special arrangements for achieving co-ordination on a continuing basis. The problem of creating a suitable machinery for the coordination of transport and equipping it adequately with

resources and personnel for studying relative costs of providing different transport services and Government's fiscal and pricing policies and related fare and freight structures, framing policies for the regulation of transport and anticipating and correcting short term imbalances should be regarded as a distinctive one. (Para 9)

7. For any coordination machinery to function effectively, the first condition is the building of an organisation capable of undertaking independent studies and economic appraisals, providing data on relative costs and following up decisions with authorities responsible for implementation. The nucleus of such an organisation is now available in the Joint Technical Group for Transport Planning. This unit should be strengthened and equipped adequately for undertaking studies and collection of data required for coordinating development programmes and rating policies in respect of different modes of transport. (Para 12)

8. The existing Planning Committee on Transport which guides the work of the Joint Technical Group for Transport Planning should be reconstituted and should function as the Transport Planning and Coordination Committee. The Joint Technical Group for Transport Planning should serve as the Technical Secretariat of the Transport Planning and Coordination Committee. The Committee should meet at regular intervals and consider reports and studies prepared by the Joint Technical Group and research organisations in the Ministries of Railways, Transport and Civil Aviation as well as in the States. (Para 13)

9. To facilitate consideration of important questions of policy and to provide guidance from time to time to the Transport Planning and Coordination Committee and to the Ministries, we suggest that the Prime Minister may constitute a Committee of Ministers, consisting of the Ministers incharge of Railways, Transport and Civil Aviation, Minister of Industry, Minister of Planning, Minister of State in the Ministry of Finance, and the Member of the Planning Commission incharge of Transport. The Prime Minister may appoint a member of the Committee to serve as Chairman. (Para 14)

10. The existing agencies for development and coordination at the national level include the National Harbour Board and the Transport Development Council, the latter being supported by an Advisory Committee for Roads and Inland Water Transport. The Transport Development Council has served as a useful forum for the consideration of common problems affecting the development specially of those sectors of transport which fall within the plans of States. In relation to these, it has done much to help evolve a consensus from the point of view of the country as a whole. (Para 15)

11. To secure an adequate measure of coordinated action by way of implementation, the necessary machinery should exist and should be in a

position to function continuously and with the support of the Centre and the States. These considerations have led to the recommendation for the setting up of the Council for Transport Coordination. This body would be concerned with the general and overall problems of coordination and, besides reviewing implementation of measures and policies pertaining to the co-ordination of transport, would provide direction and guidance to the road transport industry and other interests as well as advise on programmes of studies to be undertaken by the Joint Technical Group for Transport Planning, by research organisations in the Ministries and technical units established in the States. The Council would be composed of members of the Committee of Ministers on Transport at the Centre and State Ministers in-charge of Transport and Roads. The Council for Transport Coordination would supplement and carry further the work of the Transport Development Council, specially in fields where larger considerations of policy demand unified action between the Centre and the States and problems of the transport sector as a whole have to be considered in their wider setting. The Chairman of the Committee of Ministers would serve as Chairman of the Council for Transport Coordination. The three organisations proposed above namely, the Transport Planning and Coordination Committee, the Central Committee of Ministers on Transport and the Council for Transport Coordination may be set up under a Resolution of the Government of India in the Cabinet Secretariat. (Para 16)

12. In the scheme of coordination for road transport proposed in the Report, the broad line of distinction is between inter-State road traffic and intra-State road traffic. Corresponding to this, responsibility for coordinating road transport within a State would devolve on the State Transport Authority. Since an overall view has to be taken of the requirements of road transport in terms of the integrated development of transport facilities, State Transport Authorities should function increasingly on the basis of systematic assessment of requirements for road transport made by them and, for the country as a whole, by the Inter-State Road Transport Commission. On wider questions bearing on policy and coordination, the Transport Planning and Coordination Committee at the Centre could provide a measure of support to the State Transport Authorities. (Para 18)

13. To facilitate formulation of integrated transport plans for individual States or regions, it is recommended that each State Government should constitute a State Advisory Transport Board. Besides the principal agencies of the State Government, such as the Road Planning Board, the State Transport Authority, the Transport Commissioner or Secretary of the Transport Department and the Development Commissioner, others to be represented on the Board might be the General Managers of the main Zonal Railways, the Chairman of the Port Authority of the major port (if one exists in the State) and persons drawn from the road transport industry, both public and private. State Advisory Transport Boards are expected to give material help in the formulation and review of composite transport plans for the Fourth

and Fifth Plan periods which, it is hoped, will emerge as a consequence of the regional transport surveys which are now under way in different parts of the country. (Para 19)

14. To stimulate transport research and studies, both within the Government and the universities, it is recommended that a Centre for Transport Research and Training should be developed. The Centre should undertake research into the basic problems of long term transport development, including studies of comparative costs, and should assist the Central Ministries and the States in undertaking special investigations and surveys. It should provide facilities for work and training to persons drawn from Central and State organisations concerned with different transport services, from the road transport and other transport industries and from universities. After it has made some headway, the Centre could provide not only intensive training courses for specialised personnel engaged in or required for research in transport problems, but also shorter orientation courses for senior personnel drawn from the railways, from road transport organisations, port administrations, shipping and major industrial projects. In due course, the work of the Centre should come to exert increasing influence on the quality of data available for planning and coordination and on methods of planning in the transport sector.

Such a Centre could be set up as a non-government institution fully supported by the Planning Commission and the Ministries of Railways, Transport and Civil Aviation and Finance and also the States. A detailed project should be drawn up and provided for as a specific scheme in the Fourth Five Year Plan. (Paras 20 and 21)

#### CHAPTER XIV—*Organisation and collection of data on traffic flows and transport costs*

1. In the discussion in this Report of problems of planning and co-ordination of different transport services, the need for two sets of key data has emerged repeatedly. These relate to traffic flows and transport costs. (Para 1)

2. For achieving a rational allocation of traffic and, therefore, a plan of investment in the interest of the economy as a whole, it is of the greatest importance to obtain accurate information regarding the demand for the movement of commodities by different modes of transport and the relative costs of carrying them. Without these, it is not possible to work out pricing policies which may be justified on economic criteria or to know fully the implications of pricing policies which may in practice be followed. (Para 2)

3. Unless it becomes possible to establish and compare costs for given flows of traffic for different modes of transport, the essential objective of transport policy, namely, to develop the various modes as complementary services in such proportion and combinations as will meet the total need of the community, at a minimum cost to the economy, cannot be secured.

It is also essential to view this central objective in the context of growth, more specially of changes in volume and composition in the services needed by the economy from period to period and, having regard to technological and other changes, the costs at which these services can be provided. (Para 3)

4. At present, information on rail movements by commodities along specific routes or sections is not readily available and has to be processed afresh from primary data. With the mechanisation of traffic accounts and statistics on the Indian Railways and simplification of procedures now in progress it should become relatively easier in the future to obtain such data both more speedily and at regular intervals. (Para 5)

5. In the work of the Joint Technical Group for Transport Planning, it has been envisaged that with the preparation of each Five Year Plan, opportunity should be taken to review progress, collect afresh the basic data needed and project the long term transportation plan for a further period of ten or fifteen years. It is expected that the studies now in progress will enable the Central Ministries concerned, in cooperation with the Planning Commission and the States, to implement with fuller knowledge of detail and to elaborate further plans formulated for the development of transport for the Fourth Five Year Plan period. They should also assist the Planning Commission and other agencies in working out a broad plan for the period 1971-76, sufficient at least to facilitate some of the basic decisions, and perhaps also to suggest certain guidelines for the period 1976-81. (Para 8)

6. On the basis of the work already initiated, it is proposed that the Government of India should organise an all-India transportation survey at five yearly intervals. The survey should collect data for the last year of each Plan period. It should take advantage of all available data and should be undertaken as far as possible through existing research organisations in the Central Ministries and in the States. The help of research organisations outside the Government should also be taken. The detailed scope and methodology of the survey will need to be considered carefully in the light of the experience gained in commodity studies and the regional transport surveys. We believe that such a survey of transportation, covering all modes of transport and undertaken at regular intervals, will be of great value in the planning and development of transport as well as in projecting the long term transportation requirements of the country and of different regions. (Para 8)

7. It has now become incumbent on every transport enterprise, specially those operated by State undertakings and indeed in the transport sector as a whole, to develop adequate costing systems and to pursue the objective of cost reduction continuously and as a matter of general policy. This is a necessary condition if investments in the development of transport capacities are to make the contribution due from them to the rapid growth of the national economy. (Para 10)

8. Comparisons between costs of different modes of transport or their aggregation in a meaningful way call for a degree of uniformity in the basic accounting and statistical concepts which are adopted as well as in the methods of analysis. It is in this sense that the introduction of the practices of management accounting has become a matter of high priority in several fields, notably in the management of ports. Also for similar enterprises, such as road transport undertakings there is need for uniform accounting systems. (Para 11)

9. For undertaking the tasks ahead in the area of transport cost studies, special steps should now be taken to strengthen the necessary administrative and technical arrangements. The cell within the Directorate of Statistics in the Railway Board for the study of costs could be readily strengthened. The Directorate of Transport Research in the Ministry of Transport should be equipped with a unit which could study specially costs of services provided in different ports and by different road transport undertakings and also undertake cost-benefit studies. Port authorities, road transport undertakings and other public enterprises in the field of transport should also organise cost studies, so that continuous efforts may be made to reduce costs and enlarge surpluses for development. Within the Joint Technical Group for Transport Planning also, there is need to set up a cell for cost studies which could interpret the results of studies concerning costs of different modes of transport. In cooperation with the Ministries of Railways and Transport and the Management Group of the Committee on Plan Projects, this cell could help evolve a common approach to questions of definition, criteria and methods of analysis in the presentation of basic cost and accounting data in the field of transport. (Para 12)

10. The Transport Planning and Coordination Committee should initiate a series of case studies on transport costs. These should relate to specific movements of commodities in which transport costs constitute a significant element, as in exports of iron ore, or where greater knowledge of costs will assist in evolving policies for coordination between different modes of transport. (Para 13)

#### CHAPTER XV—*Concluding observations*

1. Transport is a highly capital intensive field of development. Therefore, application of appropriate cost-benefit criteria for selecting projects, careful attention to their preparation and execution according to schedule, the building up of adequate technical organisations, collection on a continuing basis of economic and statistical data and projections of future growth, determination of costs, adoption of programming techniques and sound management practices, correct pricing policies and studied efforts to reduce costs of transport and foreign exchange expenditure are essential to the successful operation of transport services and the generation of internal resources for future development to the greatest extent possible. (Para 2)

2. There is an important common area of planning between transport, industry and energy to which the Planning Commission and the Ministries should give much greater attention in the future. Its two main aspects are the promotion of indigenous manufacture of various types of equipment required in transport operations and fuel policies in relation to transport development. Similarly, while manufacturing developments bearing on rail transport and road transport are receiving considerable attention, much remains to be done in respect of road construction equipment, cargo handling equipment, harbour craft and different types of marine engines. Though these subjects are beyond the scope of this Report, attention is drawn to them, as they have an important bearing, both on the growth of industries within the country, on which depends the uninterrupted development of transport services, and on reduction in the foreign exchange costs of transport projects, which is at present an urgent aspect of transport planning. (Para 3)

# APPENDIX 1

## GOVERNMENT OF INDIA RESOLUTION DATED JULY 22, 1959 REGARDING THE APPOINTMENT OF THE COMMITTEE

The Planning Commission and the Ministries of Railways and Transport and Communications have had under consideration for some time past suggestions relating to the coordination of different means of transportation, especially rail and road transport, and their future development having regard to the needs of the growing economy of the country. It has been felt that a comprehensive examination of these problems at this stage will be of material assistance in the formulation of plans of future development in the field of transportation. It has accordingly been agreed in consultation with the Ministries of Railways and Transport and Communications to constitute a Committee to study the problems involved, and to make recommendations on the measures required to secure the necessary coordination between different means of transport and on long-term policies and considerations which should guide their future development.

2. The Committee will consist of the following :—

### *Chairman*

1. SHRI K. C. NEOGY.

### *Members*

2. SHRI VISHNU SAHAY, ICS,  
Secretary, Planning Commission.
3. SHRI R. L. GUPTA, ICS,  
Secretary, Department of Transport,  
Ministry of Transport and Communications.
4. SHRI K. B. MATHUR,  
Chairman, Railway Board,  
Ministry of Railways.
5. SHRI A. K. ROY,  
Secretary, Department of Economic Affairs,  
Ministry of Finance.
6. SHRI S. RANGANATHAN, ICS,  
Secretary,  
Ministry of Commerce and Industry.

Shri K. L. Luthra, Director, Transport Division, Planning Commission will be the Secretary of the Committee.

3. The terms of reference of the Committee will be as follows :—

Taking into account the existing stage of development of the various means of transport and the economic, political, social and strategic purposes which the transport machinery is designed to serve, the Committee should recommend :—

- (a) what broadly should be the long-term transport policy of the country, so that the development of the transport machinery may be effected in consonance with our growing needs, with economy and efficiency, avoiding duplication to the maximum extent practicable;
- (b) in keeping with the policy defined under item (a) what should be the role of the various means of transport in the country during the next 5 to 10 years; and
- (c) what is the best mechanism for the regulation and coordination of the various means of transport, so that the transport needs of the country are met in an efficient and economic manner consistent with the larger interests of the country?

4. The headquarters of the Committee will be at New Delhi but the Committee may visit such places as may be considered necessary for its work.

#### ORDER

Ordered that a copy of the Resolution may be communicated to all concerned and that it be published in the Gazette of India for general information.

Sd./- TARLOK SINGH

*Additional Secretary to the Government of India*

#### GOVERNMENT OF INDIA RESOLUTION DATED FEBRUARY 21, 1964 REGARDING THE RECONSTITUTION OF THE COMMITTEE

The Committee on Transport Policy and Coordination which was set up vide Planning Commission Resolution No. PC(TPT)3/6/59 dated the 22nd July, 1959, has been reconstituted as follows :—

#### *Chairman*

1. SHRI TARLOK SINGH,  
Member (Administration and Transport),  
Planning Commission.

#### *Members*

2. SHRI R. L. GUPTA,  
Principal,  
Administrative Staff College of India,  
Hyderabad (Dn.).
3. SHRI S. RANGANATHAN,  
Secretary,  
Ministry of Industry.
4. SHRI KRIPAL SINGH,  
Member (Transportation),  
Railway Board.
5. SHRI L. K. JHA,  
Secretary,  
Department of Economic Affairs,  
Ministry of Finance.
6. SHRI G. V. AYYAR,  
Secretary,  
Ministry of Transport.
7. DR. I. G. PATEL.  
Shri K. L. Luthra, Director, Transport Division, Planning Commission,  
will be the Secretary of the Committee.

#### ORDER

Ordered that a copy of the Resolution may be communicated to all concerned and that it be published in the Gazette of India for general information.

Sd./- K. A. P. STEVENSON

*Joint Secretary to the Government of India.*

## APPENDIX 2

### ORGANISATIONS AND INDIVIDUAL SCHOLARS AND SPECIALISTS FROM WHOM MEMORANDA WERE RECEIVED BY THE COMMITTEE ON TRANSPORT POLICY AND COORDINATION.

#### A. *Industrial and Commercial Associations*

1. Federation of Indian Chambers of Commerce and Industry, New Delhi.
2. The Associated Chambers of Commerce and Industry, Calcutta.
3. Bengal Chambers of Commerce and Industry, Calcutta.
4. Bombay Chambers of Commerce and Industry, Bombay.
5. Madras Chambers of Commerce and Industry, Madras.
6. Upper India Chambers of Commerce and Industry, Kanpur.
7. The Indian Roads and Transport Development Association, Bombay.
8. All India Motor Unions' Congress, New Delhi.
9. Jodhpur Truck Operators Association, Jodhpur.
10. Madras State Lorry Owners' Association, Madras.
11. Motor Vehicles and Allied Industries Association, Madras.
12. Ambala Bus Syndicate Private Limited, Rupar.
13. Indian Tea Planters' Association, Jalpaiguri.
14. The Indian Coastal Conference.
15. The Committee of Inland Water Transport Operators.

#### B. *Universities*

1. Allahabad University, Allahabad.
2. Andhra University, Waltair.
3. Gauhati University, Gauhati.
4. Karnatak University, Dharwar.
5. Nagpur University, Nagpur.
6. Poona University, Poona.
7. Vikram University, Ujjain.

#### C. *Scholars and Specialists*

1. Dr. A. N. Agarwala, Professor of Commerce, University of Allahabad, Allahabad.
2. Shri K. C. Bakhle, former Chief Commissioner, Railways.
3. Dr. Baljit Singh, Department of Economics, Lucknow University, Lucknow.
4. Shri A. K. Basu, former Member, Railway Freight Structure Enquiry Committee (1957).

5. Professor S. K. Basu, Department of Economics, Calcutta University, Calcutta.
6. Shri Bhabatosh Dutta, Professor of Economics, Presidency College, Calcutta.
7. Shri V. P. Bhandarkar, former Member, Railway Board.
8. Dr. H. L. Dey, former Member, Tariff Commission.
9. Professor D. R. Gadgil, Gokhale Institute of Politics and Economics, Poona.
10. Dr. B. N. Ganguli, Director, Delhi School of Economics, Delhi.
11. Professor D. Ghosh, Institute of Gandhian Studies, Varanasi.
12. Dr. P. S. Lokanathan, Director-General, National Council of Applied Economic Research, New Delhi.
13. Dr. B. K. Madan, Reserve Bank of India, Bombay.
14. Shri K. B. Mathur, former Chairman, Railway Board.
15. Dr. S. K. Muranjan, Bombay.
16. Dr. V. V. Ramanadham, Commerce Department, Osmania University, Hyderabad.
17. Professor S. B. Rangnekar, Department of Economics, Punjab University, Chandigarh.
18. Shri A. P. Sarkar, former Financial Adviser and Chief Accounts Officer, Railways.
19. Professor B. R. Shenoy, Gujarat University, Ahmedabad.
20. Shri S. L. M. Simha, Economic Department, Reserve Bank of India, Bombay.

#### D. *Foreign*

1. Mr. M. R. Bonavia, British Railways Staff College, London.
2. Mr. John Hay, M.P., Parliamentary Secretary, Ministry of Transport, London.
3. Mr. H. A. Short, General Manager, North Eastern Region, British Railways, London.
4. Mr. A. A. Walters, University of Birmingham, Birmingham.
5. Major General Wansborough Jones, Secretary-General, British Transport Commission, London.
6. Mr. D. C. L. Williams, Secretary, Department of Shipping and Transport, Australia.

## APPENDIX 3

## SURVEY OF ROAD TRAFFIC (1959-61)

As available basic operational data in respect of transport of goods by road were very inadequate, the Committee on Transport Policy and Co-ordination decided to undertake factual sample surveys on six selected routes with a view to studying the nature and volume of goods traffic carried by road transport in some detail. These routes were : (i) Amritsar-Delhi-Kanpur; (ii) Calcutta-Patna; (iii) Bombay-Bangalore; (iv) Madras-Bangalore; (v) Calcutta-Rajmahal; and (vi) Bombay-Nagpur.

2. The survey on each route was conducted round the clock for a week. The vehicles moving to a distance of five miles or less, undertaking essentially intra-city movement, were not counted. Data were collected in respect of public carriers, private carriers, government department vehicles such as P.W.D. lorries, tractor trailer combinations and delivery vans. Passenger buses, new chassis, unregistered new vehicles and military vehicles were not checked.

3. The survey was intended to throw light on the following main points for vehicles operating on each route selected for the survey :—

- (i) type of vehicle (petrol or diesel);
- (ii) payload or the carrying capacity of the vehicle;
- (iii) type of permit held by the vehicle;
- (iv) total distance covered by the vehicle and distance covered on the route under survey; and
- (v) commodities carried, quantities carried and distances over which they were carried.

For purposes of analysis, the commodities carried were classified into major groups, such as, products of agriculture, provisions, animals and animal products, finished goods, products of mines, products of forests, manufactures and 'others'. The results of the survey are summarised in this Appendix.

## NUMBER OF VEHICLES CHECKED

4. The table below indicates the total number of vehicles counted on each selected route during the survey week.

Table 1 : Total number of vehicles checked

| route                          | survey week          | total number of vehicles counted | percentage to total |
|--------------------------------|----------------------|----------------------------------|---------------------|
| 1 Amritsar—Delhi . . . . .     | 23-11-59 to 30-11-59 | 4,700                            | 5.84                |
| 2 Delhi—Amritsar . . . . .     | 30-11-59             | 5,144                            | 6.40                |
| total                          |                      | 9,844                            | 12.24               |
| 3 Delhi—Kanpur . . . . .       | 16-12-59 to 23-12-59 | 5,249                            | 6.53                |
| 4 Kanpur—Delhi . . . . .       | 23-12-59             | 5,314                            | 6.60                |
| total                          |                      | 10,563                           | 13.13               |
| 5 Patna—Calcutta . . . . .     | 5-1-60 to 12-1-60    | 7,939                            | 9.87                |
| 6 Calcutta—Patna . . . . .     | 12-1-60              | 8,898                            | 11.06               |
| total                          |                      | 16,837                           | 20.93               |
| 7 Bombay—Bangalore . . . . .   | 11-2-60 to 18-2-60   | 7,992                            | 9.94                |
| 8 Bangalore—Bombay . . . . .   | 18-2-60              | 8,116                            | 10.09               |
| total                          |                      | 16,108                           | 20.03               |
| 9 Madras—Bangalore . . . . .   | 9-3-60 to 16-3-60    | 4,704                            | 5.85                |
| 10 Bangalore—Madras . . . . .  | 16-3-60              | 4,837                            | 6.01                |
| total                          |                      | 9,541                            | 11.86               |
| 11 Calcutta—Rajmahal . . . . . | 25-10-60 to 1-11-60  | 1,341                            | 1.67                |
| 12 Rajmahal—Calcutta . . . . . | 1-11-60              | 1,389                            | 1.73                |
| total                          |                      | 2,730                            | 3.40                |
| 13 Bombay—Nagpur . . . . .     | 17-2-61 to 24-2-61   | 7,497                            | 9.32                |
| 14 Nagpur—Bombay . . . . .     | 24-2-61              | 7,304                            | 9.08                |
| total                          |                      | 14,801                           | 18.40               |
| grand total                    |                      | 80,424                           | 100.00              |

Taking the traffic in both directions on all the survey routes together, the total number of goods vehicles checked came to 80,424 of which the highest proportion (20.93 per cent) was observed on the Calcutta-Patna route, followed by Bombay-Bangalore route (20.03 per cent). Thus, 40.96 per cent of the total number of vehicles were counted on the two routes viz., Calcutta-Patna and Bombay-Bangalore. The other survey routes, namely, Amritsar-Delhi, Delhi-Kanpur, Madras-Bangalore, Calcutta-Rajmahal and Bombay-Nagpur accounted for 12.24 per cent, 13.13 per cent, 11.86 per cent, 3.40 per cent and 18.40 per cent, respectively.

## PUBLIC AND PRIVATE CARRIERS

5. The percentage distribution of vehicles into public and private carriers is given below :—

Table 2 : Public and private carriers

| route                       | public carriers | (per cent) private carriers |
|-----------------------------|-----------------|-----------------------------|
| Amritsar—Delhi . . . . .    | 95              | 5                           |
| Delhi—Amritsar . . . . .    | 96              | 4                           |
| Delhi—Kanpur . . . . .      | 96              | 4                           |
| Kanpur—Delhi . . . . .      | 96              | 4                           |
| Patna—Calcutta . . . . .    | 89              | 11                          |
| Calcutta—Patna . . . . .    | 88              | 12                          |
| Bombay—Bangalore . . . . .  | 94              | 6                           |
| Bangalore—Bombay . . . . .  | 93              | 7                           |
| Madras—Bangalore . . . . .  | 90              | 10                          |
| Bangalore—Madras . . . . .  | 89              | 11                          |
| Calcutta—Rajmahal . . . . . | 82              | 18                          |
| Rajmahal—Calcutta . . . . . | 81              | 19                          |
| Bombay—Nagpur . . . . .     | 93              | 7                           |
| Nagpur—Bombay . . . . .     | 92              | 8                           |
| all routes . . . . .        | 91              | 9                           |

Of the total number of vehicles counted, 91 per cent were public carriers and only 9 percent private carriers. The proportion of public carriers ranged from 92 to 96 per cent on the Amritsar-Delhi, Delhi-Kanpur, Bombay-Bangalore and Bombay-Nagpur routes and from 81 to 90 per cent on the Calcutta-Rajmahal, Madras-Bangalore and Patna-Calcutta routes.

## TYPES OF PERMITS

6. The percentage distribution of vehicles by types of permits is indicated below.

Table 3 : Distribution of vehicles by types of permits

| route                       | permanent | (per cent) temporary |
|-----------------------------|-----------|----------------------|
| Amritsar—Delhi . . . . .    | 96        | 4                    |
| Delhi—Amritsar . . . . .    | 96        | 4                    |
| Delhi—Kanpur . . . . .      | 81        | 19                   |
| Kanpur—Delhi . . . . .      | 86        | 14                   |
| Patna—Calcutta . . . . .    | 57        | 43                   |
| Calcutta—Patna . . . . .    | 49        | 51                   |
| Bombay—Bangalore . . . . .  | 81        | 19                   |
| Bangalore—Bombay . . . . .  | 85        | 15                   |
| Madras—Bangalore . . . . .  | 97        | 3                    |
| Bangalore—Madras . . . . .  | 96        | 4                    |
| Calcutta—Rajmahal . . . . . | 88        | 12                   |
| Rajmahal—Calcutta . . . . . | 78        | 22                   |
| Bombay—Nagpur . . . . .     | 90        | 10                   |
| Nagpur—Bombay . . . . .     | 87        | 13                   |
| all routes . . . . .        | 82        | 18                   |

As many as 18 per cent of all vehicles checked operated on temporary permits. The highest proportion of temporary permits was found in use on the Calcutta-Patna route (43 to 51 per cent) followed by Calcutta-Rajmahal (12 to 22 per cent), Bombay-Bangalore (15 to 19 per cent), Delhi-Kanpur (14 to 19 per cent), Bombay-Nagpur (10 to 13 per cent), Amritsar-Delhi (4 per cent) and Madras-Bangalore (3 to 4 per cent).

## AGE DISTRIBUTION OF VEHICLES

7. The age distribution of motor goods vehicles on various routes surveyed is given in Table 4 :

Table 4 : Age distribution of vehicles

| route                       | 1950 or earlier | 1951-55 | 1956-60 (per cent) |
|-----------------------------|-----------------|---------|--------------------|
| Amritsar—Delhi . . . . .    | 6               | 21      | 73                 |
| Delhi—Amritsar . . . . .    | 6               | 19      | 75                 |
| Delhi—Kanpur . . . . .      | 6               | 13      | 81                 |
| Kanpur—Delhi . . . . .      | 7               | 13      | 80                 |
| Patna—Calcutta . . . . .    | 15              | 10      | 75                 |
| Calcutta—Patna . . . . .    | 16              | 9       | 75                 |
| Bombay—Bangalore . . . . .  | 48              | 4       | 48                 |
| Bangalore—Bombay . . . . .  | 47              | 5       | 48                 |
| Madras—Bangalore . . . . .  | 56              | 7       | 37                 |
| Bangalore—Madras . . . . .  | 54              | 7       | 39                 |
| Calcutta—Rajmahal . . . . . | 25              | 8       | 67                 |
| Rajmahal—Calcutta . . . . . | 23              | 8       | 69                 |
| Bombay—Nagpur . . . . .     | 36              | 4       | 60                 |
| Nagpur—Bombay . . . . .     | 36              | 5       | 59                 |
| all routes . . . . .        | 28              | 9       | 63                 |

Of the total number of vehicles observed on these routes, as many as 28 per cent were ten or more than ten years old, the largest proportion of these vehicles being on the route from Madras to Bangalore (over 50 per cent).

## PETROL AND DIESEL VEHICLES

8. The percentage distribution of vehicles according to the type of fuel used is given below :

Table 5 : Petrol and diesel vehicles

| route             | (per cent) |        |
|-------------------|------------|--------|
|                   | petrol     | diesel |
| Amritsar—Delhi    | 3          | 97     |
| Delhi—Amritsar    | 3          | 97     |
| Delhi—Kanpur      | 3          | 97     |
| Kanpur—Delhi      | 4          | 96     |
| Patna—Calcutta    | 18         | 82     |
| Calcutta—Patna    | 19         | 81     |
| Bombay—Bangalore  | 23         | 77     |
| Bangalore—Bombay  | 22         | 78     |
| Madras—Bangalore  | 12         | 88     |
| Bangalore—Madras  | 9          | 91     |
| Calcutta—Rajmahal | 33         | 67     |
| Rajmahal—Calcutta | 33         | 67     |
| Bombay—Nagpur     | 22         | 78     |
| Nagpur—Bombay     | 23         | 77     |
| all routes        | 16         | 84     |

## AVERAGE PAYLOAD OF VEHICLES

9. The average payload or carrying capacity of vehicles operating on different survey routes is indicated in Table 6.

Table 6 : Average payload

| route             | average<br>payload per<br>vehicle<br>(tons) |
|-------------------|---------------------------------------------|
| Amritsar—Delhi    | 7.30                                        |
| Delhi—Amritsar    | 7.34                                        |
| Delhi—Kanpur      | 7.11                                        |
| Kanpur—Delhi      | 7.13                                        |
| Patna—Calcutta    | 5.49                                        |
| Calcutta—Patna    | 5.55                                        |
| Bombay—Bangalore  | 4.84                                        |
| Bangalore—Bombay  | 4.89                                        |
| Madras—Bangalore  | 5.80                                        |
| Bangalore—Madras  | 5.83                                        |
| Calcutta—Rajmahal | 5.42                                        |
| Rajmahal—Calcutta | 5.43                                        |
| Bombay—Nagpur     | 6.27                                        |
| Nagpur—Bombay     | 6.26                                        |
| all routes        | 5.87                                        |

The average payload indicates the capacity of vehicles operating on a particular route. The total number of vehicles observed on a route in each direction was divided into a series of payload capacities of 0 to 3 tons, 3 to 5 tons, 5 to 7 tons, 7 to 9 tons, and 9 tons and above. Then the total payload for each of these series was derived by multiplying the mid-point of the series by the number of vehicles in that series. The aggregate of this total payload for each of the series, divided by the total number of vehicles, was taken to be the average payload. The surveys revealed that the average payload of a vehicle ranged above 7 tons on Amritsar-Delhi and Delhi-Kanpur routes, was between 5 and 7 tons on Bombay-Nagpur, Madras-Bangalore, Calcutta-Rajmahal and Calcutta-Patna routes (both directions) and was below 5 tons on Bombay-Bangalore route.

## LOADED AND EMPTY VEHICLES

10. The table below shows the percentage distribution of goods vehicles according as they were found to be loaded or empty during the survey week on the routes surveyed.

Table 7 : Loaded and empty vehicles

| route             | (per cent)         |                   |
|-------------------|--------------------|-------------------|
|                   | loaded<br>vehicles | empty<br>vehicles |
| Amritsar—Delhi    | 75                 | 25                |
| Delhi—Amritsar    | 83                 | 17                |
| Delhi—Kanpur      | 79                 | 21                |
| Kanpur—Delhi      | 75                 | 25                |
| Patna—Calcutta    | 82                 | 18                |
| Calcutta—Patna    | 49                 | 51                |
| Bombay—Bangalore  | 79                 | 21                |
| Bangalore—Bombay  | 75                 | 25                |
| Madras—Bangalore  | 71                 | 29                |
| Bangalore—Madras  | 79                 | 21                |
| Calcutta—Rajmahal | 73                 | 27                |
| Rajmahal—Calcutta | 83                 | 17                |
| Bombay—Nagpur     | 82                 | 18                |
| Nagpur—Bombay     | 83                 | 17                |
| all routes        | 76                 | 24                |

Taking together all the routes surveyed, the proportion of loaded and empty vehicles was 76 per cent and 24 per cent respectively. Of trucks moving in either direction of the routes surveyed, loaded vehicles ranged from 71 to 83 per cent with the exception of the Calcutta-Patna direction in which only 49 per cent of trucks were loaded. The proportion of empty trucks was to the total number of vehicles moving in the Calcutta-Patna direction (18 per cent) specially high (51 per cent) compared to the Patna-Calcutta direction (18 per cent) and both directions on the Amritsar-Delhi, Delhi-Kanpur, Cal-

cutta-Rajmahal, Bombay-Bangalore, Madras-Bangalore and Bombay-Nagpur routes (17 to 29 per cent).

#### LOAD FACTOR OR EXTENT OF UTILISATION OF CAPACITY OF PUBLIC AND PRIVATE CARRIERS

11. The load factor represents the relationship between capacity in available tonne-kilometres (payload multiplied by kilometres covered) and the actual tonne-kilometre performed. The table below sets out for each route the load factor or percentage utilisation of public and private carriers.

Table 8 : Load factor of carriers (per cent)

| route                       | public carriers | private carriers | all carriers |
|-----------------------------|-----------------|------------------|--------------|
| Amritsar—Delhi . . . . .    | 72              | 62               | 71.9         |
| Delhi—Amritsar . . . . .    | 78              | 61               | 77.6         |
| Delhi—Kanpur . . . . .      | 78              | 41               | 77.5         |
| Kanpur—Delhi . . . . .      | 78              | 51               | 77.1         |
| Patna—Calcutta . . . . .    | 86              | 57               | 83.7         |
| Calcutta—Patna . . . . .    | 67              | 27               | 62.8         |
| Bombay—Bangalore . . . . .  | 79              | 55               | 78.2         |
| Bangalore—Bombay . . . . .  | 68              | 35               | 66.2         |
| Madras—Bangalore . . . . .  | 66              | 38               | 65.0         |
| Bangalore—Madras . . . . .  | 65              | 47               | 64.0         |
| Calcutta—Rajmahal . . . . . | 94              | 57               | 91.7         |
| Rajmahal—Calcutta . . . . . | 91              | 60               | 89.4         |
| Bombay—Nagpur . . . . .     | 85              | 62               | 85.2         |
| Nagpur—Bombay . . . . .     | 83              | 65               | 82.2         |
| all routes . . . . .        | 77              | 46               | 76.0         |

For all the routes taken together, the load factor or the extent of utilisation was 77 per cent for public carriers, 46 per cent for private carriers and 76 per cent for both public and private carriers taken together. It was observed that the available capacity of public carriers was utilised to a greater extent than in the case of private carriers.

12. The utilisation of private carriers capacity was the highest on Bombay-Nagpur route (62 to 65 per cent) and the lowest in the case of their movement in Calcutta-Patna direction (27 per cent).

#### AVERAGE PERFORMANCE

13. The table below indicates for each route the truck kilometres of work performed by the vehicles during the survey week and the average dis-

tance from the place of origin to the ultimate destination covered by a truck or the average lead of a truck.

Table 9 : Truck kilometres performed and average lead of truck

| route                       | total number of trucks | truck kilometres | Average performance (kilometres) |
|-----------------------------|------------------------|------------------|----------------------------------|
| Amritsar—Delhi . . . . .    | 4,700                  | 900,928          | 192                              |
| Delhi—Amritsar . . . . .    | 5,144                  | 1,040,441        | 189                              |
| Delhi—Kanpur . . . . .      | 5,249                  | 725,557          | 138                              |
| Kanpur—Delhi . . . . .      | 5,314                  | 802,712          | 150                              |
| Patna—Calcutta . . . . .    | 7,939                  | 1,413,482        | 178                              |
| Calcutta—Patna . . . . .    | 8,898                  | 1,470,509        | 165                              |
| Bombay—Bangalore . . . . .  | 7,992                  | 1,789,928        | 208                              |
| Bangalore—Bombay . . . . .  | 8,116                  | 1,894,280        | 234                              |
| Madras—Bangalore . . . . .  | 4,704                  | 805,541          | 171                              |
| Bangalore—Madras . . . . .  | 4,837                  | 844,013          | 174                              |
| Calcutta—Rajmahal . . . . . | 1,341                  | 172,723          | 129                              |
| Rajmahal—Calcutta . . . . . | 1,389                  | 178,457          | 128                              |
| Bombay—Nagpur . . . . .     | 7,497                  | 2,261,326        | 302                              |
| Nagpur—Bombay . . . . .     | 7,304                  | 2,211,483        | 302                              |
| all routes . . . . .        | 80,423                 | 16,496,980       | 204                              |

14. The truck-kilometres performed on all the survey routes during the survey week totalled 16,496,980 of which the highest proportion (27.11) per cent was contributed by Bombay-Nagpur route and the lowest (2.12) per cent by Calcutta-Rajmahal route.

15. The average performance of trucks during the survey week, taking all routes into account, was 204 kilometres. It was the highest in the case of the Bombay-Nagpur route (302 kilometres) and the lowest for the Calcutta—Rajmahal route (128 to 129 kilometres).

#### MOVEMENT OF TRUCKS ACCORDING TO DISTANCES

16. The percentage distribution of trucks on different survey routes according to distance categories is given below :

Table 10 : Distance categories of trucks

| route                       | (per cent)                        |                                   |                                   |
|-----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|                             | within 200 miles (320 kilometres) | beyond 200 miles (320 kilometres) | beyond 300 miles (480 kilometres) |
| Amritsar—Delhi . . . . .    | 78.6                              | 21.4                              | 1.3                               |
| Delhi—Amritsar . . . . .    | 79.4                              | 20.6                              | 1.1                               |
| Delhi—Kanpur . . . . .      | 88.0                              | 12.0                              | 2.8                               |
| Kanpur—Delhi . . . . .      | 86.8                              | 13.2                              | 2.9                               |
| Patna—Calcutta . . . . .    | 89.1                              | 10.9                              | 5.5                               |
| Calcutta—Patna . . . . .    | 89.1                              | 10.9                              | 4.6                               |
| Bombay—Bangalore . . . . .  | 78.6                              | 21.4                              | 7.7                               |
| Bangalore—Bombay . . . . .  | 75.0                              | 25.0                              | 9.3                               |
| Madras—Bangalore . . . . .  | 78.7                              | 21.3                              | 6.2                               |
| Bangalore—Madras . . . . .  | 78.3                              | 21.7                              | 7.0                               |
| Calcutta—Rajmahal . . . . . | 99.6                              | 0.4                               | 0.2                               |
| Rajmahal—Calcutta . . . . . | 99.6                              | 0.4                               | 0.1                               |
| Bombay—Nagpur . . . . .     | 67.5                              | 32.5                              | 22.5                              |
| Nagpur—Bombay . . . . .     | 67.1                              | 32.9                              | 23.2                              |
| all routes . . . . .        | 80.3                              | 19.7                              | 8.3                               |

For all the routes taken together, the proportion of trucks moving less than 200 miles distance (320 kilometres) on the routes surveyed was 80.3 per cent; those moving between 200 and 300 miles (320—480 kilometres) was 19.7 per cent and those moving more than 300 miles (480 kilometres) was 8.3 per cent.

#### QUANTITIES OF GOODS CARRIED AND TONNE-KILOMETRES PERFORMED BY VEHICLES

17. The Table below indicates the total quantity of commodities moved by road and the tonne-kilometres performed by goods vehicles on different survey routes during the period of the survey.

Table 11 : Quantities carried and tonnes kilometres performed by vehicles

| route             | quantity<br>(tonnes) | percentage<br>to total | tonne-<br>kilometres | percentage<br>to total |
|-------------------|----------------------|------------------------|----------------------|------------------------|
| Amritsar—Delhi    | 20,080.67            | 6.7                    | 4,705,870            | 6.2                    |
| Delhi—Amritsar    | 25,423.06            | 8.5                    | 5,493,190            | 7.2                    |
| Delhi—Kanpur      | 23,602.55            | 7.9                    | 3,885,625            | 5.1                    |
| Kanpur—Delhi      | 22,650.79            | 7.6                    | 4,282,827            | 5.6                    |
| Patna—Calcutta    | 32,116.34            | 10.8                   | 6,832,742            | 9.0                    |
| Calcutta—Patna    | 20,551.75            | 6.0                    | 5,222,379            | 6.9                    |
| Bombay—Bangalore  | 27,002.01            | 9.0                    | 7,289,275            | 9.6                    |
| Bangalore—Bombay  | 25,585.77            | 8.6                    | 6,629,385            | 8.7                    |
| Madras—Bangalore  | 13,384.17            | 4.5                    | 3,058,896            | 4.0                    |
| Bangalore—Madras  | 15,125.99            | 5.1                    | 3,130,718            | 4.1                    |
| Calcutta—Rajmahal | 4,735.18             | 1.6                    | 313,700              | 1.1                    |
| Rajmahal—Calcutta | 5,429.82             | 1.8                    | 860,732              | 1.1                    |
| Bombay—Nagpur     | 31,922.38            | 10.7                   | 11,441,523           | 15.3                   |
| Nagpur—Bombay     | 31,092.54            | 10.4                   | 11,441,523           | 15.1                   |
| all routes        | 2,98,703.02          | 100.0                  | 76,015,993           | 100.0                  |

18. The proportion of commodities in the total tonnage moved and tonne-kilometres performed on the routes surveyed are given below :

Table 12 : Share of commodities in total tonnes and tonne-kilometres carried on all survey routes

| commodities                 | quantity<br>(tonnes) | (per cent)<br>tonne-<br>kilometres<br>performed |
|-----------------------------|----------------------|-------------------------------------------------|
| foodgrains                  | 9.2                  | 6.2                                             |
| oilseeds                    | 2.7                  | 2.1                                             |
| cotton and jute raw         | 5.6                  | 8.9                                             |
| fruits and vegetables       | 10.6                 | 10.3                                            |
| other agricultural products | 1.4                  | 0.8                                             |
| provisions                  | 6.8                  | 10.6                                            |
| finished goods              | 2.3                  | 3.5                                             |
| mineral ores                | 0.6                  | 0.5                                             |
| mineral oils                | 5.3                  | 5.0                                             |
| wood and timber             | 4.3                  | 2.7                                             |
| sugar and gur               | 6.7                  | 5.5                                             |
| iron and steel              | 3.7                  | 3.9                                             |
| tobacco                     | 0.7                  | 1.3                                             |
| textiles                    | 4.0                  | 6.5                                             |
| building materials          | 10.5                 | 13.8                                            |
| miscellaneous               | 15.3                 | 15.1                                            |
|                             | 100.0                | 100.0                                           |

The main commodities moved by road were fruits and vegetables, building materials, foodgrains, general provisions, sugar and gur, cotton and jute raw, mineral oils, wood and timber etc. The movements of these goods on the different routes were generally determined by the economic characteristics of the regions in which the survey routes lie. For example, on the routes surveyed, the movement of raw cotton from Amritsar to Delhi and from Delhi to Kanpur was the highest, as cotton is an important cash crop grown in the Punjab and moves down to Delhi and Kanpur where the textile mills are located. Again, because of the location of the refineries, the movement of mineral oils is substantial from Bombay to Nagpur and Bombay to Bangalore.

#### AVERAGE LEAD OF COMMODITIES

19. An important fact revealed by the surveys is that considerable traffic in a number of commodities was going by road for distances over 200 miles (320 kilometres). The nature of commodities having long lead varied from route to route. Textiles, provisions and finished industrial products were the most important commodities having a large share in the relatively long lead traffic by road. On certain routes, however, traffic in commodities like raw cotton, raw jute, sugar and gur also moved over considerable distances. In fact, in the case of all these commodities, movements beyond 300 miles (480 kilometres) formed a substantial proportion of the total movements. In the case of two routes, Bombay-Nagpur and Bombay-Bangalore, for finished goods and textiles, substantial movements were recorded for distances beyond 500 miles (800 kilometres).

## APPENDIX 4

## ROAD TRAFFIC ON SIXTEEN PRINCIPAL ROUTES (1963)

The Ministry of Transport conducted surveys of goods traffic moving by trucks on the following 16 long distance trunk routes in the country between June and November 1963. The main object was to assess the volume and characteristics of inter-city freight traffic moving on principal routes in the country. The surveys were arranged in close cooperation with the State Governments concerned.

1. Varanasi-Lucknow-Bareilly-Garhmukteswar-Saharanpur.
2. Howrah-Durgapur-Barhi-Patna-Varanasi.
3. Varanasi-Allahabad-Kanpur-Bewar/Agra-Delhi-Pipli-Ludhiana.
4. Delhi-Alwar-Jaipur-Ajmer.
5. Agra-Bharatpur-Jaipur.
6. Delhi-Gwalior-Jhansi-Bhopal-Nagpur.
7. Nagpur-Akola-Dhulia-Bombay.
8. Delhi-Gwalior-Bidora-Indore-Dhulia-Bombay.
9. Nagpur-Adilabad-Hyderabad-Vijayawada-Nellore-Madras.
10. Madras-Salem-Cochin.
11. Madras-Bangalore-Mysore-Mangalore.
12. Bombay-Sholapur-Hyderabad-Kurnool-Bangalore-Madras.
13. Bombay-Poona-Bangalore-Madras.
14. Bombay-Surat-Ahmedabad.
15. Howrah-Nagpur.
16. Howrah-Madras.

2. The survey on each route was conducted round the clock for a week. To carry out the survey, a total of 72 checkpoints were established on the 16 routes where goods vehicles were intercepted to collect the necessary information like nature and volume of goods carried, the type and capacity of the vehicles, origin and destination, etc. in a prescribed proforma (vide Annexure I). As the purpose of the survey was to assess the nature of inter-city freight traffic, the information regarding trips having a length of less than 30 kilometres was not collected. Further, the checkpoints were located to the extent practicable outside the built-up urban areas to avoid purely local intra-city traffic.

3. When a truck was intercepted at a checkpoint, it was given a clearance, so that it would not be intercepted on the same trip if it passed through successive checkpoints along the route.

4. At each checkpoint during the one week survey, arrangements were also made to take a complete count of all the vehicles (including animal

drawn vehicles) for a period of 48 hours. These data were separately analysed to give an account of the total quantum of mixed traffic moving along the routes.

5. The 16 routes surveyed mainly came under the category of National Highways. Out of the present length of 15,000 miles (24,000 kilometres) of National Highways, about 8,000 miles were covered in this survey. In addition, about 2,000 miles of State Highways were also surveyed.

6. Information regarding road conditions, weak bridges, road improvements required, etc., was collected from the transport operators as well as the engineers incharge of the roads surveyed. The details regarding difficulties experienced by the transport operators in the region with particular reference to laden weight restrictions, missing bridges, congestion, want of by-passes, etc., were obtained through oral enquiry. Many aspects of traffic on the trunk routes were thus covered and it was expected that the information collected would not only fill up an important gap in the existing traffic statistics, but would also serve as a 'bench mark' for future references.

## PROCESSING OF THE DATA

7. In order to facilitate mechanical tabulation of the data, the entire information collected in the prescribed proforma was coded. For the purpose of coding and further analysis, the commodities carried by the vehicles were classified into major groups, such as products of agriculture, provisions, animal products, etc. Important origin and destination data on the routes were also coded for facilitating tabulation programme. The major portion of the coding was carried out in the field with the help of the recorders provided by the State Governments.

8. The information on each route was first tabulated routewise. On completion of the surveys on all the routes, an overall comparative picture was obtained by suitably collating the basic information obtained on all the different routes.

## BROAD FINDINGS

9. *Traffic intensity.*—The quality of traffic surveys afforded by arterial roads is determined by the interaction of a number of physical and operational factors. Physical factors relate to such things as road width, pavement smoothness, while operational considerations include, among other things, volume and composition of the traffic stream. The enquiries revealed that slow moving traffic was plying along with the fast moving vehicles on all the trunk routes. On many sections of the trunk routes, the average traffic intensity was as high as 10,000 tons per day (vide Annexure II). Even on these stretches the number of slow moving vehicles varied between 100 and 300 per day. The capacity of a road decreases considerably due to the mixed nature of traffic. It is not easy to segregate the slow and fast moving traffic because the cost of segregation is quite heavy.

10. The survey also revealed the extent of under-utilisation of several portions of the trunk routes, specially in Madhya Pradesh, Andhra Pradesh and Orissa. This was primarily because of a large number of missing bridges in these areas in the existing road system hampering steady movement of traffic. Further, in these regions road transport was not fully developed and, therefore, even the existing road net work was not adequately utilised.

11. *Type of commodities carried.*—The movement of commodities on the routes showed two distinct patterns. The commodities like fruits and vegetables, building materials, foodgrains, mineral oils, coal, wood, sugar, fodder, oilseeds and cement were moving within a distance of about 300 kilometres, while provisions, iron and steel products, textiles, machinery, cotton, vegetable oil, medicine and chemicals and other miscellaneous commodities were moving to much longer distances as indicated in the Table below :

Table 1: Types of commodities moved and the average lead

| commodity                        | quantity<br>in tonnes | tonne kilometres<br>performed | average<br>lead in<br>kilometres |
|----------------------------------|-----------------------|-------------------------------|----------------------------------|
| fruits and vegetables . . . . .  | 75,653                | 22,713,366                    | 300                              |
| building materials . . . . .     | 67,797                | 10,181,755                    | 150                              |
| foodgrains . . . . .             | 63,434                | 14,461,171                    | 228                              |
| provisions . . . . .             | 33,944                | 15,867,901                    | 467                              |
| iron and steel . . . . .         | 33,328                | 13,739,406                    | 412                              |
| mineral oils . . . . .           | 32,942                | 8,388,883                     | 255                              |
| coal . . . . .                   | 25,854                | 6,082,291                     | 235                              |
| wood . . . . .                   | 25,247                | 5,699,247                     | 226                              |
| textiles . . . . .               | 25,733                | 16,279,583                    | 633                              |
| sugar . . . . .                  | 19,960                | 5,362,276                     | 269                              |
| machinery . . . . .              | 14,764                | 11,126,931                    | 754                              |
| medicine and chemicals . . . . . | 12,707                | 6,361,504                     | 501                              |
| vegetable oils . . . . .         | 7,657                 | 3,354,492                     | 438                              |
| fodder . . . . .                 | 7,347                 | 1,457,060                     | 198                              |
| cotton . . . . .                 | 6,691                 | 3,910,257                     | 584                              |
| oilseeds . . . . .               | 6,547                 | 1,837,554                     | 281                              |
| cement . . . . .                 | 6,063                 | 1,568,860                     | 260                              |
| others . . . . .                 | 177,989               | 85,330,752                    | 479                              |
| total . . . . .                  | 643,637               | 233,723,309                   | 363                              |

The commodities which were moving to longer distances were generally high rated according to the railway freight structure.

12. The traffic carried up to 500 kilometres constituted more than 80 per cent of the total traffic moving by road on all the routes surveyed. The

traffic moving beyond 1,000 kilometres formed only 6.6 per cent of the total as indicated below :

Table 2: percentage distribution of trips according to length of haulage

| length of haulage<br>kilometres    | percentage |
|------------------------------------|------------|
| upto 50 . . . . .                  | 6.4        |
| more than 50 upto 100 . . . . .    | 11.4       |
| more than 100 upto 200 . . . . .   | 25.6       |
| more than 200 upto 300 . . . . .   | 17.9       |
| more than 300 upto 500 . . . . .   | 19.9       |
| more than 500 upto 700 . . . . .   | 8.8        |
| more than 700 upto 1000 . . . . .  | 3.4        |
| more than 1000 upto 1500 . . . . . | 3.9        |
| 1500 and above . . . . .           | 2.7        |
| total . . . . .                    | 100.0      |

The overall average length of haulage came to about 363 kilometres on all the routes surveyed.

13. *Age distribution of vehicles.*—Proper utilisation of the vehicles on the trunk routes is essential for economic operation. The operators plying on these routes were of the opinion that vehicles up to the age of 3-4 years could effectively carry goods on trunk routes. Thereafter these vehicles should preferably be utilised as feeder transport.

Out of the total vehicles checked, about two-third were less than four years old. About one fourth of vehicles plying on the trunk routes were more than five years old.

Table 3 : Distribution of goods vehicles classified according to year of manufacture

| year of manufacture        | number of<br>vehicles | percentage |
|----------------------------|-----------------------|------------|
| 1953 and earlier . . . . . | 5625                  | 9.6        |
| 1954 . . . . .             | 310                   | 0.5        |
| 1955 . . . . .             | 967                   | 1.7        |
| 1956 . . . . .             | 2894                  | 4.9        |
| 1957 . . . . .             | 4890                  | 8.4        |
| 1958 . . . . .             | 5070                  | 8.7        |
| 1959 . . . . .             | 6232                  | 10.7       |
| 1960 . . . . .             | 9021                  | 15.4       |
| 1961 . . . . .             | 10131                 | 17.3       |
| 1962 and 1963 . . . . .    | 13341                 | 22.8       |
| total . . . . .            | 58481                 | 100.0      |

Due to the existence of a substantial number of over aged vehicles, the service was interrupted on many occasions as breakdowns were frequent. The expenditure on spare parts and maintenance of these vehicles was a real source of trouble for the operator. With the increasing tempo of production of the commercial vehicles in this country, the age distribution of goods

vehicles on the trunk routes would undergo a quick change. This would result in better efficiency and economy.

14. *Capacity of vehicles and popularity of truck trailer combinations.*—In order to reduce the cost of operation of road transport, there had been a pressing demand from various quarters for the introduction of modernised heavy vehicles and combinations. The Tables below give the percentage distribution of public and private carriers by pay load capacity and number of different types of vehicles intercepted during the survey.

Table 4.1 : Percentage distribution of vehicles by pay load capacity

| payload          | public vehicles | private vehicles | total |
|------------------|-----------------|------------------|-------|
| 3 tons and below | 0.7             | 8.7              | 1.1   |
| 3—5 tons         | 2.5             | 11.2             | 3.0   |
| 5—7 tons         | 39.1            | 43.6             | 39.2  |
| 7—9 tons         | 51.5            | 29.9             | 50.5  |
| 9 tons and above | 5.8             | 5.7              | 5.8   |
| not known        | 0.4             | 0.9              | 0.4   |

Table 4.2 : Number of different type of vehicles

| type of vehicle            | number of vehicles |
|----------------------------|--------------------|
| van                        | 687                |
| truck                      | 54,892             |
| truck trailer/semi-trailer | 398                |
| tanker—rigid body          | 2,202              |
| tanker—semi-trailer        | 136                |
| others                     | 166                |
| total                      | 58,481             |

The proportion of vehicles of 7-9 tons pay load was the highest followed by vehicles with pay load of 5-7 tons. The two slabs together explained about 90 per cent of the total. The combinations (truck trailer and semi-trailer) plying on the trunk routes formed hardly one per cent of the total. The position was that while the new bridges on trunk routes were designed to carry the heaviest possible vehicles or tankers (class AA loading) expected to come on the road, there were a large number of old bridges which could not carry such loads. Depending upon the structural conditions of the highway system, restrictions on laden weight became essential. High priority, however, should be given to strengthen/reconstruct the weak structures on the trunk routes so that the load limits might be set at appropriately high levels consistent with highway construction and safety. There is obvious relationship between the cost of transport and the payload which is attainable. Bigger road vehicles should be utilised specially on the trunk routes in the interest of more economical operations as and when conditions permit.

15. *Other features.*—The survey revealed that 95 per cent of the vehicles intercepted were public carriers. It might be interesting to note that the percentage of private carriers to total number of vehicles in the country was about 25. Thus on long distance routes, it was mainly public carriers that were operating and a majority of the private carriers were operating mainly for local or feeder traffic. Further, a major proportion of the vehicles (about 97 per cent) plying on the trunk routes were diesel operated.

16. *Inter-city long distance traffic.*—So far no reliable estimate was available to indicate the share of road transport in inter-city long distance traffic. The survey carried out on the 16 trunk routes revealed, for the first time, that about 6.5 lakh tonnes of goods were moving per week on long distance trunk routes. On the basis of these figures and other supporting studies, the Joint Technical Group placed the estimate of long distance inter-city road traffic in 1962-63 at about 39 million tonnes, out of which 9 million tonnes would relate to coal, iron ore, cement, petroleum products and limestone movements and the balance to other commodities.

## ANNEXURE I

GOVERNMENT OF INDIA

MINISTRY OF TRANSPORT &amp; COMMUNICATIONS

DEPARTMENT OF TRANSPORT

SURVEY OF GOODS TRANSPORT OF ROADS (1963)

- 1 name of the route.....
- 2 location of the check-post.....
- 3 direction of traffic.....
- 4 date.....time.....from.....to.....
- 5 name of the recorder.....
- 6 name of the supervisor.....

| sl. no. | registration no. of vehicle | name and address of the owner | type and make of the vehicle | petrol or diesel driven | year of manufacture | registered laden weight (kg.) | unladen weight (kg.) |
|---------|-----------------------------|-------------------------------|------------------------------|-------------------------|---------------------|-------------------------------|----------------------|
| 1       | 2                           | 3                             | 4                            | 5                       | 6                   | 7                             | 8                    |

| payload (7)-(8) (kg.) | type of permit            |                      | commodity |                | origin-destination of commodities |                    |                    |
|-----------------------|---------------------------|----------------------|-----------|----------------|-----------------------------------|--------------------|--------------------|
|                       | public or private carrier | regular or temporary | type.     | quantity (kg.) | from                              |                    | distance kilometre |
|                       |                           |                      |           |                | place and district                | place and district |                    |
| 9                     | 10                        | 11                   | 12        | 13             | 14                                | 15                 | 16                 |

| origin-destination of the vehicles |                       |                      |    | Remarks |
|------------------------------------|-----------------------|----------------------|----|---------|
| from place and district            | to place and district | distance (kilometre) |    |         |
| 17                                 | 18                    | 19                   | 20 |         |

## ANNEXURE II

STATEMENT SHOWING AVERAGE TRAFFIC INTENSITY IN TONS PER DAY ON DIFFERENT SECTIONS OF IMPORTANT ARTERIAL ROUTES

| National Highway |       | road section            | average intensity tons per day | number of motor vehicles per day |
|------------------|-------|-------------------------|--------------------------------|----------------------------------|
| 1                | NH 1  | Delhi—Panipat           | 14000                          | 2000                             |
| 2                | NH 1  | Panipat—Ludhiana        | 10000                          | 1400                             |
| 3                | NH 2  | Delhi—Faridabad         | 18000                          | 2400                             |
| 4                | NH 2  | Faridabad—Agra          | 10000                          | 1360                             |
| 5                | NH 2  | Agra—Etawah             | 5000                           | 750                              |
| 6                | NH 2  | Etawah—Allahabad        | 4000                           | 500                              |
| 7                | NH 2  | Allahabad—Varanasi      | 2500                           | 350                              |
| 8                | NH 2  | Varanasi—Barhi          | 4000                           | 600                              |
| 9                | NH 2  | Barhi—Topchanchi        | 4500                           | 620                              |
| 10               | NH 2  | Topchanchi—Calcutta     | 13000                          | 2600                             |
| 11               | NH 3  | Agra—Indore             | 3500                           | 650                              |
| 12               | NH 3  | Indore—Nasik            | 5500                           | 400                              |
| 13               | NH 3  | Nasik—Bombay            | 9800                           | 1060                             |
| 14               | NH 4  | Bombay—Panvel           | 13000                          | 1800                             |
| 15               | NH 4  | Panvel—Poona            | 9000                           | 1560                             |
| 16               | NH 4  | Poona—Belgaum           | 8000                           | 1450                             |
| 17               | NH 4  | Belgaum—Bangalore       | 6000                           | 910                              |
| 18               | NH 4  | Bangalore—Ranipet       | 5300                           | 1000                             |
| 19               | NH 4  | Ranipet—Madras          | 14000                          | 2150                             |
| 20               | NH 5  | Madras—Visakhapatnam    | 5000                           | 800                              |
| 21               | NH 5  | Visakhapatnam—Cuttack   | 4000                           | 600                              |
| 22               | NH 5  | Cuttack—Balasore        | 10000                          | 1700                             |
| 23               | NH 5  | Balasore—Baharagora     | 5000                           | 800                              |
| 24               | NH 6  | Dhulia—Jalgaon          | 5500                           | 650                              |
| 25               | NH 6  | Jalgaon—Nagpur          | 2000                           | 260                              |
| 26               | NH 6  | Nagpur—Durg             | 3200                           | 460                              |
| 27               | NH 6  | Durg—Sambalpur          | 4400                           | 750                              |
| 28               | NH 6  | Sambalpur—Calcutta      | 2700                           | 460                              |
| 29               | NH 7  | Benaras—Jabalpore       | N.A.                           |                                  |
| 30               | NH 7  | Jabalpore—Nagpur        | 4000                           | 800                              |
| 31               | NH 7  | Nagpur—Adilabad         | 3300                           | 610                              |
| 32               | NH 7  | Adilabad—Hyderabad      | 2000                           | 300                              |
| 33               | NH 7  | Hyderabad—Bangalore     | 1000                           | 140                              |
| 34               | NH 7  | Bangalore—Krishnagiri   | N.A.                           |                                  |
| 35               | NH 46 | Krishnagiri—Salem       | 9500                           | 1325                             |
| 36               | NH 8  | Bombay—Surat            | 5800                           | 600                              |
| 37               | NH 8  | Surat—Ahmedabad         | 9500                           | 1500                             |
| 38               | NH 8  | Ajmer—Jaipur            | 3500                           | 600                              |
| 39               | NH 9  | Poona—Hyderabad         | 2000                           | 290                              |
| 40               | NH 9  | Hyderabad—Surjapet      | 2100                           | 315                              |
| 41               | NH 9  | Surjapet—Vijayawada     | 5800                           | 785                              |
| 42               | NH 11 | Agra—Jaipur             | 2500                           | 275                              |
| 43               | NH 12 | Bhopal—Jubbulpore       | 1500                           | 175                              |
| 44               | NH 24 | Garhmukteswar—Moradabad | 5400                           | 780                              |
| 45               | NH 24 | Moradabad—Shahjahanpur  | 1600                           | 212                              |
| 46               | NH 24 | Shahjahanpur—Lucknow    | 2400                           | 320                              |
| 47               | NH 25 | Jhansi—Shivpuri         | 1100                           | 135                              |
| 48               | NH 26 | Jhansi—Sagaur           | 1100                           | 150                              |
| 49               | NH 30 | Mahaula—Patna           | 10000                          | 1500                             |
| 50               | NH 30 | Patna—Bakhtiarpur       | 13000                          | 2000                             |
| 51               | NH 31 | Barhi—Bakhtiarpur       | 4500                           | 620                              |
| 52               | NH 46 | Ranipet—Krishnagiri     | 9500                           | 1325                             |
| 53               | NH 47 | Salem—Coimbatore        | 9500                           | 1325                             |
| 54               | NH 47 | Coimbatore—Cochin       | 7500                           | 1180                             |

## APPENDIX 5

## ESTIMATES OF ROAD TRAFFIC 1962-63 AND 1970-71.

The Joint Technical Group on Transport Planning prepared a detailed paper in January 1965 on 'Estimated volume of originating goods traffic by road at the end of the Fourth Plan.' The paper formulated traffic estimates for the following categories :—

- (i) Inter-city traffic by road in iron ore, limestone, cement, petroleum products and coal.
- (ii) Inter-city traffic by road in other commodities.
- (iii) Intra-city traffic (including feeder traffic).

The salient points brought out in the paper are summarised in the following paragraphs :

INTER-CITY TRAFFIC BY ROAD IN IRON ORE, LIMESTONE,  
CEMENT, PETROLEUM PRODUCTS AND COAL

2. The estimates for the above categories of traffic have been arrived at on the following basis :

- (i) The figures for 1962-63 are based on actual movements and have been collected either direct from originating points or from agencies who had collected this information.
- (ii) The projections for 1970-71 have been made on the basis of data obtained from the Ministries/Departments concerned and taking into account the thinking in the concerned Ministries.
- (iii) The traffic estimates exclude :
  - (a) road movement from mines and quarries to rail-heads for onward despatch, and
  - (b) secondary movements from the major destinations to ultimate points of consumption.

Commoditywise estimates of traffic are set out below :

3. *Iron Ore.*—In 1962-63, the road movements of iron ore aggregated to 0.82 million originating tonnes. These movements took place from the Bellary-Hospet and other iron ore mining areas and in the southern and the western parts of the country to ports and were meant for exports. These exclude movement of about 0.34 million tonnes from Bellary-Hospet to Karwar by the rail-cum-road route via Hubli and a small movement of about 13,000 tonnes per year from Holiyuru to Bhadravati Steel Works.

In 1970-71, the only all road movement will be about 2 million tonnes from Tomka Daitari mining area to the new port of Paradeep by the express highway. The 150 kilometres long express highway is being specially built for the purpose. Further, by 1970-71, the present rail-cum-road movement of 0.34 million originating tonnes to Karwar via Hubli will increase to 0.5 million tonnes.

4. *Limestone.*—In 1962-63, the road movement in limestone was about 2.23 million tonnes and took place between limestone quarries and 8 cement factories. The distance from quarries to the cement factories was less than 10 kilometres in seven cases and about 12 kilometres in one case.

The rest of the movement to other cement factories and to the steel plants was by rail. In 1970-71, the road movement in limestone is expected to increase to about 9.68 million tonnes originating. All this movement will be from limestone quarries to 23 cement factories over short distances, the distance from the source of supply to factories being 23 kilometres in one case, 16 kilometres in three cases, 13 kilometres in one case and less than 10 kilometres for the rest. The rest of the movement will be by rail.

5. *Cement.*—In 1962-63 the road movement of cement from the then existing 34 factories, with a production level of about 8 million tonnes, was about 2 million tonnes.

In 1970-71 the aggregate movement by road from 71 cement factories which would come up with an anticipated production level of 20 to 23 million tonnes, is assessed at about 6 million originating tonnes. This estimate has been arrived at by the Joint Technical Group in consultation with the State Trading Corporation (who are the distributing agents for this commodity) by detailed linking of the cement factories with major points of consumption and on the broad principle that movements up to a distance of 150 kilometres will, by and large, be effected by road and beyond this distance by rail.

It may be of interest to note that the increase in the road movements of cement from 2 million tonnes in 1962-63 to 6 million tonnes in 1970-71, as worked out by the Joint Technical Group is proportionate to the anticipated increase in the production level of the commodity from 8 million to 20-23 million tonnes during this period. This estimate of road movement of cement in 1970-71 would, however, appear to be on the conservative side in view of the progressive increase in the share of road transport vis-a-vis rail transport in relation to this commodity in recent years—from 13.8 per cent to 1960 to 17.4 per cent in 1961 and 22.5 per cent in 1962. This is also a commodity of which sizeable movements over distances beyond 150 to 200 kilometres are taking place by road (the proportion of road movement of cement over 200 kilometres to total road movements was calculated in a previous study of cement by the Joint Technical Group at a figure of 17 per cent in 1962-63).

6. *Petroleum products*.—In 1962-63 the primary road movements of petroleum products (movements from sources of production and points of imports) were assessed at a figure of 1 million originating tonnes. This estimate was arrived at from a study of the data thrown up by the road transport surveys organised in 1963 by the Ministry of Transport.

In 1970-71 the primary road movements in petroleum products are expected to increase to a level of 2.5 million tonnes originating. This estimate has been arrived at through an exercise in commodity transport study of petroleum products in which an attempt was made to link the sources of supply (ports, refineries, tapping points on pipelines) to centres of consumption and to divide the traffic between rail and road on the general assumption that movements up to a distance limit of 150 kilometres will be by road and beyond this distance by rail.

7. *Coal*.—The road movements of coal from coalfields in 1962-63 aggregated to about 3.5 million tonnes. The break-up of this movement is given below :

|                                                                                                                                                                                                                               | [million tonnes.] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| (i) From Bengal-Bihar coalfields to coke oven plants, power houses, paper and cement mills etc.<br>This traffic moves over short distances upto about 40 kilometres, the consumption centres being located in the coalfields. | 2                 |
| (ii) From Bengal-Bihar coalfields to mainly brick kilns in the Calcutta area.<br>This traffic moves over somewhat longer distances; but the range is upto about 150 kilometres and in a few cases about 200 kilometres.       | 1                 |
| (iii) From outlying coalfields (Singareni, Pench Valley and Korba) to power houses over short distances.                                                                                                                      | 0.44              |
| total                                                                                                                                                                                                                         | 3.44              |

In 1970-71, the primary road movement in coal is estimated to go upto a level of about 8.5 million tonnes; the break-down is given below :

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | [million tonnes.] |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| (i) From Bengal-Bihar coalfields to consumers.                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                 |
| Although in Fourth Plan coal movements by road to the Bokaro, Durgapur (West Bengal) and Durgapur (DVC) power houses, amounting to 0.7 million tonnes, will be diverted to aerialways and belt conveyors, an increase in movement for other consumers in the coalfields cannot be ruled out. The overall total of road movements from these coalfields may not, therefore, decline; an <i>ad hoc</i> estimation at the existing level of 2 million tonnes is thus made. |                   |

|                                                         | [million tonnes.] |
|---------------------------------------------------------|-------------------|
| (ii) From Bengal-Bihar coalfields to the Calcutta area. | 2                 |

The movement to brick kilns in the Calcutta area is apparently more suited to the road sector, firstly on account of a relatively short haul and, secondly since most of the kilns are in the interior and so more easily reached by road transport. A number of movements are furthermore for less than a wagon load. These road movements also seem to have been promoted due to difficulty in obtaining railway wagons for this priority traffic. The easy rail transport position now prevailing, which is likely to continue, may prompt some diversion to rail. On the other hand, the freedom given to consumers, as a result of the recent relaxation in the Coal Control Order, to select the mode of transport may increase the demand for road transport. It is reasonable to assume that the demand of brick kilns in the Calcutta area for coal will progressively grow in the wake of developmental activity. In all these circumstances, a 100 per cent increase in road hauls of coal from Bengal-Bihar coalfields to the Calcutta area is assumed.

|                                                 |     |
|-------------------------------------------------|-----|
| (iii) From outlying coalfields to power houses. | 4.5 |
|-------------------------------------------------|-----|

These will be new movements over short distances to power houses to be located in the coalfields concerned.

The estimate is derived from the data furnished by the Ministry of Steel and Mines and the Central Water and Power Commission.

|       |     |
|-------|-----|
| total | 8.5 |
|-------|-----|

8. The following Table summarises the position in respect of the five bulk commodities discussed in the foregoing paragraphs :

Table:—1 Road traffic estimates

| commodity          | (million tonnes originating) |         |
|--------------------|------------------------------|---------|
|                    | 1962-63                      | 1970-71 |
| iron ore           | 0.82                         | 2.00    |
| limestone          | 2.23                         | 9.68    |
| cement             | 2.00                         | 6.00    |
| petroleum Products | 1.00                         | 2.50    |
| coal               | 3.44                         | 8.50    |
| total              | 9.49                         | 28.68   |
| (in round figures) | 9.00                         | 29.00   |

## INTER-CITY TRAFFIC BY ROAD IN OTHER COMMODITIES

9. The inter-city road movement in 1962-63 in commodities other than the five mentioned above was estimated on the basis of data drawn from the traffic surveys carried out by the Ministry of Transport on 16 trunk routes during 1963, which covered about 20 per cent of the total mileage of National and State Highways.

10. Keeping in view factors like duplication of recording, etc., the annual volume of traffic moving on the 16 trunk routes was estimated at 24 million tonnes excluding the five commodities mentioned above. Assuming that 20 per cent of the important trunk routes carry about 75 per cent of the long distance inter-city traffic, the total inter-city traffic in 1962-63 worked out to 32 million tonnes and was placed at a round figure of 30 million tonnes. The estimate of long distance inter-city traffic in 1970-71 is given below :

(i) The Committee on Transport Policy and Coordination carried out in 1959-61 traffic surveys on 6 long distance trunk routes. In 1963, the Ministry of Transport carried out similar surveys on 16 trunk routes. Comparable survey data are available for four routes common to the surveys in 1959 and 1963, namely Calcutta-Patna, Kanpur-Amritsar, Bombay-Bangalore, Bangalore-Madras. Annexure I gives the details of movement of road traffic between 18 important pairs of points on the four routes mentioned above. It would be seen that during a period of four years, from 1959 to 1963, the traffic increased generally by about 75 per cent. On the assumption that during the next two 4-year periods, namely, 1963-67 and 1967-71, the increase of traffic would be in the same proportion, the long distance inter-city traffic in 1971 is placed at about 90 million tonnes. The calculations are furnished in Annexure I.

(ii) The growth of traffic has also been estimated from another angle. As stated earlier, traffic counts were taken at important check posts on 16 trunk routes by the Ministry of Transport in 1963. Similarly, traffic counts were made during 1957-61 by the Public Works Departments in the States of Uttar Pradesh, Punjab, Maharashtra, Madras, Kerala, Gujarat and Rajasthan. The details of the traffic intensity in tonnes per day obtained from traffic counts are shown in Annexure II. The traffic intensity figures given in this annexure indicate that during the last four years, the overall traffic increase works out to about the same figure as revealed by the examination of the point to point movements, vide Annexure I.

11. The traffic survey carried out on the long distance trunk routes in 1963 indicated that the average lead of road traffic in commodities other than the five bulk commodities discussed in detail in this note, and excluding traffic up to a distance of 30 kilometres was about 375 kilometres. A number of commodities was moving to relatively longer distances; machinery, textiles, cotton, medicine and chemical and provisions were moving

by road to an average distance of about 750, 630, 585, 500 and 470 kilometres respectively.

12. As regards the estimated increase of traffic to about three times in 1970-71, it would be of interest to note that the Perspective Planning Division of the Planning Commission in a separate exercise<sup>1</sup> have estimated that the index of growth of goods traffic by modes of transport other than railways will stand at about 356 in 1970-71 with 1960-61 as base. This would appear to endorse the tentative conclusions arrived above.

## INTRA-CITY TRAFFIC (INCLUDING FEEDER TRAFFIC) BY ROAD

13. The following three kinds of traffic are included in the estimation of intra-city and feeder traffic by road :

- (i) Traffic moving within a city and its hinterland.
- (ii) Traffic moving from the mining areas/quarries/factories to the rail heads.
- (iii) Traffic moving from the rail heads to consumption centres.  
The traffic hauls would normally be limited to a lead not exceeding 30 kilometres.

14. The detailed data relating to the numerous intra-city and feeder traffic movements are not available. The following findings of separate exercises were made use of to arrive at the estimates of this traffic :

- (i) On the basis of the traffic surveys carried out by the Ministry of Transport in 1963, it is estimated that roughly about 50,000 vehicles were engaged in inter-city traffic in the country. The total number of goods vehicles plying on road in the year was about 2 lakhs. Thus the approximate number of goods vehicles engaged on intra-city and feeder traffic is placed at a figure of 150,000.
- (ii) The goods traffic surveys carried out by the Ministry of Transport and the Transport Departments of the State Governments in the cities of Delhi, Gwalior, Rewa, Seoni, Ujjain and Patna between 1957 and 1961 indicate that the annual utilisation of the vehicles engaged in intra-city traffic was about 30,000 Kms.<sup>2</sup>
- (iii) The effective pay load of these vehicles was found to be 2 to 3 tonnes only : these vehicles mostly performed empty return trips.

<sup>1</sup> Notes on Perspective of Development—India: 1960-61 to 1975-76.

<sup>2</sup> Out of the total of 1,50,000 vehicles engaged in intra-city and feeder traffic, some will, no doubt, be idle for various reasons, like periodical and other repairs, want of spare parts, non-availability of permits and certificate of fitness, etc. These vehicles have not been excluded from the total number, i.e., 1,50,000. The extent of their idleness has, however, been taken into account in the annual vehicle utilisation which is of the order of 30,000 kilometres per vehicle per year.

On the basis of the above information, the total intra-city and feeder traffic in 1962-63 is estimated at approximately 11,000<sup>1</sup> million tonnes kilometres.

15. The traffic surveys carried out in Delhi, Gwalior, Rewa etc. also indicated that the age of the vehicles engaged in intra-city and feeder traffic was varying between 5 and 15 years. It is thus presumed that a substantial portion of the goods vehicles manufactured between 1955 and 1965 would be employed on feeder and intra-city traffic in 1970-71. On this basis, the total number of old vehicles, likely to remain engaged in intra-city and feeder traffic in 1970-71 is placed at about 350,000<sup>2</sup>. In addition, about 60,000<sup>3</sup> light vehicles to be manufactured during Fourth Plan are also likely to be engaged on feeder traffic. The effective pay load of these medium and light vehicles is reckoned at 2.5 and 0.5 tonnes, respectively. Assuming that the annual vehicle utilisation of both these types of vehicles in 1970-71 will also be of the order of 30,000 kilometres, the total intra-city and feeder traffic in 1970-71 is estimated to be of the order of 27,200<sup>4</sup> million tonne kilometres.

1  $1,50,000 \times 30,000 \times 2.5 = 11,000$  million tonne Kms. (approximately).

2 Figures relating to production and import of goods vehicles are published by the Ministry of Transport in their Basic Road Statistics. On the basis of these figures, the average production, (including import if any,) of goods vehicles per year during 1955 to 1965 can be placed at 30,000 units. Thus, roughly 3,00,000 vehicles (i.e.  $30,000 \times 10$ ) will be available for intra-city traffic on this account. In addition, aged vehicles from defence side are also made available from time to time for civilian use. Assuming the take over of these vehicles at 50,000, the total number of vehicles for intra-city and feeder traffic in 1970-71 has been kept at an approximate figure of 3,50,000.

3 According to the Working Group on Transport Equipment, the present production of 3,000 light vehicles per year is expected to rise to about 25,000 in 1970-71. On the average, the production of 12,000 light vehicles per year during the Fourth Plan may be envisaged.

4  $3,50,000 \times 30,000 \times 2.5 + 60,000 \times 30,000 \times 0.5 = 27,200$  million (approximately)

## ANNEXURE I

Statement showing the quantities of goods carried by road between important pairs of points as revealed in the surveys conducted by the Committee on Transport Policy and Coordination (1959), and the Ministry of Transport (1963)

| pairs of points                       | traffic per week (Tonnes) |                                     |
|---------------------------------------|---------------------------|-------------------------------------|
|                                       | C.T.P.C. Survey (1959)    | Ministry of Transport survey (1963) |
| Madras-Bangalore                      | 1,354                     | 3,003                               |
| Bangalore-Madras                      | 1,150                     | 1,414                               |
| Madras-Vellore                        | 593                       | 1,202                               |
| Vellore-Madras                        | 390                       | 716                                 |
| Bombay-Kolhapur                       | 1,053                     | 1,062                               |
| Kolhapur-Bombay                       | 697                       | 1,081                               |
| Bombay-Sholapur                       | 1,225                     | 1,559                               |
| Sholapur-Bombay                       | 774                       | 1,198                               |
| Bombay-Bangalore                      | 1,222                     | 3,671                               |
| Bangalore-Bombay                      | 1,309                     | 2,894                               |
| Calcutta-Asansol                      | 1,099                     | 3,165                               |
| Asansol-Calcutta                      | 720                       | 3,763                               |
| Calcutta-Raniganj                     | 687                       | 1,105                               |
| Raniganj-Calcutta                     | 3,898                     | 5,675                               |
| Delhi-Kanpur                          | 605                       | 1,417                               |
| Kanpur-Delhi                          | 1,261                     | 1,189                               |
| Delhi-Amritsar                        | 1,135                     | 1,458                               |
| Amritsar-Delhi                        | 1,315                     | 936                                 |
| total of 18 point-to-point movement : | 20,487                    | 36,508                              |
| percentage increase in 1963 over 1959 |                           | 75                                  |

On the assumption that during the next two 4 year periods the increase would be in the same proportion as for 1959-63 period, the inter-city traffic in 1971 will be approximately—

$$\frac{1963 \text{ traffic}}{1959 \text{ traffic}} = \frac{1967 \text{ traffic}}{1963 \text{ traffic}} = \frac{1971 \text{ traffic}}{1967 \text{ traffic}} = 1.75 \text{ i.e.}$$

$$30 \text{ million tonnes (in 1963)} \times (1.75)^2 = 30 \times 3.06 = \text{about } 90 \text{ million tonnes.}$$

## ANNEXURE II

Traffic intensity on trunk roads

route 1—*Varanasi—Saharanpur*

| name of the checkpost   | traffic intensity in tonnes per day |        |
|-------------------------|-------------------------------------|--------|
|                         | (1957)                              | (1963) |
| Varanasi . . . . .      | 550                                 | 2,435  |
| Lucknow . . . . .       | 840                                 | 2,361  |
| Bareilly . . . . .      | 1,170                               | 1,650  |
| Garmukhteswar . . . . . | 850                                 | 5,376  |
| Saharanpur . . . . .    | 3,322                               | 5,890  |
| total . . . . .         | 6,732                               | 17,712 |

route 2—*Varanasi—Ludhiana*

|                     |        |        |
|---------------------|--------|--------|
| Varanasi . . . . .  | 1,372  | 2,194  |
| Allahabad . . . . . | 1,895  | 3,201  |
| Kanpur . . . . .    | 4,087  | 4,182  |
| Bewar . . . . .     | 1,272  | 3,135  |
| Agra . . . . .      | 2,160  | 6,448  |
| Pipli . . . . .     | 7,008  | 9,728  |
| Ludhiana . . . . .  | 5,544  | 10,864 |
| total . . . . .     | 23,338 | 39,752 |

route 3—*Delhi—Jaipur—Ajmer*

|                  | (1960) | (1963) |
|------------------|--------|--------|
| Jaipur . . . . . | 1,620  | 5,067  |

route 4—*Agra—Bharatpur—Jaipur*

|                  | (1957) | (1963) |
|------------------|--------|--------|
| Agra . . . . .   | 630    | 1,589  |
| Jaipur . . . . . | 2,457  | 2,432  |
| total . . . . .  | 3,087  | 4,021  |

route 5—*Nagpur—Bombay*

|                                                  | (1959-60) | (1963) |
|--------------------------------------------------|-----------|--------|
| Nagpur . . . . .                                 | 1,300     | 2,067  |
| Akola . . . . .                                  | 132       | 1,868  |
| Dhulia . . . . .                                 | 2,100     | 5,501  |
| Bombay (beyond Bhawani towards Dhulia) . . . . . | 8,035     | 8,791  |
| total . . . . .                                  | 13,567    | 18,227 |

## ANNEXURE II—(contd.)

name of the checkpost traffic intensity in tonnes per day

route 6—*Madras-Bangalore*

|                     | (1960) | (1963) |
|---------------------|--------|--------|
| Madras . . . . .    | 13,427 | 14,874 |
| Bangalore . . . . . | 4,250  | 5,291  |
| Mysore . . . . .    | 3,570  | 5,607  |
| Mangalore . . . . . | 2,064  | 2,092  |
| total . . . . .     | 23,320 | 27,867 |

route 7—*Madras-Cochin*

|                  | (1961) | (1963) |
|------------------|--------|--------|
| Salem . . . . .  | 7,149  | 9,505  |
| Cochin . . . . . | 3,055  | 7,573  |
| total . . . . .  | 10,204 | 17,078 |

route 8—*Bombay-Bangalore*

|                                                  | (1959-60) | (1963) |
|--------------------------------------------------|-----------|--------|
| Bombay (beyond Bhiwandi towards Poona) . . . . . | 9,709     | 13,876 |
| Poona . . . . .                                  | 6,973     | 8,961  |
| Bangalore . . . . .                              | 4,497     | 5,888  |
| total . . . . .                                  | 21,179    | 28,728 |

route 9—*Bombay-Ahmedabad*

|                                                  | (1959-60) | (1963) |
|--------------------------------------------------|-----------|--------|
| Bombay (beyond Bhiwandi towards Surat) . . . . . | 1,961     | 5,763  |
| Surat . . . . .                                  | 3,707     | 3,913  |
| Baroda . . . . .                                 | 1,238     | 9,687  |
| Ahmedabad . . . . .                              | 2,658     | 9,591  |
| total . . . . .                                  | 9,567     | 28,954 |

NOTE : Since no traffic counts were made in the States of West Bengal, Bihar, Orissa, Madhya Pradesh, similar data on routes in these States are not available.

The total of the counts made at the various check-posts in 1957 on routes Nos. 1, 2 and 4 work out to 33,157 tonnes. As against this, the total at these check-posts in 1963 was 61,485 tonnes, thereby indicating an increase of 28,328 tonnes i.e., an approximate increase of 90 per cent in 6 years. In other words, the average annual increase from 1957 to 1963 was at the rate of 15 per cent.

The totals of the counts at all the check-posts in 1960 and 1963 work out to 78,457 and 1,25,921 tonnes respectively, indicating an increase of 47,464 tonnes during a period of about 3 years. The average annual rate of increase works out to 20 per cent.

In the light of these trends, the rate of increase of road traffic is placed at 70 to 75 per cent in the 4-year period from 1959 to 1963—the same as indicated by another approach vide Annexure I.

## APPENDIX 6

LICENSING POLICIES FOR ROAD TRANSPORT IN THE STATES<sup>1</sup>

According to Section 44 of the Motor Vehicles Act, 1939 (as amended in 1956), each State Government is required to constitute a State Transport Authority for the entire State and Regional Transport Authorities for different regions in the State. It is also laid down that "the area specified as the region of a Regional Transport Authority shall in no case be less than an entire district, or the whole area of a Presidency town." The State Transport Authority is expected to coordinate and regulate the activities of the Regional Transport Authorities and to perform such other functions as may be prescribed. A Regional Transport Authority is empowered to grant permits and countersignatures for all types of transport vehicles.

## SIZE OF A REGION

2. The size of a region varies from State to State. It is coextensive with a Revenue District in the States of Assam, West Bengal (except Presidency town of Calcutta and 24 Parganas which together constitute a region), Orissa, Andhra Pradesh, Madras (except city of Madras which itself is a region), Mysore and Kerala. It is coterminous with a Revenue Division in Maharashtra (except Bombay region which covers Greater Bombay area only), Punjab, Madhya Pradesh and Bihar. In Gujarat, the State territory has been divided into two regions, one comprising of ten and the other of seven revenue districts. Uttar Pradesh and Rajasthan have been divided into 9 and 5 regions respectively; each region consisting of 3 or more districts according to administrative convenience.

## COMPOSITION OF STATE TRANSPORT AUTHORITIES AND REGIONAL TRANSPORT AUTHORITIES

3. The number of members constituting the State Transport Authority and Regional Transport Authorities varies from State to State. The highest number is in the State of Bihar where the State Transport Authority and the Regional Transport Authorities consist of 10 official and 10 non-official members each. The Government of Madhya Pradesh has a single member Regional Transport Authority in each region. In Madras State, the State Transport Authority and Regional Transport Authorities are single-member bodies.

<sup>1</sup> This is summary of a paper prepared by the C.T.P.C. Secretariat in April, 1963 setting out the factual material on licensing policies in the States.

## JUDICIAL EXPERIENCE REQUIRED FOR THE CHAIRMAN OF THE TRANSPORT AUTHORITIES

4. The law requires that "a State Transport Authority and the Regional Transport Authority shall consist of a Chairman who has had judicial experience". State Governments have generally interpreted 'judicial experience' to mean experience gained by an officer in a judicial post as a judge or magistrate. Accordingly, the post of Chairman, State Transport Authority is held by the Transport Commissioner in Andhra Pradesh, Madhya Pradesh, Mysore, Uttar Pradesh and West Bengal; Deputy Transport Commissioner in Madras; Member, Board of Revenue, in Bihar, Kerala and Orissa; Secretary, Central Public Works Department in Gujarat; Secretary, Agriculture and Forest Department in Maharashtra; Secretary, Irrigation and Power, in the Punjab; and Secretary, Law Department, in Rajasthan.

5. The Chairman of the Regional Transport Authority is generally a Commissioner of a Division or a District Magistrate according to the size of the region. This position is filled by the Divisional Commissioner in Bihar, Gujarat, Maharashtra, Punjab and Uttar Pradesh; Member, Board of Revenue in Rajasthan; the Collector in Andhra Pradesh, Madras and Kerala; an Additional District Magistrate in Mysore; and District Magistrate in Orissa and West Bengal.

## APPELLATE AUTHORITIES

6. Under Section 64 of the Motor Vehicles Act, the right of appeal has been granted to persons aggrieved by the order of the Transport Authorities in respect of matters enumerated therein, including refusal of permits. Various State Governments have set up appellate authorities for the purpose of hearing appeals.

## INTRA-STATE OPERATION OF VEHICLES

7. According to the Motor Vehicles Act, a regular permit granted by a Regional Transport Authority shall not be valid in any other region unless the permit has been countersigned by the Regional Transport Authority of the other region. For the issue of intra-regional regular permits, Regional Transport Authorities are required to follow the prescribed procedure of inviting and hearing representations. The same procedure has to be followed for the grant of countersignatures for inter-regional operations. A State Government may, however, make rules according to which a permit granted in one region shall be valid for another region within the State without countersignatures. The position in regard to issue of permits for intra-State operations in the various States is given below :

8. *Andhra Pradesh*.—Regional Transport Authorities issue primary public carrier permits for any 6 contiguous districts, including the home

district; at the option of the operator or for the entire Telangana Area as one zone without having to obtain countersignatures from the other Regional Transport Authorities. Stage carriage permits are issued on particular and specified routes. Private carrier permits are granted by Regional Transport Authorities after satisfying themselves about the business interest of the applicant in the area and the commodities required to be carried for which the application is made. These private carrier permits are also made valid for more than one region by the home Regional Transport Authorities at the time of the first sanction, with the prior concurrence of State Transport Authority as required under the proviso to Section 63(1) of the Motor Vehicles Act.

Regional Transport Authorities are empowered, subject to the provisions of Section 45 of the Motor Vehicles Act, 1939, to grant permits valid in any other region or regions without the need of countersignatures of Regional Transport Authorities concerned in other region or regions. Extension of validity of public carrier permits is granted by the State Transport Authority for five straight routes, each not exceeding 450 miles on trunk roads with five touching stations for each route situated at a distance not exceeding 30 miles from the nearest point on the trunk route road. The choice of routes is left to the operators. Inter-regional permits for stage carriages are issued by the home Regional Transport Authority with the previous concurrence of the other Regional Transport Authorities. Permit holders of private carriers, after obtaining permits from the home district, generally can approach the State Transport Authority for extensions as that would be advantageous to them in securing larger area of operation.

9. *Bihar*.—Permits for all types of vehicles (public carrier, stage carriages, private carriers etc.) are granted region-wise by the respective Regional Transport Authorities. Primary permits for public carriers, which are issued by the Regional Transport Authorities for the region, can be got countersigned by the State Transport Authority for operations in the whole of the State of Bihar, subject to road conditions, after going through the procedure of inviting and hearing representations as laid down in Section 63 of the Motor Vehicles Act. Private carrier permits are issued taking into account the size of the business concern seeking such a permit.

10. *Gujarat*.—Public carrier permits are generally issued for operation in a region and are valid for a period of five years. In the case of stage carriage permits, the preference has been given to a nationalised undertaking whenever such an undertaking is an applicant. The provisions of sub-Section 3 of Section 63 of the Motor Vehicles Act, 1939 are being followed with regard to countersignature of permits. Private carrier permits are granted almost automatically after verifying the bonafides of the applicants and are issued for a period of five years.

11. *Kerala*.—Regional Transport Authorities issue public carrier and stage carriage permits for operation within the region. The procedure of inviting and hearing representations as laid down in the Act is duly followed. In granting countersignatures in inter-regional operations, the procedure as laid down in Section 63 of the Motor Vehicles Act is followed. As regards public carriers, counter-signatures for routes extending over two or more regions is granted by the State Transport Authority and the permit can thus be made valid for operations throughout the State. The State Transport Authority assumes original jurisdiction for stage carriages in respect of routes covering more than two regions or exceeding 75 miles. Permits for routes lying within two regions of the State, the distance between which does not exceed 75 miles, are issued by the Regional Transport Authority within whose jurisdiction the major portion of the route lies and are subsequently countersigned by the other Regional Transport Authorities concerned. As regards private carriers, with the general approval of State Transport Authority, the Regional Transport Authority within whose jurisdiction the private carrier resides or conducts his business, issues inter-regional permits (Statewise, if necessary) after ascertaining the requirements of the private carrier.

12. *Madhya Pradesh*.—As a result of directions from the State Transport Authority and the State Government, Regional Transport Authorities fix ceilings on routes as provided under Section 47(3) of the Motor Vehicles Act. As regards public carriers, permits are granted to whosoever produces a serviceable vehicle. With effect from November 1, 1962, permits to public carriers are granted for the entire State by Regional Transport Authorities. The original Regional Transport Authority can grant counter-signatures for operation of goods vehicles in other region or regions after following the prescribed procedure of inviting and hearing representations as provided in Section 63(3) of the Motor Vehicles Act.

13. *Madras*.—In Madras, primary permits are granted after following the prescribed procedure under Section 57 of the Motor Vehicles Act. As regards grant of stage carriage permits, the State Government has laid down certain principles which classify bus routes covering less than 15 miles as short routes, routes covering 15 to 75 miles as medium routes, and routes covering more than 75 miles as long routes. Preference is given to new entrants for short routes/shuttle services and to applicants with one to four buses (excluding spare buses) for medium routes. Public carrier permits are granted by Regional Transport Authorities with State-wide validity.

14. *Maharashtra*.—Stage carriage and public carrier permits are issued by the Regional Transport Authorities for the whole of the area for which they have jurisdiction after following the procedure of publication and inviting and hearing objections. In the grant of stage carriage permits preference is given to the nationalised undertaking wherever it is one of the applicants for the permit.

As regards the extension of area of validity of permits, the original transport authority which issues a permit other than a stage carriage permit may, subject to the provisions of Section 63 of the Act, extend the effect of the permit to any other region within the State, provided that the vehicles to which the permit refers are normally kept within the region of the original transport authority. The original transport authority may issue a permit having validity in another region in accordance with any general or special resolution recorded by any other Regional Transport Authority. Inter-regional movement of goods is facilitated through countersignatures of permits issued by other Regional Transport Authorities.

15. *Mysore*.—Stage carriage permits are issued by Regional Transport Authorities routewise in accordance with the provisions of Section 47 of the Motor Vehicles Act. Public carrier permits are issued by Regional Transport Authorities who take into consideration factors enumerated in Sections 54 and 55 of the Motor Vehicles Act. In issuing public carrier permits, parking facilities in towns and cities are also taken into account.

As regards inter-regional operation of goods vehicles, separate rules have been framed by the State Government for the grant of permits without countersignatures. Thus, by a notification, the State Government has authorised the Regional Transport Authority of any region to issue a permit to be valid in any region or regions without the countersignatures of the other Regional Transport Authority or the Regional Transport Authorities concerned, whose concurrence has to be obtained before issuing such a permit.

16. *Orissa*.—Regular intra-regional permits are issued by Regional Transport Authorities according to the procedure laid down in the Motor Vehicles Act. As regards inter-regional operations, the procedure as laid down in Section 63 of the Motor Vehicles Act for grant of countersignatures is followed. The State Transport Authority exercises jurisdiction over the grant of permanent permits for more than one region in the State.

17. *Punjab*.—Permits for stage carriages and public carriers are valid for a region after following the procedure as laid down in Section 57 of the Motor Vehicles Act. As regards stage carriages, in the Ambala and Jullundur regions, the Punjab Government has adopted a scheme for sharing permits on 50 : 50 basis between the State Transport Undertaking and private operators. In the former Pepsu area, the policy of hundred per cent nationalisation of stage carriage operation has been adopted. If the route for which a stage carriage permit is required extends beyond the home region, the concurrence of the Regional Transport Authority of the other region concerned is obtained by the Regional Transport Authority of the home region before issuing the basic permit. If, at a later stage, it is desired by the operator to extend the route from the home region to any other region, the procedure, as laid down in the law for the grant of countersignature to a permit, namely, of publication and inviting and hearing objections, is followed. As regards public carriers, an operator who wishes

to have a permit valid for the whole State (which comprises three regions) may have such a permit (except for roads in hilly areas) from the Regional Transport Authority which issues the basic permit itself, on payment of countersignature fee for two regions other than the one for which he holds the basic permit. By an amendment of the Motor Vehicles Act applicable to the State, licensing powers given to Regional Transport Authorities under the Motor Vehicles Act are vested in the State Transport Commissioner.

18. *Rajasthan*.—Permits are granted by Regional Transport Authorities for a region after following the procedure laid down in the Act, countersignatures for operations of vehicles in other regions are granted under the procedure laid down in Section 63 of the Motor Vehicles Act.

As regards public carriers, the Regional Transport Authority of the home region can grant permits for operations on a fixed route in any one region or for operations throughout the State after obtaining the general concurrence of the other Regional Transport Authorities concerned. The operator has to obtain countersignatures from the other concerned Regional Transport Authorities. These are granted automatically.

19. *Uttar Pradesh*.—While granting stage carriage and public carrier permits preference is given to a viable unit which means an operator having not less than 20 transport vehicles. Public carrier permits are granted for an operational area of 150 miles radius from the base of operation or for a route not exceeding 300 miles without restriction even though the area may fall in one or more regions. For public carrier permits exceeding these limits, the Regional Transport Authority has to obtain the approval of the State Transport Authority.

The provisions of Section 63(3) of the Motor Vehicles Act are being followed with regard to the countersignature of permits. Under Section 64 of the Uttar Pradesh Motor Vehicles Rules, the Regional Transport Authority which issues a permit other than a stage carriage or a casual contract carriage permit, may extend the operation of the permit to any other region within the State, provided always that the vehicles to which the permit refers may normally be kept within the region of the original transport authority.

20. *West Bengal*.—Permits for stage carriages or public carriers are granted by Regional Transport Authorities for operation within the region after following the procedure laid down in Section 53 of the Motor Vehicles Act. West Bengal Motor Vehicles Rules provide that an original transport authority may issue a public carrier permit "having validity in any other region in the State in accordance with any general or special resolution recorded by any other regional authority", provided that the vehicles to which the permit refers are normally kept within the region of the original transport authority. In view of the large number of applications received for the grant of countersignatures of permits, Regional Transport Authorities and the State Transport Authority take recourse to Rule 63 of the

Bombay Motor Vehicles Rules and allow extensions of permits to other regions, normally only for short durations. The State Transport Authority grants regular permits for particular long distance intra-State routes which may cover several regions, the procedure for issue of these permits being the same as that for other primary permits.

Private carrier permits are granted on completion of the necessary enquiries. Their validity is extended in the manner indicated above for public carriers.

#### INTER-STATE OPERATIONS OF VEHICLES

21. State Governments have entered into reciprocal agreements with neighbouring States and, in a few cases with non-adjointing States as well, in regard to inter-State operations of motor vehicles. The number of permits to be countersigned for inter-State operations is fixed on a reciprocal basis by the State Governments concerned.

22. Some of the reciprocal agreements, such as those between Orissa and Bihar, Madhya Pradesh and Orissa, and Madhya Pradesh and Gujarat, are subject to review at the instance of either State Government after a specified period of time, say, six months or a year. In other cases, for instance, in regard to agreements between Gujarat and Rajasthan and Uttar Pradesh and Maharashtra, the number of permits fixed under these agreements is revised or raised only when it is considered necessary.

23. Reciprocal agreements generally cover all types of motor vehicles. As regards stage carriages, the number of regular permits and, in some cases, temporary permits also, is fixed for operation on specified inter-State routes as between the States concerned. The number of buses is fixed broadly, on the basis of mileage lying in the territory of each State. In some case, as, in the agreement between Madras and Andhra Pradesh, the number of buses to be introduced on inter-State routes is on the basis of parity (50 : 50).

24. As regards public carriers, reciprocal agreements provide for a fixed number of goods vehicles of each State to ply on regular permits on inter-State routes. The number of temporary permits is fixed in a majority of cases, while in some cases, the number of such permits is unrestricted. The movement of public carriers engaged in inter-State operations is generally restricted. For instance, agreements between Andhra Pradesh and Orissa and Andhra Pradesh and Maharashtra, provide for countersignatures of permits for particular routes (not more than three routes) connecting particular terminals by the shortest routes, the distance of penetration on any route in the reciprocating State being not more than 350 miles to be reckoned from the State border of the respective States. In the agreement between Orissa and Madhya Pradesh, it is specified that the area of operation of public carriers operating on regular permits will be the contiguous districts of the two States in addition to which not more

than two routes out of the agreed inter-State routes will also be allowed. Out of the 100 regular public carrier permits to be issued by Orissa, 10 may be reserved for being issued from any point in Orissa to Bhilai in Madhya Pradesh and likewise 10 permits will be issued from any point in Madhya Pradesh to Rourkela.

25. It is specifically provided in reciprocal agreements between States that public carriers operating under the agreement shall not be used for picking up or dropping goods between any two points lying within the jurisdiction of the reciprocating States.

26. Reciprocal agreements between some States, for instance between Andhra Pradesh and Maharashtra, Gujarat and Rajasthan and Madhya Pradesh and Gujarat, restrict the number of private carriers and also limit their movement to specified routes. In certain other cases, for instance, between Orissa and Bihar, Rajasthan and Uttar Pradesh, Andhra Pradesh and Orissa and Maharashtra and Madhya Pradesh, the number of private carrier permits is not fixed and the permits are countersigned on the recommendation of the State Transport Authority of either State.

27. In the case of countersignatures of permits to be granted under reciprocal agreements between States, it is not necessary for the Regional Transport Authority or the State Transport Authority concerned to follow the procedure of inviting and hearing representations (*vide* Section 63(3) [proviso]). Under Section 43(i)(iv) of the Act, a State Government, having regard among other considerations, such as the desirability of co-ordinating road and rail transport may, by notification in the Official Gazette, issue directions to the State Transport Authority for giving effect to any agreement entered into with any other State Government. No such notification can be issued unless a draft of the proposed direction is published in the Official Gazette and objections or suggestions received in this connection are considered, after giving an opportunity to the parties interested to be heard. In several States, no directions are issued (or notified) by the State Governments to the State Transport Authority concerned. A few State Governments, such as Andhra Pradesh, Madras and Mysore however, issue such directions and notify the draft agreements.

28. Reciprocal agreements, providing for inter-State movement of vehicles, generally exist between neighbouring States. As regards inter-State operations involving more than two States, very few agreements have been made and the movement is allowed on the basis of temporary permits. There is no organised transport service operating on regular permits on long distance routes covering more than two States.

#### TEMPORARY PERMITS

29. Temporary permits are granted by State Governments under Section 62 of the Motor Vehicles Act to meet temporary needs. For inter-State operation, these permits are granted under reciprocal agreements and, where

such arrangements do not exist, prior concurrence is obtained from the transport authorities of the State concerned. Reciprocal agreements in regard to temporary permits for public carriers also exist between some non-adjointing States. For instance, Maharashtra has such an arrangement with Punjab, Delhi, West Bengal and Bihar. Similarly, the West Bengal Government has entered into reciprocal agreements with Uttar Pradesh and Delhi for the grant of temporary public carrier permits.

30. The number of temporary public carrier permits is generally fixed under the reciprocal agreements between States. In a few cases, however, the number of such permits is not restricted. Intending operators are required to submit applications for temporary permits in a prescribed form giving full details of their needs and to produce documentary evidence justifying such need. This is particularly the case in West Bengal. Generally, certain conditions are also attached by States to the grant of such temporary permits. For instance, in the reciprocal agreement between Andhra Pradesh and Mysore conditions laid down for the grant of temporary permit include the following :—

- (i) The applicant should produce evidence that the requisite tax payable in the other State has been paid in advance.
- (ii) Such temporary permits will be issued for the minimum period necessary and up to a maximum of one month.
- (iii) Temporary permits in respect of goods vehicles will be issued when it is intended for the transport of goods from Mysore State to Andhra Pradesh for a particular journey or journeys specified in the permit.

31. Temporary permits for inter-State operations of public carriers are generally issued for a period varying from 7 days to 30 days for a specified route. In certain cases such permits are issued for a single return trip and for a period not exceeding seven days. For instance, this stipulation is made in the reciprocal agreement between Orissa and Andhra Pradesh. In Rajasthan, however, temporary permits are granted even for a single day.

The position in regard to the issues of temporary permits in the various States is set out below :

32. *Andhra Pradesh*.—Following the practice in the composite State of Madras, the need should not only be temporary but particular also in the sense that it should be specific and not a regular need. In the case of public service vehicles, temporary permits are issued to meet specific purposes, such as the provision of substitute service in place of a vehicle whose permit has been suspended. In the case of goods vehicles, temporary permits are granted for particular routes specifying particular commodities for transport.

The period of validity of temporary permits varies according to the purpose for which they are granted. The maximum period is four months. Temporary permits are not renewed, but where there is need, fresh temporary permits are issued. Persons applying for temporary permits should prove the need to the satisfaction of the authorities concerned.

Whenever there is a temporary need for the operation of vehicles on inter-State routes covering non-adjointing States, temporary permits are issued by obtaining the concurrence of the State concerned.

33. *Bihar*.—Temporary permits are issued in accordance with the requirements of Section 62 of the Motor Vehicles Act. Temporary permits are usually granted for one to four months. On inter-State routes temporary permits are regulated by the terms of reciprocal agreements arrived at between the two States.

34. *Gujarat*.—Temporary permits are normally issued by Regional Transport Authorities in the circumstances mentioned below :—

- (i) when some contingency for a short duration arises and the existing machinery is not adequate to cope with it;
- (ii) when a person, who has bought a new truck, applies for a temporary permit to put the vehicle into commission immediately before applying for a regular permit;
- (iii) when an operator of another State comes into the State on specified, casual or seasonal needs.

For the first two categories of permits, the period of duration should not exceed four months and for the third the period is one month. Normally, the vehicles of other States, which ply through Gujarat are covered under reciprocal agreements and no necessity arises for the issue of temporary permits.

35. *Kerala*.—The provisions contained in Section 62 of the Motor Vehicles Act, 1939 are being followed for the purpose of issuing temporary permits on inter-State routes. The temporary need is construed to include also a need which cannot await satisfaction till the issue of a regular permit after the statutory formalities have been fulfilled. Temporary permits are issued both for stage carriages and public carriages.

Temporary permits for goods vehicles of other States are granted by the State Transport Authority for operation on routes in Kerala State according to need. Temporary permits in respect of Mysore-based vehicles are issued in accordance with the reciprocal agreement entered into with that State.

36. *Madhya Pradesh*.—The term "temporary need" is essentially related to vehicles which do not normally have business of transport with other regions but have to undertake it by chance when somebody is willing to pay for it.

Temporary permits are issued for a minimum period of a week, but generally for a month, because in Madhya Pradesh the motor vehicles tax is realised for not less than a month whatever may be the period of the temporary permit. However, a temporary permit can be granted for four months at a time.

37. *Madras*.—Temporary permits are issued in accordance with the provision of Section 62 of the Motor Vehicles Act. Temporary permits under this provision are granted only to meet an emergency, that is, in the case of stage carriages, to ply when the normal service is interrupted or on account of an accident or breakdown.

38. *Maharashtra*.—Temporary permits are granted under Section 62 of the Motor Vehicles Act to meet temporary or specified needs. These permits are issued for periods necessary to provide the transport service in question, but subject to a maximum period of four months. Temporary permits are generally issued on a monthly basis, both for inter-regional and for inter-State routes where reciprocal agreements have been entered into. In cases where no reciprocal arrangements exist, prior concurrence is obtained from the transport Authorities of the State concerned.

39. *Mysore*.—Temporary permits are generally issued only once (for periods, not exceeding four months) prior to grant of regular permits. The requirements for the issue of temporary permits under Section 62 of the Motor Vehicles Act are observed.

40. *Orissa*.—A particular need proved to the satisfaction of the Regional Transport Authority as a temporary one is generally considered for the grant of a temporary permit under Section 62(c) of the Motor Vehicles Act, 1939. Generally temporary permits are granted for periods not exceeding four months.

41. *Punjab*.—A temporary permit authorising the use of a transport vehicle outside the region or regions or the route or routes to which it is ordinarily restricted, is granted with the concurrence of the Regional Transport Authority of the other region concerned on payment of prescribed fees. A limited number of temporary long distance haulage permits are also issued for through haulage to Bombay, Calcutta etc.

42. *Rajasthan*.—The interpretation of temporary need is left to the Regional Transport Authority. Temporary permits are issued within the State, under Section 62 of the Motor Vehicles Act for a maximum period of four months.

43. *Uttar Pradesh*.—The duration for which temporary permits are issued varies from one week to four months. Temporary stage/contract carriages and tourist permits are also issued on intra-State and inter-State routes irrespective of distances in terms of reciprocity.

44. *West Bengal*.—Temporary permits are issued in accordance with the provisions of Section 62 of Motor Vehicles Act, 1939. Regional Transport Authorities grant temporary permits for operation within a radius of 150 miles. Temporary permits beyond 150 miles radius are granted by the State Transport Authority. Regional Transport Authorities and the State Transport Authority also issue temporary permits for carriage of goods to the State of Bihar. Certain Regional Transport Authorities have also been authorised to grant temporary permits up to Calcutta even though the distance exceeds 300 miles.

The maximum period for which temporary permits are issued is four months, though the period of individual permits varies from one week to four months.

## APPENDIX 7

## ROAD TRANSPORT COSTS

At the very outset of its work, the Committee realised that adequate information on costs of operation of road transport was not available. The Committee, therefore, arranged for an *ad hoc* study of the costs of operation of three transport undertakings in the country in 1960 with the help of the Chief Cost Accounts Officer, Ministry of Finance. For the purpose of this study, a few vehicles belonging to the three undertakings were selected. The vehicles selected were in different age groups and of different makes and were employed on different types of service such as through goods movement and parcel service. The object was to ascertain the costs of operation under varying conditions. Estimates of costs of operation of the three undertakings were computed from the actual records kept by these undertakings.

2. The costs of operation were worked out with reference to the following components of cost :

- operating or running charges—fuel consumed, oil and lubricants utilised and their recurring charges incurred for every trip;
- repairs/maintenance charges including replacement of spares, parts and tyres;
- standing charges consisting of depreciation, insurance and taxes, pay and allowances of operating staff; and
- share of general overheads pertaining to administrative, office and contingent expenditure.

3. There were wide variations in the estimates of costs of operation for the three undertakings. The table below gives the highest and lowest costs per vehicle mile and per ton mile for the three firms. The firms have been designated as A, B and C.

|                       | (in paise) |        |         |        |         |        |
|-----------------------|------------|--------|---------|--------|---------|--------|
|                       | Firm A     |        | Firm B  |        | Firm C  |        |
|                       | highest    | lowest | highest | lowest | highest | lowest |
| cost per ton mile     | 18.0       | 12.0   | 16.9    | 14.5   | 46.4    | 20.5   |
| cost per vehicle mile | 118.0      | 83.3   | 78.7    | 57.6   | 87.1    | 65.8   |

The cost per vehicle mile varies from 57.6 paise to 118.0 paise and that per ton mile from 12.0 paise to 46.4 paise. In interpreting these data, however, it has to be borne in mind that this was a limited study and the results pertained to only a few vehicles of just three undertakings and could

not be expected to indicate fully the range of variations that possibly could be obtained in the cost calculations.

In the following paragraphs are reproduced portions of the report of the Chief Cost Accounts Officer.

## FIRM 'A'

4. The firm is a private limited company and its main fleet consists of about 180 trucks. The trucks are all Tata Mercedes Benz Diesels. The main commodities carried are tin-plates, shoes, textiles, machinery, dry fruits, pipes, sanitary fittings, soap, chemicals, oil and general consumer goods. The company maintains a rough record for each trip showing the operating expenditure and receipt and particulars of other non-recurring expenditure were also available separately for each vehicle.

The investigation related to the study of five vehicles of different age groups operating on different terrains carrying bulk and smalls with non-stop and stop services connecting long, medium and short distances. The particulars of the five vehicles are as below :

| make        | model    | from | to    | miles                      | through<br>or<br>parcel<br>service | regis-<br>tered<br>pay<br>load<br>(maunds) | period<br>for<br>which<br>data was<br>analysed |                                |
|-------------|----------|------|-------|----------------------------|------------------------------------|--------------------------------------------|------------------------------------------------|--------------------------------|
| Tata Diesel | Mercedes | 1958 | Delhi | Calcutta                   | 1000                               | through                                    | 170                                            | 19-1-1959<br>to<br>31-12-1959  |
| do.         | .        | 1956 | Delhi | Nangal                     | 219                                | parcel <sup>1</sup>                        | 170                                            | 3-9-1958<br>to<br>28-1-1960    |
| do.         | .        | 1958 | Delhi | Agra/<br>Indore/<br>Jaipur | 575                                | parcel <sup>1</sup>                        | 170                                            | 2-2-1958<br>to<br>19-10-1959   |
| do.         | .        | 1957 | Delhi | Ferozepore                 | 271                                | parcel <sup>1</sup>                        | 220                                            | 5-1-1958<br>to<br>30-12-1959   |
| do.         | .        | 1958 | Delhi | Bombay                     | 922                                | through                                    | 170                                            | 10-12-1958<br>to<br>10-10-1959 |

5. The company does not maintain any separate records of miles done from the metre readings or diesel consumed, but the quantity and value of diesel purchased and put into the vehicle on each occasion is supported by cash receipts. The diesel consumption has been worked out from the total purchases of diesel in respect of each vehicle over the period investigated. All other recurring expenditures, such as octroi charges paid, amounts paid for repairs/maintenance, payment made to the operating staff (*i.e.*, batta) and other miscellaneous items of expenditure have been taken from the

<sup>1</sup>Service with stoppages at intermediate stations.

driver's statement of accounts for every trip. Loading/unloading charges have been taken at varying percentages of the realisations in accordance with the Company's practice in different stations. There is no uniformity in this regard as the percentage varies from 6½ to 10 of the realisations and this amount is stated to include also delivery commission paid in certain stations. Strictly speaking, for the purpose of the present enquiry, it would have been better if the figures of loading/unloading charges and delivery commission, had been available separately. This was, however, not possible. Although according to the Company, the depreciation factor is not separately considered by them in view of the present high resale value of second hand vehicles, for purposes of this enquiry, in working out their operating costs, depreciation has been allowed on the basis of a life of seven years on straight line basis. It may, however, be pointed out that the depreciation rate allowed by the Income Tax authorities is 25 per cent on written down value.

The load actually carried during every trip was available only in respect of through routes from Delhi to Calcutta and Delhi to Bombay. For the remaining routes operating as parcel services, the goods challans specifying the load carried to each destination were not available separately. The Company, however stated that uniformly on all trips the load carried was about the pay load of the vehicles. The load carried per trip on these routes has, therefore, been assessed at these average pay loads.

6. The operating cost data as worked out in the investigation are summarised below :

|                                                | cost per maund mile (in paisa) |                 |                 |                     |                 |
|------------------------------------------------|--------------------------------|-----------------|-----------------|---------------------|-----------------|
|                                                | Delhi to Calcutta              | Delhi to Nangal | Delhi to Indore | Delhi to Ferozepore | Delhi to Bombay |
| lowest load authorised on the routes (maunds.) | 135                            | 170             | 135             | 170                 | 135             |
| diesel and oil                                 | 0.10                           | 0.12            | 0.13            | 0.11                | 0.09            |
| repairs/spares                                 | 0.02                           | 0.03            | 0.05            | 0.04                | 0.06            |
| batta to operatives                            | 0.02                           | 0.04            | 0.03            | 0.02                | 0.03            |
| ex-gratia payments                             | 0.06                           | ..              | 0.03            | ..                  | 0.02            |
| loading/unloading charges                      | 0.05                           | 0.04            | 0.05            | 0.03                | 0.01            |
| insurance and taxes                            | 0.03                           | 0.04            | 0.03            | 0.02                | 0.07            |
| pay and allowances to operatives               | 0.03                           | 0.05            | 0.05            | 0.04                | 0.03            |
| octroi on goods                                | 0.04                           | 0.01            | 0.02            | 0.01                | 0.02            |
| administration                                 | 0.01                           | 0.02            | 0.02            | 0.01                | 0.01            |
| tyre replacement                               | 0.05                           | 0.03            | 0.07            | 0.04                | 0.08            |
| depreciation                                   | 0.04                           | 0.06            | 0.05            | 0.04                | 0.05            |
| other items including commission               | 0.09                           | 0.10            | 0.13            | 0.08                | 0.03            |
| total cost                                     | 0.54                           | 0.54            | 0.66            | 0.44                | 0.50            |
| average load actually carried (maunds)         | 215                            | 162.5           | 173             | 190                 | 209             |

It will be seen from the above that only the cost per maund mile of two vehicles are abnormal, one being at 0.66 paisa and the other at 0.44 paisa. These wide differences require some explanations. The Delhi to Indore vehicle which has recorded a cost of 0.66 paisa is powered by an engine of 100 HP whereas the other vehicles are powered by an engine of 90 HP. This

apart, the average load carried on this vehicle was only about 173 maunds and the mileage done was only about 43,500 miles per year whereas the other vehicles had done on an average 50,000 miles per year with a greater load. The combination of these two factors has resulted in a depression of the maund miles calculated and consequent increase in unit costs. In the case of the Delhi to Ferozepore vehicle which has recorded a cost of 0.44 paisa per maund mile, the element of *ex gratia* payments is nil. The load carried was on an average 190 maunds throughout and it has done more than 56,000 miles per year, thus yielding the highest maund miles as a result of more frequent trips. Consequently, the unit cost under every major item has been low.

7. *Ideal cost.*—Having dealt with actual costs, an attempt is made below to assess an ideal cost for a vehicle under normal conditions. On the basis of the distance covered by the route and the miles travelled in a year—Delhi to Ferozepur and Delhi to Indore vehicles could be considered representative. As full details regarding Ferozepore vehicle were not available, the Indore vehicle has been taken. Tata Mercedes Benz diesel truck is plying on this route and the mileage covered by the route is 575 each way. The authorised load is only 170 maunds each way, and there will be four possible to and fro trips in a month. A vehicle utilisation of 90 per cent (time factor) has been assumed. Under the above conditions, 43 effective return trips would be possible in a year covering 49,450 miles carrying a total load of 14,620 maunds and yielding 84,06,500 maund miles.

| item of expenditure                                                                               | total amount (Rs.) | cost per vehicle mile (paise) | cost per maund mile. (paisa) |
|---------------------------------------------------------------------------------------------------|--------------------|-------------------------------|------------------------------|
| diesel—12 miles per gallon at Rs. 2.62 per gallon—4121 gallons                                    | 10,797             | 21.83                         | 0.13                         |
| mobil oil (average of actuals)                                                                    | 841                | 1.70                          | 0.01                         |
| repairs/spares (average of actuals)                                                               | 4,203              | 8.50                          | 0.05                         |
| batta to operatives at Rs. 56.50 per trip                                                         | 2,430              | 4.91                          | 0.03                         |
| insurance and taxes (actuals)                                                                     | 2,154              | 4.36                          | 0.02                         |
| pay and allowances to operatives (actuals)                                                        | 4,020              | 8.13                          | 0.05                         |
| octroi (average of actuals)—Rs. 25/- per trip                                                     | 1,075              | 2.17                          | 0.01                         |
| administration                                                                                    | 1,200              | 2.43                          | 0.01                         |
| tyre replacement—1 set of 6 tyres every 20,000 miles—8.25 × 20 × 2½—Rs. 2640 at controlled prices | 6,600              | 13.35                         | 0.08                         |
| depreciation on capital cost of Rs. 35,300                                                        | 5,043              | 10.20                         | 0.06                         |
| loading and unloading (estimated)                                                                 | 1,681              | 3.40                          | 0.02                         |
| miscellaneous                                                                                     | 2,522              | 5.10                          | 0.03                         |
| total cost excluding commission                                                                   | 42,566             | 86.08                         | 0.50                         |
| commission to agents at 10 per cent on cost                                                       | 4,257              | 8.61                          | 0.05                         |
| total cost inclusive of commission                                                                | 46,823             | 94.69                         | 0.55                         |

The cost arrived at above excludes any provision for *ex gratia* payments, fine and other extraneous expenditure, as only ideal and normal conditions have been assumed in regard to load, time and other factors. However, it does not take into account any expenditure on major general establishment charges and depreciation on assets (other than vehicles) which other large-scale transport operators may have.

8. *Special features.*—During the course of this investigation, the following special features were noticed :

(a) For an identical vehicle, the authorised load in various States varies very widely. Thus, for Tata Mercedes Benz diesel truck, the permitted loads are as under :

|                |        |
|----------------|--------|
| Uttar Pradesh  | maunds |
| Punjab         | 200    |
| West Bengal    | 220    |
| Madhya Pradesh | 135    |
| Bombay         |        |
| Rajasthan      |        |
| Bihar          | 180    |
| Delhi          | 170    |

The result of this differential treatment is that the transport operators carry the maximum load authorised in any of the States through which they have to operate, and risk being caught with excess loadings (as per each State's standard) involving consequent payment of fines, etc.

(b) The token taxes levied by various State authorities also vary widely as under :

|                                             |                                                                      |
|---------------------------------------------|----------------------------------------------------------------------|
| Rajasthan                                   | Rs. 15/- per day temporary permits                                   |
| Madhya Pradesh both (temporary and regular) | Rs. 94 per month for 135 maunds<br>Rs. 153 per month for 170 maunds  |
| Bombay (permanent)                          | Rs. 198 per month for 135 maunds<br>Rs. 298 per month for 170 maunds |
| Delhi (regular token)                       | Rs. 75 quarterly                                                     |
| Punjab (Jullundur) (Goods tax)              | Rs. 202.50 quarterly                                                 |
| (token tax)                                 | Rs. 175 quarterly                                                    |
| Uttar Pradesh (regular token tax)           | Rs. 538 quarterly at Agra<br>Rs. 538 quarterly at Meerut             |
| Bihar (regular)                             | Rs. 106 quarterly                                                    |
| West Bengal (regular)                       | Rs. 114 quarterly                                                    |

#### FIRM 'B'

9. This is a private limited company formed in 1943. The company had 47 trucks in 1958, of which 21 plied on regular routes and the remaining 26 were used for transport of goods on behalf of a textile mill on contract basis. The firm also secured business for attached trucks on commission

basis; individual truck owners getting their business through the firm on payment of commission. The firm was also running one petrol pump and service station. The company considered that there would be better returns if it worked on a commission basis by arranging business for the attached vehicles rather than running its own trucks as on such agency business the firm would be in a position to save high maintenance costs of the vehicles and would also be able to reduce its establishment and remain free from labour difficulties created by drivers and cleaners. With this in view, the company contracted to sell 16 of its trucks on hire purchase basis in the middle of 1959. The number of its own trucks decreased to 5 towards the end of 1959.

10. The financial year of the company is from January to December. The company does not maintain separate accounts which would show the net operating results in respect of individual routes or in respect of the different vehicles. The income and expenditure of all the routes are merged in one Head Office Accounts. On completion of each trip, the driver submits the particulars of running expenses incurred during the trip and the freight realised. A voucher is prepared from these particulars to write up the financial accounts showing the expenses under different items and the freight earned in the trip. Simultaneously, another statement is prepared showing the total freight earned, the expenses against the different items, the amount payable to or recoverable from the driver and the difference between the freight earned and running expenses incurred for the trip. It was observed on verifying a few statements with these vouchers that although the total expenses shown in these documents were the same, the grouping of expenses differed a little. These statements were available in separate files meant for respective vehicles, but the vouchers referred to above were not readily available for the entire period taken up for investigation. The data were collected from the statements after necessary adjustments.

11. *Statistical data.*—A daily report sheet is maintained in the Head Office showing the weight loaded, destination, the freight realisable for onward journey in respect of each truck. Such records were available for the period under examination. Records were not readily available in respect of either the weights loaded in the return journey or the weights loaded and unloaded on the way. Attempts were, therefore, made to work out the volume of such loads in consultation with the company. This was done by relating the total freight realised on such loads with the average freight obtained per maund on the onward journey. The company stated that the weight thus worked out would be reasonably correct.

The miles run by the trucks in each trip as recorded in the milometers were not available and as such the standard mileages of the routes were adopted for calculating the distance covered in each trip. The route mileage was however adjusted to give effect to extra miles run by the trucks whenever necessary for delivering goods to the customer's godowns.

12. *Selection of trucks* : Four vehicles were selected for study as stated below :

| make               | model | from  | to       | mile through or parcel | authorised pay load maunds | fuel used | period            |
|--------------------|-------|-------|----------|------------------------|----------------------------|-----------|-------------------|
| Dodge              | 1954  | Delhi | Kanpur   | 265 parcel             | 161                        | diesel    | 1-1-58 to 30-4-59 |
| Tata Mercedes Benz | 1957  | Delhi | Kanpur   | 265 parcel             | 187                        | do.       | do.               |
| Chevrolet          | 1952  | Delhi | Amritsar | 276 parcel             | 161                        | do.       | do.               |
| do.                | 1944  | Delhi | do.      | 276 parcel             | 144                        | do.       | do.               |

13. *Expenses* : The expenses incurred in running the vehicles may be broadly classified under the following heads :

(a) *Operating and running costs*. These comprise expenses, such as cost of diesel, mobil oil and lubricating oil, daily allowance to the drivers and cleaners who accompany the vehicles, loading and unloading charges, municipal fees for passage of trucks through the municipal areas, commission paid to booking agents etc.

(b) *Maintenance charges*. These include the costs of retreading the tyres, the cost of replacement of tyres, tubes and flaps, cost of repairs and overhauling. As has already been stated, the company carries on the overhaul and heavy repairs in its own garage. The company, however, does not ascertain the cost of repair for each vehicle. The cost of tyres, flaps, or parts issued and the cost of work done outside, are only compiled monthly for the respective vehicles. The charges on account of the wages of labourers or the salary of supervisory staff and other overhead expenses of the garage workshop are not allocated to the cost of repairs of trucks, but these expenses are merged in the head office expenses. These expenses could not be easily segregated from the head office expenses without reference to each and every document. Attempts were made to allocate the major items of expenses of the garage, viz., wages of the workers, salary of the supervisory staff, rent, light and water, to the repairing charges of the vehicles on the basis of man hours spent on repairs or on the basis of garage days whichever were available for the period under examination. In regard to the vehicles engaged for a textile mill, the company allocated one-third of the salary and wages of the garage. No repairing time or garage days were available for these trucks and, therefore, in accordance with the company's method, one-third of the salary and wages was deducted before allocating these expenses to other trucks.

(c) *Fixed charges*. These represent vehicle taxes, insurance, salary and wages of drivers and cleaners, depreciation etc. The depreciation of the trucks charged by the company in the profit and loss accounts

was calculated at the Income Tax rates on the written down value. In this connection, it was observed that the trucks retain a good saleable value even after service for a number of years and as such the Income Tax rate of depreciation @25 per cent on reducing value was considered to be too high to be admitted. The depreciation has been allowed on the basis of a life of seven years on straight line basis. No development rebate has been admitted in the operating cost.

(d) *Administrative expenses*. These represent expenses in respect of the Head Office and the Branch Offices.

For the year 1958, administrative expenses as appearing in the audited profit and loss accounts were adopted. The accounts for 1959 had not been closed. The ledger balance as appearing on the dates of visit to the company were, therefore, adopted for 1959. The expenses in 1959 were generally comparable with those in 1958. It may be mentioned here that although the company sold about 16 trucks on hire purchase basis in the middle of 1959, there was no substantial reduction in the indirect expenses. The company explained that immediately with the change in policy, the establishment could not be contracted nor could the other indirect expenses and further suggested that the economy would be visible in 1960.

14. The operating cost data are summarised below :

|                                               | cost per maund mile (in paisa) |                             |                               |                               |
|-----------------------------------------------|--------------------------------|-----------------------------|-------------------------------|-------------------------------|
|                                               | Delhi to Kanpur Truck No. 1    | Delhi to Kanpur Truck No. 2 | Delhi to Amritsar Truck No. 3 | Delhi to Amritsar Truck No. 4 |
| lowest load authorised on the routes (maunds) | 161                            | 187                         | 161                           | 144                           |
| diesel and oil                                | 0.14                           | 0.13                        | 0.15                          | 0.16                          |
| repairs and spares                            | 0.14                           | 0.08                        | 0.08                          | 0.10                          |
| batta to operatives                           | 0.02                           | 0.02                        | 0.02                          | 0.02                          |
| loading and unloading                         | 0.04                           | 0.04                        | 0.05                          | 0.04                          |
| tips                                          | 0.01                           | 0.01                        | ..                            | ..                            |
| insurance and taxes                           | 0.02                           | 0.04                        | 0.03                          | 0.02                          |
| octroi on goods                               | 0.02                           | 0.03                        | ..                            | ..                            |
| pay and allowances of operatives              | 0.05                           | 0.05                        | 0.04                          | 0.04                          |
| administration                                | 0.05                           | 0.04                        | 0.04                          | 0.05                          |
| tyre replacement                              | 0.07                           | 0.09                        | 0.09                          | 0.06                          |
| depreciation                                  | 0.06                           | 0.06                        | 0.03                          | 0.02                          |
| other items                                   | ..                             | ..                          | 0.01                          | 0.02                          |
| total cost                                    | 0.62                           | 0.59                        | 0.54                          | 0.53                          |
| average load actually carried (maunds)        | 122                            | 131                         | 115                           | 108                           |

The costs per maund mile in the two routes indicated slight variation but the cost per maund mile as between two trucks in the same route was more or less the same. Truck No. 2 was of Tata Mercedes make and was purchased in August 1957. The truck being very new, the consumption of diesel and lubricants was minimum whereas the trucks Nos. 3 and 4 were originally petrol driven Chevrolet trucks and were purchased in 1952 (secondhand) and 1944 respectively. The petrol engines of these trucks were replaced by Perkins Diesel Engine in 1954. The transmission line of these trucks being very old and their engines also being rather older, these trucks registered a slightly higher consumption of fuel. The repairing expenses in truck No. 1 were higher due to frequent heavy repairs of the engine. The expenses of insurance and taxes on the Kanpur route were more than that of the Amritsar route as the Uttar Pradesh taxes were higher than the Punjab taxes and further the rate of insurance premium paid for each truck differed. The varying capital cost and different years of purchase accounted for differences in the incidence for depreciation. It is relevant to mention here that the repair and administrative expenses in this company were higher compared with similar expenses in respect of trucks run in the same area by another organisation. Firm A had their repairing works done by outside parties and only about Rs. 1,200 per truck per annum stated to have been incurred for administrative expenses, was charged. This company had its own garage workshop where repairing work was performed. From the booking of repairing time to the trucks it appeared that there was about 40 per cent surplus labour staff in the workshop. Further, as has been stated earlier, there was no scientific method of allocating the repairing labour to the trucks engaged for the textile mill. Only one-third of the salary and wages was being charged to the working of these trucks irrespective of the repairing time involved, and the balance amount of the salary and wages was being charged to the other trucks. These factors probably led to higher incidence for repairing expenses. The administrative expenses of the Head Office and of eleven Branch Offices had to be recovered through the operating costs of the trucks. This resulted in a charge of about Rs. 2,000 to Rs. 3,000 per truck per annum and obviously led to higher incidence of administrative expenses.

15. *Cost under standard conditions.* Having dealt with actual cost an attempt was made to work out the cost under standard conditions. For this purpose, a Tata Mercedes diesel truck operating between Delhi and Kanpur, a distance of 265 miles each way, carrying a load of 170 maunds each way with possible 10 onward and return trips in a month after allowing for normal repairing time has been assumed. Under these conditions the truck would cover a distance of 63,600 miles yielding 10,812,000 maund miles per annum.

| item of expenditure                                                                                                     | total amount<br>(Rs.) | cost per vehicle mile<br>(paise) | cost per maund mile<br>(paise) |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------|--------------------------------|
| diesel @12 miles per gallon @ Rs 2.62 per gallon—5,300 gallons . . . . .                                                | 13,900                | 21.86                            | 0.13                           |
| mobile and lubricants (average of actuals) . . . . .                                                                    | 1,081                 | 1.70                             | 0.01                           |
| repairs . . . . .                                                                                                       | 5,500                 | 8.65                             | 0.05                           |
| allowances to drivers and cleaners . . . . .                                                                            | 1,800                 | 2.83                             | 0.02                           |
| insurance and taxes . . . . .                                                                                           | 5,000                 | 7.86                             | 0.05                           |
| pay and allowances of operatives . . . . .                                                                              | 2,950                 | 4.64                             | 0.03                           |
| tyre replacement—1 set of 6 tyres every 20,000 miles 8' 25 x 20 x 24 @ Rs. 2640/- . . . . .                             | 8,400                 | 13.21                            | 0.08                           |
| depreciation on capital cost (computed on straight line method on an assumed life for seven years @ Rs 35,300 . . . . . | 5,043                 | 7.92                             | 0.05                           |
| loading and unloading . . . . .                                                                                         | 4,325                 | 6.80                             | 0.04                           |
| administration (assumed @Rs. 250 per month) . . . . .                                                                   | 3,000                 | 4.72                             | 0.03                           |
| miscellaneous . . . . .                                                                                                 | 3,244                 | 5.10                             | 0.03                           |
| <b>Total</b>                                                                                                            | <b>54,243</b>         | <b>85.29</b>                     | <b>0.52</b>                    |
| commission to agents @ 10% on the total operating cost . . . . .                                                        | 5,424                 | 8.53                             | 0.05                           |
| <b>total cost inclusive of commission</b>                                                                               | <b>59,667</b>         | <b>93.82</b>                     | <b>0.57</b>                    |

In assessing the operating cost under standard conditions extraneous expenses in the form of *ex gratia* payments were not taken into account.

16. *Authorised load and State taxation.* In course of the discussion, the company stated that different States permitted different volumes of loads to be carried by the same kind of truck. Thus, for the Tata Mercedes trucks the authorised loads varied from 130 maunds to 220 maunds. This prompted the truck operators to put the maximum load allowable by any State falling in the route and encouraged the malpractices.

17. *Points of interest : (a) Rate of freight.* The company stated that there was no schedule of freight in any company in accordance with which the customers were charged. Freight charged in each and every case was based on negotiation depending upon the kind, bulk and weight of the goods, the distance over which the goods were to be carried and above all the availability of trucks in the market on a particular day. The company, however, kept certain rates in view which provided the guidance for negotiations.

The rates which were generally used in 1958 and 1959 as the basis for negotiation by the company, were as below :

|                             | rate per maund |             |
|-----------------------------|----------------|-------------|
|                             | 1958<br>Rs.    | 1959<br>Rs. |
| Delhi to Kanpur . . . . .   | 1.50           | 1.50        |
| Delhi to Amritsar . . . . . | 1.06           | 1.06        |
| Delhi to Calcutta . . . . . | 4.50           | 4.00        |
| Delhi to Bombay . . . . .   | 4.75           | 4.25        |
| Delhi to Indore . . . . .   | 2.50           | 2.12        |

(b) *Competition* : It was gathered from the manager of the company that only about 20 per cent of the trucks in the market were under the control of one or the other organised companies and the balance 80 per cent trucks were run by individual owners according to their discretion. Most of these owners, however, secured their business through the goods booking agents on payment of commission. This rate of commission also depended upon market conditions. This process of business led to intense competition amongst booking agents as also amongst individual truck owners. These circumstances forced many trucks to run on loss or on bare sustenance margins. The position was more so on those routes where there was not much restriction in granting permits. By way of example, he drew comparison between the Delhi-Kanpur and the Delhi-Amritsar routes. On the former route only some companies were allowed permits and this enabled them to earn a fair return whereas, on the Delhi-Amritsar route, there was not much restriction on the issue of permits. This led to cut-throat competition.

#### FIRM 'C'

18. This is a private limited company formed on 1st October, 1946. The firm operates both passenger and goods transport and has on its fleet 326 passenger buses and 109 trucks. On the truck operation side, the company is running a daily parcel service on all authorised routes—57 routes under varying conditions, the distances ranging from 58 to 306 miles. The trucks are run to a strict schedule of timings irrespective of whether or not individual trucks obtain sufficient loads in time. The company has 304 truck offices spread over three or four States. A major portion of these offices are run on agency basis. Almost all the trucks are operated on diesel. The normal average pay load of the trucks is about 4 tons or 112 maunds. The company is now experimenting on a truck trailer combination by which carrying capacity may be enhanced by an additional 4 tons with consequent lower cost of operation. The main commodities carried are handloom cloth, yarn and other clothing, engines and motors, machinery tools, cycles,

motor cycles and their parts, consumer goods, tyres, household articles, vegetables, medicines, etc. While it has not been possible to identify the exact nature of goods carried on each of the specific vehicles taken up for investigation, it is understood that generally 40 per cent of the load represents consumer goods and cloth, the other 60 per cent being distributed over other commodities. Of the total load handled, about 37 per cent were over short distances within 50 miles, 19 per cent were between 51 to 100 miles, 13 per cent were between 101 to 150 miles, 9 per cent were between 151 to 200 miles, 8 per cent between 201 to 250 miles, and only 4 per cent forms the carriage over 400 miles. It is understood from the company that in its integrated goods operation scheme, vehicles have necessarily to be run also on certain uneconomic routes, since these routes to some extent feed the load for other economic routes and also with a view to establish the company's business in as wide an area as possible.

19. *Selection of vehicles for the investigation.* The following vehicles were selected for detailed study. The detailed operation records of the company such as way bills and vehicle-wise/route-wise statistics on individual trips made, etc., pertaining to the period prior to 1-1-59 were not available having been consigned to old records. The detailed study had, therefore, to be restricted only to data pertaining to the period from 1-1-59 to 31-12-59 :

| make         | model | from                   | to                                                                                          | miles | through or parcel service | authorised pay load maunds |
|--------------|-------|------------------------|---------------------------------------------------------------------------------------------|-------|---------------------------|----------------------------|
| Fargo diesel | 1957  | Madurai to Madras—     | route on good trunk road.                                                                   | 301   | parcel                    | 112                        |
| do.          | 1957  | Madras to Marnargudi—  | good road but part of of route through congested areas.                                     | 239   | do.                       | 131                        |
| do.          | 1957  | Salem to Pondicherry—  | non-trunk road, congested area and passing through Pondicherry State.                       | 142   | do.                       | 133                        |
| do.          | 1956  | Coimbatore to Mysore—  | ghat section in part and passing through Mysore State.                                      | 163   | do.                       | 112                        |
| do.          | 1955  | Madurai to Trivandrum— | ghat section in part and passing through Kerala State.                                      | 205   | do.                       | 102                        |
| Chevrolet    | 1951  | Dindigul to Trichur—   | different type of lorry, part good trunk road; remaining with much ups and downs and bends. | 135   | do.                       | Madras-112<br>Kerala-105   |

20. *Method adopted for collection of cost data.* The company does not maintain any separate record of miles done or diesel consumed from the vehicle meter readings, but details of the quantity and value of diesel purchased and put in each vehicle on each occasion are available. Over a long period, averaging of these purchases may reasonably be viewed to indicate the diesel consumption. The standard route distance has been viewed as actual miles performed in each trip. The 304 lorry offices of the company are grouped according to territories, each territory being under the control of a depot office with attendant maintenance and servicing facilities, in each depot. The charges under repairs/spares, however, include a fixed amount of Rs. 1,368/- per annum per vehicle on account of the pay and allowances of the servicing and maintenance staff employed throughout at the various depots. Loading and unloading charges have been worked out as a rate per maund hauled by dividing the annual incidence of pay and allowances of load men employed on monthly scales of pay in the various lorry booking offices operated by the company and also agent's loading and unloading charges @ 3 paise per maund handled at the Agency Stations, by the total maunds handled during the period investigated. Administration charges include the pay and allowances of all depot, head office and central office staff-watch & ward, booking clerks, administrative and clerical staff, staff welfare expenses. Miscellaneous charges include rent wherever paid, printing and stationery and other miscellaneous expenses. For finding out the incidence of these charges per vehicle, the total of these expenses has been divided by the total vehicle miles operated for the entire fleet of buses and lorries to yield a per vehicle mile rate. Similarly the total agent's commission charges paid, less that portion of this amount treated as agent's loading and unloading charges, has been divided by the total vehicle miles operated by the entire fleet of buses and lorries to yield a per vehicle mile rate. The company has in its depot, besides vehicles, various other capital assets comprising machinery and buildings. The normal income tax rates of depreciation for these other assets during the period from 1-4-59 to 31-12-59 amounted to Rs. 108,852/-. During this period the vehicle miles run by the entire fleet of buses and lorries amounted to 1,80,48,285 miles. The incidence per vehicle of the element on account of depreciation on assets other than vehicles has, therefore, been worked out as a rate per vehicle mile operated, i.e. 0.6 paise per mile operated. All other items of charges are specific charges per vehicle.

21. The total maunds carried by each vehicle during the period investigated has been compiled from the abstracts of the way bills. So far as the figures for maund miles are concerned, in view of the parcel service mode of operation with many stops en route for loading/discharge of cargo, the figures were easily available only route wise for all the vehicles operating

on each specific route. To explain, a route from A to D is split up into standard sub-destinations, thus :

A to B      A to C      A to D  
                  B to C      B to D  
                                C to D

Actual load carried every day is available for these sub-destinations. This load for the period investigated from one destination to another in the same overall route multiplied by the standard distance between the destinations will yield the maund miles. The total of these station to station maund miles will yield the total route maund miles. The maund miles done by each specific vehicle on that route has been determined by applying to the total maund miles on that route, that proportion which the specific vehicle miles bear to the combined vehicle miles.

22. *Operating cost data.* The operating costs work out as under for the vehicles investigated :

|                                                 | cost per maund mile (in paise) |                            |                            |                            |                             |                           |
|-------------------------------------------------|--------------------------------|----------------------------|----------------------------|----------------------------|-----------------------------|---------------------------|
|                                                 | Madurai<br>to<br>Madras        | Salem<br>to<br>Pondicherry | Madras<br>to<br>Mannargudi | Coimbatore<br>to<br>Mysore | Madurai<br>to<br>Trivandrum | Dindigul<br>to<br>Trichur |
| lowest load authorised<br>on the route (maunds) | 112                            | 133                        | 131                        | 112                        | 102                         | 105                       |
| diesel and oil                                  | 0.161                          | 0.226                      | 0.218                      | 0.322                      | 0.231                       | 0.329                     |
| repairs/spares                                  | 0.073                          | 0.080                      | 0.093                      | 0.245                      | 0.133                       | 0.190                     |
| batta to operatives                             | 0.015                          | 0.020                      | 0.021                      | 0.022                      | 0.017                       | 0.032                     |
| loading/unloading charges                       | 0.024                          | 0.083                      | 0.075                      | 0.067                      | 0.076                       | 0.087                     |
| insurance and taxes                             | 0.024                          | 0.062                      | 0.055                      | 0.157                      | 0.097                       | 0.131                     |
| pay and allowances to operatives                | 0.039                          | 0.034                      | 0.065                      | 0.067                      | 0.058                       | 0.076                     |
| octroi/toll charges                             | 0.000                          | 0.004                      | 0.017                      | 0.013                      | 0.000                       | 0.000                     |
| administration                                  | 0.109                          | 0.165                      | 0.151                      | 0.183                      | 0.143                       | 0.247                     |
| tyre replacement                                | 0.074                          | 0.084                      | 0.083                      | 0.120                      | 0.086                       | 0.129                     |
| depreciation on vehicles                        | 0.064                          | 0.085                      | 0.084                      | 0.149                      | 0.094                       | 0.121                     |
| depreciation on other assets                    | 0.007                          | 0.010                      | 0.009                      | 0.011                      | 0.009                       | 0.015                     |
| commission to agents                            | 0.077                          | 0.116                      | 0.107                      | 0.129                      | 0.101                       | 0.175                     |
| other charges                                   | 0.073                          | 0.111                      | 0.101                      | 0.122                      | 0.096                       | 0.164                     |
| total cost                                      | 0.750                          | 1.080                      | 1.079                      | 1.607                      | 1.141                       | 1.696                     |
| distance on route in miles                      | 301                            | 142                        | 239                        | 163                        | 205                         | 135                       |
| average load carried throughout (maunds)        | 90.5                           | 59.0                       | 65.3                       | 54.2                       | 69.2                        | 39.8                      |

There is wide variation in the total unit maund mile cost as between the different vehicles investigated. This wide disparity is attributable to the fact that the average load carried varies widely as between vehicles and is far below the authorised pay load for each of these vehicles, with the result that the maund miles are also very much low. During discussions

the company further stated that its vehicles run to daily scheduled timings irrespective of whether the lorries obtain load or not. The company also revealed that two of the routes investigated, viz., Coimbatore to Mysore and Dindigul to Trichur have already been classified as uneconomical routes which have necessarily to be maintained. The company is of the view that a proper comparison of the cost of operation of different vehicles under the conditions peculiar to its mode of transport can be only with reference to cost per lorry mile operated. The result for the vehicles taken up for investigation is summarised below :—

|                                                  | cost per vehicle mile operated (in paise) |                              |                              |                            |                               |                           |
|--------------------------------------------------|-------------------------------------------|------------------------------|------------------------------|----------------------------|-------------------------------|---------------------------|
|                                                  | Madurai<br>to<br>Madras                   | Salem<br>to Pondi-<br>cherry | Madras<br>to Man-<br>nargudi | Coimba-<br>to to<br>Mysore | Madurai<br>to Tri-<br>vandrum | Dindigul<br>to<br>Trichur |
| diesel and oil                                   | 14.6                                      | 13.6                         | 14.4                         | 17.5                       | 16.0                          | 13.2                      |
| repairs/spares                                   | 6.6                                       | 4.8                          | 6.1                          | 13.3                       | 9.2                           | 7.6                       |
| batta to opera-<br>tives                         | 1.3                                       | 1.3                          | 1.4                          | 1.2                        | 1.2                           | 1.3                       |
| loading/unloading<br>charges                     | 2.2                                       | 5.0                          | 4.9                          | 3.6                        | 5.3                           | 3.5                       |
| insurance and<br>taxes                           | 3.1                                       | 3.7                          | 3.6                          | 8.5                        | 6.7                           | 5.2                       |
| pay and allowances<br>to operatives              | 3.5                                       | 2.9                          | 4.3                          | 3.6                        | 4.0                           | 3.0                       |
| octroi/toll charges                              |                                           | 0.3                          | 1.1                          | 0.7                        |                               |                           |
| administration                                   | 9.9                                       | 9.9                          | 9.9                          | 9.9                        | 9.9                           | 9.9                       |
| tyre replacement                                 | 6.6                                       | 5.1                          | 5.4                          | 6.5                        | 6.0                           | 5.2                       |
| depreciation on<br>vehicles                      | 5.8                                       | 5.1                          | 5.5                          | 8.1                        | 6.5                           | 4.8                       |
| depreciation on<br>assets other than<br>vehicles | 0.6                                       | 0.6                          | 0.6                          | 0.6                        | 0.6                           | 0.6                       |
| commission to<br>agents                          | 7.0                                       | 7.0                          | 7.0                          | 7.0                        | 7.0                           | 7.0                       |
| other charges                                    | 6.6                                       | 6.6                          | 6.6                          | 6.6                        | 6.6                           | 6.6                       |
| total cost                                       | 67.8                                      | 65.8                         | 70.8                         | 87.1                       | 79.0                          | 67.9                      |

The unit cost varies from 65.8 paise to 87.1 paise per vehicle mile. Only the vehicles plying on Coimbatore to Mysore and Madurai to Trivandrum, have recorded a very high cost and require explanation. The Coimbatore to Mysore vehicle is of 1956 model. This apart, full taxes are payable for this vehicle both in Madras and Mysore States, as there is no reciprocal arrangement between the two States. These factors account for the increase under diesel and oil, repairs and spares and insurance and taxes, to the extent of about 15 paise per vehicle mile. The low mileage on this route has also caused an inflation of 3 paise per mile on account of depreciation of the vehicle. The cost under other items are generally comparable with other vehicles. Similarly the Madras to Trivandrum vehicle is of 1955 model. Madras and Kerala States through both of which this vehicle passes do not have reciprocal arrangements with the result that full taxes are payable in both the States. These account for an increase of 9 paise per vehicle mile under diesel and oil, repairs and spares, and insurance and taxes. All other items do not show any major variations.

23. *Ideal cost.*—During the discussions it transpired that for the entire fleet of the company lorries hauling goods only, the average normal per vehicle mile cost, excluding bonus, managing agency commission and other expenditure not forming part of costs, is in the vicinity of 70 paise per vehicle mile. As already stated, the company is experimenting on a truck trailer combination in certain routes, with a view to carrying an additional maximum load of about 4 tons. The only extra operating expenditure will be the following with the trailer combination :—

- 1 annual depreciation of trailer on 7 years straight line basis—capital cost Rs. 15,000/- i.e; Rs. 2143
- 2 annual extra vehicle taxation for trailers @ Rs. 180/- per quarter;
- 3 extra consumption of fuel @ 20% more;
- 4 replacement of 4 tyres of the trailer proportionate to that of the main vehicle; and
- 5 increase of repairs/spares by about 25%.

For purpose of working out the ideal cost, the Madras to Mannargudi route may be viewed as normal. The ideal cost would then be as under both without trailer combination and with trailer combination. In working out this cost, the recent increase in diesel rate and truck prices have been taken into account :

| item of<br>expenditure              | without trailer (average load<br>per mile throughout @65<br>maunds) |                                                              |                                                          | with trailer (average load per<br>mile throughout @ 130 maunds) |                                                              |                                                           |
|-------------------------------------|---------------------------------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------|
|                                     | total<br>amount<br>Rs.                                              | (vehicle miles<br>79,750)<br>per vehicle<br>mile in<br>paise | (maund miles<br>5,235,000)<br>per maund<br>mile in paise | total<br>amount<br>Rs.                                          | (vehicle miles<br>79,750)<br>per vehicle<br>mile in<br>paise | (maund miles<br>10,367,500)<br>per maund<br>mile in paise |
| diesel and oil                      |                                                                     |                                                              |                                                          |                                                                 |                                                              |                                                           |
| 4,402 gallons .                     | 12,534                                                              | 15.72                                                        | 0.2394                                                   | 15,040                                                          | 18.86                                                        | 0.1451                                                    |
| repairs/spares .                    | 4,879                                                               | 6.12                                                         | 0.0932                                                   | 6,100                                                           | 7.65                                                         | 0.0588                                                    |
| batta to opera-<br>tives .          | 1,083                                                               | 1.36                                                         | 0.0208                                                   | 1,083                                                           | 1.36                                                         | 0.0104                                                    |
| loading/unload-<br>ing charges .    | 3,923                                                               | 4.92                                                         | 0.0749                                                   | 7,846                                                           | 9.84                                                         | 0.0757                                                    |
| insurance and taxes                 | 2,893                                                               | 3.62                                                         | 0.0553                                                   | 3,613                                                           | 4.53                                                         | 0.0348                                                    |
| pay and allowances<br>to operatives | 3,420                                                               | 4.29                                                         | 0.0653                                                   | 3,420                                                           | 4.29                                                         | 0.0330                                                    |
| octroi/toll charges                 | 900                                                                 | 1.13                                                         | 0.0172                                                   | 900                                                             | 1.12                                                         | 0.0087                                                    |
| administration .                    | 7,895                                                               | 9.90                                                         | 0.1508                                                   | 7,895                                                           | 9.90                                                         | 0.0762                                                    |
| tyre replacement                    | 4,346                                                               | 5.45                                                         | 0.0830                                                   | 7,243                                                           | 9.08                                                         | 0.0699                                                    |
| depreciation on<br>vehicles .       | 5,000                                                               | 6.27                                                         | 0.0955                                                   | 7,143                                                           | 8.96                                                         | 0.0689                                                    |
| depreciation on<br>other assets .   | 478                                                                 | 0.60                                                         | 0.0092                                                   | 478                                                             | 0.60                                                         | 0.0046                                                    |
| commission to<br>agents .           | 5,382                                                               | 7.00                                                         | 0.1066                                                   | 11,164                                                          | 14.00                                                        | 0.1077                                                    |
| other charges .                     | 5,269                                                               | 6.60                                                         | 0.1006                                                   | 5,269                                                           | 6.60                                                         | 0.0508                                                    |
| total cost .                        | 58,202                                                              | 72.98                                                        | 1.1118                                                   | 77,194                                                          | 96.79                                                        | 0.7446                                                    |

24. *Special features.*—As a matter of policy, it is understood that the Company does not at all permit overloading, carriage of prohibited goods, purchases at blackmarket rates of any item and above all non-conformity to scheduled timings. As a consequence the actual average load carried is always much less than the authorised pay load. It has also been observed that for body building the company has paid about Rs. 7,500 on an average for the closed metal type pattern whereas in the Delhi units for the wooden open type body the corresponding expenditure is only about Rs. 3,500. This coupled with other regular office-maintenance/technical establishment and allied overhead charges for running a large scale specialised transport organisation has resulted in an increase in the unit maund mile rates in this organisation. Hence the normal recovery rates have been fixed at 1½ paise per maund mile or 44 paise per ton mile with certain discounts under some special cases. However, the existing average cost per vehicle mile operated works out to about 70 paise.

The permit laden weight for lorries in Madras State is 9 tons whereas in Mysore, Kerala and Andhra it is stated to be only about 8 tons. The unladen weight of the Fargo lorries is stated to be about 4 tons so that generally in Madras and the adjoining States the authorised pay load for haulage is restricted to about 4 tons or 112 maunds. For Tata Mercedes Benz diesel truck the permitted loads in some other States are :

|                          | maunds |
|--------------------------|--------|
| Uttar Pradesh . . . . .  | 200    |
| Punjab . . . . .         | 220    |
| West Bengal . . . . .    | 135    |
| Madhya Pradesh . . . . . |        |
| Bombay . . . . .         |        |
| Rajasthan . . . . .      | 190    |
| Bihar . . . . .          | 170    |
| Delhi . . . . .          |        |

The following is a summary of the motor vehicles tax and composition fees paid/payable by the company in Madras and the adjoining States :

|                                                                             | motor vehicles tax<br>per quarter<br>Rs. | composi-<br>tion fees<br>per quarter<br>Rs. |
|-----------------------------------------------------------------------------|------------------------------------------|---------------------------------------------|
| Madras State . . . . .                                                      | 427                                      | 67·50                                       |
| Andhra State . . . . .                                                      | 427                                      | 135·00                                      |
| Mysore State :                                                              |                                          |                                             |
| (a) for Mysore permit vehicles . . . . .                                    | 479                                      | ..                                          |
| (b) for other vehicles . . . . .                                            | 439                                      | ..                                          |
| Kerala State :                                                              |                                          |                                             |
| (a) for permits in districts situated in erstwhile Madras<br>area . . . . . | 427                                      | 67·50                                       |
| (b) for others . . . . .                                                    | 504·50                                   | ..                                          |
| Pondicherry State and Karaikal . . . . .                                    | 120                                      | ..                                          |

Reciprocal arrangements exist only between (a) Madras and Andhra on payment of one-sixth tax extra and (b) Mysore and Kerala on no extra payment for motor vehicles tax with composition fee.

## APPENDIX 8

### ROLE OF BULLOCK CARTS IN RURAL TRANSPORT

At the instance of the Committee on Transport Policy and Coordination, the Programme Evaluation Organisation of the Planning Commission undertook a study of the role of bullock carts in rural transport and the changes therein over the last decade or so, particularly as a result of introduction of mechanised road transport. The scope of the study was confined to the most important type of trade in the rural areas, namely, marketing of agricultural commodities by villagers and purchase by them of commodities produced outside. Rural traffic in goods was assumed to be determined and conditioned by the nature, volume and direction of such trade. This assumption served to give the necessary focus to the study, as it implied that the share and role of different carriers in this traffic could be observed and analysed with the help of the 'trade-centre' approach. The study was accordingly based on field data for five selected trade-centres or 'mandis' (markets) and six selected villages in the hinterland of each mandi. The mandis selected for the survey were : (i) Tindivanam in South Arcot district of Madras; (ii) Lasalgaon in Nasik district of Maharashtra; (iii) Sirhind in Patiala district of the Punjab; (iv) Gorakhpur in Gorakhpur district of Uttar Pradesh; and (v) Sainthia in Birbhum district of West Bengal. The mandis selected were of intermediate size as they were considered suitable for obtaining a fairly complete picture of trade and traffic from and to villages. The field data for the study was collected during December 1960—January, 1961 which was the peak period for kharif arrivals in the markets. The data was collected generally with reference to the year 1959-60. An attempt was also made to collect data for the year 1949-50 or the year nearest to it for which figures were available, so as to obtain some idea of the change over time.

2. The mandis serve as entrepot markets *i.e.*, collection and distribution centres for agricultural produce marketed by the farmers in the hinterland and as distribution centres for non-agricultural consumer goods needed in rural areas. The total traffic handled in a mandi or a market sector comprises; incoming traffic in agricultural produce from the villages in the hinterland, despatches from the mandi, movements within the mandi and movements from the mandi and other sub-centres to the villages in the hinterland.

#### INCOMING TRAFFIC

3. Arrivals to the mandis are mostly by road. In two of the five selected mandis, practically nothing comes by rail. In the other three, railways handle from 20 to 50 per cent of the incoming traffic. Of the

total traffic coming to the mandis by road, the share of bullock carts and trucks in the years 1949-50 and 1959-60 was as follows :

Table 1 : Percentage share of carts and trucks in the incoming traffic

| mandi      | 1949  |        | 1959-60 |        |
|------------|-------|--------|---------|--------|
|            | carts | trucks | carts   | trucks |
| Tindivanam | 100   | ..     | 96      | 4      |
| Lasalgaon  | 84    | 16     | 70      | 30     |
| Sirhind    | 92    | 8      | 94      | 6      |
| Gorakhpur  | 95    | 5      | 58      | 42     |
| Sainthia   | 98    | 2      | 79      | 21     |

Bullock carts handled from 58 to 96 per cent of the road-borne inward traffic in 1959-60. Since 1949-50, the share of carts has registered a decline in four of the mandis, the decline being highest in Gorakhpur (from 95 per cent to 58 per cent).

As for the absolute quantity carried by bullock carts, it has declined appreciably during the last 10 years only in Gorakhpur. There has been a large increase in the absolute quantity carried by carts in Lasalgaon and Sainthia despite a marked fall in their shares vis-a-vis trucks. The increase in the amount of traffic handled by trucks has been much more than in that handled by carts. The main reasons for the increase in the share of trucks in the total traffic have been construction of pucca roads and a relatively large increase in the produce of the more valuable crops such as cotton, paddy, onion etc.

4. The share of trucks is generally larger in the higher distance groups and they handled about 90 per cent of the traffic originating from points between 10 and 20 miles away in Sirhind and 95—100 per cent of that coming beyond 20 miles in Gorakhpur. All traffic from beyond 25 miles in Sainthia comes by trucks. On the other hand, the share of trucks is low in the lower distance groups, e.g., 10—14 per cent in distances below 5 miles in Lasalgaon. All traffic from within 5 miles in Sirhind and Sainthia comes by carts. The share of trucks is relatively greater in the more valuable crops, e.g., cotton in Sirhind, onions in Lasalgaon and paddy in Sainthia.

In some cases, carts come to the mandis from long distances also. In Gorakhpur 43 per cent of the carters interviewed were found to be coming from points more than 20 miles away. Of the carters in the other four mandis 28 to 66 per cent came from 10—20 mile distance range.

#### OUTGOING TRAFFIC

5. The following table shows the proportion of outgoing traffic from the mandis moved by rail and road and the percentage of the road-borne traffic handled by trucks.

Table 2 : Modes of transport used for outgoing traffic in 1959-60

| mandi      | percentage handled by |      | percentage of the road-borne traffic handled by trucks. |
|------------|-----------------------|------|---------------------------------------------------------|
|            | road                  | rail |                                                         |
| Tindivanam | 90.0                  | 10.0 | 100.0                                                   |
| Lasalgaon  | 27.0                  | 73.0 | 100.0                                                   |
| Sirhind    | 42.0                  | 58.0 | 100.0                                                   |
| Gorakhpur  | 42.0                  | 58.0 | 70.0                                                    |
| Sainthia   | 25.0                  | 75.0 | 46.0                                                    |

The railways carry 58 to 75 per cent of the outgoing traffic in all the mandis except Tindivanam where road is the principal carrier. As despatches are generally bound for long distances, rail is preferred to road transport. However, over the past 10 years or so, the relative shares of rail and road has altered in favour of the latter.

6. Trucks are the dominant mode of road transport in this traffic except at Sainthia. The survey shows some affinity between the distances and the relative use of trucks and carts. The complete exclusion of carts in the despatches from Tindivanam, Lasalgaon and Sirhind is due to the long distances to which goods are exported from these mandis as compared with those in Gorakhpur and Sainthia. But even in the last two mandis, trucks have gained heavily over carts during the last 10 years. This change has been made possible by the rapid progress in road construction. Thus construction of roads has enabled trucks to wrest traffic both from the railways and the bullock carts.

#### INTRA-MANDI TRAFFIC

7. For intra-mandi movements only the non-mechanical modes of transport like bullock carts and thelas are generally used on account of short distances required to be covered. Trucks have not yet made much of a dent on this traffic.

#### TRAFFIC TO THE VILLAGES

8. In the hinterland villages of 3 mandis, Tindivanam, Sainthia and Sirhind either all or almost all of the incoming traffic comes by carts. In the villages of Tindivanam, trucks are not used at all. In the villages in the hinterland of Sainthia and Sirhind, trucks are not normally used because long distances have to be negotiated by kutcha roads. The proportion of incoming traffic brought by trucks is the largest in Gorakhpur villages i.e., 77 per cent. But all the commodities which came from distances of less than 15 miles were found to have been brought by carts. In fact, the trucks have been used mainly for the import of foodgrains for Government shops. In Lasalgaon, for a major part of the incoming traffic carts are used, only

29 per cent of the imports having been brought by trucks. When the hauling distance did not exceed 5 miles, carts were exclusively used.

#### VARIATION IN THE NUMBER OF CARTS

9. The following table shows the percentage increase or decrease in the number of carts between the years 1949-50 and 1959-60 in the five mandis. The Table also shows the percentage increase in the volume of exports from the villages and the percentage increase or decrease in the volume of exports per cart between these years.

Table 3 : Percentage increase or decrease between 1949-50 and 1959-60

| mandi area | number of carts | volume of total | export per cart |
|------------|-----------------|-----------------|-----------------|
| Tindivanam | 16.4            | 22.4            | 5.2             |
| Lasalgaon  | 33.1            | n.a.            | n.a.            |
| Sirhind    | 37.7            | 39.2            | 1.1             |
| Gorakhpur  | -16.3           | 59.9            | 90.8            |
| Sainthia   | 49.0            | 21.5            | -18.4           |

The number of carts has risen by about 16 to 49 per cent in the villages of four mandis. It is only in the Gorakhpur villages that the total number of carts has decreased by about 16 per cent.

In three mandi areas, both the number of carts and volume of exports have risen. But the increase in the number of carts has not kept pace with increase in exports. In Gorakhpur, although there has been a decline in the number of carts, the volume of exports per cart has increased. In Sainthia, the number of carts has risen much faster than the volume of exports.

10. Almost all carts are of the ordinary type, having wooden wheels and iron rings. In the villages in the Sirhind mandi, improved types of carts with pneumatic tyres have made their appearance, but most of the carts are still of the old type. The average capacity of carts was found to vary from 12 maunds in Sainthia to 23 maunds in Sirhind. The average load carried was found at the time of the survey to vary from 68 per cent to 88 per cent of the average capacity of the carts.

#### ROLE OF TRUCKS

11. The data relating to the frequency of visits of trucks to the villages bring out that, compared to 10 years back, the present position has changed very little. In Tindivanam area, trucks do not at all visit the selected villages. In Sainthia, the frequency of visits by trucks has increased in only one of the six sample villages because of the recent improvement in the connecting roads. In Sirhind, the change is marked in only one village where, despite its being in the interior, more trucks have begun plying. This is due to a very large increase in the production of onion which is collected by the traders from the village by trucks. In Lasalgaon, there has been some improvement in the use of trucks. In one village, it is attributed to

the improvement of the connecting road. In another village, the contributing factors are rise in the production of cotton and the prospect of getting better price for produce at Lasalgaon mandi. In Gorakhpur area, the use of trucks was reported from two of the sample villages where the change was attributed to the construction of metalled roads.

The two main factors favourable for trucks have been the improvement in the condition of roads and the rise in the production of certain 'cash' crops, e.g., onion, cotton, etc. which are either perishable or relatively more valuable. Another factor, noticeable to some extent, is the correlation of truck transport with the functional organisation of the marketing agencies or links. Thus, the change noticed in Sainthia village was due to rice mills having come up in the area in recent years which engaged not only in milling but also in wholesale purchase of rice and trucking. This has led to increased penetration of trucks into the villages on the roadside.

#### CONCLUSION

The report sums up the broad conclusion of the study as follows :—

".....the survey shows that the cart continues to occupy an indispensable place in the rural economy. While carts have lost much ground to trucks in the mandis or market centres, they have increased in number in the villages and are not handling any lower volume of traffic than ten years back. The reasons for this vitality of carts are the following :

- (i) The villages are mostly connected with mandis through kutcha roads which are quite often narrow, uneven and unfit for use by mechanical means of transport.
- (ii) The unit of farming being small, the marketable surplus per household is small and that too is sold in more than one instalment. Not all the marketable surplus needs be taken to markets. In the circumstances, carts are both suitable and economical.
- (iii) The growers prefer to send the produce to the nearer sub-mandis or even periodical mandis. This practice makes for a shortening of the hauling distance.
- (iv) The cultivators use carts for various agricultural uses like carrying fertilisers and manures to the fields, carrying produce from farm to store house, sugarcane to the crushers or fodder from distant fields. Thus, their use for marketing operations involves very little additional outlay or expenditure. Besides, ownership of carts is a status symbol and, as such is desired for non-economic reasons also.

"Trucks have, however, gained in importance in long hauls, particularly in the field of despatches from mandis. Here they have secured gains at the expense of railways as well as carts. On the village side, they will continue

to gain ground with improvement in the condition of roads and changes in the cropping pattern making for a shift to more valuable, commercial and perishable crops. But the effect of these changes will be slow and gradual as long as the market lots continue to be small enough to be handled by carts. A major shift in the use of trucks can come only after structural changes, involving changes in the unit of farming and marketing, take place."

## APPENDIX 9

### A NOTE ON THE WORKING OF LIGHT RAILWAYS

The Committee on Transport Policy and Coordination, in early stages of its work, received reports from some of the Light Railways Companies, especially from Martin Burn Ltd., about the continuous increase in the cost of operation and diversion of traffic to road transport, resulting in losses of revenue. The Martin Burn and Macleod Companies submitted memoranda to the Committee, on the subject. The Committee collected factual information on the working of all the Light Railways. The results of the study done by the Secretariat of the Committee are summarised briefly in this note.

#### GOVERNMENT INTEREST IN THE LIGHT RAILWAYS

2. A list of Light Railways owned by private companies, as on March 31, 1965 is appended at Annexure 1<sup>1</sup> to this note. Their total route length is 662.04 kms. (411.40 miles). The detailed arrangements which exist between the light railways on the one hand and the Railway Board or the local authorities on the other, are also summed up at Annexure I. It will be seen from the statement that in case of the following four light railways, Government have guaranteed interest at 3½ per cent on paid-up capital :

|                                 |                   |
|---------------------------------|-------------------|
| 1 Ahmadpur-Katwa railway        | } Macleod and Co. |
| 2 Bankura—Damodar river railway |                   |
| 3 Burdwan—Katwa railway         |                   |
| 4 Futwah—Islampur railway       | Martin Burn Ltd.  |

In the case of Shahdara (Delhi)—Saharanpur Light Railway (Martin Burn), Government is entitled to moiety of profits in excess of 4 per cent on the paid-up capital of the Company. The Central Government have on financial interest in any other Light Railway. However, in the case of some of the railways, the District Board authorities have financial interest and the right to acquire their assets.

#### FINANCIAL RESULTS OBTAINING ON THE LIGHT RAILWAYS

3. At Annexure II<sup>1</sup> to this note is given a statement which summarises the financial position of the Light Railways for the period 1956-57 to 1964-65. It will be seen that the working expenses on most of the railways have been going up at a faster rate than the gross earnings. The increase in working expenses is ascribed to several causes; the main factors being

<sup>1</sup>Source : Annual Reports-Indian Railways-Volume II—Statistics

rise in wages, the higher cost of renewals and repairs and all-round increase in the operating costs. In case of some of the railways, the higher costs are stated to be the result of expansion of services provided by the railways which has not been followed by proportionate increase in traffic and earnings owing to growing road transport competition. According to Martin Burn, the earnings of Shahdara (Delhi)—Saharanpur Light Railway have gone down substantially since 1956-57, due to increased road transport competition. In the year 1958-59, this railway showed a net loss of the order of Rs. 2.31 lakhs. The position did slightly improve in 1959-60 when it earned a profit of Rs. 3.65 lakhs. In the subsequent years, however, there has been steady decline in profits; in 1964-65, the profits stood at Rs. 0.41 lakhs.

4. As regards Arrah-Sasaram Railway, the gross earnings have been gradually increasing since 1959-60 and these amounted in 1964-65 to Rs. 21.52 lakhs. There has been a corresponding increase on the expenses side also which stood at Rs. 18.01 lakhs in 1964-65. The net earnings in 1964-65 were Rs. 3.51 lakhs which were significantly larger than the net earnings of Rs. 1.51 lakhs in the preceding year 1963-64. Even in the case of the Howrah-Amta Light Railway the net earnings which have gradually declined since 1957-58 have shown a significant increase in 1964-65. There has been a consistent decline in the net earnings of the Howrah-Sheakhala Light Railway : the earnings have come down from Rs. 1.04 lakhs in 1956-57 to Rs. 0.94 lakhs in 1964-65.

5. The Dehri-Rohtas Light Railway is owned by the Dehri-Rohtas Light Railway Company who operate it under an agreement with the District Board of Shahabad. The Central Government have no financial interest in the Railway. The financial results obtained on this railway have been generally satisfactory. However, since 1961-62 there has been a gradual fall in its net earnings, in 1964-65 these amounted to Rs. 17.91 lakhs as against Rs. 30.20 lakhs in 1960-61. The Macleod Company group of Railways comprising Ahmadpur-Katwa; Bankura-Damodar river and Burdwan-Katwa, have been operating expenses, the finances of these railways have been dwindling in recent years. The Ahmadpur-Katwa railway has incurred a loss of Rs. 4.56 lakhs in 1964-65 as against Rs. 3.12 lakhs in the previous year. The Bankura-Damodar river railway has shown a loss of Rs. 6.24 lakhs in 1964-65 as against Rs. 5.29 lakhs in 1963-64. Again, the Burdwan-Katwa Railway has shown a loss of Rs. 3.60 lakhs in 1964-65 as against Rs. 2.90 lakhs in the previous year. Thus, the finances of these railways are far from satisfactory.

#### REHABILITATION REQUIREMENTS OF THE LIGHT RAILWAYS

6. Most of the rolling stock on the Light Railways have become overaged, as these came into existence several decades back. The renewals and replacements of stock were not done according as they fell due. The Study

Group on Transport Planning (1958)<sup>1</sup> made a study of the position in regard to the overaged stock in some of the railways which is summed up below :

| railways                  | number above the age of 30 years as compared with the total numbers on line. |                   |              |
|---------------------------|------------------------------------------------------------------------------|-------------------|--------------|
|                           | coach bogies                                                                 | wagons-4 wheelers | engines      |
| Howrah—Amta . . .         | 12 out of 114                                                                | 66 out of 104     | 16 out of 27 |
| Howrah—Sheakhala . . .    | 1 out of 39                                                                  | all 11            | 2 out of 5   |
| Futwah—Islampur . . .     | 6 out of 11                                                                  | 16 out of 22      | all the 3    |
| Shahdara—Saharanpur . . . | 10 out of 67                                                                 | 215 out of 269    | 10 out of 19 |
| Arrah—Sasaram . . .       | 2 out of 32                                                                  | 49 out of 139     | 7 out of 11  |
| Dehri—Rohtas . . .        | 7 out of 12                                                                  | 59 out of 534     | 5 out of 15  |

On the Burdwan-Katwa, Ahmadpur-Katwa and Bankura-Damodar river railways all the coaches; wagons and engines in use are stated to have been there since the inception of the railways; periodical overhauling of course, were done to these but complete replacements, when due, were postponed.

7. The Dehri-Rohtas railway was stated to have programme to replace all the stock about 30 years old and was understood to be considering a scheme to strengthen their track to facilitate operations of heavier engines. The position in regard to other railways was not quite so easy. The rolling stock rehabilitation requirements of Martin Burn group of railways as also the funds available with them were indicated by the Company as below :

|                               | rehabilitation<br>require-<br>ments as<br>as on<br>31-3-62 | funds<br>available<br>in<br>replacement<br>and<br>renewals<br>reserve |
|-------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------|
|                               | Rs. (In lakhs)                                             |                                                                       |
| Howrah—Amta . . . . .         | 42.68                                                      | 1.83                                                                  |
| Howrah—Sheakhala . . . . .    | 9.40                                                       | 3.07                                                                  |
| Futwah—Islampur . . . . .     | 7.00                                                       | nil                                                                   |
| Shahdara—Saharanpur . . . . . | 39.20                                                      | 6.39                                                                  |
| Arrah—Sasaram . . . . .       | 24.60                                                      | nil                                                                   |

In the case of the Ahmadpur-Katwa, the Burdwan-Katwa and the Bankura-Damodar railways, no specific funds were set apart for rehabilitation purposes and all expenditure on rehabilitation or renewals was debited to the revenue account. Requirements for rehabilitation were quite heavy.

8. *Recent trends in traffic and earnings.*—There has been a steady decline in passenger and goods traffic in case of some of the light railways. Annexures III<sup>2</sup> and IV<sup>2</sup> give the volume of goods and passenger traffic

<sup>1</sup>The latest position is not available

<sup>2</sup>Source : Annual Reports-Indian Railways-Volume II-Statistics

handled by different light railways and their earnings during the last eight years from 1956-57 to 1964-65 respectively. It will be seen that generally, the light railways have been able to maintain a nominal increase in the passenger traffic carried and also earnings, except in the case of Shahdara-Saharanpur railway where the passengers carried have decreased from 58.24 lakhs in 1956-57 to 39.21 lakhs in 1964-65 and earnings from passengers carried from Rs. 29.90 lakhs in 1956-57 to Rs. 26.25 lakhs in 1964-65.

As regards good traffic, most of the railways have recorded decline in tonnes of goods carried and also in earnings, except in the case of Ahmadpur-Katwa, Dehri-Rohtas and Futwah-Islampur Railways where there has been very little improvement from 1956-57 to 1964-65. However, comparative statement showing percentage increase or decrease in passengers and goods traffic from 1956-57 to 1964-65 for light railways as against the figures for the Government Railways system as a whole are given below :

| railway                     | (percentage)          |                                           |                  |                                      |
|-----------------------------|-----------------------|-------------------------------------------|------------------|--------------------------------------|
|                             | passengers<br>carried | earnings<br>from<br>passengers<br>carried | goods<br>carried | earnings<br>from<br>goods<br>carried |
| total government            |                       |                                           |                  |                                      |
| railway system . . . .      | 48.90                 | 71.31                                     | 183.16           | 99.00                                |
| Ahmadpur—Katwa . . . .      | 49.48                 | 46.86                                     | 6.67             | 32.67                                |
| Arrah—Sasaram . . . .       | 18.49                 | 20.21                                     | —56.00           | —44.74                               |
| Bankura—Damodar . . . .     | 5.61                  | 10.83                                     | —40.00           | —11.79                               |
| Burdwan—Katwa . . . .       | 59.03                 | 76.83                                     | —14.29           | 151.16                               |
| Dehri—Rohtas . . . .        | 55.62                 | 67.95                                     | 11.93            | 76.02                                |
| Futwah—Islampur . . . .     | 86.80                 | 78.90                                     | 7.69             | 34.62                                |
| Howrah—Amta . . . .         | 15.63                 | 24.19                                     | —15.09           | 8.59                                 |
| Howrah—Sheakhala . . . .    | 33.01                 | 47.08                                     | —35.71           | —33.34                               |
| Shahdara—Saharanpur . . . . | —32.68                | —12.21                                    | —25.53           | 0.89                                 |

These figures explain that the traffic and earnings position of most of the light railways are far from satisfactory.

9. The light railways in their various representations to the Government, from time to time have pointed out that they were facing serious competition from road transport both in passenger and goods traffic. The present position in regard to competition from road transport on the routes served by the light railways is not available and may require study. At the suggestion of the Committee on Transport Policy and Coordination, a Light Railways Advisory Committee has been set up in each of the States of U.P., West Bengal and Bihar on which the Central Government (i.e. the Indian Government Railways), the light Railways Companies and the State Transport Authorities are represented. The function of the Committee is to consider necessary adjustments in the services provided by different modes of transport, including light railways with a view to utilising, the available transport resources to the utmost.

10. The present policy of the Government in respect of Light Railways was explained by the Minister of Railways in course of the Budget debate in Parliament in March, 1958. The Minister observed, "in regard to the nationalisation of the light railways, that is a question which comes up at every session of the House. It is important, no doubt. But, as I explained in the Rajya Sabha a decision was taken two years back not to nationalise the Light Railways and not to expend our resources on taking over a facility which was already in existence but rather to expand, if we have the resources, for opening up new lines or for the construction of new lines; and that is why we are not at present very enthusiastic about nationalising the light railways. But whenever we find that the condition of a particular light railway has so deteriorated and the people of that locality will be greatly handicapped if that particular railway is either closed down or is not in serviceable condition, we consider whether or not to take over that railway and provide the people of the locality with the facility. So, that is our policy so far as light railways are concerned."

## ANNEXURE I

Kilometrage statement for the year 1964-65

| railway                     | date of first opening for traffic | route kilometrage open on 31st March 1965 | classification |         |        |
|-----------------------------|-----------------------------------|-------------------------------------------|----------------|---------|--------|
|                             |                                   |                                           | running        | sidings | total  |
| Ahmadpur-Katwa              | 30-5-1917                         | 51.92                                     | 52.61          | 4.64    | 57.25  |
| Arrah-Sasaram               | 6-3-1911                          | 104.86                                    | 104.86         | 9.68    | 114.54 |
| Bankura-Damodar river       | 15-12-1916                        | 96.48                                     | 96.62          | 11.29   | 107.91 |
| Burdwan-Katwa               | 1-12-1915                         | 52.24                                     | 52.95          | 6.62    | 59.57  |
| Dehri-Rohtas                | 6-2-1911                          | 66.75                                     | 66.75          | 36.32   | 103.07 |
| Futwah-Islampur             | 24-1-1922                         | 43.45                                     | 43.45          | 3.64    | 47.09  |
| Howrah-Amta                 | 1-7-1897                          | 70.31                                     | 70.31          | 16.04   | 86.35  |
| Howrah-Sheakhala            | 2-8-1897                          | 27.16                                     | 27.16          | 3.88    | 31.04  |
| Shahdara (Delhi)—Saharanpur | 7-5-1907                          | 148.87                                    | 148.87         | 24.09   | 172.96 |
| total                       |                                   | 662.04                                    | 663.58         | 116.20  | 779.78 |

1 Guaranteed by the Government of India.

2 Received land only from Government.

## ANNEXURE II

Statement showing capital at charge/capital outlay, gross earnings and expenses

| railway        | year    | capital at charge | gross earnings | working expenses (excluding suspenses and payment to worked lines) |                                                  | net earnings                                          | (in thousand rupees) |        |
|----------------|---------|-------------------|----------------|--------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------|----------------------|--------|
|                |         |                   |                | gross earnings                                                     | percentage of working expenses to gross earnings | percentage of net earnings on total capital at charge |                      |        |
| Ahmadpur-Katwa | 1       | 2                 | 3              | 4                                                                  | 5                                                | 6                                                     | 7                    | 8      |
|                | 1956-57 | 20.68             | 20.68          | 5.40                                                               | 5.19                                             | 21                                                    | 96.21                | 1.02   |
|                | 1957-58 | 20.65             | 20.65          | 5.74                                                               | 6.27                                             | 53                                                    | 109.30               | -2.56  |
|                | 1958-59 | 20.65             | 20.65          | 6.67                                                               | 6.10                                             | 57                                                    | 91.40                | 2.78   |
|                | 1959-60 | 21.27             | 21.27          | 6.09                                                               | 7.99                                             | 1,90                                                  | 131.20               | -8.93  |
|                | 1960-61 | 21.88             | 21.88          | 6.33                                                               | 7.99                                             | 1,66                                                  | 126.22               | -7.59  |
|                | 1961-62 | 21.32             | 21.32          | 7.30                                                               | 9.82                                             | 2,52                                                  | 134.56               | -7.18  |
|                | 1962-63 | 22.32             | 22.32          | 7.61                                                               | 10.27                                            | 2,66                                                  | 134.95               | -11.92 |
| Arrah-Sasaram  | 1963-64 | 22.32             | 22.32          | 7.81                                                               | 10.93                                            | 3,12                                                  | 139.91               | -13.97 |
|                | 1964-65 | 22.32             | 22.32          | 7.68                                                               | 12.24                                            | 4,56                                                  | 159.38               | -20.43 |
|                | 1956-57 | 33.55             | 33.55          | 19.58                                                              | 15.78                                            | 3,80                                                  | 81.20                | 10.70  |
|                | 1957-58 | 35.36             | 35.36          | 18.51                                                              | 16.43                                            | 2,08                                                  | 88.76                | 5.88   |
|                | 1958-59 | 35.65             | 35.65          | 17.63                                                              | 15.66                                            | 1,97                                                  | 88.83                | 5.53   |
|                | 1959-60 | 35.39             | 35.39          | 19.52                                                              | 16.08                                            | 3,44                                                  | 82.39                | 9.71   |
|                | 1960-61 | 35.36             | 35.36          | 19.57                                                              | 16.89                                            | 2,58                                                  | 86.27                | 7.60   |
|                | 1961-62 | 35.43             | 35.43          | 20.04                                                              | 17.00                                            | 3,04                                                  | 84.85                | 8.57   |
| 1962-63        | 1962-63 | 35.66             | 35.66          | 20.54                                                              | 18.00                                            | 2,54                                                  | 87.62                | 7.13   |
|                | 1963-64 | 35.66             | 35.66          | 20.19                                                              | 18.68                                            | 1,51                                                  | 92.50                | 4.25   |
|                | 1964-65 | 35.83             | 35.83          | 21.52                                                              | 18.01                                            | 3,51                                                  | 83.68                | 9.80   |

## ANNEXTURE II (contd.)

|                              | 1 | 2       | 3      | 4     | 5     | 6     | 7      | 8      |
|------------------------------|---|---------|--------|-------|-------|-------|--------|--------|
| <b>Bankura-Damodar river</b> |   |         |        |       |       |       |        |        |
|                              |   | 1956-57 | 42.63  | 9.00  | 8.71  | 29    | 96.77  | 0.68   |
|                              |   | 1957-58 | 42.95  | 8.80  | 10.49 | -1.69 | 119.29 | -3.93  |
|                              |   | 1958-59 | 42.97  | 8.99  | 9.97  | -98   | 110.87 | -2.27  |
|                              |   | 1959-60 | 43.60  | 8.05  | 13.84 | -5.79 | 171.91 | -13.28 |
|                              |   | 1960-61 | 46.35  | 7.68  | 13.84 | -6.16 | 180.20 | -13.29 |
|                              |   | 1961-62 | 45.80  | 8.60  | 13.26 | -4.66 | 154.16 | -8.19  |
|                              |   | 1962-63 | 45.83  | 8.70  | 14.24 | -5.44 | 163.66 | -12.08 |
|                              |   | 1963-64 | 45.99  | 9.30  | 14.59 | -5.29 | 156.82 | -11.49 |
|                              |   | 1964-65 | 46.19  | 9.51  | 15.75 | -6.24 | 165.59 | -13.51 |
| <b>Burdwan-Katwa</b>         |   |         |        |       |       |       |        |        |
|                              |   | 1956-57 | 23.45  | 4.38  | 5.74  | -1.36 | 131.14 | -5.80  |
|                              |   | 1957-58 | 23.43  | 4.97  | 7.25  | -2.28 | 145.93 | -9.73  |
|                              |   | 1958-59 | 24.40  | 5.60  | 6.00  | -40   | 107.12 | -1.70  |
|                              |   | 1959-60 | 23.79  | 4.99  | 7.92  | -2.93 | 158.75 | -12.31 |
|                              |   | 1960-61 | 24.94  | 5.70  | 7.92  | -2.22 | 138.94 | -8.90  |
|                              |   | 1961-62 | 25.34  | 5.69  | 8.76  | -3.07 | 154.02 | -6.50  |
|                              |   | 1962-63 | 25.95  | 6.44  | 9.94  | -3.50 | 154.25 | -13.49 |
|                              |   | 1963-64 | 26.18  | 7.20  | 10.10 | -2.90 | 140.41 | -11.11 |
|                              |   | 1964-65 | 27.35  | 7.94  | 11.54 | -3.60 | 145.36 | -13.16 |
| <b>Dehri-Rohas</b>           |   |         |        |       |       |       |        |        |
|                              |   | 1956-57 | 77.22  | 26.50 | 13.23 | 13.27 | 49.92  | 17.17  |
|                              |   | 1957-58 | 79.17  | 27.50 | 16.98 | 10.52 | 61.76  | 13.28  |
|                              |   | 1958-59 | 87.82  | 39.30 | 17.45 | 21.85 | 44.40  | 24.88  |
|                              |   | 1959-60 | 93.68  | 43.96 | 19.33 | 24.63 | 43.97  | 26.29  |
|                              |   | 1960-61 | 95.98  | 52.64 | 22.44 | 30.20 | 42.63  | 31.46  |
|                              |   | 1961-62 | 98.15  | 52.04 | 29.59 | 22.45 | 56.86  | 22.85  |
|                              |   | 1962-63 | 102.47 | 54.17 | 32.49 | 21.68 | 59.97  | 21.15  |
|                              |   | 1963-64 | 107.24 | 46.52 | 28.46 | 18.06 | 61.17  | 16.84  |
|                              |   | 1964-65 | 109.42 | 48.57 | 30.66 | 17.91 | 63.11  | 16.37  |
| <b>Futwah-Islampur</b>       |   |         |        |       |       |       |        |        |
|                              |   | 1956-57 | 20.19  | 6.01  | 6.22  | -21   | 103.00 | -1.00  |
|                              |   | 1957-58 | 20.32  | 5.95  | 7.00  | -1.05 | 117.64 | -5.16  |
|                              |   | 1958-59 | 20.58  | 6.27  | 6.15  | 12    | 98.08  | 0.57   |

|                                          |         |       |       |       |       |        |       |
|------------------------------------------|---------|-------|-------|-------|-------|--------|-------|
| <b>Howrah-Amta Light</b>                 | 1959-60 | 20.30 | 7.70  | 7.33  | 37    | 95.17  | 1.83  |
|                                          | 1960-61 | 20.16 | 8.22  | 8.23  | -1    | 100.13 | -0.05 |
|                                          | 1961-62 | 20.27 | 8.51  | 7.46  | 1.05  | 87.72  | 5.15  |
|                                          | 1962-63 | 20.99 | 8.86  | 8.60  | 26    | 97.03  | 1.25  |
|                                          | 1963-64 | 20.90 | 9.01  | 8.20  | 81    | 91.00  | 3.87  |
|                                          | 1964-65 | 20.69 | 10.74 | 8.55  | 2.19  | 97.64  | 10.56 |
|                                          | 1956-57 | 59.73 | 29.77 | 25.09 | 4.68  | 86.40  | 7.80  |
|                                          | 1957-58 | 57.58 | 30.32 | 26.82 | 3.50  | 88.46  | 6.07  |
|                                          | 1958-59 | 56.22 | 30.15 | 28.14 | 2.01  | 93.33  | 3.56  |
|                                          | 1959-60 | 55.22 | 29.68 | 27.32 | 2.36  | 92.02  | 4.28  |
|                                          | 1960-61 | 54.53 | 31.09 | 28.37 | 2.72  | 91.26  | 4.98  |
|                                          | 1961-62 | 54.99 | 29.78 | 28.07 | 1.71  | 94.27  | 3.10  |
|                                          | 1962-63 | 54.81 | 29.89 | 28.06 | 1.83  | 93.88  | 3.34  |
|                                          | 1963-64 | 54.22 | 31.36 | 29.29 | 2.07  | 93.38  | 3.83  |
|                                          | 1964-65 | 55.43 | 36.42 | 31.64 | 4.78  | 86.86  | 8.79  |
|                                          | 1956-57 | 13.41 | 7.13  | 6.09  | 1.04  | 85.20  | 7.70  |
|                                          | 1957-58 | 13.71 | 7.48  | 6.43  | 1.05  | 85.96  | 7.66  |
|                                          | 1958-59 | 13.71 | 7.61  | 6.82  | 79    | 89.61  | 5.72  |
|                                          | 1959-60 | 13.71 | 7.81  | 6.83  | 98    | 87.40  | 7.18  |
|                                          | 1960-61 | 13.66 | 7.82  | 7.18  | 64    | 91.78  | 4.71  |
|                                          | 1961-62 | 13.66 | 8.31  | 7.68  | 63    | 92.44  | 4.60  |
|                                          | 1962-63 | 13.66 | 8.99  | 8.09  | 90    | 89.95  | 6.61  |
|                                          | 1963-64 | 13.64 | 9.35  | 8.49  | 86    | 90.82  | 6.29  |
|                                          | 1964-65 | 13.64 | 9.88  | 8.94  | 94    | 90.45  | 6.91  |
|                                          | 1956-57 | 69.20 | 44.10 | 34.85 | 9.25  | 79.10  | 13.40 |
|                                          | 1957-58 | 71.72 | 39.18 | 37.15 | 2.03  | 94.82  | 2.83  |
|                                          | 1958-59 | 72.20 | 39.76 | 32.07 | -2.31 | 107.76 | 3.20  |
|                                          | 1959-60 | 71.47 | 36.62 | 32.97 | 3.65  | 90.01  | 5.11  |
|                                          | 1960-61 | 69.98 | 36.27 | 35.35 | 92    | 97.46  | 1.32  |
|                                          | 1961-62 | 71.63 | 34.94 | 33.82 | 1.12  | 96.80  | 1.56  |
|                                          | 1962-63 | 72.02 | 37.53 | 37.34 | 19    | 99.47  | 0.27  |
|                                          | 1963-64 | 72.17 | 39.64 | 39.11 | 53    | 98.65  | 0.74  |
|                                          | 1964-65 | 71.50 | 41.05 | 40.64 | 41    | 99.00  | 0.57  |
| <b>Howrah-Sheekhala Light</b>            |         |       |       |       |       |        |       |
|                                          | 1959-60 | 20.30 | 7.70  | 7.33  | 37    | 95.17  | 1.83  |
|                                          | 1960-61 | 20.16 | 8.22  | 8.23  | -1    | 100.13 | -0.05 |
|                                          | 1961-62 | 20.27 | 8.51  | 7.46  | 1.05  | 87.72  | 5.15  |
|                                          | 1962-63 | 20.99 | 8.86  | 8.60  | 26    | 97.03  | 1.25  |
|                                          | 1963-64 | 20.90 | 9.01  | 8.20  | 81    | 91.00  | 3.87  |
|                                          | 1964-65 | 20.69 | 10.74 | 8.55  | 2.19  | 97.64  | 10.56 |
|                                          | 1956-57 | 59.73 | 29.77 | 25.09 | 4.68  | 86.40  | 7.80  |
|                                          | 1957-58 | 57.58 | 30.32 | 26.82 | 3.50  | 88.46  | 6.07  |
|                                          | 1958-59 | 56.22 | 30.15 | 28.14 | 2.01  | 93.33  | 3.56  |
|                                          | 1959-60 | 55.22 | 29.68 | 27.32 | 2.36  | 92.02  | 4.28  |
|                                          | 1960-61 | 54.53 | 31.09 | 28.37 | 2.72  | 91.26  | 4.98  |
|                                          | 1961-62 | 54.99 | 29.78 | 28.07 | 1.71  | 94.27  | 3.10  |
|                                          | 1962-63 | 54.81 | 29.89 | 28.06 | 1.83  | 93.88  | 3.34  |
|                                          | 1963-64 | 54.22 | 31.36 | 29.29 | 2.07  | 93.38  | 3.83  |
|                                          | 1964-65 | 55.43 | 36.42 | 31.64 | 4.78  | 86.86  | 8.79  |
|                                          | 1956-57 | 13.41 | 7.13  | 6.09  | 1.04  | 85.20  | 7.70  |
|                                          | 1957-58 | 13.71 | 7.48  | 6.43  | 1.05  | 85.96  | 7.66  |
|                                          | 1958-59 | 13.71 | 7.61  | 6.82  | 79    | 89.61  | 5.72  |
|                                          | 1959-60 | 13.71 | 7.81  | 6.83  | 98    | 87.40  | 7.18  |
|                                          | 1960-61 | 13.66 | 7.82  | 7.18  | 64    | 91.78  | 4.71  |
|                                          | 1961-62 | 13.66 | 8.31  | 7.68  | 63    | 92.44  | 4.60  |
|                                          | 1962-63 | 13.66 | 8.99  | 8.09  | 90    | 89.95  | 6.61  |
|                                          | 1963-64 | 13.64 | 9.35  | 8.49  | 86    | 90.82  | 6.29  |
|                                          | 1964-65 | 13.64 | 9.88  | 8.94  | 94    | 90.45  | 6.91  |
|                                          | 1956-57 | 69.20 | 44.10 | 34.85 | 9.25  | 79.10  | 13.40 |
|                                          | 1957-58 | 71.72 | 39.18 | 37.15 | 2.03  | 94.82  | 2.83  |
|                                          | 1958-59 | 72.20 | 39.76 | 32.07 | -2.31 | 107.76 | 3.20  |
|                                          | 1959-60 | 71.47 | 36.62 | 32.97 | 3.65  | 90.01  | 5.11  |
|                                          | 1960-61 | 69.98 | 36.27 | 35.35 | 92    | 97.46  | 1.32  |
|                                          | 1961-62 | 71.63 | 34.94 | 33.82 | 1.12  | 96.80  | 1.56  |
|                                          | 1962-63 | 72.02 | 37.53 | 37.34 | 19    | 99.47  | 0.27  |
|                                          | 1963-64 | 72.17 | 39.64 | 39.11 | 53    | 98.65  | 0.74  |
|                                          | 1964-65 | 71.50 | 41.05 | 40.64 | 41    | 99.00  | 0.57  |
| <b>Shabdara (Delhi)-Sabaranpur Light</b> |         |       |       |       |       |        |       |
|                                          | 1959-60 | 20.30 | 7.70  | 7.33  | 37    | 95.17  | 1.83  |
|                                          | 1960-61 | 20.16 | 8.22  | 8.23  | -1    | 100.13 | -0.05 |
|                                          | 1961-62 | 20.27 | 8.51  | 7.46  | 1.05  | 87.72  | 5.15  |
|                                          | 1962-63 | 20.99 | 8.86  | 8.60  | 26    | 97.03  | 1.25  |
|                                          | 1963-64 | 20.90 | 9.01  | 8.20  | 81    | 91.00  | 3.87  |
|                                          | 1964-65 | 20.69 | 10.74 | 8.55  | 2.19  | 97.64  | 10.56 |
|                                          | 1956-57 | 59.73 | 29.77 | 25.09 | 4.68  | 86.40  | 7.80  |
|                                          | 1957-58 | 57.58 | 30.32 | 26.82 | 3.50  | 88.46  | 6.07  |
|                                          | 1958-59 | 56.22 | 30.15 | 28.14 | 2.01  | 93.33  | 3.56  |
|                                          | 1959-60 | 55.22 | 29.68 | 27.32 | 2.36  | 92.02  | 4.28  |
|                                          | 1960-61 | 54.53 | 31.09 | 28.37 | 2.72  | 91.26  | 4.98  |
|                                          | 1961-62 | 54.99 | 29.78 | 28.07 | 1.71  | 94.27  | 3.10  |
|                                          | 1962-63 | 54.81 | 29.89 | 28.06 | 1.83  | 93.88  | 3.34  |
|                                          | 1963-64 | 54.22 | 31.36 | 29.29 | 2.07  | 93.38  | 3.83  |
|                                          | 1964-65 | 55.43 | 36.42 | 31.64 | 4.78  | 86.86  | 8.79  |
|                                          | 1956-57 | 13.41 | 7.13  | 6.09  | 1.04  | 85.20  | 7.70  |
|                                          | 1957-58 | 13.71 | 7.48  | 6.43  | 1.05  | 85.96  | 7.66  |
|                                          | 1958-59 | 13.71 | 7.61  | 6.82  | 79    | 89.61  | 5.72  |
|                                          | 1959-60 | 13.71 | 7.81  | 6.83  | 98    | 87.40  | 7.18  |
|                                          | 1960-61 | 13.66 | 7.82  | 7.18  | 64    | 91.78  | 4.71  |
|                                          | 1961-62 | 13.66 | 8.31  | 7.68  | 63    | 92.44  | 4.60  |
|                                          | 1962-63 | 13.66 | 8.99  | 8.09  | 90    | 89.95  | 6.61  |
|                                          | 1963-64 | 13.64 | 9.35  | 8.49  | 86    | 90.82  | 6.29  |
|                                          | 1964-65 | 13.64 | 9.88  | 8.94  | 94    | 90.45  | 6.91  |
|                                          | 1956-57 | 69.20 | 44.10 | 34.85 | 9.25  | 79.10  | 13.40 |
|                                          | 1957-58 | 71.72 | 39.18 | 37.15 | 2.03  | 94.82  | 2.83  |
|                                          | 1958-59 | 72.20 | 39.76 | 32.07 | -2.31 | 107.76 | 3.20  |
|                                          | 1959-60 | 71.47 | 36.62 | 32.97 | 3.65  | 90.01  | 5.11  |
|                                          | 1960-61 | 69.98 | 36.27 | 35.35 | 92    | 97.46  | 1.32  |
|                                          | 1961-62 | 71.63 | 34.94 | 33.82 | 1.12  | 96.80  | 1.56  |
|                                          | 1962-63 | 72.02 | 37.53 | 37.34 | 19    | 99.47  | 0.27  |
|                                          | 1963-64 | 72.17 | 39.64 | 39.11 | 53    | 98.65  | 0.74  |
|                                          | 1964-65 | 71.50 | 41.05 | 40.64 | 41    | 99.00  | 0.57  |

## ANNEXURE III

Statement showing goods revenue statistics and their earnings

| railway        | year    | tonnes of<br>goods<br>carried in<br>000's | net<br>tonne-<br>kilometres<br>in 000's | average<br>number of<br>kilometres<br>a tonne of<br>goods was<br>carried | earnings<br>from<br>tonnes<br>carried in<br>000's | average rate<br>charged (in<br>paise) for<br>carrying a<br>tonne of<br>goods per<br>kilometre |
|----------------|---------|-------------------------------------------|-----------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 1              | 2       | 3                                         | 4                                       | 5                                                                        | 6                                                 | 7                                                                                             |
| Ahmadpur-Katwa | 1956-57 | 30                                        | 791                                     | 25.9                                                                     | 101                                               | 25.52                                                                                         |
|                | 1957-58 | 35<br>(16.66)                             | 903<br>(14.16)                          | 26.1<br>(0.77)                                                           | 113<br>(11.88)                                    | 20.50<br>(-19.67)                                                                             |
|                | 1958-59 | 54<br>(54.29)                             | 1336<br>(47.95)                         | 24.8<br>(-4.99)                                                          | 193<br>(70.80)                                    | 23.6<br>(15.12)                                                                               |
|                | 1959-60 | 43<br>(-20.38)                            | 1084<br>(-18.87)                        | 24.8                                                                     | 191<br>(-1.04)                                    | 18.5<br>(-21.61)                                                                              |
|                | 1960-61 | 36<br>(-16.28)                            | 1014<br>(-6.46)                         | 28.2<br>(1.37)                                                           | 174<br>(-8.90)                                    | 17.2<br>(-7.03)                                                                               |
|                | 1961-62 | 42<br>(16.6)                              | 1170<br>(15.38)                         | 27.9<br>(-1.07)                                                          | 200<br>(14.9)                                     | 17.9<br>(4.07)                                                                                |
|                | 1962-63 | 39<br>(-7.14)                             | 1133<br>(-3.16)                         | 29.1<br>(4.30)                                                           | 181<br>(-9.5)                                     | 16.0<br>(-10.62)                                                                              |
|                | 1963-64 | 38<br>(-2.56)                             | 1119<br>(-1.24)                         | 29.5<br>(1.37)                                                           | 183<br>(1.10)                                     | 16.4<br>(2.50)                                                                                |
|                | 1964-65 | 32<br>(-15.79)                            | 768<br>(-31.37)                         | 24.0<br>(-18.64)                                                         | 134<br>(-26.78)                                   | 17.5<br>(10.67)                                                                               |
|                | 1956-57 | 75                                        | 4273                                    | 57.1                                                                     | 346                                               | 13.3                                                                                          |
| Arrah-Sasaram  | 1957-58 | 73<br>(-2.67)                             | 3823<br>(-10.53)                        | 52.1<br>(-8.76)                                                          | 324<br>(-6.36)                                    | 13.9<br>(4.51)                                                                                |
|                | 1958-59 | 55<br>(-24.66)                            | 2600<br>(-31.99)                        | 47.6<br>(-8.64)                                                          | 254<br>(-21.61)                                   | 16.0<br>(15.11)                                                                               |

## LIGHT RAILWAYS

|         |                |                  |                  |                 |                  |
|---------|----------------|------------------|------------------|-----------------|------------------|
| 1959-60 | 53<br>(-3.64)  | 2270<br>(-12.69) | 43.0<br>(-9.66)  | 239<br>(-5.91)  | 10.6<br>(-33.75) |
| 1960-61 | 41<br>(-22.64) | 1966<br>(-13.40) | 47.4<br>(10.23)  | 242<br>(1.26)   | 12.0<br>(13.20)  |
| 1961-62 | 47<br>(14.63)  | 2474<br>(25.84)  | 50.0<br>(5.49)   | 235<br>(-2.9)   | 9.51<br>(-20.75) |
| 1962-63 | 46<br>(-2.1)   | 2292<br>(-7.36)  | 50.5<br>(1.00)   | 238<br>(1.30)   | 10.4<br>(9.36)   |
| 1963-64 | 41<br>(-10.87) | 1580<br>(-31.06) | 38.2<br>(-24.36) | 193<br>(-18.91) | 12.2<br>(17.31)  |
| 1964-65 | 33<br>(-19.51) | 1643<br>(3.99)   | 50.1<br>(31.15)  | 192<br>(-0.52)  | 11.7<br>(-4.10)  |
| 1956-57 | 45             | 3143             | 70.3             | 229             | 11.6             |
| 1957-58 | 46<br>(2.22)   | 3030<br>(-3.60)  | 66.3<br>(-5.69)  | 209<br>(-8.76)  | 11.3<br>(-2.59)  |
| 1958-59 | 44<br>(-4.35)  | 3041<br>(0.36)   | 69.7<br>(5.13)   | 229<br>(9.57)   | 11.9<br>(5.31)   |
| 1959-60 | 36<br>(-19.19) | 2660<br>(-12.53) | 74.8<br>(7.32)   | 229             | 8.44<br>(-29.08) |
| 1960-61 | 33<br>(-8.33)  | 1943<br>(-26.95) | 58.9<br>(-21.26) | 190<br>(-17.03) | 9.77<br>(-15.76) |
| 1961-62 | 41<br>(24.2)   | 2637<br>(35.71)  | 64.3<br>(9.17)   | 243<br>(27.9)   | 9.21<br>(-5.74)  |
| 1962-63 | 29<br>(-29.3)  | 1928<br>(-26.89) | 66.5<br>(3.42)   | 192<br>(-20.90) | 9.96<br>(8.14)   |
| 1963-64 | 34<br>(17.24)  | 2258<br>(17.12)  | 66.4<br>(-0.16)  | 220<br>(14.58)  | 9.74<br>(-2.21)  |
| 1964-65 | 27<br>(-20.59) | 1815<br>(-19.62) | 67.2<br>(1.20)   | 202<br>(-8.18)  | 11.1<br>(13.96)  |
| 1956-57 | 21             | 623              | 29.1             | 43              | 11.3             |
| 1957-58 | 14<br>(-33.34) | 623              | 43.8<br>(50.52)  | 41<br>(-4.65)   | 10.8<br>(-4.43)  |
| 1958-59 | 18<br>(28.57)  | 752<br>(20.71)   | 41.0<br>(-6.39)  | 65<br>(58.85)   | 14.1<br>(30.55)  |
| 1959-60 | 10<br>(-44.45) | 486<br>(-35.37)  | 47.1<br>(14.88)  | 51<br>(-21.54)  | 12.4<br>(-12.06) |

## Bankura-Damodar

## Burdwan-Katwa

ANNEXURE III (contd)305

## ANNEXURE III (contd)

| 1                           | 2       | 3               | 4                 | 5                | 6                | 7                |
|-----------------------------|---------|-----------------|-------------------|------------------|------------------|------------------|
|                             | 1960-61 | 11<br>(-38.89)  | 288<br>(-25.39)   | 26.6<br>(23.15)  | 54<br>(-37.93)   | 19.0<br>(-15.93) |
|                             | 1961-62 | 11              | 289<br>(0.35)     | 26.4<br>(-0.75)  | 48<br>(-11.12)   | 16.5<br>(-13.16) |
|                             | 1962-63 | 10<br>(-9.1)    | 278<br>(-3.91)    | 27.3<br>(3.41)   | 46<br>(-4.17)    | 16.4<br>(-0.61)  |
|                             | 1963-64 | 12<br>(20.0)    | 309<br>(11.15)    | 26.8<br>(-1.84)  | 56<br>(21.74)    | 18.0<br>(9.76)   |
|                             | 1964-65 | 9<br>(-25.00)   | 200<br>(-35.28)   | 23.1<br>(-13.81) | 46<br>(-17.86)   | 21.3<br>(18.33)  |
| Shabdara (Delhi)—Saharanpur | 1956-57 | 329             | 16556             | 50.4             | 1123             | 11.11            |
|                             | 1957-58 | 349<br>(6.08)   | 15052<br>(-9.09)  | 43.1<br>(-14.49) | 1133<br>(0.89)   | 12.30<br>(10.71) |
|                             | 1958-59 | 319<br>(-8.60)  | 14970<br>(-0.54)  | 46.8<br>(8.58)   | 1150<br>(1.50)   | 12.60<br>(2.44)  |
|                             | 1959-60 | 305<br>(-4.39)  | 14288<br>(-4.56)  | 46.7<br>(-0.22)  | 1408<br>(22.43)  | 9.85<br>(-21.83) |
|                             | 1960-61 | 277<br>(-9.18)  | 12826<br>(-10.23) | 46.4<br>(-0.64)  | 1433<br>(1.78)   | 12.30<br>(24.87) |
|                             | 1961-62 | 277             | 12826             | 46.4             | 1433             | 12.30            |
|                             | 1962-63 | 198<br>(-28.52) | 9145<br>(-28.70)  | 46.1<br>(-0.65)  | 1102<br>(-23.10) | 12.1<br>(-2.63)  |
|                             | 1963-64 | 207<br>(4.54)   | 9174<br>(0.32)    | 44.4<br>(-3.69)  | 1243<br>(12.79)  | 13.6<br>(12.40)  |
|                             | 1964-65 | 245<br>(18.36)  | 10584<br>(15.37)  | 43.2<br>(-2.70)  | 1133<br>(-8.85)  | 10.7<br>(-21.32) |
|                             |         |                 |                   |                  |                  |                  |

## ANNEXURE IV

Statement showing trends in passenger traffic and their earnings

| railway        | year    | passenger<br>originating<br>in 000's | passenger<br>carried<br>in 000's | passenger<br>kilometres<br>in 000's | Average<br>number of<br>kilometres<br>a passenger<br>was carried | earnings<br>from<br>passenger<br>carried |
|----------------|---------|--------------------------------------|----------------------------------|-------------------------------------|------------------------------------------------------------------|------------------------------------------|
| 1              | 2       | 3                                    | 4                                | 5                                   | 6                                                                | 7                                        |
| Ahmadpur-Katwa | 1956-57 | 957                                  | 966                              | 18118                               | 18.8                                                             | 414                                      |
|                | 1957-58 | 1034<br>(8.00)                       | 1042<br>(7.87)                   | 19306<br>(6.56)                     | 18.5<br>(-1.60)                                                  | 442<br>(6.76)                            |
|                | 1958-59 | 1064<br>(2.90)                       | 1070<br>(2.69)                   | 19632<br>(1.69)                     | 18.3<br>(-1.09)                                                  | 451<br>(2.04)                            |
|                | 1959-60 | 912<br>(-14.29)                      | 920<br>(-14.02)                  | 16488<br>(-16.02)                   | 17.9<br>(-2.19)                                                  | 379<br>(-15.97)                          |
|                | 1960-61 | 1021<br>(11.95)                      | 1026<br>(11.52)                  | 18980<br>(15.11)                    | 18.5<br>(3.55)                                                   | 431<br>(13.72)                           |
|                | 1961-62 | 1201<br>(17.63)                      | 1209<br>(17.84)                  | 21824<br>(14.98)                    | 18.1<br>(-2.16)                                                  | 502<br>(16.47)                           |
|                | 1962-63 | 1324<br>(10.24)                      | 1331<br>(10.09)                  | 24156<br>(10.69)                    | 18.1<br>..                                                       | 551<br>(9.76)                            |
|                | 1963-64 | 1356<br>(2.42)                       | 1364<br>(2.48)                   | 22397<br>(-7.28)                    | 16.4<br>(-9.39)                                                  | 567<br>(2.90)                            |
|                | 1964-65 | 1438<br>(6.05)                       | 1444<br>(5.87)                   | 24004<br>(7.18)                     | 16.7<br>(1.83)                                                   | 608<br>(7.23)                            |
|                |         |                                      |                                  |                                     |                                                                  |                                          |
| Arrah-Saunam   | 1956-57 | 2088                                 | 2093                             | 62283                               | 29.8                                                             | 1529                                     |
|                | 1957-58 | 1995<br>(-4.45)                      | 2000<br>(-4.44)                  | 58731<br>(-5.70)                    | 29.3<br>(-1.68)                                                  | 1441<br>(-5.76)                          |
|                | 1958-59 | 1957<br>(-1.90)                      | 1962<br>(-1.90)                  | 56860<br>(-3.19)                    | 29.0<br>(-1.02)                                                  | 1397<br>(-3.05)                          |
|                | 1959-60 | 2237<br>(14.31)                      | 2243<br>(14.32)                  | 62278<br>(9.53)                     | 27.8<br>(-4.14)                                                  | 1613<br>(15.46)                          |

## ANNEXURE IV (contd)

| 1 | 2       | 3               | 4               | 5                 | 6               | 7               |
|---|---------|-----------------|-----------------|-------------------|-----------------|-----------------|
|   | 1960-61 | 2269<br>(1.43)  | 2275<br>(1.43)  | 61823<br>(-0.73)  | 27.2<br>(-2.16) | 1620<br>(0.43)  |
|   | 1961-62 | 2140<br>(-5.69) | 2145<br>(-5.72) | 62777<br>(1.54)   | 29.3<br>(7.72)  | 1647<br>(1.67)  |
|   | 1962-63 | 2199<br>(3.76)  | 2205<br>(2.80)  | 63733<br>(1.52)   | 28.9<br>(-1.37) | 1672<br>(1.52)  |
|   | 1963-64 | 2254<br>(2.50)  | 2262<br>(2.59)  | 65138<br>(2.20)   | 28.8<br>(-0.35) | 1710<br>(2.27)  |
|   | 1964-65 | 2472<br>(9.67)  | 2480<br>(9.64)  | 70001<br>(7.47)   | 28.2<br>(-2.08) | 1838<br>(7.49)  |
|   | 1956-57 | 890             | 890             | 27824             | 31.2            | 637             |
|   | 1957-58 | 924             | 925             | 27867             | 30.1            | 639             |
|   | 1958-59 | 921<br>(0.32)   | 922<br>(-0.32)  | 26989<br>(-3.15)  | 29.3<br>(-2.66) | 618<br>(-3.29)  |
|   | 1959-60 | 832<br>(-9.65)  | 833<br>(-9.65)  | 22619<br>(-16.19) | 27.2<br>(-7.17) | 520<br>(-15.86) |
|   | 1960-61 | 861<br>(3.49)   | 863<br>(3.60)   | 23654<br>(4.58)   | 27.4<br>(0.74)  | 542<br>(4.23)   |
|   | 1961-62 | 890<br>(3.36)   | 891<br>(3.24)   | 25312<br>(7.01)   | 28.4<br>(3.65)  | 542             |
|   | 1962-63 | 964<br>(8.31)   | 966<br>(8.41)   | 27595<br>(9.02)   | 28.6<br>(0.70)  | 632             |
|   | 1963-64 | 967<br>(0.31)   | 968<br>(0.21)   | 26630<br>(-3.5)   | 27.5<br>(-3.85) | 661<br>(4.59)   |
|   | 1964-65 | 1034<br>(6.92)  | 1035<br>(6.92)  | 28064<br>(5.38)   | 27.1<br>(-1.45) | 706<br>(6.81)   |
|   | 1956-57 | 802             | 808             | 15941             | 19.8            | 367             |
|   | 1957-58 | 944             | 948             | 18572             | 19.6            | 428             |
|   | 1958-59 | 1007<br>(6.67)  | 1013<br>(6.86)  | 19940<br>(7.37)   | 19.6            | 460<br>(7.48)   |

## Burdwan-Katwa

|         |                 |                 |                   |                |                 |
|---------|-----------------|-----------------|-------------------|----------------|-----------------|
| 1959-60 | 865<br>(-14.10) | 872<br>(-13.92) | 17135<br>(-14.07) | 19.6           | 395<br>(-14.13) |
| 1960-61 | 1045<br>(20.81) | 1049<br>(20.30) | 20313<br>(18.55)  | 19.4           | 468<br>(18.48)  |
| 1961-62 | 1022<br>(-2.21) | 1027<br>(-2.10) | 20606<br>(1.44)   | 20.1           | 4757<br>(1.50)  |
| 1962-63 | 1144<br>(19.37) | 1151<br>(12.07) | 23728<br>(15.15)  | 20.6           | 548<br>(15.37)  |
| 1963-64 | 1191<br>(4.11)  | 1197<br>(4.00)  | 23890<br>(0.68)   | 20.0           | 596<br>(8.76)   |
| 1964-65 | 1280<br>(7.47)  | 1285<br>(7.35)  | 25542<br>(6.92)   | 19.9           | 649<br>(8.89)   |
| 1956-57 | 347             | 347             | 7859              | 21.7           | 156             |
| 1957-58 | 328<br>(-5.48)  | 328<br>(-5.48)  | 7327<br>(-7.01)   | 22.4           | 145<br>(-7.05)  |
| 1958-59 | 327             | 327             | 7306              | 22.4           | 146             |
| 1959-60 | 452<br>(38.23)  | 452<br>(38.23)  | 11011<br>(50.71)  | 24.3           | 218<br>(49.32)  |
| 1960-61 | 508<br>(12.39)  | 508<br>(12.39)  | 12109<br>(9.97)   | 23.9           | 244<br>(11.93)  |
| 1961-62 | 529<br>(4.1)    | 529<br>(4.1)    | 13060<br>(7.85)   | 24.7           | 259<br>(6.14)   |
| 1962-63 | 584<br>(10.40)  | 584<br>(10.40)  | 14022<br>(7.36)   | 24.0           | 279<br>(7.72)   |
| 1963-64 | 554<br>(-5.14)  | 554<br>(-5.14)  | 12994<br>(-7.33)  | 23.4           | 263<br>(-5.74)  |
| 1964-65 | 540<br>(-2.53)  | 540<br>(-2.53)  | 12926<br>(-0.52)  | 24.0           | 262<br>(-0.38)  |
| 1956-57 | 920             | 924             | 19409             | 21.1           | 474             |
| 1957-58 | 907<br>(-1.41)  | 916<br>(-0.87)  | 19409             | 21.2<br>(0.47) | 474             |
| 1958-59 | 1028<br>(13.34) | 1033<br>(12.77) | 20440<br>(5.31)   | 19.8           | 500<br>(5.49)   |
| 1959-60 | 1200<br>(16.73) | 1204<br>(16.55) | 23987<br>(17.35)  | 20.0<br>(1.01) | 620<br>(24.00)  |

## Dehri-Rohtas

## Futwah-Islampur

## ANNEXURE IV (contd)

| 1                | 2       | 3               | 4               | 5                 | 6                | 7               |
|------------------|---------|-----------------|-----------------|-------------------|------------------|-----------------|
|                  | 1960-61 | 1257<br>(4.75)  | 1260<br>(4.65)  | 24822<br>(3.48)   | 19.7<br>(-1.50)  | 648<br>(4.52)   |
|                  | 1961-62 | 1347<br>(7.16)  | 1351<br>(7.22)  | 25976<br>(4.65)   | 19.2<br>(-2.54)  | 679<br>(4.78)   |
|                  | 1962-63 | 1379<br>(2.37)  | 1385<br>(2.51)  | 27101<br>(4.33)   | 19.6<br>(2.08)   | 707<br>(4.12)   |
|                  | 1963-64 | 1484<br>(7.61)  | 1491<br>(7.65)  | 28252<br>(4.25)   | 18.9<br>(-3.57)  | 737<br>(4.24)   |
|                  | 1964-65 | 1716<br>(15.63) | 1726<br>(15.76) | 32503<br>(15.05)  | 18.8<br>(-0.53)  | 848<br>(15.06)  |
| Howrah-Amia      | 1956-57 | 5706            | 5706            | 97002             | 17.1             | 2365            |
|                  | 1957-58 | 6013<br>(5.38)  | 6013<br>(5.38)  | 101488<br>(4.62)  | 16.90<br>(-1.17) | 2473<br>(4.57)  |
|                  | 1958-59 | 5884<br>(-2.15) | 5884<br>(-2.15) | 96575<br>(-4.84)  | 16.4<br>(-2.96)  | 2353<br>(-4.85) |
|                  | 1959-60 | 5910<br>(0.44)  | 5910<br>(0.44)  | 95074<br>(-1.55)  | 16.1<br>(-1.83)  | 2316<br>(-1.57) |
|                  | 1960-61 | 6338<br>(7.24)  | 6338<br>(7.24)  | 103648<br>(9.02)  | 16.4<br>(1.86)   | 2528<br>(9.15)  |
|                  | 1961-62 | 6027<br>(-4.91) | 6027<br>(-4.91) | 99041<br>(-4.55)  | 16.4             | 2415<br>(-4.47) |
|                  | 1962-63 | 6110<br>(1.37)  | 6110<br>(1.37)  | 97516<br>(-1.54)  | 16.0<br>(-2.44)  | 2376<br>(-1.62) |
|                  | 1963-64 | 5925<br>(-3.03) | 5925<br>(-3.03) | 103217<br>(5.85)  | 17.4<br>(8.75)   | 2516<br>(5.9)   |
|                  | 1964-65 | 6598<br>(11.36) | 6598<br>(11.36) | 120473<br>(16.72) | 18.3<br>(5.17)   | 2937<br>(16.73) |
| Howrah-Sheakhala | 1956-57 | 2539            | 2539            | 25362             | 10.0             | 616             |
|                  | 1957-58 | 2643<br>(4.10)  | 2643<br>(4.10)  | 26799<br>(5.67)   | 10.1<br>(1.06)   | 651<br>(5.68)   |
|                  | 1958-59 | 2640<br>(-0.11) | 2640<br>(-0.11) | 27340<br>(2.02)   | 10.3<br>(1.98)   | 664<br>(2.00)   |
|                  | 1959-60 | 2682<br>(1.59)  | 2682<br>(1.59)  | 27493<br>(0.56)   | 10.3             | 668<br>(0.60)   |

## LIGHT RAILWAYS

|                             |                  |                  |                    |                  |                  |
|-----------------------------|------------------|------------------|--------------------|------------------|------------------|
| 1960-61                     | 2770<br>(3.28)   | 2770<br>(3.28)   | 28818<br>(4.82)    | 10.4<br>(0.97)   | 701<br>(4.94)    |
| 1961-62                     | 2919<br>(5.38)   | 2919<br>(5.38)   | 30887<br>(7.18)    | 10.6<br>(1.92)   | 751<br>(7.13)    |
| 1962-63                     | 3166<br>(8.46)   | 3166<br>(8.46)   | 33554<br>(8.63)    | 10.6             | 816<br>(8.65)    |
| 1963-64                     | 3159<br>(-0.23)  | 3159<br>(-0.23)  | 34134<br>(1.73)    | 10.8<br>(1.89)   | 830<br>(1.71)    |
| 1964-65                     | 3377<br>(6.90)   | 3377<br>(6.90)   | 37243<br>(9.11)    | 11.0<br>(1.85)   | 906<br>(9.16)    |
| 1956-57                     | 5788             | 5824             | 181090             | 31.9             | 2990             |
| 1957-58                     | 4736<br>(-18.18) | 4751<br>(-18.42) | 153084<br>(-15.47) | 32.2<br>(0.94)   | 2515<br>(-15.89) |
| 1958-59                     | 3047<br>(-35.66) | 3060<br>(-35.59) | 87761<br>(-42.67)  | 28.6<br>(-11.18) | 1430<br>(-43.14) |
| 1959-60                     | 3371<br>(10.63)  | 3380<br>(10.46)  | 90562<br>(3.19)    | 26.9<br>(-5.94)  | 1709<br>(19.51)  |
| 1960-61                     | 3364<br>(-0.21)  | 3372<br>(-0.24)  | 86941<br>(-4.00)   | 25.8<br>(-4.09)  | 1711<br>(0.11)   |
| 1961-62                     | 3651<br>(8.53)   | 3662<br>(8.60)   | 99895<br>(14.90)   | 27.3<br>(5.81)   | 1966<br>(14.90)  |
| 1962-63                     | 3896<br>(6.71)   | 3907<br>(6.69)   | 107868<br>(7.97)   | 27.6<br>(1.10)   | 2325<br>(18.26)  |
| 1963-64                     | 3605<br>(-7.42)  | 3623<br>(-7.27)  | 93340<br>(-13.46)  | 27.4<br>(-0.72)  | 2430<br>(4.52)   |
| 1964-65                     | 3898<br>(8.13)   | 3921<br>(8.23)   | 107239<br>(7.95)   | 27.3<br>(-0.36)  | 2625<br>(8.02)   |
| Shahdara (Delhi)—Saharanpur |                  |                  |                    |                  |                  |

## APPENDIX 10

MEMORANDUM BY M. R. BONAVIA ON ROAD AND RAIL  
COORDINATION IN INDIA (JANUARY 1964)

## 1. INTRODUCTION : THE SITUATION TO-DAY AND THE OUTLOOK

It has recently been said<sup>1</sup> : "When it is a question of the stimulation of under-developed economies...transport is one of the two great 'nation-building' influences (education being the other) which are basic to everything else". In India, this is particularly true; and transport may well prove to be a real partner of education in achieving "emotional integration". Its economic influence is of course even more obvious than its social effects, since the efficiency (or lack of efficiency) of transport reacts directly upon almost all forms of industry and commerce.

Historically, however, the expansion of transport facilities in almost every country has not been an unmixed blessing since it has created the so-called "transport problem"; namely, a pattern of transport development and use of facilities which becomes progressively less rational as the total supply of transport catches up with demand, and as motor vehicles begin to shoulder the railways out of their traditional predominance. In the final stage the problem of living with the motor car becomes acute owing to intolerable pressure upon highway capacity and parking space.

In the small and congested area of Great Britain, it has been said<sup>1</sup> of the motor car : "We are nourishing at immense cost a monster of great potential destructiveness. And yet we love him dearly". This of course is the terminal phase of the transport problem; there is a long way to go before the private car can become a "destructive monster" in India. Nevertheless, the earliest symptoms of the transport problem appeared as long ago as the era between the First and Second World Wars, and they were directly responsible for the passing of the Motor Vehicles Act of 1939, which was designed to control the growth of commercial motor transport, at a time when serious competition with the railways was anticipated.

However, the transport shortages during and since the Second World War, and the establishment of relatively low priorities for investment in road transport since Independence, have temporarily masked the underlying problem. Problems of co-ordination have appeared less urgent than the problem of meeting insistent transport requirements; and of course the national emergency has prolonged and emphasized this state of affairs.

<sup>1</sup>By the Steering Group on Traffic in Towns (Report to the U.K. Minister of Transport, 1963).

But, by all the statistical criteria that can be applied—number of road vehicles per kilometre of road, per square kilometre of area, or per thousand inhabitants—the scope for expansion of road transport in India is enormous.

The emphasis hitherto placed upon the development of heavy industries in planning has naturally tended to stimulate those traffics more suited to rail movement—coal, iron ore, steel, cement, etc. As the fruits of basic development are realised, there should be a gradual shift towards the development of light industries and the production of consumer goods, many of which are inherently more suited to road transport.

Furthermore, the ownership of private means of transport is itself an essential element in economic welfare in the twentieth century. Progress is continuous, from the ownership of a bicycle to that of a motor scooter, and (lastly) a car. The timing of this progress may vary widely in different countries and continents; but its direction is universal.

Hitherto, the limiting factor upon road transport expansion in India has not—as in the U.K. and other developed countries—been the licensing system so much as the physical shortage of vehicles, arising from the low allocations of foreign exchange for imports, and the limits imposed (partly by planning controls and partly by technological factors) upon home construction. This cannot last; in fact there is little doubt that in the Fourth Plan expansion on a large scale will be provided, though it may be doubted whether even this will really be adequate to allow motor transport to play the part of which it is capable.

Accordingly the problem lies ahead and sooner or later it will have to be tackled. If it is tackled sooner, then the more acute stages—which experience in other countries has shown to be the most difficult to deal with—may be prevented from developing. Prevention is better than cure, especially when cure is both a costly and painful process.

It is however important to dispel any impression that the study of transport economics by itself will reveal the course of action that is obviously the correct one to follow. The collection of information about the financial position of the railways and the road transport undertakings, the nature of the traffic carried by each, the existence of monopoly or competition, the views of the users of transport regarding the quality of the service they receive, is important and may give a good picture of the problem; but it will not automatically indicate what the solution should be. The reason is that transport is not purely a technical, financial, or economic subject; it has also important social and political aspects. Given a transport problem stated in identical terms, the most appropriate solution might be very different in, for example, the U.S.A., the U.K. the U.S.S.R., or India. The role of the transport economist is to analyse the data as correctly as possible and to describe the consequences of any particular course of action. He should try to strip away any prejudice that exists in favour of or against any particular form of transport,

and show what happens to the national economy in terms of real costs and real benefits. But the ultimate decisions will have to be taken in the sphere of politics and public administration, and they may well be taken on grounds which are not purely economic.

## 2. THE "TRANSPORT PROBLEM" AND ITS CHARACTERISTICS

### (a) *Charging Systems*

The "transport problem" is sometimes discussed almost exclusively in terms of a clash between road freight charges based upon costs, and railway rates based on the principle of "what the traffic will bear", or what economists call "differential monopoly prices". The clash arises from the fact that railway rates comprise a schedule of charge per ton-mile which are normally high for articles of high value and low for articles of low value. The underlying assumptions justifying these differentials are (a) that these rates correspond to "maximum demand prices" for these particular services; (b) that costs are not correspondingly differentiated: so that the high rated traffics can be said to be "subsidizing" the low rated traffics which cannot "afford" to pay the full cost of their transport.

Acceptance of this assumption in the past produced a conception of railways as a benevolent monopoly, practising differential charging in the public interest, under the direct control and direction of the State; in effect, taxing the rich and helping the poor by cross-subsidization.

Historically, this pattern of charges was rudely disturbed by the arrival of road transport. The road haulier charges by the job without regard to the nature of the goods carried. He has a rough-and-ready knowledge of his costs, and he uses this to undercut the higher classified railway rates. The traffic which the railways carry at lower rates he leaves alone. This is often described as "unfair" competition; and the railways have argued that, because it affects their capacity to "subsidize" the low rated goods, it should be restricted in the national interest.

But in actual facts the clash between cost-of-service road rates and value-of-service railway rates does not result in the road haulier attracting away all the traffic in the higher classes of the railway tariff. Road transport tends to be essentially selective in its approach, carrying only on routes where suitable return loads are on offer, for instance; or refusing to carry consignments that do not enable an economic lorry-load to be obtained. This in fact is the basis of a major complaint by the railways—that whereas they are universal<sup>1</sup> carriers, the road haulier is not. He can pick and choose his traffics, selecting the remunerative operations and rejecting the rest. This selectivity of road haulage is at least as important as the clash of charging systems.

Furthermore, the traditional picture of the clash between road and rail charging principles has been modified by recent progress in railway traffic

<sup>1</sup> Whether or not they have full "legal common carrier" liability.

costing and in the study of cross-subsidization. Traffic costing studies in the U.K., for instance, have established that variations in cost of haulage are so pronounced that variations in gross receipts per ton-mile do not necessarily show the true pattern of cross-subsidization, which may be far removed from that based on a crude comparison of high rated with low rated commodities.

Railway cost levels depend largely upon utilisation of assets, especially rolling stock. Coal loading between 20 to 55 tons per wagon, for instance, incurs a much lower haulage cost per ton than miscellaneous machinery loading perhaps 5 tons in a wagon. It may not therefore be "subsidised" by higher-rated traffics nearly as much as has been assumed, if at all.

Apart from this, some sections of railway have specially high operating costs, caused by gradients and similar factors; or they may be so little used that unit costs are unduly high. Traffic on these sections, if carried at standard rates, may correctly be said to be subsidised by the traffics on other sections of line with normal operating costs.

To a very limited extent, some flexibility exists in railway rates. The railways can depart from the standard tariff (normally by not more than 40%), and quote special rates under certain circumstances; but an enquiry addressed to the Railway Board as to the proportion of traffic carried at standard and special rates respectively elicited the reply that no information on this subject was available.

The Zonal Railways require prior headquarters approval for quotation of exceptional rates. The reasons held to justify special concessions have included the following:—

- (i) to assist the growth of new industries;
- (ii) to assist exports, or to assist home industry against competition from imports;
- (iii) to give special assistance to agriculture.

There does not therefore appear to be any general policy of using the existing power to reduce rates either to compete with road transport, or to reflect specially favourable cost circumstances which may apply to particular traffics.

The traditional view of road-rail competition as based upon a clash of pricing systems is partly invalidated by the fact that quality may be even more important than price in determining the choice of service. The ability of the road haulier to give a door-to-door-transit without intermediate handling, to make his vehicle available on demand, or to give a shorter over-all transit time and more punctual delivery than the railway may be sufficient to enable him to attract traffic from the railway at higher rates than the railway traffic.

The clash of charging systems exists almost entirely on the freight side. Passenger fares by both rail and road are based on standard tariffs.

without "discrimination" of the kind embodied in the railway freight classification. Both are usually fixed on a standard basis per mile which cannot take cognizance of local cost variations, and there are, therefore, elements of cross-subsidization in both—for instance, as between peak and off-peak travel.

There is however one feature of the fares situation that constitutes a part of the general transport problem. The railways estimate that, by and large, their receipts from passenger traffic do not meet the costs incurred. Taking the broad gauge network as a whole for the year 1961-62, the net earnings (including interest) on freight traffic averaged Rs. 7.68 per train-mile, whilst the corresponding figure for passenger traffic was a net loss of nP. 68 per train mile. The corresponding figures for the metre gauge were a loss of nP. 97 per train-mile for freight and a loss of Rs. 3.08 for passenger trains. There is therefore a general subsidy of passenger traffic by freight traffic, as well as a subsidy of metre gauge traffic by broad gauge traffic.

If this is accepted—and the basis of dividing the shared expenses such as track maintenance, signalling, administration, etc. between passenger traffic and freight traffic is always a debatable one—then a policy question arises. Should not the passenger traffic be charged with its proper share of the shared expenses; and the fares be re-calculated accordingly?

There can be no real economic argument against this. At the moment, consumers are having their journeys subsidised at the cost of paying more for manufactured articles, foodstuffs, etc. in which rail transport charges constitute an element in the selling price. In other words, they are escaping a form of direct taxation by paying more indirect taxes.

The reason for maintaining the present position is partly no doubt that fares are a political question, and every increase in them is very unpopular; whereas freight rates are not separately identified in the final selling price and their incidence raises no popular feeling, whatever the trading community may say.

#### (b) Facilities and Services

In an ideal state, each form of transport would develop according to its special advantages and characteristics, so as to provide together a comprehensive network of services at the lowest real cost to the community. Each would be developed up to the point—and not beyond it—at which the other form of transport gains the advantage in cost and/or quality of service. Since the transport needs of different areas and particular traffics vary considerably, there are many instances where neither rail nor road alone can give the best service. In such cases one would expect to see a substantial amount of joint road-rail services.

Examples on the passenger side would be the siting of road transport terminals adjacent to main railway stations; the timing of bus services to provide

connections with trains; the gradual replacement of rail services by buses in areas of light traffic density.

On the freight side one would expect to see the development of rail-head transshipment centres, at which freight in trainloads would be transferred to road for distribution over wide areas, and *vice versa*. Railways might carry road vehicles—or, more probably, trailers—by "piggy-back" over long distances, enabling door-to-door delivery to be given whilst maintaining high speeds over long distances. For example, a "liner train" of flat wagons travelling regularly at passenger train speeds between Delhi and Bombay or Calcutta should be able to carry road trailers at lower cost, greater safety and higher speed than could be offered with road haulage throughout.

In actual fact, of course, this ideal state of affairs is very far from being reached. Each form of transport has developed along its own lines. In places there is competition and duplication of facilities; in others there is an overall shortage.

The causative factors in the failure to achieve a balanced, complementary development of road and rail facilities are several. First probably comes the concept of the railways as the basic form of transport service. Despite the fact that the railways have generally fulfilled this function in the past, to-day any basic transport service must be a combination of rail and road, properly planned to allow scope for each.

Next probably comes a feeling that there is no urgency; that the development of road transport has an immense distance to go before it reaches saturation point, or before it can play a major part in economic expansion. It is true that such instances of duplication of railway services as exist are not yet important in relation to the total scale of demand. But, as indicated above, the motor industry has not yet spread its wings. When it does so, the potential waste of resources will be vast, unless proper physical coordination of services with the railways is planned in advance.

At the moment there is no focus, no organisation capable of initiating action. The railways do not own or operate road transport. The out-agencies and the public carriers generally operate on too limited a scale to contemplate "piggy-back" transport.

An enquiry was made of the Railways Board as to how much traffic was brought to or collected from railway goods stations :—

- (i) by motor vehicles owned by either the consigner or the consignee of the traffic;
- (ii) by out-agents appointed as carriers by the railways;
- (iii) by other public motor carriers.

The Railways stated that they had no information on this point. But this is a question of growing importance. So long as the railway traffic consists predominantly of raw materials and bulk commodities such as coal, iron ore, cement, foodgrains etc., much of the loading and unloading will be done

direct, without the intervention of motor transport, at mines, quarries, steel-works, factories with rail connections, warehouses, etc. But as the potential traffic contains a greater volume of manufactured articles and consumer goods, there will be greater demand for through transit to and from houses, shops and godowns, where motor transport will be involved at each end of the journey. Such traffic is particularly attractive to road hauliers, traders also prefer to avoid loading and unloading at railway stations because of the delay and risk of damage or theft that this creates.

Admittedly, in recent years the tendency has been for the proportion of low-rated traffics (bulk goods and raw materials) to increase at the expense of high-rated commodities. This probably reflects (a) the emphasis in the Five Year Plans upon industrial development, and (b) some increase in the competition from road transport, particularly in the long-distance field.

As regards (a), it must be expected that there will be a progressive shift towards the production of more consumer goods and manufactured articles as the fruits of earlier planning are realised. As regards (b), the continuance of the trend will depend partly upon the extent to which the Railways are able to offer efficient door-to-door service, and partly upon the licensing policy of Government as regards long-distance road transport. The importance of physical co-ordination is obvious in any case.

On the passenger side there is no pressure upon the bus undertakings to coordinate their services with the train time-table nor to site their termini adjacent to railway stations. The Railways' right to nominate a representative on the boards of the nationalised road transport undertakings has not produced any appreciable effect in terms of physical coordination.

These are aspects of the transport problem in which action is needed, and a sense of urgency must be imparted into the study of the subject.

### (c) Investment

The main problems of investment in road and rail transport are (1) the difficulty of co-ordinating investment in road vehicles with that in highways; (2) the difficulty of achieving a rational apportionment between road and rail transport, and finding adequate tests for the justification of projects.

Whereas on the railways proposals for investment in the track and structures, and for investment in locomotives and rolling stock, are formulated by a single organisation, in road transport there is a complete separation between the procedure for investment in vehicles and investment in highways. It is not surprising therefore that wide disparities should arise between the component parts of road transport. In the United Kingdom, for instance, for a decade after the Second World War investment in vehicles was allowed to leap ahead of investment in highways. The available information suggests that the reverse position has obtained in the U.S.S.R., where motor transport has (under planning control) been deliberately kept down, despite large road building programmes. In the U.S.A., the evidence seems to suggest that a

good balance has generally been struck between private investment in motor vehicles and public investment in highways.

Whilst road transport investment in vehicles is partly based on commercial principles, investment in private cars, motor cycles and bicycles is largely based upon "welfare" considerations which can scarcely be measured in monetary terms. The justification for investment in highways is normally based upon estimates of traffic demands; but these are not differentiated between commercial and other uses, and until recently there has not been any method of directly comparing estimated social net returns from investment in highway projects. Such a technique is only now emerging in the shape of social cost/benefit studies.<sup>1</sup>

Yet another factor is the incalculable cumulative effect of many thousands of individual decisions to buy or to refrain from buying cars—at any rate in a free economy. In a planned economy an almost equally unpredictable effect is the availability of foreign exchange for the import of motor vehicles, and the largely subjective view taken by the planners of the degree of priority that should be given to home construction of motor vehicles.

Investment proposals may arise, even in the most responsible quarters, on grounds that are not economic but historical, emotional, or political. For instance, the Railway Convention Committee of 1949 stated that "there are undeveloped areas rich in resources which can be explored and exploited only when a rail link is established. In the majority of these cases no financial justification exists, or can exist, at any rate in the first phase of development." This quotation well illustrates the general assumption that there is an obligation on the railways to provide a comprehensive transport service. This was justified in the nineteenth century, when there was no real alternative to railways, but is no longer justified today. An undeveloped area is not necessarily in need of railway services; its need is for more transport services. Whether the railways or road transport are better qualified to provide for the needs of the area cannot possibly be known without an expert survey of the demand for transport and of the different ways in which it can be met, having regard to the local conditions.

A paper published by the Railway Board<sup>2</sup> indicates that about 58 per cent of the freight traffic on the Indian Railways is carried over 15 per cent of the total route mileage and the remaining 85 per cent of the railway system carries less than half the total traffic. All the branch lines of the metre gauge and some of the branch lines of the broad gauge have a density of traffic of less than 1,000 tonnes per kilometre per day (against the average of about 7,700 tonnes for the broad gauge system of the railways and 1,600 tonnes for the metre gauge).

<sup>1</sup> These are described in Section 3(c) (iii).

<sup>2</sup> Paper on "Density of freight traffic on Indian Railways" by Shri S. K. Guha, Director of Statistics and Economic Adviser, Railway Board.

Since the remunerativeness or otherwise of particular sections of line is closely associated with the density of the traffic carried on each section, there is a strong presumption that a large part of the railway network is being subsidised by the smaller remainder which carries the heavy traffic.

The persistence of the traditional concept of railways as the basic form of transport may, in fact, involve the country in substantial economic loss which it can ill afford. Railways will be pressed to undertake extensions into undeveloped areas, which will involve a waste of resources through failure to adopt the cheaper alternative of road transport.

At times there is pressure for railway extension by State Governments which are simultaneously undertaking road improvements on a parallel route and freely licensing public carriers in the area. A striking example is the proposal of the Rajasthan Government to develop the Rajasthan Canal as a navigable canal at the same time as it has been pressing for the development of both new rail and road facilities parallel to the canal.

Railways may also be prevented from closing down sections of lines which are uneconomic and which consequently have to be subsidised, either by the Government or by the users of other sections of the railway. Incidentally, the railways lack the necessary statutory power to substitute railway-owned bus and lorry services which might perform the same functions as the railway at a lower cost.

To sum up; the problem of obtaining a more rational approach to investment in road and rail transport is complicated owing to the constitution of the transport industry. The main hope for improvement must lie in the direction of promoting:

- (1) better co-ordination of investment in motor vehicles and in highways;
- (2) better techniques for assessing the justification for investment projects, whether by road or rail;
- (3) education of the public in the respective roles of the railways and road transport, and the need for balanced development.

### 3. POSSIBLE SOLUTIONS

#### (a) *Freer competition*

If it is accepted that India will face before long a 'transport problem' analogous to that which exists in more developed countries, a possible approach to a solution of the problem would be a more towards freer competition, which involves allowing the price mechanism to operate with fewer controls, and charges to be linked more closely with costs.

This approach has a certain appeal in terms of pure economics. To enable the price mechanism to perform its classical function of regulating supply in relation to demand would involve the removal of all controls over passenger fares and freight rates, and a considerable liberalisation of motor

vehicle licensing policies. The objective would be to achieve an economic division of function through allowing the price of transport to reflect the true costs incurred, whether by road or rail.

Attractive as this solution may be in theory, it is full of practical difficulties. The precise costs attaching to any unit of transport are often very difficult to ascertain. Particularly on railways, there must always be some degree of cross-subsidisation. The costing of rail transport operations can only be done by averaging on the basis of a formula which is liable to produce substantial errors in particular cases; or else by making detailed investigations of particular traffic flows, which takes considerable time and could not possibly be applied quickly to the whole of the traffics passing by rail.

Passenger fares moreover, must, if only for reasons of convenience and equity to the passenger, be in the form of a fixed tariff. This itself implies that in individual cases there must be a wide divergence between price and cost—e.g. between peak hour and off-peak journeys—and a degree of cross-subsidization.

Lastly, if prices are to fulfil their classical function of correctly regulating supply in relation to demand, there would have to be free entry into the field of commercial motor transport, which is obviously impracticable under present conditions in India, because both imports and production of motor vehicles are sharply restricted.

The only significant moves towards freer competition as a solution of the transport problem in any major country have been taken in the U.S.A. and the U.K. In each country however the extent of freedom is limited. Railway charges are controlled in the U.S.A., although virtually they are no longer so in the U.K. Road passenger fares are generally controlled in the U.K., but not road freight rates. In each country the quantum of road transport is limited through a licensing system, in the U.K. generally by regulating the number of vehicles, and in the U.S.A. by regulating the routes served without regard to the number of vehicles involved. In each case the underlying assumption is of an overall surplus of transport. Neither example seems relevant to the circumstances prevailing in India, where the fundamental fact is the inability of the road transport industry to offer a full-scale alternative to the railways.

For all practical purposes, therefore, the hope of effecting co-ordination through free competition, and by relaxing controls over charges, is an illusion. This does not however mean that in the long run it is not important that the railways should gradually bring their freight rate structure into a closer relationship with costs, as and when information about the specific costs attaching to particular traffic flows becomes available.

#### (b) *Integration*

The next possible solution to the transport problem is full integration of road and rail. This involves organising public transport in the form of a

nationally owned monopoly, or a chain of regional monopolies. At first sight this might appear to conform to the general philosophy in India of planning and extension of the public sector of industry. It can also be argued that the national emergency has already obliged the Government to take a direct hand in the provision of transport in a way which demonstrates that transport is a public service of such an essential character that its adequacy can only be secured if the State takes the initiative.

Again, since railways have been publicly owned for many years, it can be argued that co-ordination of charges and services with road transport can only be achieved if road transport is organised on similar lines, and the two partners are brought under the same umbrella.

Integration of course offers attractive possibilities in the extension of joint road and rail facilities. On the passenger side, bus stations could be built adjacent to railway stations and better timetable connections between road and rail services could be enforced. On the freight side, the possibilities of road and rail "piggy-back", for example, could be explored much more easily than when road and rail are separately owned.

Attention could also be given to the possibility of building up a network of road services radiating from rail-head centres. The average distance between stations on the Indian Railways is about five miles. This may be considered as related to bullock cart transport; it bears no relationship to the scope of motor transport. A proper partnership of road and rail would probably indicate that stations should be situated between 20 and 30 miles apart on main lines, with a network of radiating road services. Such a reduction in the number of terminals, which would be facilitated by integration, should enable work to be concentrated, with a consequent reduction in transshipment costs, and would improve railway operating conditions.

But, when consideration is given to the ways and means of achieving integration, many difficulties appear.

Full integration must involve the rapid extension of nationalisation of road transport in the field wherein it can be considered competitive with railways. For practical purposes this means long-distance transport. Some arbitrary radius of operations would have to be fixed, within which journeys would be considered as short-distance and non-competitive with railways; beyond it, journeys would be considered as long-distance and would render the business automatically liable to nationalisation.

Nationalisation as hitherto practised would not achieve road/rail integration, because the fundamental separation of ownership and control, arising from the fact that the railways are a Central Government responsibility, whereas the nationalised road transport undertakings are the State Governments' responsibility, would remain. Integration therefore would involve either transferring road transport to the ownership of the Central Government—which would require a Constitutional Amendment—or setting up

some new body or a number of bodies to control both road and rail transport, such as a series of Zonal Road and Rail Transport Boards, corresponding to the present area of each Zonal Railway.

A formidable administrative problem would arise in welding road and rail together in such Boards. Railways, by their very nature, demand a considerable amount of standardization and central control; whereas road transport can be organised in much smaller units, and in fact is very difficult to organise in large units.

Integration was tried in the U.K. under conditions more favourable to its success than those which now apply in India, and notwithstanding this the experiment was a failure. It failed, partly because the managerial organisation was unequal to the heavy demands placed upon it; partly because traders evaded using the nationalised road and rail services by increasingly purchasing vehicles to carry their own traffic; partly because of the growth of private car transport; and partly because of the opposition of the Trade Unions to any form of co-ordination that involved the diversion of traffic from road to rail or *vice versa*.

Full integration of transport in India would be a more complex task than it was in the U.K., not merely because of the vast area to be covered, but also because of the interest of the State Governments in road transport and the problem of reconciling Central and State view-points. The purely administrative problems in fact might distract attention for an indefinite time from the practical issues concerned with the improvement of services and the correct allocation of investment. Integration would also—and this is perhaps its most important disadvantage—discourage the enterprise of the small man, who comprises so important a part of privately-owned road transport.

#### (c) Co-ordination

(i) *By control of charges.*—If freer competition and full integration are both rejected, the remaining possibility is some form of co-ordination as a compromise solution or "middle way". Co-ordination can be defined as allowing each form of transport to retain its separate identity, but controlling the relationship between road and rail so as to promote efficiency and economy in the use of both. Co-ordination can be applied (i) to the charging system, (ii) to administrative machinery and the licensing system, or (iii) to investment.

The approach to co-ordination of charges could take several forms. The first possibility would be an attempt to bring road freight charges in line with the railway tariff. This would involve introducing an element of discrimination, which has never been practised in road transport and which would be very difficult to enforce in view of the large number of small undertakings enjoying close relationships with their customers. In fact, nowhere in the world has it been found practicable to enforce it upon an

independent road haulage industry except in West Germany, where the licensing control over long-distance haulage is very strict and hauliers are required to charge prices closely approximating to the railway tariff rates. In India, however, such a solution may be regarded as administratively impracticable, quite apart from the question of whether it is economically desirable.

The next possibility would be, at any rate in theory, to seek to bring the railway rates in line with road transport charges. This would normally mean charging rates about the middle point of the railway tariff. It would, however, be a completely artificial system, since railway costs vary considerably and standard rates of this kind would in all probability be just as far removed from costs as the existing tariff. It would also involve a widespread upheaval in the incidence of industrial costs in India—raw materials, for example would cost more and the carriage of finished products to the markets would cost less than at present.

The last and most rational approach to co-ordination of charges would be gradually to give the railways more and more freedom to adjust their charges on the basis of the ascertained costs for important flows of traffic of particular commodities. This could not be done by a single enactment, but would have to be a progressive change over a number of years. It would have the advantage of bringing charges into line with economic realities and thereby producing a better utilisation of resources. It can however only be regarded as a long-term policy and immediate results can hardly be expected.

In any case, information about the specific costs attaching to various types of transport is only gradually becoming available. The studies that have been made of railway costs in the U.K. indicate that railway rates based on cost need not be alarmingly different from those previously in force in many cases. The low rates per ton-mile for coal, for instance, are also reflected in low costs. Among the higher-rated articles much depends upon the factor of loadability. Some items that load badly and require transshipment may incur relatively high costs; and if these costs are reflected in higher rates the traffic may be diverted to road transport, which is probably inherently better suited to carry them.

The problem of the clash of charges has been discussed almost solely on the freight side, because there is no comparable clash of principles in the case of passenger fares. Discriminating charges for identical services, similar to classified freight rates, would be quite impracticable; since passenger tickets can so easily be transferred from one person to another that discrimination could not be enforced. And both administrative convenience and equity demand that passenger fares shall be on a simple, standard basis clearly related to the distance travelled.

Closer control over charges is therefore unlikely to vary substantially the existing scales of passenger fares, except in so far as railway fares might be increased—by progressive steps—to end the subsidization of passenger

traffic by freight traffic referred to earlier on. This would entail a corresponding overall reduction in freight rates.

(ii) *By administrative re-organisation and licensing of services.*—The second possibility would be to seek co-ordination through changes in the administrative framework so as (a) to bring road and rail policy closer together at Ministerial level; (b) to improve control of motor licensing policy.

There are two great stumbling-blocks to this. The first is that the Union Ministry of Transport is not responsible for policy in respect of the largest form of transport, the railways. The second is that whilst railways are a direct Central Government responsibility, motor vehicle licensing is a State Government responsibility.

Logically, therefore, the railways should be organised as a Corporation and not as a Government Department; the Ministry of Railways should disappear and a strengthened Union Ministry of Transport should be responsible for both railway policy and motor vehicle licensing policy, as the national co-ordinating authority.

This would imply withdrawal of the licensing function from the State Governments and its transfer to the direct control of the Union Ministry of Transport, who should appoint the State and Regional licensing authorities and supervise their operations by means of policy directives from the Centre.

These measures could not easily be given effect. There would certainly be advantages in constituting the railways as a public Board or Corporation. This is the organisation of the State-owned railways in the U.K., France, Belgium, Holland and elsewhere. Freedom to operate as a commercial undertaking is a stimulus to efficiency. And if the railways are gradually ceasing to be the universal public transport service, and are in future to share their former empire with road transport, flexibility and enterprise need to be encouraged.

The changeover to a Corporation would however involve several important questions, of which two need to be considered here. The first is the adequacy of the control that would be exercised by Parliament over the largest public enterprise in the country, if it were a Corporation. The second is the status and security of the railway staff, who are now Government servants.

The first question touches on the type of control that a Sovereign Parliament should expect to exercise. It cannot be stated too emphatically that control should be only over general policy. If it applies to the details of day-to-day management, it must have an intimidating and inhibiting effect upon the officials, which reduces enterprise and the willingness to accept personal responsibility.

The Railways Board should therefore be responsible for the conduct of the railways to the Minister of Transport, and through him to Parliament. The Minister should appoint the Members of the Board, with the sanction of the Prime Minister. He should be empowered to give directions of a general character to the Board. His responsibility to answer questions in Parliament should however be confined to policy matters, *i.e.*, the field over which he is entitled to give directions to the Board. Minor matters concerning day-to-day administration should be taken up directly by Members of Parliament with the Railways Board, and not through the medium of questions in Parliament.

The Railways Board should issue an Annual Report which would be presented by the Minister of Transport to Parliament and be debated. This would afford Parliament the opportunity of periodically expressing views regarding all aspects of the railways, of which the Minister of Transport would of course take due note.

The second question—namely the status and security of the railway staff if the railways are organised as a Corporation—could be covered by a statutory provision that the status, terms of employment and security of employees of the Corporation should be not less favourable than those of Government employees in industrial occupation—*e.g.* the Posts and Telegraphs.

These arguments in favour of reorganising the railways as a public Corporation instead of a Department are not necessarily conclusive, however; it may well be that a measure which seems right in principle is unlikely to find acceptance for some time to come.

The transfer of motor vehicle licensing functions to the Union Ministry of Transport would be an even more controversial and difficult measure. A Constitutional Amendment would almost certainly be required, and very strong opposition must be expected to any proposal which appears to weaken the status of State Governments.

The financial aspects would be crucial, in view of the interest of the State Governments in the proceeds of motor taxation. It is a fact that "there is no way of laying out the citizen's money that has proved easier to tax than the owning and using of motor vehicles."<sup>1</sup> No public authority that has once tasted the sweets of motor taxation will willingly relinquish this right.

Motor transport is distinguished from other forms of transport by the large extent to which it is a completely un-commercial activity. The so-called "pleasure" motoring in advanced countries such as the U.S.A., has come to mean the part played by private motor transport in ordinary social life. Nevertheless it is reasonable that the possession of a motor car should be considered in some ways as a luxury, because its acquisition is usually

<sup>1</sup> Report of the Steering Group, *ibid.*

decided upon grounds that are not purely economic—comfort, prestige, and so on. It may therefore logically attract "sumptuary" taxation, particularly as it is so easy an instrument of taxation from the administrative point of view. In addition, of course, it should be taxed on account of its use of the roads.

Taxation of commercial motor transport, on the other hand, should be solely related to the facilities that are provided by the State to enable the operator to carry on his business, namely the highways over which he operates. The sumptuary element should enter into the taxation of the *profits* of this business, not the *costs*.

In principle, therefore, private cars should be taxed partly according to "ability to bear", based on the assumed wealth of the owners; partly on the use made of the roads. Commercial motor vehicles should be taxed solely according to the use made of the roads provided for them by the community. The principles and incidence of taxation should be the same in all States.

This could be achieved in great measure by establishing or re-establishing an effective Central Road Fund, which should receive all taxation receipts (import duties, excise duties upon fuel, vehicle licensing fees, etc.) from motor vehicles. Road upkeep and improvement should all be charged to the Fund, either in the form of direct expenditure by Central Government (National Highways) or grants-in-aid to State Governments (State roads). The only exception should be a contribution to road costs from the proceeds of local taxation, to represent the element of use of the roads otherwise than by motor transport.

The element of luxury or sumptuary taxation, levied upon private cars, motor cycles and scooters, should be covered by payments out of the Fund for general Government purposes.

Special programmes of road construction could be put in hand to be financed from the proceeds of loans, the interest and principal of which would be secured upon the revenues of the Central Road Fund.

To sum up: reorganisation on a basis calculated to produce co-ordination of transport by informed regulation of services would involve:

- (1) Abolition of Ministry of Railways;
- (2) Constitution of the Indian Railways as a Corporation;
- (3) Transfer to Union Ministry of Transport of motor licensing functions throughout all States, and of the functions of road-rail co-ordination on a nation-wide basis;
- (4) Constitution of a Central Road Fund to receive the proceeds of motor taxation and to finance the bulk of highway maintenance, improvement and new construction. The sumptuary element in motor taxation to be recognised by a proportion of the

taxes on motor cars and other private transport being paid over for general Government purposes.

The implications of such a programme would be obviously far-reaching, and strong opposition would be aroused by many of its components. Transport is a subject within the field of politics to a large extent; and politics has been well called "the art of the possible". Accordingly, whilst registering the view that the changes listed above would promote transport co-ordination, it is suggested that in the short term another and less drastic line of approach should be explored, namely the search for co-ordination through better techniques of control over investment; which will be discussed next.

(iii) *By improved investment planning techniques.*—Co-ordination of investment in transport must be considered in the context of the planning machinery; and it seems therefore necessary to summarise the existing procedure before commenting upon it.

Control of investment in roads is divided between the Central Government and State Governments. National Highways come under the Central Sector; the five-year programme for development of National Highways is initially drawn up by the Ministry of Transport (Roads Wing), considered in the Planning Commission and finally fixed in relation to the total resources likely to be available for roads in the Plan. Roads of inter-State and special economic importance also come mainly in the Central sector; the provision for them is broadly as for National Highways.

Programmes for State roads are formulated by the State Governments as part of their overall State Plans, having regard to the priorities indicated to them by the Union Transport Ministry and the Planning Commission. The State Plans are discussed by the State Governments in the Planning Commission, and the outlays for the road programmes of the State Governments are fixed taking into account the total investment in the State Plans, the relative priority to be assigned to roads, performance in the previous Plan period, and any special regional or other requirements.

The overall targets for investment in motor vehicles are formulated by the Ministry of Steel and Heavy Industries, based on recommendations made by a Planning Group set up by the Ministry with representatives of the other Ministries concerned and the Planning Commission. The Ministry's proposal are then considered in the Planning Commission and the manufacturing targets for the automobile industry are fixed. Licences for building up the necessary capacity are issued by the Ministry of Steel and Heavy Industry.

The programmes of investment in nationalised passenger transport undertakings in the States are formulated by the State Governments and are finalised in consultation with the Planning Commission.

Railway development programmes are drawn up initially by the Railway Board with reference to the targets of traffic, which have been worked out on

the basis of industrial production programmes and agreed between the Planning Commission and the Railway Board.

The Board's proposals are examined by the Planning Commission, and discussed with the Ministry of Railways; the total outlay is finally agreed between the Ministry and the Commission.

In preparation for the Fourth Plan, the Planning Commission has set up in collaboration with the Ministries a number of Planning/Working Groups at the Centre. The broad terms of references of these Groups are : (i) to make a critical review of progress in the Third Plan period; (ii) to assess the position likely to be reached at the end of the Third Plan period; and (iii) to formulate proposals for the Fourth Five Year Plan in the perspective of a longer period, 1966-76, or even more as may be appropriate. The Planning Commission has also asked the State Governments to constitute Working Groups according to their own distribution of functions between departments.

It is difficult at this stage to assess how far this procedure can effectively direct transport investment into the correct channels. Despite the refinements recently made, the survey of investment needs still appears to be conducted at a high official level, rather remote from the planning "on the ground" of the various transport undertakings and their customers.

There are some special problems of assessing the justification for investment in transport which complicate the issue. It is tempting to consider transport as a purely ancillary function, the requirements for which can be deduced from a study of the output targets of all other industries. But this is an over-simplification. Transport investment can seldom be fitted in, on a precise quantitative basis, to the requirements of any particular industry. Railway extensions, for instance, must as a rule facilitate passenger as well as freight traffic, though they may originate in a shortage of freight transport capacity. Works to increase line capacity may be required because of expected increases in a particular traffic passing over the section in question; but they will almost certainly have secondary effects on the operation of adjoining sections of line. The justification for major individual projects therefore should be closely assessed from an expert angle, not merely as regards the effect upon railway finances and ability to meet traffic targets, but also in relation to alternative methods of performing the same task—for instance, by using road transport or coastwise shipping.

Transport investment is also complicated by the fact that facilities create traffic; but it is seldom possible to estimate in advance the extent to which this will take place.

The conclusion is that, whilst the existing machinery adequately brings together at a high level the official elements concerned with transport planning, it may perhaps be doubted whether it sufficiently introduces the expert element which is so necessary in assessing the justification for particular

transport projects, and in particular the choice between alternative forms of transport.

There is also a need for more refined techniques for appraising investment proposals which are not obviously economically justified, but where social considerations play a part. Such a technique was sought in the U.K. when it was decided to embark upon a large programme of motorway construction, the first instalment of which was to be the London-Birmingham motorway known as M 1. It was difficult to compare the motorway with investment projects which showed a direct financial return on their cost; but proper justification was insisted upon by the Treasury. Accordingly, a team of economists produced an assessment of the economic effects of M 1 motorway by methods that yielded a calculation of the social net return, expressed as a rate of interest on the capital outlay.

A similar problem arose in connection with a proposal to construct a new underground railway in London, namely, the Victoria Line, as part of the system of the London Transport Board. Its construction would, on a purely financial basis, worsen and not improve the position of London Transport and thereby would eventually impose a charge upon the British taxpayer. Congestion on the existing underground railway system and the surface roads was acute; but it was necessary for the Ministry of Transport to convince the Treasury that real benefit to the national economy would result from the investment.

Two economists accordingly prepared an assessment in financial terms of the social benefit from constructing the Victoria Line. Time saved by user of the Victoria Line was measured and valued. Time saved by other transport users as a result of the Victoria Line was similarly treated. Consequential losses and gains to London Transport were also assessed, both on existing bus and underground services. The benefits of comfort and convenience were measured in terms of the increased probability of getting a seat. Benefits were estimated for new traffic generated by the Victoria Line both on itself and on other transport services. Bringing together the factors on both sides into a "social benefit and loss table", a calculation was made showing a "social surplus rate of return" ranging from 10.9 per cent to 11.6 per cent according to the rate of interest charged. On the basis of this study the Government decided to authorise the construction of the Victoria Line.

This was of course undertaken as an isolated survey. It must be recognised that there might nevertheless have been greater gains from investing elsewhere. Similar calculations for other possible urban railway projects would have permitted direct comparison with their "social surplus" rate of return. Comparisons with urban road projects also would be possible.

Widespread use of such calculations would enable the allocation of funds to be decided among, as well as within, various enterprises. The implications of this new technique for a developing country such as India, short of capital resources, seem to be very important.

The conclusion is that there is a need for a special body to study the demands for transport and the best means of meeting those demands, both on a broad basis and regionally or locally. Such a body should combine three elements—

- (a) knowledge of the official view point and planning procedures in transport investment;
- (b) practical experience and technical knowledge of the main forms of transport; and
- (c) grasp of economic principles and modern techniques of analysis applicable to transport questions.

A possible constitution for such a body will be considered next.

#### 4. PROPOSAL FOR AN INDIAN TRANSPORT COMMISSION

Transport, although a single national service, in effect comprises a group of industries with very different characteristics. It is hardly a part of the Planning Commission's function directly to weld these components together, even in the investment field, but rather to allocate resources to each. The task of rationalising the *total* requirements for transport investment should, it is suggested, be entrusted to an expert body as an intermediary between the various undertakings which provide transport, and the Planning Commission and the Ministries concerned with investment programmes.

The suggestion is that the new organisation should be a body corporate, create by statute, and entitled the Indian Transport Commission. Its composition should be as follows:

Independent Chairman.

Three members with practical railway experience in the operating, commercial and financial fields respectively.

One member with experience in road freight haulage.

One member with experience in road passenger transport.

One member with experience of highway engineering.

One member with experience of coastwise shipping.

One member with experience of inland water transport.

One independent economist.

One member with experience of industry and commerce.

The Commission should draw its staff from the railways and other transport undertakings, the Union Ministry of Transport, the Planning Commission, and State Government service, on a secondment basis. It should also have the services of economists and statisticians. There should be a regular turnover of staff so as to prevent in-breeding and sectionalism developing.

The Transport Commission would in effect be the expert transport adviser of the Planning Commission. It would have delegated to it the drafting of the sections of the Five Year Plans concerned with transport, under

guidance from the Planning Commission as regards the total resources available for transport. Once the Plans have been approved, it would act as the expert adviser of the Ministries concerned with the detailed execution of the Plans—especially the Ministry of Finance—in regard to the approval or otherwise of major individual transport investment projects.

A non-official body such as this would be much freer to propose any necessary measures of co-ordination, if these are considered to be necessary in the national interest, than one which has direct Departmental or Ministerial allegiance. Its constitution should also avoid raising the difficult question of the powers and functions of the State Governments in relation to the Union Ministry of Transport. Collaboration between the Transport Commission and the Union Ministry of Transport should naturally be continuous and close. Also, in course of preparing the "Transport Plan", the Commission should visit each State Government and discuss regional transport needs and problems. But as the Commission would be chiefly advisory in character no direct over-lapping of functions need occur.

The only executive functions entrusted to the Commission should, it is suggested, be those now possessed by the Inter-State Transport Commission, (I.S.T.C.) which should be absorbed into the Transport Commission. The I.S.T.C. has not hitherto exercised a marked effect upon licensing policy, largely because of the permissive character of its powers and also because the State Governments have preferred to negotiate inter-State licensing agreements direct with neighbouring States. Recently however, the I.S.T.C. has begun to issue directives to State Governments about the number of licences to be granted. This activity needs to be based upon studies of the transport needs of the areas in question, related to the adequacy of existing railway and road facilities. It may be doubted whether the I.S.T.C. at present commands the resources to acquire and process the relevant information. The proposed Transport Commission should however be in a much stronger position.

To ensure that investment is linked with progress in the rational planning of services, a Model Code of Principles for the appointment and guidance of motor vehicle licensing authorities should be prepared. Recommendations for investment in motor vehicles and highways should be made in the light of the progress made in persuading State Governments to accept the Model Code, and the policies pursued by the State and Regional Transport Authorities.

It would be the responsibility of the Transport Commission to issue an Annual Report which should record progress made towards co-ordination, and to review investment in transport in more detail than is possible at present with the available statistical material.

It may be argued that a public authority such as the proposed Transport Commission existed until recently in the U.K., but, on the basis of experience, has now been abolished. The parallel however is not exact. The

former British Transport Commission was not merely a planning and co-ordinating body; it was also the central management of British Railways. It was the incompatibility between these two main functions that led the Conservative Government to abolish the Commission. Many people feel that the removal of the planning and co-ordinating body has been a mistake; though it is agreed that it should have been kept quite separate from the day-to-day management of any of the nationalised transport undertakings.

Co-ordination of transport in India is envisaged as a gradual process of evolution, rather than as springing from any single legislative measure. It will not emerge by itself from the free play of economic forces, whose trend in India (as in most other countries) is towards creating an imbalance of transport facilities in relation to the demand. There must be steady pressure to guide transport investment into correct channels and thereby secure the most practicable form of long term co-ordination. An independent body charged with this duty would be in a position to exercise the necessary pressure upon the various authorities concerned to rationalise their controls over the growth of motor transport and highway construction. It should also be able to prepare and utilise studies in regional and local transport needs, and the transport requirements of various basic commodities. Its membership should be sufficiently distinguished to give it prestige and authority, and its Annual Report on the transport situation should be widely studied.

This proposal is offered as a less contentious and more useful contribution to solving the long term transport problem than any immediate legislative changes in the structure of transport charges, in the motor licensing system, in the constitution of the railways, or in the powers of the Union Ministry of Transport. In the course of time, changes in all these directions will almost certainly be required; but the ground will have to be carefully prepared and the public mind educated in the nature of transport problem, the cost of leaving it unsolved, and the need for action. The proposed Transport Commission should be able to effect this before the problem reaches a critical stage.

This memorandum has been concerned solely with road-rail co-ordination. The proposed Indian Transport Commission would, however, it is submitted, be a suitable body to deal with other forms of inland transport as well (*mutatis mutandis*); and its constitution has been drafted on this assumption.

##### 5. PROPOSAL FOR AN INDIAN TRANSPORT STAFF COLLEGE

It was observed earlier that transport, although it constitutes a single public service, is not organised as a single industry but rather as a group of industries. Co-ordination requires a progressive realisation of the fact that transport is a single function. This will not be easy so long as the training of those charged with the administration and management of the various forms of transport is confined to their own speciality. There is a need to

promote a wider knowledge and outlook among those exercising, or who in future will exercise, the key functions.

There are already in existence institutions concerned with higher management and administrative training, such as the Administrative Staff College at Hyderabad and the Railway Staff College at Baroda. But there is a need for a Staff College in the field of transport, which would not cover a generalised field as does the Administrative Staff College, and yet would not be confined to giving professional training in one form of transport, like the Railway Staff College.

The proposed Indian Transport Staff College would cater for men in their thirties and forties, who might be expected before long to rise to senior managerial or administrative positions. They should be drawn from the Railways, the nationalised road transport undertakings, the Air Corporations, the Union and State Ministries of Transport. They might include a few men from private transport undertakings such as shipping companies, or from industries with important transport interests such as coal mining or steel. The Transport Staff College should in particular provide training for those who were intended for secondment from the Railways, the Ministry of Transport, or the State Governments' service for a term of duty as officers of the proposed Indian Transport Authority.

The courses at the Staff College might last four or five months. They should cover such questions as the organisation and economics of transport, financial control and costing, labour relations, market research and traffic studies, investment policy, and the principles of co-ordination. The instruction should be given primarily by visiting speakers from the Railways, Ministries, State Governments, and Universities. Practical problems should be studied by students in syndicate.

The College should be residential and everything possible should be done to promote the sharing of experience and knowledge between men with very different backgrounds in the transport industries. This process of "cross-fertilisation" in fact might be even more important than the formal instruction.

In the long term, the existence of such training must greatly assist effective co-ordination by breaking down the sectionalism within the transport industry that exists today. Nothing will promote this better than the study of transport problems by practical men, in a liberal atmosphere, detached from the pressure of day-to-day administration.

## INDEX

# INDEX

**A**  
 Advisory Committee for Roads and Inland Water Transport, 171  
 Air Corporation Act, 159  
 Air India, 9, 155, 156, 157  
 Air Transport, 9, 155—162  
 Air Transport Council, 158, 160  
 All India Motor Unions' Congress, 4  
 Association of State Road Transport Undertakings, 103

**B**  
 Bombay Port, 134—137, 139-140  
 Buckingham Canal, 143, 150  
 Bullock carts, case study, 3

**C**  
 Calcutta Port, 119—122, 126—129, 134—137, 139-140  
 Central Board of Transport, 78  
 Central Railway, 18, 20, 31, 47  
 Central Road Fund, 70-71, 74  
 Central Road Research Institute, 72, 73  
 Central Road Transport Corporation, 146  
 Centre for Transport Research and Training, 174  
 Civil Aviation Development Fund, 160  
 Coal transport—  
     — cost of, 26, 27, 121  
     — study by the World Bank Team, 4, 122-123, 125, 147, 154  
 Coastal shipping, 9, 117, 133  
 Coastal traffic—  
     — growth of, 117-118  
     — prospects of, 119—130  
 Cochin Port, 134—137, 139—141  
 Code of Principles and Practice, 78—80  
 Committee on Plan Projects, 68, 138, 158, 180  
 Committee on Transport Policy and Coordination  
     — changes in composition of, 1  
     — Preliminary Report, 1, 26, 52, 102  
     — reconstitution of, 1  
     — terms of reference, 2  
 Commodity studies, 4  
 Conveyor belts, 152  
 Coordination of Transport—  
     — approach to problems of, 22—43  
     — at the State level, 172-173

— machinery for, 163-174  
 — methods of achieving, 32—43  
 — objective of, 22—24  
 Cost of Transport—  
     — by rail and road, 24—32  
     — studies in, 181  
     — of coal, 26-27, 121—123  
 Council for Transport Coordination, 171-172

**D**  
 Damodar Valley Corporation Canal, 143, 150  
 Directorate of Inland Water Transport, 149

**E**  
 Eastern Railway, 18, 20, 47  
 Energy Survey of India Committee (1965), 182

**F**  
 Farakka Barrage, 148  
 First Five Year Plan, 45, 61, 98, 135, 140, 143  
 Fiscal measures, 38-39  
 Fourth Five Year Plan, 4, 42, 50, 95, 96, 97, 99, 123, 136-137, 141, 150, 151, 156, 158

**G**  
 Ganga-Brahmaputra Water Transport Board, 8, 143, 147  
 Ganga River system, 147-148  
 Gauhati-Siliguri pipeline, 152-153  
 Goods traffic—  
     — and economic trends, 13  
     — by rail and road, 10  
     — trends in, 10-11, 17—19  
 Gujarat pipeline system, 153

**H**  
 Haldia—  
     — Port, 122, 123, 125, 131, 141  
     — Study Team, 137  
 Highway Research Board, 73  
 Highways—  
     — National, 62-64, 68—70, 72—74  
     — State, 62-63, 68, 70—72, 74

## I

- India General Steam Navigation Company, 145
- Indian Airlines Corporation, 9, 133, 155-161, 180
- Indian Coastal Conference, 117
- Indian Motor Vehicles Act (1914), 78
- Indian Oil Corporation, 152-153
- Indian Railways Act (1890), 45
- Indian Road Development Committee (1929), 61, 70
- Indian Roads Congress, 61, 73
- Indian Roads and Transport Development Association, 4
- Industrial Policy Resolution (1956), 97
- Inland Water Transport, 8, 35, 142-151
- Inland Water Transport Committee (1959), 142
- Institute of Rail Transport, 174
- Integration of transport, 41-42
- International Civil Aviation Organisation, 155
- Inter-Port Consultations Committee, 139
- Inter-State Road Transport Commission, 91-92, 172
- Inter-State Transport Commission, 5, 80-81, 83-84, 86-88, 91-92, 172
- Investment policies, 33-35

## J

- Joint Technical Group for Transport Planning, 4-5, 10-11, 34, 58, 166-167, 170-171, 173, 177, 178, 181

## K

- Kakinada Port, 150
- Kandla Port, 134-137
- Kendrapara Canal, 143, 150
- Kerala Water Transport Corporation, 149

## M

- Madras Port, 134-137, 139-140
- Masulipatnam Port, 150
- Merchant Shipping Act (1958), 117
- Metropolitan transport, 48
  - Study Team on, 68
- Mormugao Port, 149-150
- Motor Vehicles Act, (1939), 78, 80-95, 98, 172
  - amendment of (1956), 80
- Motor Vehicles Tax, rates of, 114-115
- Motor Vehicles Taxation Enquiry Committee (1950), 108

## N

- Nagpur Plan, 61
- Naharkatiya-Nunmati-Barauni pipeline, 152
- National Council of Applied Economic Research, 147, 160, 173
- National Harbour Board, 171
- National Highways Act (1956), 69
- Northeast Frontier Railway, 18, 19, 20, 31
- North Eastern Railway, 18, 20
- Northern Railway, 18, 20

## O

- Octroi duties, 109-110

## P

- Paradeep Port, 150
- Passenger traffic—
  - and economic trends, 13
  - by rail and road, 12
  - trends, 12, 13, 19-20
- Pipelines, 35, 152-154
  - in Eastern Europe, 152
  - in U.S.A., 152
- Planning Commission, 4, 34, 68, 80, 138, 140, 158, 166, 170, 174, 179, 182
- Planning Committee on Transport, 170
- Ports, 134-141
  - construction and development programmes, 139
  - traffic handled, 135
  - equipment required by, 138-139
  - estimates of traffic by 1970-71 at major, 137
  - intermediate, 136
  - minor, 136
  - personnel and organisation for, 140-141

- Programme Evaluation Organisation, 3

- Public sector in transport, 7, 8, 9, 41, 97-102, 130-132, 146, 152-153

## R

- Rail-Sea Coordination Committee, 118
- Railway Board, 25, 28, 30-31, 47-48, 55, 101, 170, 177, 181
- Railway Convention Committee, 50-51
- Railway Freight Structure Enquiry Committee (1957), 16, 55
- Railways, 44-59
  - accounting system of, 30, 37
  - annual dividend, 50
  - branch lines, 3, 20, 46-47, 54
  - common carrier obligations of, 45
  - construction of unremunerative lines, 46, 54
  - Depreciation Reserve Fund, 51-53

- Development Fund, 51-53
- development programmes, 34-35
- dieselisation and electrification, 32, 123
- directions by the Central Government to, 45
- earnings and expenses of, 51
- exceptional tariffs, 55
- financial trends, 50-54
- freight concessions, 48, 54
- Light, 47, 59
- operation of suburban passenger services, 47-48
- operational efficiency, 57-58
- Pension Fund, 51
- public service obligations of, 37, 45-50, 53-54
- rating policy, 3, 37, 54-56

## R

- Rajasthan Canal, 150
- Regional Transport Authority, 78-79, 81-85, 87, 90, 94
- Regional transport surveys, 4, 34, 177, 179
- Regulation of transport, 39-41, 80-94
- Research and training in transport, 173-174
- River Steam Navigation Company, 145
- Road—
  - administrative organisation, 74-75
  - development, economic criteria in, 65
  - development, finance of, 69, 72
  - projects, cost-benefit studies of, 75
  - research and construction techniques, 72-74
  - system, deficiencies in, 64-65
  - planning, 63-69
- Roads—
  - district, 62, 70, 74
  - for backward and hilly regions, 67
  - for development projects, 66
  - in metropolitan areas, 67-68
  - rural, 66-67, 70, 74
- Road Planning Boards, 68-69, 75, 173
- Road Taxation Enquiry Committee (1965), 107
- Road Transport, 41, 49, 76-106
  - advantages of, 31-32
  - cost studies, 3
  - fares and freight rates, 94-95
  - financing problems in private sector, 96
  - industry, 76-78
  - inter-State, 85-92
  - intra-State, 84-85, 92-93

- legislative provisions, 78-87
- public sector in, 97-102
- reciprocal agreements between States, 85-87, 104-107
- regulation of, 41, 80-94
- requirements of, 89
- state services, management of, 102-103
- Road Transport Corporation Act (1950), 102
- Ropeways, 35, 152-154
- S
- Salt, coastal shipment of, 126-127
- Second Five Year Plan, 17, 61, 63, 97-98, 118, 135, 143
- Sethusamudram Canal Project, 123
- Shipping—
  - coastal, 9, 35, 117-133
  - overseas, 182
- Shipping Development Fund Committee, 132-133
- South Eastern Railway, 18, 20
- Southern Railway, 18, 20, 118, 123, 125
- State Advisory Transport Board, 173
- State Finance Corporations Act (1951), 96
- State Public Works Departments, 74-75
- State Road Transport Corporations, 42, 102-103
- State Road Transport Undertakings, 102-103, 180
- State Transport Authority, 79, 81-87, 172-173
- State transport surveys, 178
- States Reorganisation Act (1956), 61, 84
- T
- Taldanda Canal, 143, 150
- Taxation—
  - on commercial motor transport, 107-116
  - effect on rail and road costs, 24-25
  - on inter-State movement, 111-116
  - public carriers and stage carriages, rate of, 114-116
- Taxes—
  - consolidation and reforms of, 110-111
  - octroi, 109, 110
  - on passengers and goods, 109, 115-116
  - wheel, 110
- Third Five Year Plan, 3, 49, 50, 64, 95, 97, 99, 135, 136, 140, 143, 146, 150
- Tolls, on road, 71-72
- Traffic—
  - allocation between alternative modes of transport, 4, 22-43, 164

- at major ports, 134
- changes in composition of, 15—21
- coastal, 117—130
- freight, trends in, 10-11, 17—19
- passenger, trends in, 12-13, 19-20
- Traffic Engineering Cells, 75
- Traffic flows, organisation and collection of data on 176—179
- Traffic surveys—
  - on selected routes, 3, 15-16, 178—179
- Transport—
  - allocation of traffic between different modes of, 4, 22—43, 164
  - coordination of, 22—43, 163—174
  - cost studies, 3, 26, 179—181
  - costs, 24—32, 121, 123, 131, 164, 179—181
  - imbalances in, 14-15
  - in the national economy, 6—9
  - joint rail-road, 42, 58
  - planning for, 23, 165—167
  - policy, 3, 6-7, 21, 33, 163-64
  - problems in the northeast region, 146
  - programmes and policies, machinery for coordination of, 163—174
  - requirements, assessment of, 3, 14-15, 33, 164
  - research and training in, 173—174
  - surveys, 178-179
  - taxation of commercial motor, 107—116
  - trends in development of, 6—21
- Transportation, All India Survey of, 179
- Transport development
  - fuel policies in relation to, 182
  - long-term approach, 3
- Transport Development Council, 68, 108, 171
- Transport investment—
  - magnitude of, 7
  - policies, 33—35
- Transport Planning and Coordination Committee, 170-171
- Twenty-year road development plan for 1961—81, 63
- Transport undertakings—
  - cooperative, 97—102
  - municipal, 97—102
  - state, 97—102

## V

- Visakhapatnam Port, 134—138, 139, 140, 141
  - case study of, 138

## W

- Wagon loadings—outstanding registrations, 14
- Western Railway, 18, 20, 31
- World Bank, 178
- World Bank Study Team on Coal Transport, 4, 15, 26-27, 29, 121-123, 125, 147, 154

## Z

- Zonal Councils, 84
- Zonal Railways, 18, 20, 25-26, 103, 173, 177

