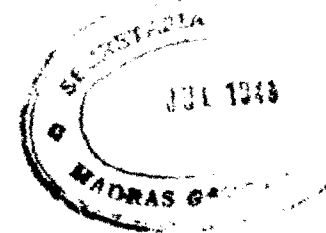


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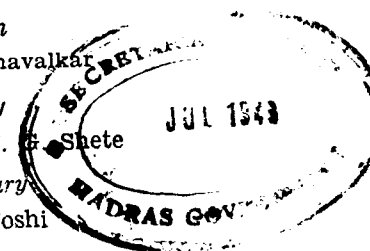
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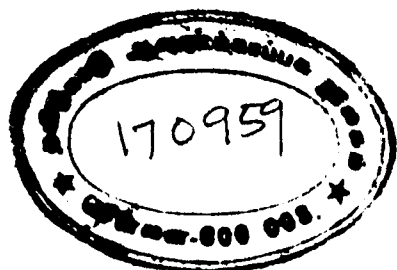
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VORA & CO., PUBLISHERS LTD.
3, ROUND BUILDING, KALBADEVI ROAD, BOMBAY 2.

Xxiii A
18

First Edition, February, 1948



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PREFACE

The National Planning Committee, appointed in 1938, began its work early in 1939. After defining the nature of a National Plan, and determining the nature and scope of the work entrusted to them, the Committee issued an elaborate and comprehensive Questionnaire which was subsequently supplemented by specific details. Twenty-nine Sub-Committees, formed into eight groups, were set up with special terms of reference to deal with all parts and aspects of the national life and work in accordance with a predetermined Plan.

After some unavoidable delay in getting replies to the Questionnaire, the Sub-Committees began their work, and submitted Reports,—some of them Final, some Interim,—which were considered at the Plenary Sessions of the Parent Committee in 1940. Towards the end of that year the Chairman, Pandit Jawaharlal Nehru, was arrested and sentenced to a long term of imprisonment, during which the work of the Committee had necessarily to be suspended.

On his release a year later, hope revived for an intensive resumption of the Committee's work. But the outbreak of war with Japan, the threat to India's own safety, and the hectic march of political events, rendered it impossible to devote any attention to such work at that time. It, therefore, inevitably went into cold storage once again; and remained for the duration of the war.

When at last the War seemed nearing its end, Pandit Jawaharlal Nehru with other leaders was released. The moment seemed again opportune to resume the work of

The following Table shows the condition of the Sub-Committees' work, and the stage to which the Planning Committee had reached in connection with them.

11

To sum up, fourteen Sub-Committees had made final reports, of which ten have been considered, and Resolutions taken upon them, by the National Planning Committee. Twelve more have presented Interim Reports, of which nine have been considered by the Planning Committee, with Resolutions thereon, while three Sub-Committees have not yet presented any report on the reference made to them.

The idea that all this material, gathered together with the help of some of the best brains in India in the several departments of our national life, should be printed and published was before the Committee from the start. But the interruption caused by the war prevented its realisation. It was once again mooted in 1941; but the moment was not deemed ripe then for such action, partly because the leading spirits in almost every one of the Sub-Committees were unable to devote time and labour to bring their Reports up-to-date; and partly also because war-time restrictions or shortages had made scarcer than ever before the statistics and other facts, which particular sub-committees would need, to bring their work up-to-date. The war-time needs of Government had attracted several of them to work on Government Bodies, Panels, or Committees. For all these reasons it was deemed undesirable that material of this character—valuable as it must be—should be put out in an incomplete, inchoate, obsolete form, which may reflect unfavourably upon Indian capacity for such tasks.

The last four years of the War were thus a period of suspended animation for the National Planning Committee. Even after the end of the war, it has not been feasible, for obvious reasons, for the Planning Committee to resume its work and finalise decisions. Continuous sessions of that body are indispensable for considering and taking decisions on the Sub-Committee reports presented since 1940, and putting all the material into shape, ready for publication, not to mention making its own Report; but the political situation in the country made it impossible. Other conditions, however, are somewhat more favourable than in 1938-39, when the Central Government of the country were all but openly hostile to such attempts. Lest, however, the momentary difficulties make for needless further delay, it was thought advisable by the Chairman and the undersigned that no more time should be lost in putting this material before the Public. Following this advice, it is now proposed to bring out a complete Series of the National Planning Committee's Sub-Committee Reports, which will

serve as appendices to the Parent Committee's own Report. The Plan of the proposed enterprise is briefly summarised below.

Every Sub-Committee's Report, which is in a final form and on which the National Planning Committee has itself taken resolutions, will be edited and published, with an Introduction assigning their due importance to the suggestions and recommendations contained in that particular report, its proper place in the over-all National Plan; and following it up, wherever necessary, by a kind of Epilogue, summarising the developments that have taken place during the seven years, during which the work of the Planning Committee had been in suspension.

Those Reports, again, which, though in a final form, have not yet been considered, and no resolutions taken thereon, by the Planning Committee, will also be included in the Series in the form in which they were submitted, with such Introduction and Epilogue to each as may be deemed appropriate. And the same treatment will be applied to Reports which are 'Ad Interim', whether or not the Parent Committee has expressed any opinion on the same. They will be finalised, wherever possible, in the office, with such aid as the Chairman or Secretary of the Sub-Committee may be good enough to render. Sub-Committees finally, which have not submitted any Report at all,—they are very few,—will also find their work similarly dealt with. The essence, in fine, of the scheme is that no avoidable delay will now be suffered to keep the National Planning Committee's work from the public.

Both the Introduction and the Epilogue will be supplied by the undersigned, who would naturally be grateful for such help as he may receive from the personnel of each Sub-Committee concerned. The purpose of these additions is, as already stated, to assign its true place to each such work in the over-all Plan; and to bring up the material in each Report to date, wherever possible.

Not every Sub-Committee's Report is sufficiently large to make, more or less, a volume by itself, of uniform size, for this Series. In such cases two or more Reports will be combined, so as to maintain uniformity of size, get-up, and presentation of the material. The various Reports, it may be added, would not be taken in the order of the classification or grouping originally given by the Planning Commit-

tee; nor even of what may be called the intrinsic importance of each subject.

In view of the varying stages at which the several Reports are, for reasons of convenience, it has been thought advisable to take up for printing first those which are final, and on which the Planning Committee has pronounced some resolutions. Printing arrangements have been made with more than one Press, so that two or three Reports may be taken simultaneously and published as soon as possible so that the entire Series may be completed in the course of the year.

Two other Sub-Committees, not included in the list of Sub-Committees given above, were assigned special tasks of (1) preparing the basic ideas of National Planning; and (2) outlining the administrative machinery deemed appropriate for carrying out the Plan. These were unable to function for reasons already explained. The present writer has, however, in his personal capacity, and entirely on his own responsibility, published the "Principles of Planning" which attempt to outline the fundamental aims and ideals of a National Plan. This remains to be considered by the Planning Committee. Similarly, he has also attempted to sketch an administrative machinery and arrangements necessary to give effect to the Plan, when at last it is formulated, and put into execution. Notwithstanding that these two are outside the Scheme outlined in this Preface, they are mentioned to round up the general picture of the arrangements made for publication of the entire work up-to-date of the National Planning Committee and its several Sub-Committees.

The several volumes of Sub-Committee Reports, when published, will be treated as so many appendices to the Report of the parent body, the National Planning Committee. It is impossible to say when that Committee, as a whole, will be able to hold continuous sessions, review and resolve upon Sub-Committee Reports which have not yet been considered, and lay down their basic ideas and governing principles for an all over Plan, applicable to the country, including all the facts of its life, and all items making up the welfare of its people.

The disturbed conditions all over the country, and the Labour unrest that has followed the end of the War has caused unavoidable delays in printing and publishing the

several volumes in the Series, which, it is hoped, will be excused.

In the end, a word of acknowledgment is necessary to put on record the aid received by the Editor in the preparation and publication of this Series. All those who are associated in the task,—members of the Parent Committee, or as Chairmen, Secretaries or Members of the various Sub-Committees,—have laboured wholly, honorarily, and consistently striven to give the best that lay in them for the service of the country. Almost all Provincial Governments and some States,—the latter twice in some cases,—have made contributions towards the expenses of this office, which have been acknowledged and accounted for in the Handbooks of the Planning Committee, published earlier. Suitable appreciation of these will be expressed when the Parent Committee makes its own Report. At almost the end of its task, the expenditure needed to edit, compile, and otherwise prepare for the Press, the several Reports, has been financed by a Loan by Messrs. Tata Sons Ltd., which, even when repaid, will not diminish the value of the timely aid, nor the sense of gratitude felt by the undersigned.

Bombay, 1st July 1947.

K. T. Shah.

Note:—In the Scheme of this Series, originally given, more than one Report was intended to be included in one volume in some cases. The combinations indicated in the circular, of the 20th of June 1947, had had to be modified as the printing of several Reports proceeded.

When about half the volumes were printed, it was found that that scheme would not give a fairly uniform series. The new arrangement is given on the page facing the title page. Some changes have had to be made in that list e.g., the separation of the two Reports on Public Health and National Housing, intended to be in one volume, are now in separate volumes.

Conversely, only the two Reports on Animal Husbandry and Dairying and on Fisheries were intended to be combined. As now decided, the Report on Horticulture is also included in the same Volume.

Again, the original combination of the Report on Mining and Metallurgy with that on Engineering Industries has been modified. The latter now combined with the Report on Industries Connected with Scientific Instruments, which was originally meant to be a separate volume, while the former is to be itself.

31st January, 1948.

K. T. S.

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INTRODUCTION

The Housing Sub-Committee appointed by the National Planning Committee was given the following Terms of Reference :—

(a) the provision of materials—brick, stone, cement, lime, wood, steel, glass etc., needed for house-building of all kinds, and specialised labour needed ;

(b) prescribing of standards of housing accommodation for rural and urban areas, with due regard to climate, situation, kind of need to be met, with suitable provision of air, light, water, sanitary equipment and labour saving devices ;

(c) consideration of the problem of Town Planning, and the ways and means of relieving congestion of population, with the consequent adequate provision of transport, communications and recreational facilities ;

(d) agency—national, provincial, local or private—to provide housing ; and

(e) any other questions connected therewith.

Housing

Housing, or provision of shelter, must be regarded as one of the most important of the Public Utilities and Social Services—an indispensable necessity of life—which will have to be attended to as an integral, essential part of the National Plan. It includes a group of industries producing building materials and having as such its place and importance in another sector of the National Plan as well. Conditions in the city of Bombay, a great industrial centre, are typical of this problem all over the country, and may accordingly be taken as the basis for the analysis of the problem and its solution.

According to the Report of the Housing Panel of the Greater Bombay Scheme, “ death and morbidity rates are directly affected for better or for worse by good or bad housing conditions. The effect of slums and overcrowding on crime and delinquency are now appreciated by all social workers. The need for good, adequate, commodious, sanitary housing in urban life cannot, therefore, be over-estimated.”

“ In spite, however, of this recognition of the importance of housing by the general public, and Government and Municipal authorities, the Report goes on to say, it is to be stated that housing has not made any appreciable progress in the City of Bombay in the last 10 or 15 years commensurate with the needs of a growing and developing city, nor has it kept pace with the actual growth of the City's increasing population.”

"In the 3,27,949 tenements of varying accommodation in the City live, according to the Rationing Census, about 23 lakhs of people. The overall average per tenement, therefore, comes to about 7.01. But it has also to be noted that congestion in the latter tenements ranged from 6 to 9 persons per room for 2,56,379 persons, from 10 to 19 persons per room for 80,133 persons, and 20 and over per room for 15,490 persons. One can imagine what the condition of over-crowding would be, particularly in the last 5 years of the War during which the City has expanded phenomenally in numbers. There are no signs that the congestion is abating. The need, therefore, for very urgent measures in order to relieve the congestion by providing more housing is obvious."

Slums of the City

"Over and above the acute shortage of housing in the City and dangerous over-crowding in one-room tenements, there is another drawback from which the City suffers, viz., the very large extent of dark, ill-ventilated, badly built housing with appallingly squalid surroundings in various parts of the City. The Bombay Municipality has enumerated 86 Slums, most of them being in four wards, viz, B, C, D, and E. In a large number of these houses in Slum areas, conditions that create slumlands strike the eye immediately one visits the areas. There are rooms so dark that even during the day the inmates cannot see each other in passages, or in the single living rooms, without the help of a light or fire. Fresh air is completely lacking. Very often there is no passage of air from room to room, many of which are built back to back. Ventilation is of the poorest standard imaginable. The single room serves as a living room, bed-room, sick-room, kitchen, dining room etc., and to add to this the number of persons living in the single room ranges from 4 to 10. The sallow complexion, the emaciated body, the pale faces of the inmates immediately tell their tale. If further proof were needed, one has only to study the official vital statistics to understand the extent of the toll in human life taken by this ill-conceived housing, a good deal of which, even under the present inadequate and long obsolete standards laid by the Old Municipal Act of 1888, can be classed as unfit for human habitation. It is tolerated because there is no alternative housing available; and the inmates would be on streets if the tenements are declared and marked unfit for Human Habitation."

Appalling toll of Human life

"It is seen from the vital statistics of the City (1944-45) that the infant mortality rate is still 203 per mille as against 167, the average for the country as a whole, and 46, 56, 57 and 56 of New Zealand, the U.S.A., Australia, and England and Wales, respectively, in 1940. Nearly 27.6 per cent of the total mortality in the

City is among children under 10. The death rate in the City is 18.2 per mille in 1944 as against 23 per mille in 1940 and 11.5 in 1940 in England (Administration Report for the City of Bombay—1944-45, Part II, pp. 1-6). There may be causes other than bad housing such as malnutrition, inherited disease, etc., which contribute to the high infant mortality and death rate. It has been found that nearly 70% of the infants under 1 year that die annually belong to these one-room tenements. The environmental, human, sanitary and health conditions in these one-room tenements, and particularly the slums, are such that there is no wonder that very heavy mortality and morbidity occur in these tenements, and one has to remember that there are no alleviating features in the City as are to be found in the country, viz., plentiful sunlight and air and vast open spaces as well as the open air life of the people. Nearby these tenements and in the Slum areas especially, it is even difficult for the growing children to find any available open space where they can play at ease or rest for the major part of the day. They have, therefore, to run about in the narrow lanes or keep indoors most of the time in nauseating conditions. When the Rent Inquiry Committee, appointed by the Government of Bombay in 1938, made its report regarding restricting the increase of rents in the City, they stated that at best the restriction of rent was a poor palliative, that what was needed most urgently was the provision of adequate, satisfactory and cheap dwellings for the people, and particularly the members of the labouring and poor middle class, who cannot afford to pay high rents for the housing provided in the City by private enterprise (vide Vol. I, Ch. VII, pp. 38-45). The Textile Labour Inquiry Committee (1938, Vol II, pp. 267-279), the Royal Commission on Labour in India (1931, pp. 285-294), the Industrial Commission (1918), as well as all those who have gone into the question of housing in the City have pronounced the same opinion."

Nature of the Problem

The Housing problem, as it was considered by the Sub-Committee, and by the National Planning Committee in their resolutions on the Report of the Sub-Committee, concerned itself chiefly with providing living room, primarily in urban areas or large centres of industrial population. This does not mean that the need for accommodation in non-urban areas is non-existent; but rather that the need is the greatest and most urgent in large aggregates of population. When the National Planning Committee resumed work in July 1945, it recognised this aspect by appointing an *ad hoc* Sub-Committee to consider certain pressing problems of National Economy, demanding a sort of priority over others; and Housing formed an important item of those Priorities in Planning.

Reporting in September 1946, the Priorities Sub-Committee

stated, however, that the problem of finding living room and shelter for the people was not of the same urgency as that of Food and Education—two other problems likewise referred at the same time to the same Committee. The Sub-Committee's reason for holding such a view was that real shortage of accommodation was felt only in large centres of population, and not in the hundreds of thousands of villages where dwelt by far the largest proportions of the Indian masses. In contrast, the town or industrial centres were comparatively few in number. According to the Census of 1941, only about 13% of India's teeming millions live in towns, while the balance of 87% or about 34 crores live in units of 2,000 souls each or less. Even granting that India consists of Provinces as well as States, and that the former are industrially more advanced with a larger proportion of urban population than the latter, the town-dwellers in British India cannot be more than 15% as against 85% in the rural areas, or in relatively small townships and villages. Climatic considerations also render the need for shelter or Housing, particularly in rural areas, not so very urgent as that of the other essentials or necessities of life. Even after the division of the country since August, 1947, the relative proportion of urban and rural population, and, therefore, the relative urgency of the Housing Service, have not become materially different.

This, of course, does not mean that the problem, such as it is, does not need immediate consideration; or that the Plan would be complete if this item was overlooked. Even after the partition of the country, the Union of India still has a population of some 32 crores; and of this 15% are town-dwellers in large industrial centres. The National Housing Service must, accordingly, provide for some 5 crores of people, or, given an average family of five in round terms, for 1 crore families.

Standard House Room.

The Standard space needed for accommodating these in reasonable comfort, and equipped with all the utilities and services needed for such dwellings, has been variously defined by various authorities. The National Planning Committee has prescribed 100 sq. ft. per head for the purpose, while the Report of the Health Survey and Development Committee lays down the following standard requirements deemed essential for the maintenance of health amongst the workers:—

"In our opinion the housing of the industrial population is primarily the responsibility of the Governments concerned. The following minimum standards of housing are, we consider, required for the health of the industrial worker and his family:

"(1) For a single man: a room 10 ft. × 12 ft. × 10 ft. and a verandah 8 ft. × 10 ft. For a group of such quarters there should be provided community kitchens, latrines and bathing

places in accordance with the standards to be prescribed by the Provincial Government. Where common kitchens are not provided, provision should be made for *choolas* on the verandahs with suitable chimneys for the outlet of smoke. Where latrines and bathing places for common use are erected, they should be at a reasonable distance from the quarters, and, if possible connected by a covered way for protection during bad weather.

"(ii) For a family: for a married couple, two rooms 10 ft. × 12 ft. × 10 ft. with a verandah, kitchen, bath-room and latrine. For a family including grown up children the accommodation should be increased by at least one extra room of similar size.

"(iii) In regard to sanitary conveniences, we suggest that, as far as possible, septic tank and soil distribution systems should be introduced so that the handling of nightsoil may be avoided."

Existing Housing in the City of Bombay.

According to the figures supplied by the Assessment Department of the Bombay Municipality, there are at present within the limits of the City, i.e. from Colaba to Mahim-Sion, the following numbers of Houses and tenements of varying accommodation, viz. :—

		According to 1931 Census.
Total number of houses	about	50,883
Houses fully or partially residential	"	31,743
		According to Asses- ment Department 1945
1 room tenements		2,35,488
2 room tenements		52,637
3 room and larger tenements		39,824

In these 3,27,949 tenements, there dwell at present about 23 lacs of persons, giving an average of 7.01 persons per tenement.* It is however, well known that the congestion in one-room tenements is far higher than in the larger tenements. It was estimated in 1931 that nearly 74 per cent of the City's population lived in one-room tenements, and that 36% of the population was living in gross overcrowding. The all-over average number of residents per room in 1931 was estimated at 4.01, when the total population of the City was about 11 lacs. It can only be imagined what it will

* Overcrowding in the tenements, particularly in those that are situated within the City, will have to be cautiously checked from the start by generally not permitting more than the maximum number of inmates allowable per each type of tenement.

be now when the City population has increased to 23 lacs. The floor space per person came to less than 25 square feet in 1931. It would be less than half now, whereas the standard of floor space per convict allowed, according to the Bombay Jail Manual is 40 square feet.

Estimated Present Population

With regard to the present estimated population of about 23 lacs in the City, it is believed that after the abnormal conditions created by the war have stabilised, the City will continue a population of about 20 lacs. If the present 2,35,488 one-room and 52,637 one-room and kitchen or two-room tenements are remodelled, or demolished because impossible of improvement and rebuilt, it is estimated that about $1\frac{1}{2}$ lacs of remodelled tenements on improved lines may be available for habitation for about 6 to 7 lacs of people at the rate of 4 to 5 persons in the 39,824 three-room and larger tenements; and about $11\frac{1}{2}$ to 12 lacs of people will, therefore, have to be provided good, sanitary housing in the City and the suburban area.

The Housing Panel of the Greater Bombay Scheme recommend that, for the present, new housing for 4 lacs of persons may be provided in the City, and for 8 lacs in the suburban area, i.e., for about 12 lacs of persons in all in the City and Suburbs. In order to divert the flow of population away from the City to the suburbs, the Panel are of opinion that as far as possible new industries should not hereafter be permitted in the City, but they should be located on suitable sites in the Suburbs. Old established industries that would like to move to the Suburbs should be encouraged to do so.

One-room tenement as family residence must disappear.

The Panel are of unanimous opinion that no longer should one-room tenements be permitted to be built either in or outside the City for family residence; and the kitchen should always be separated from the living rooms by a partition wall.

Minimum covered floor space per family 250 sq. ft. exclusive of verandah.

The minimum covered floor-space per family tenement should not be less than 250 square feet, i.e., no family tenement should be smaller in size than 250 sq. ft., exclusive of the verandah and W.C.; and not more than 4 persons should be permitted to live in such a tenement.*

* These figures represent the position as at the end of 1944. Since then the population has grown very considerably particularly in the last four months of 1947, when refugees from Sind and West Punjab streamed in by the thousand. It is reliably estimated that the city's population within municipal limits, at the end of 1947, was nearly 3 million. Neither housing nor any other civic service has expanded in anything like the same proportions.—Editor.

Minimum floor-area per person.

On an average the minimum covered floor area per person should be 60 sq. ft. in the family tenements, and where the number of inmates in a family exceeds 4, tenements of correspondingly larger accommodation should be provided. The Panel would suggest tenements of 360 and 420 sq. ft. of floor space for families of 5 to 6 and 7 to 8 persons respectively.

Ingredients of the Problem

The chief ingredients of the Housing Problem may be resolved into the following:—

1. Prescription of Standard Space or accommodation, which must be provided as part of the National Plan, calculated as for a social unit such as a family, or an individual citizen. This Standard Space must combine due regard for (a) the health of the inmates, which includes adequate water supply, sanitary arrangements, sewage disposal, open spaces etc., as also (b) their convenience in regard to the education of their children, and nearness to their work or adequacy of the transport service from home to work and vice versa. Between them they would also involve full consideration of Town Planning or civic layout.
2. Indicating types of houses deemed suitable for the different purposes which such structures are intended to serve, or the different classes of occupants intended to be accommodated. The type may vary, but the standard design in each type, and equipment provided in each, will not only lead to economy in the service as a whole, but also the maximum of comfort and convenience for its users. The great shortage of this service in all countries has led to many suggestions and innovations regarding design as well as material, as also for mass production of prefabricated houses which must be considered in the National Plan. It will be the task of the National Housing Authority, established as part of the machinery to administer the Plan, to get prepared and adopt suitable designs for the various types of housing required for residence, business premises, schools and hospitals, jails and asylums, factories and workshops.
3. Decongestion or redistribution of population in large centres, and provision of all utilities or services which go collectively to make up wholesome living conditions. This is the main objective; and, as such must inevitably influence the preceding items in the programme. A wholesale and permanent redistribution of population, as between urban and rural areas, will be the foremost consequence of the National Plan taking effect.
4. The materials required for house-building and maintaining the Service involves a number of essentially large scale industries, like iron and steel, bricks, glass, woodwork and furnishing, lighting and heating equipment, etc., which are mentioned

in one of the Terms of Reference to the Sub-Committee. If the Housing Service is to be adequately, appropriately and economically provided, these industries must also be undertaken and operated in a manner harmonious with the provision and working of the service itself. The prime consideration must be the comfort, convenience and cheapness of the service to the consumer, rather than any surplus of income over cost to the agency supplying it. The problem of Rent Control, which has recently assumed vast dimensions, arises at all because the cost of providing house room in the first instance and of maintaining it must be met somehow, whether by the community collectively or by the individual occupier. A more detailed consideration of the several industries contributing to house building will be found in the Reports of the Manufacturing Industries and Chemical Industries Sub-Committees of the National Planning Committee.

5. The Agency supplying the Housing accommodation and maintaining it is no less important an ingredient of the main problem. There are two main alternatives, namely the State, whether as represented by the Central or Provincial Government or their local representative, the Municipality or some specially constituted Urban Area Committee or District Boards or Statutory Corporations or Building Societies specially established for the purpose; or private profit seeking individualist enterprise. These two may not be mutually exclusive, but the field in which each may operate will have to be determined and regulated with a degree of strictness that may not be acceptable to private profit seeking enterprise demanding freedom of action. A National Housing Authority will in any case have to be established to administer the great national service.

Housing accommodation may, indeed, be found for himself by the individual citizen, who, to secure comfort and convenience, with economy, may combine with others in co-operative endeavour to obtain suitable housing for himself and family. The National Housing Authority will have to consider most carefully whether individual enterprise for purely personal use should be considered to be a Public Utility and Social Service from which the element of individualism should be wholly excluded and eliminated.

6. Whatever the agency which, working as part of the Plan, is required to furnish such Housing as may be made an integral part of the Plan, the Plan must also lay down on whom rests the primary responsibility for providing and maintaining this service: on the State, on the employer, or on the private individual entrepreneur seeking his own profit in giving this service. It may be added that Building Societies or Co-operative Corporations going into this field will only be a form of public service slightly differing from public enterprise as represented by the State or the Central or Provincial Governments.

7. The types of houses from the standpoint of design, and equipment as well as cost, would naturally differ according as any given structure is required for residential use or industrial purposes, such as factories or workshops, office or establishment; or for public service as Government Departments, Educational institutions as schools and colleges, libraries and laboratories, hospitals and asylums, theatres and museums, baths and gymnasia etc. It would, of course, be part of the problem that suitable designs, including standard equipment, mentioned as regards residential premises in the Terms of Reference as "labour-saving devices", will have to be prepared for each type of structure. The subjoined list of amenities and services deemed indispensable in modern urban housing is taken from the Report of the Housing Panel of the Greater Bombay Scheme:

Minimum Accommodation in a Family Tenement

Every family tenement should have at least 2 living rooms, a kichenette, an open verandah, preferably independent as far as possible, a Water Closet, a Nahni (Bathing place) with a water tap and a loft for the storage of articles.

The following amenities besides should be provided in each tenement.

1. A built-in *cupboard*,
2. A *shower* in the Nahni,
3. A small *mori* for washing in the kichenette,
4. A raised *platform* for fire-place with a Hood and Chimney to carry away smoke and a hollow underneath the platform to store fuel,
5. *Pegs* for hanging clothes,
6. *Shelves* in the Kitchenette for keeping utensils, and
7. A minimum of 3 electric lights in each of the smaller tenements.

Common Washing Place & Electric Lights

For every 4 tenements of the size of 250 sq. ft., one common washing place with a tap should be provided. The common washing places, staircases and access verandahs or passages should be provided with electric lights.

Whereas the wiring in the smaller tenements with the minimum of 3 electric lights may be attached to the common chawl meter, each of the larger tenements may be provided with a *separate electric meter*, if possible, so that the tenants may pay their own electricity charges according to consumption and the necessity of shutting off and opening electric current at particular hours; and the difficulty of collecting charges, removing and replacing bulbs, etc., may be obviated.

Remodelling the existing one-room and one-room and Kitchen Tenements

The existing one-room and one-room and kitchen tenements in the City and outside should be so remodelled, wherever possible, as to allow for the minimum floor area of 250 sq. ft. per tenement and provide for the amenities proposed above.

If the tenements are too old or beyond remodelling or improvement, there should be legislation enacted for enforcing their demolition and rebuilding on revised plans.

Height and Accommodation of Buildings

The houses to be constructed in the City should be of ground and three upper floors and the terrace should be made accessible to the residents so that in the hot weather they can sleep thereon. (If not too costly, some portion of the terrace may be covered with a low pitched roof for protection against the inclemencies of weather, so that it can be used all the year round.)

The houses in the suburban area should be of ground and one upper floor with a terrace provided and made available to the tenements as above.

As regards the larger tenements for 5 or more persons each, there should not be more than 8 tenements on each floor of a building and as regards the tenements of the minimum inside area of 250 sq. ft., there should not be more than 8 tenements on each floor served by a single staircase.

As far as possible, the verandah may be independent for each tenement so that its exclusive use could be ensured to the respective occupants.

Amenities for each Unit of 1,000 tenements or groups of them

The Panel consider that each Unit or colony of about 1000 tenements and groups of 4 to 5 such colonies should have adequate shopping facilities, medical relief, playing and educational facilities and necessary social amenities provided within easy reach of the residents. For a unit of about 1000 tenements housing about 4000 to 6000 persons, the following amenities are tentatively proposed :—

1. A Primary School.
2. A Welfare Centre (with a full time trained Welfare Officer in charge with a sufficient number of Welfare Assistants and Volunteers).
3. A large Hall (attached to the Welfare Centre to be used for multifarious purposes stated below).
4. A Dispensary (for out-door patients) combined with a Maternity and Child Welfare Clinic, the latter to be run at convenient hours.

5. A Reading Room and Library.

6. Play-grounds of adequate size for adults as well as children.

(It is proposed that for every thousand inhabitants there should be at least 3 acres of open space provided in the congested parts of the City, whereas in the sparsely developed city and suburban areas, the minimum standard of open spaces per 1000 persons should be 607 acres, vide "The Country of London Plan"—Penguin Books—1945, p. 46).

7. A Co-operative Store (with as many commodities of daily domestic and other needs of the people as possible).

8. About 15 to 20 Shops (centrally and conveniently situated so as not to cause nuisance to the residents, to be let out to various types of shopkeepers and artisans or craftsmen, e.g. milkman, provision dealer, grocer, tailor, hair dresser, tea shop, etc.).

9. A Maternity Home and Clinic (common to more than one colony having 3 beds per 4000 of population).

10. A Market for the sale of vegetables, fruits, meat, fish, other articles of food and domestic necessity, very accessible and conveniently situated—not more than about a quarter of a mile from the 4 or 5 units of 1000 tenements each, comprising about 25,000 to 30,000 people.

11. A Hospital (for an economic group of units or colonies, say for 50,000 persons or more, conveniently situated).

12. Space for a Secondary School (building and play ground with proper accessibility to students from a specific group of colonies) and for similar other institutions to satisfy Municipal or public needs.

13. A Post and Telegraph Office will have to be provided for a convenient group of units or colonies.

These amenities and facilities should be so planned that the residents and their children can derive the utmost benefit out of them. To take one or two instances, the ideal distance for locating a dispensary would be about one-quarter of a mile, whereas it should not be at a greater distance than one-half mile at the most from every home on all sides, and within the radius of a mile; a maternity home may be made available to the residents of the locality. The Primary School should be accessible to the children of the locality around at a distance of about 5 to 10 minutes walk without having to cross a traffic highway or thoroughfare.

14. The financial aspect of the problem is the most complicated and difficult to attend to. If, according to the estimate given elsewhere in this Introduction, the immediate requirement would be for 500 crores sq. ft. of house-room, at Rs. 5/- per built up square foot—a fair average at present prices of build-

ing materials and labour—for the country as a whole, we would need a capital outlay of Rs. 2500|- crores spread over 10 years or more. This may be distributed, as between the several agencies mentioned above, roughly as follows:—

- (i) Central Government, including Railway, Post and Telegraphs, Defence Civil Services—40% or Rs. 1000 crores.
- (ii) State and Provincial Governments, Municipalities and other local bodies—30% or Rs. 750 crores.
- (iii) Private Employers of industrial labour—15% or Rs. 375 crores.
- (iv) Private capitalist enterprise, providing rented quarters and citizens providing their own accommodation—15% or Rs. 375 crores.

The aggregate State (including Central, Provincial and State Governments, Municipalities etc.) would be for a capital cost of Rs. 1750 crores in ten years, or Rs. 175 crores per annum. This can be raised by loan and be fully secured by structures built out of the loan proceeds; and repaid from the rent income derived from such premises. Essentially the same reasoning, procedure, and ways and means would apply to housing provided by the other agencies named above.

Housing in the Priorities Sub-Committee

Before examining each of these ingredients of the main problem, we may consider the National Planning Committee's Priority Sub-Committee's Report on the subject. As already pointed out, that Sub-Committee did not consider this particular need of the country, or item in the Plan, to be so urgent as that of Food or Education. It held the need to be most insistent in the case of larger industrial centres; and addressed itself, primarily, to meet that need as typified by the industrial worker or the individual citizen seeking house-room for residential purposes. With this preliminary, the Report goes on to say:—

“It may be mentioned, in this connection, that Housing, on the scales on which this country needs it, would involve development of contributing industries like brick-making, structural steel, cement, wood-work, paint and varnishes, furnishing and equipment in general, essential for modern residential accommodation. These incidental industries would require labour of large numbers. Exact estimate cannot be given. But, in general, this may certainly be taken as a very effective remedy for some section of unemployment that prevails in every modern society. Even under carefully planned economy, securing suitable employment for everybody, the redistribution of persons employed that would be necessitated in order to give each occupation its proper complement of workers etc. would be an important means to provide such alternative occupation.

In this sector of the problem, it is as much a matter of building materials, technical design and equipment, as of decongestion, so as to permit a proper scientific lay-out, or planning, of industrial centres, providing adequate housing accommodation for the population. This accommodation must further be equipped with the necessary services of water supply, good lighting, cheap and quick transport from the place of residence, education for the children, together with sufficient playground or recreation centres for the entire community in those places.

So far as building materials are concerned, India has no great scarcity of wood and cement, stone and lime, or still simpler materials. Bricks, though for the moment in shortage, can be easily made in this country in all required quantities. Once the problem of housing is tackled effectively and determinedly, the making up of this shortage would only be a question of time. The exigencies of war have, no doubt, brought about a measure of stringent control over more modern building materials like steel or cement, while prices of all the materials required for house-construction have risen very high owing to the same factors. This has added to the stringency of the task before us. With the end of the war, the artificial shortage of housing space due to commandeering of accommodation for military personnel, and additional offices needed for the prosecution of the war in the more important centres, would also disappear. Such measures, however, as legislative control of House Rents, with fixed ceiling, will have to be retained, at least so long as this disparity between housing space available and the population requiring that space continues in these centres.

From the point of view of the Indian population as a whole and particularly as regards the rural population which constitutes seven eighths of the total, the scope for prefabricated houses is very slight. Given climate and other conditions obtaining in this country, the housing required will be relatively much simpler; and the amenities, services or equipment illustrated above, need to be not very much more increased than is the case in some of the more advanced industrialised centres of this country.

An experiment, however, has been tried for accommodation in prefabricated houses for the employees of the Calcutta Port Trust by a private concern specialising in this line, which has yielded fairly satisfactory results. The cost of such houses is stated to be about 40 per cent below the average cost of a standard house built to order, so to say. For cheap housing that may be needed immediately it may be worthwhile to consider this alternative, as the materials required all lend themselves to rapid, standardised, mass production. There is, moreover, the consideration, also, in favour of such housing, in the fact that Government attach in their scheme for subsidised housing considerable

importance to this device.

Leaving out, therefore, prefabricated houses, and concentrating attention only on houses built from locally available materials, without resorting to mass production of a standard type, it must be premised at the outset that building, design and equipment will vary necessarily according to the use to which a structure is to be put, just as the main plan of an area will vary with the geographic situation and topographic peculiarity of each area.

In this note we are concerned only with housing for residential purposes. The main aspects of the problem, in point of National Planning from this point of view could be summarised to be :—

- (1) The nature and volume of the housing provision.
- (2) The responsibility for providing it.
- (3) The finance, or ways and means of housing.
- (4) The agency immediately concerned with providing housing, regardless of the ultimate financial responsibility.

I. The Nature and Volume of the Housing Provision.

Housing must be regarded as a *Public Utility Service*, apart altogether from the final responsibility for providing and running it.

In this view of the problem, any element of private profit made by the house builder or house owner must be strictly regulated, if not eliminated altogether. Such as exists today must be progressively reduced until it disappears completely. Even if all the Housing required for the total population is not provided by some public authority or statutory body, and even if some scope remains for houses built by private enterprise for profit to the proprietor or contractor, rigid control must be maintained over the price, or rent, for housing service, together with the amenities with which each such house must be equipped under the building by-laws or general laws laid down in that behalf.

A programme of housing spread over ten years must be drawn up so as to provide the pre-determined standard for housing accommodation for every human being, with the necessary minimum of amenities and services which modern life in industrial centres demands. Confining our attention for the present to urban population, and taking the standard housing space needed to be 100 sq. ft. per person, the total accommodation needed is easy to calculate.

To find out the total additional housing needed, it is necessary to have an idea of existing accommodation and the possi-

bility of improving or extending it, so as to make the existing houses meet the minimum standard of light and air, water supply, transport facilities, protection against fire, and other utilities, amenities and services required for a decent standard of civilised life.

Technical details, plans or designs for standard housing of this type will be for architects and engineers to work out. In the interests, however, of economy of space particularly in large centres of population, where there are physical limits of the area at their disposal, e.g. an island city like Bombay, it may lead to the construction not of single family tenements, or houses each a unit in itself, but rather of large blocks of flats or barracks which may accommodate several families, each assured of the given standard of amenities, services and planning which must go with each house in National India.

As a Public Utility Service, the rents charged cannot be what is called an economic return on the capital investment made by a private profit-seeker. It should be co-related as much to the ability or income of the occupant (say, about 8 1/3 per cent of the income) as to the capital cost incurred (not more than 4 per cent. of capital investment) for constructing the standard dwelling. So long as there are people seeking houses with varying brackets of income or ability, houses will have to be designed so as to suit the would-be occupants from these several brackets of incomes. There is, however, one over-riding condition that a minimum standard of living space, amenities, utilities and services should be provided in each case.

The control of rents would have to be much more rigid in regard to housing accommodation in the relatively lower brackets, while even for the middle class tenant some measure of restriction on the rent to be demanded would be necessary.

Occupation of each such house by a tenant must not be compulsory. Some regulation, however, will have to be laid down for adjusting the place of work to the place of residence in order to minimise transport. This is a problem as much for the town planner as for the individual tenant, and may be left to be decided by them, subject to the condition that : where housing is provided for workers near their place of work, preference will have to be given to the actual workers and not to anyone not actively engaged.

II. Responsibility for Providing Housing.

The next question to consider in this connection is in regard to the responsibility for providing the necessary housing. There are three alternatives which are not necessarily mutually exclusive. Each has its own peculiar fitness for discharging that obligation.

(1) There is, in the first place, the State or the Nation as a whole, who can shoulder responsibility. In so far as Housing is a Public Utility Service of national importance, the Central Authority of the country must necessarily bear its share of this obligation, though the burden need not be shouldered entirely and exclusively by that Authority.

On the other hand, the Central Government, by its very nature, cannot actually provide the Service, even if it shoulders some part of the obligation, since it is essentially a local concern. Housing in different parts of a country like India, for climatic and other reasons, must necessarily vary in structure and material; in the accommodation as well as equipment, in the design and lay-out, in accordance with the purpose for which each building is to be utilised. This means responsibility of the Local Authorities, whether Provincial Government or Local Bodies, like a Municipality or District Board, or even Village Union.

The actual agency for constructing or providing houses may thus be the Local Authority, e.g. in respect of a basic plan, situation, technical design, and standard equipment, together with certain prescribed amenities or services by the Provincial or Central Government as the case may be.

(2) The Local Authority of the Municipality or District Government will not find itself equal in all cases to the task in all aspects. Some responsibility must, therefore, also be cast upon those elements in the Society, which stand to derive some benefit from people using the housing they provide. Their benefit may be not so much by way of the rent or return on their investment, as in the shape of the additional or surplus value infused in their work which the workers in their employment do.

The employer is thus an outstanding class on whom responsibility may quite fairly be charged for providing the necessary housing accommodation, at least for his immediate operatives, whether manual labour or intellectual.

There are obvious advantages as well as limitations in making the employer responsible for providing the housing accommodation, for his workers. The main advantage, of course, lies in regard to the saving of time by locating housing as near the place of work as possible, designing it to fit the peculiar needs of the given operatives, and serving or equipping such accommodation with the ordinary amenities, utilities, and services as may be prescribed as part of the National Plan.

On the other hand, any housing that an employer provides can only be for large-scale factories or workshops. The relatively small scale business, employing only five or ten people, will not find it economical or convenient to provide such housing for each employer's staff whether manual or intellectual.

Besides, if such housing is provided compulsorily, as a legal

obligation thrown upon the employer, the latter would demand that so long as a worker works in his employ, he must occupy the housing provided by the employer. The worker's freedom of movement will in consequence be affected. The moment the worker ceases to be in the employ of the party providing the accommodation, the latter would be free to eject such a worker, whether or not he has found an alternative accommodation.

The worker thus gets tied up to a place; and, as such, his general tendency is to dislike living in quarters provided by the employer. And this quite apart from the point of view of rent.

(3) An alternative agency to provide housing is competitive private enterprise. This may provide fancy structures varying according to the taste and means of individual house-builders. If housing is part of a National Plan, it cannot be left to the vagaries of the private entrepreneur, however much controlled by local or national regulations.

If Housing is provided by private agency, of the type that a capitalist employer usually is, he would seek his utmost to make the return equal to the investment over a relatively short space of time. The economic Rent expected for such housing by a capitalist house-builder (or employer) will take account only of what he would call a fair return on his investment; and that would be arrived at by comparison with the ordinary Interest Rates in the money market for investment in corresponding securities.

This, in its turn, will be utterly regardless of the ability of the working class tenants to pay such rent. The professional and middle class tenant may be able to pay such rent, or provide his own house. But even in that case there is an upper limit of rent paying capacity which cannot be exceeded. It is at this point that the community, in one form or another, will have to step in to modify the burden of the 'Economic Rent' so as to make it correspond to the ability of the tenant, and yet secure repayment of capital invested in the housing. The repayment may, no doubt, be spread over a much longer term of years than the private investor would desire.

Moreover, the employer, as already remarked, would provide housing only for his immediate employees, which does not exceed 7 per cent of the total population. That section of the community, therefore, which is not employed as wage earners, and which consists of professional elements working for the public at large, and not for any definite employer; or the relatively older people, the retired, or superannuated, not actively engaged in work, will not be served by such agency. Their need for housing must also be attended to; and that can only be done by some form of State enterprise, whether conducted by the Local Government, Municipality, District Board, or some other

non-profit making society, like a co-operative, or statutory authority.

The standard equipment for proper Housing accommodation in respect of water supply, lighting, sanitary facilities, as well as transport and education, recreation and other amenities for the adults as well as children, that are deemed indispensable for civilised living, cannot be enforced to the required degree except by the active intervention by some form of Government Authority. This intervention may take the shape of laying down standards, by-laws, and enforcing inspection and supervision by public officials so as to ensure proper construction with sound materials, standard design, adequate safeguards against fires, etc. and proper provision of amenities, services and utilities.

The State, whether Provincial or Central Government, is already a large employer; and will, in the near future, become so in an ever increasing degree. Municipal and other Public Services, like Transport and Communications, employ thousands of teachers, postmen, medical men, police, railway and tramway operatives, and others of that kind. For its own employers, therefore, the State must set a model of housing, which must not only be not inferior to any similar facility provided by a private employer, but which must co-relate, in point of the return demanded from the tenant, to the ability of the latter, as measured by his income, rather than to the actual cost of the investment, or the market return on similar investment on other enterprises.

(4) If housing is provided by private enterprise only, for purposes of letting out, that section of the community which does not care for owning house property, but nevertheless seeks a reasonable fixity of residence, and also a high standard of amenities; which also has an eye to the beauty of situation, convenience of location, and the like, must have some say in regard to the material, design, equipment, and above all, fitting in with such town planning measures as may in any case be adopted. The responsibility thus is not exclusive of any single individual Corporation or Authority; and the State will have to take, in one aspect or another an increasing share in providing, regulating, and controlling the Housing Service as a whole.

III. Finance.

The next question is that of Finance. While discussing the nature of the Housing Problem, and of the responsibility for providing it, reference has already been made to the ways and means aspect. The total financial obligation cannot be shouldered exclusively by anyone of the agencies considered appropriate for providing accommodation.

The conditions prerequisite of the Ways and Means aspect may be repeated here to give point to the financial side outlined below.

Housing must be treated as a Public Utility Service, which must be provided by the State or some Delegate on its behalf. From the accommodation thus provided, the element of private profit must be strictly regulated if not eliminated altogether. Even if the obligation is thrown upon a section of the citizens, e.g. employers of labour, to provide housing for their operatives, these will have to work under definite by-laws, and accept standards of accommodation and equipment, location and design, prescribed by some Public Authority as part of the National Plan.

The element of private profit to the house-builder or house-owner must be progressively eliminated. Rent control must, therefore, follow as a matter of course, and be a permanent integral feature of the National Housing System.

Even in that sector of Housing which is left to be provided by private enterprise as an investment for individual profit, all the standards and rules, mentioned above, will have to be complied with, particularly in regard to location and design, as part of a common Town Plan, with the minimum services, utilities and amenities deemed necessary for proper Housing accommodation.

Given all these conditions, the financial responsibility must also be shared, and fall not exclusively on any one of the parties concerned, the State, the employer, or the private entrepreneur providing housing building for profit; the general citizen and tenant; and the Local Authority benefitting from such occupation, must all share in the cost as well as the return, directly or indirectly.

If Housing, as a public utility service, is provided by the State, or some organ, representative or delegate of it; and run on a cooperative or contributory basis, the revenue coming to each of these agencies responsible for providing and maintaining the Housing Service could be easily determined as part of a long-term arrangement, even though initially relatively larger burden might fall upon a given section only.

There are several methods for shouldering the immediate financial obligation and for recouping the same. The latest proposal of the Government of India is to grant a subsidy of 12½ per cent. subject in each case to a prior approval of the Provincial Government concerned, and a maximum of Rs. 200 per each house. If this is based on the present prices, and the mass production of standard houses is adopted, the unit cost may be very much smaller. It may also be spread over a fairly long period, say 10 years, to provide all the Housing needed; and 50

years to recover the cost. This in turn could be supplemented by a similar subsidy of $12\frac{1}{2}$ per cent. subject to a maximum of Rs. 200 making the total Government subsidy of Rs. 400 per each house from the Local Government or Municipality, or some Statutory Corporation or a Building Society.

If the entire capital cost of the Housing, together with the amenities and equipment required to be installed, is impossible to be provided by any single Body or Authority from its current resources, recourse may be had to borrowing a long term loan on low interest to be paid off by equal instalments in 50 or 60 years.

In Britain, whose Housing need is very much more urgent and intense, according to the latest information on the subject, a long term loan is proposed which would be utilised for house-building and equipping it with the necessary amenities.

It is necessary to bring out the essential point of the British scheme, which is "The annual subsidy given by Government and the Local Authority plus a reasonable rental fixed with reference to the occupant's capacity to pay would over a period of 60 years cover the capital cost, repairs and maintenance and amortization". This principle can be given wide application in India if an extensive scheme of co-operative housing societies can be started.

The actual construction of housing would be left to Local Authorities who will then recover the cost of the actual house room, plus the services, utilities and amenities going with the house, from the tenant in the shape of Rent which will be the occupier's contribution to the cost.

The loan is proposed to be repaid over a period of 60 years, which would, therefore, allow a very much lower rate of amortisation, so that 'the rent' exacted from the tenant or occupant will be relatively small and well within the ability of the average worker to pay.

If, as already premised, we view the Housing Service as an integral part of the National Plan, there would be no difficulty in believing that the ability, also, of the tenant, or worker, will progressively improve as the plan unfolds itself, and takes effect in its several sectors adding to the total as well as the individual wealth and so raising the latter's capacity to bear the burden.

With increasing ability of the tenant in the shape of higher wages, due provision in regard to health and schooling, facilities for transport, recreation and other amenities will also have to be made. The rent charged for such housing would appear progressively to lower the burden to the occupant.

To the State, also, or the Agency which provides the Housing, the burden would become easily bearable, not only because

of the share the State will take from the wealth of the community, resulting from the Plan taking effect, but also because of the very long term over which the repayment of the capital with interest is spread.

K. T. SHAH.

REPORT OF THE SUB-COMMITTEE ON NATIONAL HOUSING

CHAPTER I

INTRODUCTION

The terms of reference of this Sub-Committee are :—

(a) The provision of materials—Brick, stone, cement, lime, wood, steel, glass etc., needed for house-building of all kinds, and specialised labour needed.

(b) Prescribing of standards of housing accommodation for rural and urban areas with due regard to climate, situation, kind of need to be met, with suitable provision of air, light, water, sanitary equipment and labour saving devices.

(c) Consideration of the problem of Town-Planning, and the ways and means of relieving congestion of population, with the consequent adequate provision of transport, communications and recreational facilities.

(d) Agency, national, provincial, local or private, to provide housing.

(e) Any other question connected therewith.

The questionnaire of the Sub-Committee is annexed as Appendix I. It was issued to about one hundred individuals and institutions. About fifty replies were received. We express our gratitude to those who so kindly responded to our questionnaire. Their replies have been very useful in the preparation of this report.

The Sub-Committee held five meetings. It was not possible within the short time allotted to this Sub-Committee to collect statistics and data from all over India. The task of collecting such data and chalking out schemes for the various industrial and other urban centres of the different provinces and States of India as well as for the rural population living under different geographical, climatic and demographic conditions is colossal. The Central and the Provincial housing authorities suggested in the body of this report will take up the work of detailed surveys that are necessary for preparation of the various schemes. This report is of a very general nature and will have to be modified in some respects in the light of information received as a result of such detailed surveys.

We are thankful to the General Secretary of the National Planning Committee, Prof. K. T. Shah and the Joint-Secretaries for their assistance throughout our work. We are also thankful to the delegates of the Sub-Committees for having placed before us the views of their respective Sub-Committees.

CHAPTER II

NATURE OF THE PROBLEM

There is abundant evidence in ancient Indian literature, in the remains of old structures and in the archaeological excavations to show that the art and the technique of house building and of planning villages and cities had developed to a high degree in this country. Naturally the houses, villages and towns in the past bore the impress of the religious, cultural, political and sociological conditions then prevailing. Unfortunately, at a certain stage in the history of India, sciences and arts including those of Housing and Town Planning came to a standstill ; things began to deteriorate and today the housing conditions in our villages and towns are very unsatisfactory.

In rural India although air and light are freely available people do not take sufficient advantage of free air and light. They live in dark congested areas and overcrowded houses. Such conditions are attributable to ignorance, poverty, sense of insecurity and age-old habits. There has been no serious attempt for proper water supply to villages. Villagers have neither the guidance nor the means for proper drainage and disposal of refuse, and for want of this they have to remain content with living in insanitary and almost primitive conditions and lose the advantage that may be obtained from use of refuse and night soil as manure.

The conditions in the cities and industrial towns are worse. This is the result—first of the lack of interest shown by the State and the industrialists in the proper housing of labour and secondly of the establishment of industries without any plan. Industries naturally attracted large number of labourers who, for want of proper housing, were obliged to live in chawls, mostly single room tenements, which are insanitary, badly-built and very much over-crowded. The density of population in some of our industrial centres has increased to the extent of 700 and odd souls per acre. Successive official reports and publications like the report of the Rent Enquiry Committee appointed by the Government of Bombay—testify to the horrible housing conditions in the industrial centres. It is not surprising that the infant mortality should be of the order of 78% in such dingy human stables. Air and light—the two vitalising forces instead of being easily available to one and all have become marketable commodities.

It is therefore imperative to improve the housing conditions in India immediately. The question of National housing requires to be tackled on an All India basis. It will save repetition and

overlapping and will secure advantages of co-ordinated effort. It will further assure equitable standard of living to the workers in all the provinces and States of India.

Housing means the provision of comfortable shelter and such surroundings and services as would keep the worker fit and cheerful for all the days of the year. In addition to the provision of pleasant and comfortable shelters, it includes the creation of new building sites in well laid-out areas as well as the improvement of existing localities. This means the inclusion of proper arrangement for water supply, drainage, roads, lighting, means of communication and civil centres required for medical relief, education, sport, recreation, administration, shopping and the like.

CHAPTER III

HOUSING IN RURAL AREAS

Ninety per cent of the population of this country lives in the seven hundred thousand villages. The present unsatisfactory condition of rural housing is a direct consequence of the unsatisfactory condition of Agricultural and cottage industries. Improvement of Rural Housing is only a phase of the great Rural reconstruction effort that will presumably be undertaken by the State. The problem of housing in rural areas is so much interconnected with the improvement of Agriculture and the cottage industries that it will have to be tackled by an agency which will work in co-operation with that established for the improvement of agriculture and cottage industries. If the housing problem is postponed or is given a secondary place it will create conditions which it will be difficult to improve at a later stage.

As a first step towards Rural Reconstruction extensive surveys and collection of data will have to be undertaken. Rural Housing must be developed from whole to the part. The central authority will lay down general principles and standards. It will generally be necessary to treat a group of villages as one unit—each unit having its own marketing or distributing or such focal centre. Obviously every village cannot be self-sufficient. Some amenities will be common to the whole group of villages; while some amenities will have to be provided separately for each village.

Following is an illustrative list of amenities which will be treated on a regional basis, i.e. for a group of a number of villages :—

(1) Marketing and distributing centres. (2) Main communications with cross drainage works. (3) Water supply schemes if the group of villages is favourably situated with respect to the central source. (4) Irrigation. (5) High Schools. (6) Jails. (7) Dispensary and Hospital. (8) Ambulance. (9) Library. (10) Post Office—one central and few sub-offices. (11) Museum. (12) Electric supply, if possible. (13) Cinema. (14) Experimental farm. (15) Tannery. (16) Weaving shed. (17) Military Training Centre. (18) Police chowkie. (19) Dharam Shala. (20) Co-operative Institutes including a bank. (21) Bus stand. (22) Radio place.

This is only by way of indication. Slight variations may be necessary to meet individual requirements.

Following is also an illustrative list of amenities that will have to be provided separately for each village :—

(1) Approach Road. (2) Field Tracks. (3) Village streets and squares. (4) Village wells, baths and wash houses. (5) Cattle troughs and ponds. (6) Public sanitary arrangements. (7) Meeting Hall. (8) Play ground. (9) Religious places. (10) Primary school. (11) Cemeteries. (12) Work house. (13) Gymnasium. (14) Village Common. (15) Cattle Stand.

It will be necessary that both regional as well as local amenities are worked out on a planned basis. Master plans for the large as well as the small units should be prepared and the work regarding remodelling and future extensions as well as for these amenities should be carried out as per plan. The house plan and the domestic amenities to be provided therein will depend upon the class of persons for whom it is intended. These may be any of the following : cultivator, labourer, carpenter, blacksmith, potter, tailor, shoe-maker, oil-miller, carder, weaver, brass-smith, shepherd, village priest or Mulla, shopkeeper, barber, washerman, tanner, mechanic, apothecary and village servants. With the revival of cottage industries, there will be a few more classes of workers.

An illustrative list of requirements for a Rural House may be given as under, to be oriented in accordance with the sanctioned master plans.

(1) Verandah or Verandahs. (2) One or two rooms. (3) Kitchen. (4) Store. (5) Grain bin. (6) Fodder store. (7) Cattle shed. (8) Implements store. (9) Fuel shed. (10) Bathing platform or enclosure. (11) Sanitary arrangements. (12) Court yard. (13) Manure pit. (14) Main enclosure.

A list of fittings will be as follows—(1) Shelves (2) Pegs (3) Roof-Pendants (4) Cup-board (5) Fire place, where necessary (6) Kit platform (7) Loft (8) Treasure chest (9) Niches (10) Drying lines (11) Grinding place (12) Pounding block (13) Churning fitment. (14) Fodder trough.

The question arises as regards the agency by which the execution of the different branches of Rural Housing is to take place. General amenities pertaining to a group of villages and those amenities in one particular village which are common to all the inhabitants without distinction of caste or creed should be provided by the State, i.e. by one or all the authorities established by the Central or Provincial Governments for specified purposes. For example, schemes such as communications and cross-drainage works will be undertaken by the Provincial Governments—while the construction of approach roads, field tracks, gymnasium, etc., can be executed by the local authority such as a Panchayat by raising its own funds for the purpose or better still by co-operative labour.

As regards the village house itself it is advisable that a village family should own its own house. This is in view of the fact

that the population in a village is expected to be more or less immobile. Secondly, a house cannot be well maintained unless the occupant has some adequate interest in it. Proper maintenance will be of the essence of Rural Housing. The kind of construction that is visualized for the Rural Houses is such as would last for several years, only if it is properly maintained from day to day.

Regarding actual construction of houses, mutual co-operation will have to be the basis of any programme. The type of construction should be easy enough as can be undertaken by villagers themselves. The materials of construction should, as far as possible, be those which are locally available. Any other type of material which is not available in the locality should be supplied by the State at cost price. It is only on these lines that the problem of Rural Housing can be solved. Unlike the industrial labour, a village inhabitant has to remain idle for some part of the year, and can spend his time usefully in building his own house.

Difficulty will arise with regard to land required for building the house. Many of the villagers are mere tenants and the houses they live in are situated on the land belonging to the landlord. Some means will have to be found to increase the interest of the villager in a house built on another's land—either by making the house-site available to him or by assigning him an almost permanent term of tenancy which will make it possible for him to build a house of the proper type and maintain it in a fit condition.

As the people living in villages are expected to spend most of their time out of doors, unlike the labourers residing in urban industrial areas, such high standards of light and ventilation as are necessary for the latter, need not be rigidly insisted upon for the rural areas. The houses, however, should be built after type, plans or models with accepted modifications where necessary and according to instructions given therewith. Rules framed for the purpose will have to take into account all the items, some examples of which are given below : Even though all the windows be closed by night either through ignorance or for fear of draught or insecurity, sufficient air should get into the living rooms through roof ventilators, clerestory windows or honey-combed portions of walls. It should be insisted that no cattle—even young calves are allowed to occupy any space inside the house and further that the waste water from the bath room and slop water from the kitchen, drains at least some distance away from the house, before it soaks into the ground exposed to sun.

Any attempt at improving the housing conditions in the villages is doomed to failure, if it is not accompanied by education of villagers. There shall be constant propaganda in the form of pictures with the aid of lantern slides and the like. These will emphasise on the fourfold aspects : (1) Good house with clean

and cheerful surroundings ; (2) Demonstrations as to how to construct such a house ; (3) Methods and advantages of hygienic living, and (4) Advantages of co-operative work.

This can be effectively done, if the main calamity of the village, viz., the migration of the intellectuals, is stopped or the village is re-imbursed with its moral and intellectual wealth.

CHAPTER IV

URBAN HOUSING

Urban Housing includes working class housing, middle class housing and upper class housing. Both the middle class and labour housing require State attention.

Housing problem in urban areas essentially differs from that in rural districts. Population in the latter is more or less immobile whereas that in the former is of a floating character. Cost of urban land is very high. Though the manufactured building materials and skilled labour are costly in the villages, those of local nature are cheap. Villagers have to remain idle for some months in the year and can, therefore, contribute their labour in the rural housing schemes. On the other hand, town worker has to repeat the same mechanical operations from day to day and from morning to eve and that too indoors. He cannot be expected to give any labour contribution for his housing, because his spare time must be devoted to recuperation of the exhausted energy and strained nerves. There are avenues of cost reduction in urban housing by mass production and the like, whereas such chances are few, if any, in rural housing on account of its scattered nature. Stabling of livestock, storage of field-produce and the like dictate a treatment which stands in marked contrast with that for industrial workers whose life-functions are amenable to distributive and concentrated treatment. These factors have to be taken into account in tackling the problem of national housing.

One can get an idea of the unsatisfactory conditions of urban housing from the following :—

(a) Site :—

(1) Absence of zoning. (2) Lack of planning. (3) Inadequate control. (4) Insanitary areas. (5) Want of amenities. (6) Congestion.

(b) House :—

(1) Squatter type of huts. (2) Insanitary houses. (3) Sub-standard tenements. (4) Sub-division of tenements. (5) Over-crowding. (6) Shortage.

There is an urgent need of immediate and extensive improvements. The difficulties, however, are not easy to overcome. Suffice here to mention a few of them : (1) Vested interests. (2) Scarcity of building sites or township space. (3) Want of proper and cheap transport. (4) Ill-distribution of houses. (5) Obsolescence. (6) Low rent-paying capacity. (7) Floating nature of labour. (8) Insecurity of employment. (9) Family and non-family units. (10) Numerical sex disparity. (11) Illi-

teracy. (12) Prejudices and customs. (13) Property-sense. (14) Profiteering. (15) High cost of site and house. (16) Sociological complications. (17) Peculiar trend of selectivity. (18) Communalism. (19) Provincialism. (20) Want of civic sense. (21) Tightness of public finance. Not all these difficulties come under the purview of this sub-committee. The main difficulty is poverty and the second is the prejudices and ignorance of the people. It is hoped that the second difficulty will disappear in course of time.

There are two aspects of urban housing. First, improvement of inhabited areas and secondly development of new areas. These are treated in the relevant subsequent chapters.

CHAPTER V

AGENCY

Before the details of the means to be adopted for clearing the slums and planning for expansion are considered, the fundamental question of policy—whether provision of housing for the labour class should be left to private profit-seeking enterprise or to State—must be settled.

The economic conditions of the workers will not permit them to pay a rent for their housing, which would give adequate return to the private individuals, who may be interested in providing such housing. It is not possible to attract private individuals or joint-stock corporations to undertake any housing scheme, which will not give them proper return on their outlay. The standard of accommodation at present prevailing in the big industrial cities is very low and requires to be considerably brought up. When that is done there will hardly be more than two or three per cent net return on the investment which is not likely to attract private enterprise. If the State does not undertake the housing for the labourers, the private individuals and corporations will not keep up the standard which appears to be the minimum, in our opinion, for labour class housing.

A comparison between the industrial housing problem of India and that of the most of the Western countries will be informative and interesting. Former starts with more or less a clean slate while the latter woke up after the industries had already been indiscriminately established. The programme of housing the labour population of the existing industries is very small when compared with that of the industries that India has yet to establish. Again, many of the new industries such as the defence and key industries are going to be state-owned. The financial implications, therefore, are less complex and there will be no difficulty in raising the necessary capital as has been already found in the case of railways. We have, therefore, come to the conclusion after due deliberation that the housing for the labouring class should be undertaken by the State.

There may be some parts in India where it is possible for a private individual to provide the working class housing within the rental capacity of that class. Any private individual is free to provide such housing, subject to the control of the State but it is unwise to depend upon private enterprise for providing all the requirements of working class housing in all the industrial centres and neglect proper arrangements for it in a National Plan, especially in view of the fact that working class housing by private enterprise has proved unsatisfactory in some of our important industrial towns.

It is suggested in some quarters that employers themselves may be required to provide for housing their workers. The suggestion is not favoured by the representatives of labour. They fear that this would lead to restrictions of their civil liberties by direct and indirect means. Industry also will not take the suggestion favourably as it would involve extra capital.

Having decided upon state agency for the provision of labour class housing in industrial towns, the question arises as to how this agency should be established. The general term "State" includes Central Government, Provincial Government, Municipalities, Local Boards, and any other local authorities established by Statute.

Over and above the execution of labour-class housing, improvements and expansions so as to provide proper surroundings to all the classes will require comprehensive planning. For the sake of co-ordination of policy, avoidance of over-lapping and clash of work, it is proposed to string all the fountain-heads of powers and repositories of responsibilities. It is suggested to create special statutory authorities for the purpose, viz., (1) Central Housing and Planning Board; (2) Provincial Housing and Planning Boards.

The Central Board will lay down general principles, decide comprehensive fundamental of policy, programme, finance and technique, as well as fix general standards. It will work as a guide and a help. It will serve as a clearing house of fundamental information. It will also prepare and get passed such acts as are necessary for the delegation of powers to the various authorities. The Provincial Board will guide and control all schemes, but will not be concerned with all the details of the actual execution of schemes. It will prepare full details of the various acts to be passed by the Provincial Legislature and frame rules and regulations for the approval of the Provincial Government. The local authorities will be either of regional or municipal character. It will have to do the work of initiative as well as that of carrying out the executive work. This body will be clothed with full powers under the general control of the Provincial Body. Such local authority will be either District Council or Municipality or a Special Statutory Body or a Statutory Sub-Committee created for the purpose according to the merits of each case.

Woman's Role in Housing

Nowhere in National Planning the woman's role will be more effective and more useful than in housing. House belongs to the house-wife. Conversion of house into home as required in National Housing cannot be done better than under the inspiring guidance of the woman who has first hand knowledge of what constitutes home. All the petty yet almost indispensable devices that go to make house-keeping less fatiguing, less costly and

more homely can be properly conceived by the woman.

Her role in civic life will be equally useful as in home life. Her activities round welfare centres, maternity homes, creches, schools, cottage industries and the like will be the real inspiring and moulding force to all the beneficent working of such institutions. For reasons like these we recommend that arrangements should be made so as to give an effective voice to the woman in the actual execution of the housing and planning schemes.

CHAPTER VI

IMPROVEMENT & SLUM CLEARANCE

The report of the Bombay Rent Enquiry Committee gives the average density in Bombay as 75 persons per acre—the maximum being 727 and the minimum 1.1 per acre. Though the area in the North of the Island of Bombay is recently developed and people have migrated to this area, the density in thickly populated parts has not appreciably fallen. In Bombay about 72% of the population live in one room and about 14% in two room tenements. Approximately 20% of the population live in overcrowded single rooms, each occupied by 6 to 9 persons and about 7½% of the population lives in single rooms occupied by 10 to 19 persons. Most of these one or two rooms tenements are insanitary, dark and badly ventilated. This is not peculiar to Bombay only. It applies to all industrial towns more or less equally. The efforts made so far both by private individuals and the authorities have not achieved the desirable effect as regards the standard, magnitude and the method of approach.

Slums are not restricted to industrial areas only. They are found in all towns and cities where industry has not much developed. They are partly due to ignorance and poverty and may to some extent be due to classification of society into high and low castes or classes, but chiefly due to want of systematic attention.

Slum clearance is a slow process and there is a practical limit beyond which it cannot be accelerated. But slums will never be done away with unless a definite and well-arranged plan is adopted and is continuously carried on.

Any attempt at reduction of density will involve provision of new sites and new houses either in the neighbourhood or far removed.

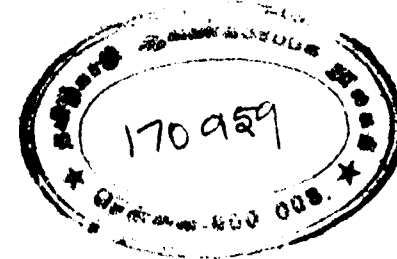
This problem is full of complications. The working class is naturally inclined to live somewhere near the industry in which it is employed. If they are to be persuaded to live far away from their place of work, adequate provision for cheap and convenient transport will have to be made. It is not generally desirable to house workmen far away from their place of work. But this ideal cannot be reached in case of old established industries in the neighbourhood of which new sites are not available or which cannot be shifted. The other possible remedy is the provision of very tall buildings in such localities. Vertical development is a method employed in other countries with great success to relieve overcrowding. This kind of vertical development introduces its own problems such as pumping for water supply, special fire-fighting appliances, provision of lifts, etc., which tend to increase the rent of the tenements.

This will not, however, reduce the density though it will reduce overcrowding of rooms by reducing shortage and enable the replacement of sub-standard and insanitary houses by good ones.

It would, therefore, be a wise policy to shift the industries themselves. This will be to the ultimate benefit of all concerned.

The problem will be tackled by industrial town-ship system in which such industries as could be shifted wholesale will be removed to virgin area on the outskirts of the city and established with a proper layout and with margin for further expansion. After such removal is effected, there will be room for increased housing accommodation at the old site making both reduction in density and provision of good housing possible for the removed as well as the remaining industries.

It is obvious that open raw land can be acquired and developed and then given over as building plots at a profit, while reverse will be the case where clearance of built-over portions is involved, though in particular cases even the latter can be made self-supporting by adopting a suitable technique. In any case it is to be noted that sound financing necessitates the balancing of remunerative against unremunerative schemes as far as possible.



CHAPTER VII

DEVELOPMENT

The improvement of existing conditions or slum clearance will not be possible without development of raw land on a large and comprehensive scale in and around the town. If the principle of not de-housing a single family without making re-housing arrangement is kept up, great deal of obstruction to slum clearance will be taken away. Development of large open areas is, therefore, a necessity for such an expansion. This requires pre-planning. Housing on a large scale cannot and should not be thought of irrespective of town-planning. The relation of the arrangement of plots, blocks and streets, the distribution of parks, playing fields and open spaces, the location of various amenities, and lastly of the fixation of the residential, commercial and industrial areas in such a way as to ensure the health, comfort, safety and convenience of the inhabitants are items which need no emphasis for a development scheme.

For the purpose, long range views have to be taken and the whole area including the built-over portions ought to be town-planned. This will require one or more of the following plans : (1) Regional plan. (2) Master plan. (3) Zoning. (4) Layout plan. (5) Service plan. (6) Transportation plan. (7) Full co-ordinated plan.

The street system must be so planned, that it will answer every-day requirement of traffic, business and access to the houses. The physical well being and health of the community must be ensured by providing sufficient light, open space and air and by utilities which will promote good sanitary conditions. The expenditure should be so proportioned between the various requirements that it will be most effective in bringing about the desired result. The plan must make complete and economical provision for all the needs of the city. The endeavour is to provide not merely houses but homes with all the attendant attributes of living and liveable town. Any housing scheme, therefore, will not be a proper success if communitarian life is not encouraged and if necessary buildings, spaces and sites for recreation, medical relief, domestic needs, protection and the like are not provided. An illustrative list of such requisites is given below :—

(1) Neighbourhood garden. (2) Children's place. (3) Playing field. (4) Ladies club. (5) Gymnasium. (6) Military Training grounds. (7) Girl and Boy scouts' grounds. (8) Theatre. (9) Maternity home. (10) Creche. (11) Welfare centre. (12) Dispensary. (13) Hospital. (14) Nursing home. (15) Veterinary hospital. (16) Bal mandir—Nursery school. (17) Primary School. (18) Secondary School. (19) High School. (20) Girls' School. (21) Cottage Industry centre. (22) Handi-

crafts' School. (23) Industrial School. (24) Meat, vegetable and fruit market. (25) Night Schools. (26) General stores. (27) Shopping bazar. (28) Grass market. (29) Public conveniences. (30) Vehicle stands. (31) Car park. (32) Barbers' seat. (33) Bus stand. (34) Transport stations. (35) Post Office. (36) Telegraph Office. (37) Telephone booth. (38) Petrol service station. (39) Meeting maidans. (40) Trade Union centres. (41) Town Hall. (42) Library. (43) Electric Sub-stations. (44) Fire stations. (45) Booking and Parcel office. (46) Police Chowkie.

The provision of amenities like the above and necessities like roads, sewers, drains, water-pipes, lights etc., can be efficiently and economically provided if the layout is of the right type. It has been noticed that the Swastik type layout is found to be one of the best, both for use, safety and cost. It ensures central communitarian space and well situated shopping places, enabling better financial returns.

Whatever the type of layout, it is desirable that plots should not be back to back but should have a back lane carrying all the services like sewer, waterpipes, electricity, etc. The common mistake in such development of not making proper provision for gaolis (shepherds), domestic servants, commercial labour and the like should be avoided. Reserving appropriate areas for appropriate purposes on a comprehensive basis will be necessary to fix zones of various types as suggested above. Similarly the topography and soil conditions, pleasing vistas, freedom from local nuisances, mosquito swamps, factory smokes etc., climatological and demographic conditions, cost of land, political and other proprietary boundaries, nearness of existing city portions, accessibility to and from the plant on the time-distance and fatigue basis, transportation facilities, proximity to high-ways or water-ways and the like, availability and cost of developing water, sewage, drainage, electricity and such utilities—all these will have to be given due weight.

Owing to indiscriminate expansion and laissez faire method adopted by the authorities, both necessities and amenities in most of the towns are conspicuous by their absence. Developments have occurred in a totally jungle type and irregular manner. The most condemned ribbon development is rather a rule than an exception. In most cases, layouts of private lands are not fully co-ordinated with the adjoining areas. Every inch of available land is made saleable as far as possible.

Even under the garb of town planning scheme, financially acceptable in the first instance, some of the essential services such as drainage, are left out from the scheme deliberately, leaving the local body to face the problem.

If a policy of not permitting the construction of a single building without first ensuring complete development of the

whole area with essential services and amenities, be adopted, the situation described above will not arise. Such a policy will go a great way to improve conditions, but the most effective method is to stop private conversion of agricultural land to non-agricultural purpose by proper legislation. The attempts at control by way of betterment charges, excess condemnation and subsequent release and the like are only makeshift arrangements.

In any case the first thing to be done for effective planning and housing is to immediately put under control of the planning and housing boards or any delegated authority thereof, the whole of the land within the influence of the town, say a radius of 5 miles.

Whether the land is developed by a private individual or by a statutory body, the fundamental principle, viz., "land to bear its own cost" shall have to be enforced. Briefly, when a cultivated piece of land is given over as building site, it is a conversion which is possible only if the essential services and amenities are made available to the piece of land; the cost of these, therefore, should fall on the raw land. Only after this, there is real conversion to building sites. The details are varied and many but these will find their due place in legislation, when undertaken at the instance of the National Planning Commission. It is, however, to be noted that the responsibility of providing the actual buildings on the sites reserved and prepared for the various civic amenities will have to be separately considered on the merits of each case.

The best laid-out plans—both technically and financially—can be sabotaged if there is no proper control during construction. This will have to be effected in a variety of ways, such as special methods of leasing plots or definite terms of house tenancy, or bye-laws specially enacted or adopted from the standard rules by modifications.

The above are the general points for development. Regarding labour housing, there are some peculiarities which are noteworthy, e.g. such a development will take the form of what may be called Industrial Township. It will perhaps in many cases be the only method of housing the industrial workers. The degree of benefit will rise considerably with the increasing obsolescence. There is a possibility of making the township self-sufficient and also self-supporting. Welfare activities will have better field. The work, play and plant control from the National outlook will be effective and efficient, e.g. what are known as allotment gardens will be practicable in such a township.

It must be noted that in country-wide housing of the future, 'development' will come into prominence as this will form one of the main or perhaps the only basis of all improvements in the living conditions of the poor.

CHAPTER VIII

STANDARDS

The standards will generally vary from province to province, if not from district to district. The variations are partly due to difference in the economic conditions but mainly due to the climatic environments, sociological circumstances, building traditions, topographical features and occupiers' profession. Therefore, all the minimum standards, rigidly specified, will not be valid for all places. The broad conception, however, of minimum standards deserves to be recorded.

They should be based on consideration of sanitation, comfort, convenience, safety, and social and national objective, such as promotion of efficiency in labour and of human values. Some of these may have to be modified due to economic considerations.

Site: A healthy, adequate sloping elevated site in the proximity of parent industry with sufficient extent for future expansion is desired. It should preferably be such as could be cheaply developed.

Streets: The minimum width of the main road should be 60 ft. and that of internal road 30 ft. The construction should be strong and durable, provided with proper storm water drainage. The surface should be dust-proof wherever possible or age. The percentage of land under roads and lanes should be necessary. The percentage of land under roads and lanes should be about 20% of the whole or about 36% of the building sites.

Amenities: Sites for all the civic requirements such as those of medical relief, education, recreation, administration, shopping and the like should be provided to an extent of 25% of the whole or nearly $\frac{1}{2}$ of the area of residential sites which will be about 55% of the whole.

Service Lanes: The plots should not be back to back but will have a back service lane of at least 15 ft. width. It shall carry as many services as possible, such as water supply, sewage, storm-drainage, electricity and the like.

Services: There should be ample provision of portable water, on a minimum basis of 40 gallons per capita for all purposes including municipal and domestic use. The sewerage system should be separate from storm-water and should be underground and water closets should be served by water carriage system. The methods of disposing of the sewage will vary from place to place. There shall be adequate provision for lighting of streets and good and cheap transportation services, such as bus, street car or railway.

House: The built up area shall not exceed $1\frac{1}{4}$ to $1\frac{1}{3}$ of the plot area: The marginal spaces whereof shall not be less than 15 ft.

The floor area including that of verandah will be at least

60 sq. ft. per adult. The aim of the National Planning Committee is 100 sq. ft. Though this is desirable, it has been found that under the present economic circumstances, 60 sq. ft. can only be fixed as the minimum.

The minimum height shall be 9 ft. clear. The rooms shall have at least an external wall abutting an open space; openings for light and ventilation shall be $\frac{1}{7}$ of the floor area, excluding door area. There should be thorough ventilation. Each family shall have one bath and one latrine on the water carriage system, with proper ventilation and adequate equipment.

Staircases and passages and corridors to be of a minimum width of 3 ft. and 4 ft. respectively, of fire-proof construction with proper light and ventilation. Lift shall be provided for a building more than 40 ft. high and having more than three stories.

Every unit shall have at least two separate exits and there should be convenient ingress and egress.

Though detached houses may be preferable, semi-detached ones will in some cases be practical. In most of the cases, however, row-type structures will be necessary; this shall have not more than 20 tenements distributed over two floors at the maximum. Multiple storeyed buildings will be adopted only where land cost is very high or there is absolute absence of suitable land.

The accommodation for a family should preferably be as under :

Main room	..	..	15'	x	10'	=	150 sq. ft.
Kitchen	..	..	8'	x	6'	=	48 sq. ft.
Verandah	..	..	9'	x	6½'	=	58½ sq. ft.
Bath Room	..	..	7'	x	3½'	=	24½ sq. ft.
W. C.	..	..	4'	x	3'	=	12 sq. ft.

Materials : External walls and roofs should give protection from weather in all seasons of the year.

Floor should be as impervious as possible but such as would not induce cold and the like. Unglazed tiles, properly maintained mud floor, lime concrete and the like are suggested for the floor but a detailed study to find out a suitable paving material is necessary. Attempts have to be made to get a roof of low thermal conductivity in addition to its being rain-proof.

Fixtures And Fittings : The question presents more varied problems than that of the house according to the mode of living of the occupant, climate and the like. Indian workers like to have built-in fixtures and fittings, unlike their comrades in foreign countries. The question, therefore, becomes more important as these should be inserted in the building beforehand. A typical list for normal requirements is given below :

(1) Washing basins. (2) Cleaning platform. (3) Fire place with cooking platform. (4) Loft. (5) Provision racks.

(6) Fuel bin. (7) Drying bars. (8) Shelves. (9) Pegs. (10) Roof pendants. (11) Cup-boards. (12) Kit platform. (13) Water place. (14) Niches. (15) Swing rings. (16) Shoe recess. (17) Curtain hangers. (18) Grinding stone.

Care shall have to be given to the sanitary requirements such as washing and cleaning arrangements, removal of domestic refuse, cooking arrangement, proper plumbing, hygienic storage, vermin prevention, fire protection, proper upkeep and the like.

Density of population should not be more than 100 persons per gross acre. This will mean 20 to 25 tenements per acre. In new developments in America, the standard varies between 6 to 10 per acre, becoming 12 or more per acre in row houses. The maximum in English practice is 12 houses per acre, while P. E. P. recommends that 16 per acre should be allowable. But there are cases of 25 to 30 houses per acre in the new developments in England. From these points of view, the proposed density may appear high, but the actuals, when tested, show that this density may be allowable.

The difference is, perhaps, due to the fact that the major part of living in other countries is indoors while the same in India is out of doors. The built-up portion, therefore, in the latter country is much less per family, with the result that in spite of the higher density, the actual open space will be as large as, if not larger than that in other countries. The effect of density will largely depend upon the bad, good or indifferent design of the town plan. If the open spaces are properly distributed and other civic amenities properly located, the question of density will be more or less secondary.

Some examples of standards (appendix 2) prevalent in some of the foreign countries as collected by Mr. V. C. Mehta, during the preparation of this report by him, will give an insight into the question of how similar problems are tackled in different climates. It appears that they have a different basis altogether. The main difference being due to the difference in climatic and sociological conditions and consequent difference in the mode of living and habits of life. It should be borne in mind that if standards are very realistic and of high order, they will never be followed, as the cost will be so high that it will get out of practicability. Not only the wage earner will, (certainly), be unable to afford such costly housing, but even the nation as a whole may find it difficult to provide such housing. On the other hand, if the standards be determined by the rental capacity of the labour class, they will be so low, as to fall far below, the accepted minimum for safety, space, light, ventilation and sanitation.

It will be easily seen that though the foregoing standards are applicable to most of the areas, the main background is that of labour housing in industrial centres. The question of standards, however, regarding other classes of housing, in rural as well as urban areas, is touched in the respective chapters.

CHAPTER IX

FINANCE

Housing can be divided into the following sections :

- (1) Houses for the wealthy class of people ;
- (2) Houses " middle " " "
- (3) Houses " working " " "

Housing for (1) and (2) may be left to private enterprise because they are able to pay a rent which would give a reasonable return on the investment. The real problem is with regard to (3) For, this class it will be seen from what follows that the return may be as low as 1.6% at the economic rent of 10% of income. Hence it is absolutely necessary that the housing of the labouring class should be a State concern as already discussed.

Financial Forecast : The population of the whole of India is about 400 millions. About 90% of this population lives in the villages, leaving 10% or about 40 millions, in cities. It is found that about 86% of the urban population, i.e., about 34.4 millions live in one or two-room tenements.

There is every likelihood that in course of time, the industrial labour population to be housed will rise from the present estimated urban figure of 34.4 to 40 millions due to industrialisation, better housing and the like. Normal strength of an urban labour family varies from 5 to 4 ; but from the sociological trends, one may expect that the number of houses required ultimately may be based on a strength of four. The total number of labour houses thus works out to 10 millions as the Nation's future requirement. Most of these will be new. The existing ones are either badly situated or are bad themselves. Taking half of one-room tenements as worth demolition and the rest convertible to the adopted standard by halving their number, the available number becomes one-fourth of the present. Regarding two-room tenements, it is supposed that the same can be remodelled so as to come up to the standard. Taking 7 million tenements for the present labour population of 34.4 million souls, and the proportion of one and two-room tenements as 6 to 1, the number of units available after conversion becomes 1 million remodelled two-room tenements and one-fourth of six, i.e., 1½ million converted single-room tenements, making up a total of 2.5 million standard units obtained from the old tenements. This leaves 7.5 million units to be newly constructed. Taking an average figure of Rs. 1250 as cost per unit of old as well as new, and assuming that only 25% of the total requirement of 10 million units will be constructed in the first ten years of the National programme, the finance required will be Rs. 3,125 millions. The annual return on this amount will vary according to assumptions of family income and of the percentage of the same available for rent. The former varies from Rs. 40 to Rs. 60 per month while

the latter from 15 to 10. The ideal is to charge not more than 10% of the family income for the house-rent. If it is assumed that the increase in the family income and the reduction in the percentage of income for rent tend to balance, the monthly rent per unit may be taken as Rs. 6. The outgoings such as insurance, depreciation, repairs, defaults, administration, vacancies, rates and taxes and the like amount to Rs. 31.74 per annum and a net return of about 3% is left. The assumptions are not likely to be upset as there is every likelihood of large scale working and organised programme under National Planned economy by which supply of land, material and labour can be made available from a national standpoint and thus made to contribute to some saving in over-all costs. If, however, the contributory cause becomes ineffective, the calculated return of 3% may go down to about 2.5% or less according to the increase in capital cost. Similarly if the income remains static and rent is reduced to 10% from 15% of the income, the return in interest may fall down to 16%. It is, however, believed that the normal figures given above will in all probability be obtained.

The following financial arrangements are available for the housing to be undertaken by the State :

- (1) Loans.
- (2) Taxation.
- (3) Profits from land.
- (4) Profits from utility services.
- (5) Profits from building industries.
- (6) Endowments and grants.

Loans : This is the only method by which the problem of National housing can be effectively tackled. The loans will have to be floated by the Government on their behalf for the National Housing. Of course, it has to be visualised that under the general awakening, almost all bodies, viz., the Central Government, Provincial Governments, Local Bodies, Societies, institutions and companies will be out in the market for capital. Under National Planning, there will be a large number of industries either on national or non-national scale. Government will be out in the money market for financing their social and other welfare and uplift schemes, such as Prohibition, Primary Education, Rural Communication, Village Water Supply, Public Health and the like. The finances of the local bodies are bound to be stressed to a very great extent for their drainage and water supply schemes which will necessitate loans for which, in a majority of cases, the Provincial Governments concerned will be approached. The stress on the money market will, therefore, be very great with the progress of time. It will be very difficult for the loan to be subscribed in full for a scheme of low return unless the same is supplemented by some sort of taxation.

Taxation : This method of financing labour housing will be indirectly a sort of grant as the power of taxing mainly rests

with the Government. There are three different taxing authorities, viz., Central Government, Provincial Governments and the local bodies. Though it is possible under this system for the Central or Federal and Provincial Governments and Local Bodies to have independent sources of revenue, circumstances have led in most countries to the development of a mixed system of taxation. Under such a system, while some items of taxation belong entirely to one or other authorities, revenue may be derived for them from certain common sources. This inter-dependent taxation system may result in contributions, surtaxes, cesses, assignments, subventions, grants-in-aid and the like. Whoever the taxing authority and whichever the form the taxation may take, the ultimate source of public revenue is the income of the people and it is immaterial to the tax-payer who out of the three authorities collect the tax. It is, however, necessary to give some indication of the possibilities.

As said in the foregoing chapter, the Housing and Planning Board for the whole of India is the vital structure on which National Housing is made to depend. The taxes that will generally be available to any local authority under the said Board will be of various types. But it is proper that the tax should fall on those who are chiefly concerned with the benefits accruing from properly housing the labour class. When a scheme is mooted to have about 10 million houses or tenements under the National Housing scheme, the building industry and the building material trade will be benefitted to a very large extent. Similarly, the industries or concerns employing the labour classes which are proposed to be housed will get contented and happy and therefore more efficient workers with mutual advantage. The output of these beneficiaries will be the natural items of taxation. It is neither necessary nor advisable to fix any definite amount of taxation at this stage of planning. Some indication, however, is given of this taxation in Appendix—3a.

This taxation of 1% ad valorem on the whole out-turn of all concerns employing labour would bring in about 40 millions of rupees per year, which will increase the return on 2.5 millions of tenements proposed to be built from 1.6% to 2.8% as per Appendix—3b. In this way, it is feasible to put up the required buildings for the labouring class with very little loss. This loss in the return can be made up by the new industries in connection with the building trade which is bound to rise. For the estimate of 40 millions of rupees due to 1% excise is based on the output of the existing industries only. With additional output of the new industries the return will be little over 3%. This method of financing housing by taxation will help the new industries in so far as they would be saved from locking up a good deal of their capital in the very early stages of their working as no new industry can be thought of without adequate provision of labour housing.

Profits from Land: This is also another source. When any Housing Colony is taken up on a virgin soil, the value of the land will automatically rise. The profits from this positional value of land will amount to a considerable sum which, as has been mentioned before, will go a long way towards slum clearance schemes.

The financial arrangement expected of local authorities will be considerable because of the fact that the activities of the National Housing will primarily be a great and general relief to the local bodies concerned. The local bodies will be greatly benefitted by the increased income or revenue from rates and taxes on new houses, whereas, due to the removal of slums and creation of well-built townships. For these reasons it will be necessary and legitimate for the local bodies to shoulder some responsibility for the completion of these housing schemes.

Profits from Various Undertakings. There is a possibility of some industries of building materials being nationalised. The details of such nationalisation are discussed elsewhere. The profits of such nationalisation will be available either in the form of rebates or in the form assignments. To depend upon such profits is legitimate because these industries will reap much benefit out of the activities of National Housing. Same is the case with regard to public utilities. It will be premature to give a concrete figure of such sources but it can safely be assumed to be considerable with proper management and organisation.

(6) *Endowments and Grants:* This method of financing is very meagre in quantity. It is, however, very important from the point of view of quality. It is possible that the endowments, if any, will help towards some housing amenities such as schools, gymnasias, parks and the like.

There is another source, though small, like an Endowment Fund which is a charity fund. It is a well known fact that there are various kinds of charity funds spread over the whole of India. These funds must be amounting to some millions and if these are made use of in the erection of schools, hospitals and similar civic amenities in the National Housing Scheme, the memory of the donor will be perpetuated and the object for which these charity funds were earmarked would be well served.

It is revealed from the foregoing that though the figures appear to be staggering and beyond the capacity of a poor country like India, there is every possibility of the scheme being nearly self-supporting and that if there be any loss, it can be made up by a very small excise duty on the goods of the beneficiaries. In fact Government can make obligatory on the Insurance Companies to invest certain amount of their assets on National Housing Schemes, as at present, they have to invest in Government securities.

CHAPTER X

MIDDLE CLASS HOUSING

It is very difficult to define the term "middle class". The criterion is not only the income but the mode of living. Their income ranges from a fairly large amount to much less than that of the average labour class family. Roughly speaking, this class is given to what is known as ministerial profession against the manual work of the labour class. The recruitment from this class ranges from primary teachers, gumastas, karkuns, shop attendants and such commercial workers to cashiers, head clerks, superintendents, and officers of business firms, as well as those of government and corporate bodies. The habits of life and interrelation with higher class together with proportionately low income combine to create a situation in which this class is sometimes more hard hit than the labour class.

This class may be roughly divided into lower middle class, and upper middle class. The rent-paying capacity of the former for their house requirement is so low that for all practical purposes their requirements will have to be provided by the State on the same lines as for the labour class.

The rest of the middle class stand on a different footing. The property sense of this class is so highly developed that they will like to own a house and will strain themselves for having it. Whether this sense is to be encouraged or not depends upon the future social and economic structure of the society. It is, however, presumed that for the time being at least this is not to be discouraged. There is another aspect of the problem. Many persons of this class have to be migratory and mobile in character for earning their livelihood. The costliness of land and construction will prevent a middle class man from owning his house particularly in large industrial centres. The problem, therefore, becomes different for metropolitan, suburban, and mofussil urban centres. Generally speaking, in metropolitan centres middle class persons will not be in a position to own houses, but will be paying economic rent which will attract investment by capitalists. The flat or large tenement system will prevail and the authorities will have to adopt appropriate rules for safety, light, ventilation and sanitation. In the other two parts it will be possible for the middle class to have their own houses. Here the authorities will have to encourage private efforts.

These efforts are directed towards securing suitable building sites and the financing of the houses. As emphasised in the foregoing, the development of land will remain under the aegis of housing and planning boards. The building site, therefore, will be available to all classes of people as detailed in chapter on

Development. It will be necessary to provide proper zoning so that the middle class gets suitable and cheap sites without any danger of stratification or of development of inferiority and superiority complex. This will be secured by what can be called co-mingling method suited to Indian conditions.

The problem, therefore, is reduced to one of financing the construction of houses for the middle class, when once land is made available by the authority. The systems of house ownership are varied and differ with different localities and different persons according to the circumstances of each case. Some of them are (1) Simple Hire Purchase; (2) Decreasing Temporary Insurance; (3) Co-Partnership; (4) Tenant ownership; (5) Simple mortgage. The bodies from which loans should be available are insurance companies, housing banks, realty associations and corporate authorities. The existing procedure regarding loans by these bodies requires some overhauling under the projected system of national housing, e.g., the insistence of joint and several responsibility as an invariable condition will have to be modified. The same remarks apply to co-operative societies. With one of the main motive forces namely land being taken away by its provision under the aegis of the Housing and Planning Board and the other effective motive namely credit being modified by modification in loan procedure, the formation of housing societies will have to be based on communitarian life or neighbourhood living, or any such term by which instinct of segregation and sociability may be called. Such a change is likely to bring in professional and other such groupings as proposed by railway men and actually done by officers of the agricultural department in Nagpur. Another illustration of desirable new introduction is that of the system of decreasing temporary insurance. Here the principles of insurance and hire purchase are interwoven in a peculiar way. Such a system is perhaps new to India and even to the whole of Asia. It deserves adoption on a wider scale. Discussion of details of all the above mentioned items will be interesting and informative; but it will perhaps be too unwieldy for this report and premature at this stage.

Problems arising from the provision of low rent flats by endowment funds; reconditioning of existing sub-standard houses by municipal compulsion under special legislation, positional value of land and automatic rent restriction; creation of natural interest for upkeep and tidiness by house-ownership; investment, either before or after retirement, of spare money earned in service or business, in duplex houses for rent as well as residence and the like; are similar to the problems of upper middle class housing, and though they appear minor at this stage, they will require detailed attention at the time of execution.

Most of the details for standards given in the foregoing, will apply to the middle class housing. As the houses of the upper

middle class are left to private enterprise, it will be necessary to codify the standards clearly and in great detail, so as to make scrutiny and inspection effective. The main difference will be as under :—

Regarding housing accommodation, more rooms and larger floor area, will be required. The houses will be cottage or villa type as well as of duplex type but not generally of the row type. Fixtures and fittings will be a little more in number and of increased standard ; e.g., there may be room for frigidaire, or suitable cupboard for storing fresh fruits and vegetables and dairy products. Similarly closets for clothes, safe-keeping arrangements for mechanical vehicles etc. may have to be provided.

These are some of the examples. The details are so varied and so many that it is neither possible nor necessary to compress the same in a report like this.

CHAPTER XI

LEGISLATION

No considerable work of a countrywide nature is possible without proper legislation. The various subjects discussed in this chapter will be an indication of the lines on which the legislation has to be brought into being. To make the recommendation real and definite draft acts should accompany the report. But it will be too unwieldy and equally premature. Some of the items, however, which should find an important place in the Acts, are mentioned below :—

(1) *Statutory Body* : The constitution of these bodies as well as their powers and duties will have to be given in detail and it is not too much to say that the success of the whole scheme will depend upon this item of the legislation.

(2) *Power of Acquisition* : Under this head will come all the usual items, with the addition of the widening of powers regarding insanitary and substandard houses and localities. In addition, the power of acquiring open areas will be such as to prevent the private owner or the speculative dealer from dictating and cheating the community and thus effectively preventing the community from carrying out large housing schemes. One can discuss here the question of the principle of unearned increment and the rights of the community to the same. But, suffice it to say here that the act will have to be carefully and fully worded to make the underlying principle effective in execution. The existing Land Acquisition Act was framed some years ago and was primarily conceived for the purpose of acquisition of fields, particularly for the purpose of roads and railways and such other service lines ; though amended off and on, the basic structure has remained the same and will, therefore, require to be newly framed as soon as possible by the Central Board. Side by side with the question of powers of acquisition, it will be necessary to decide the principles of what may be called eminent domain and police powers. The line of demarcation between these two is so hazy, uneven and overlapping that many a time it is difficult for the community to effectively face an unscrupulous speculator. Though it is understood that the difficulties on this account are not many and persistent in India when compared to some foreign countries, it will be wise to forestall the same, particularly because there is every likelihood of the same obstructiveness being imported into India.

(3) *Responsibility For Development* : Most of the Acts in India today are not exhaustive enough on this point. The vested interests, nebulous ideas of most of the authorities and bodies concerned and vagueness of legislation have all combined to

transfer to a lesser or greater degree the responsibilities on this account to the community. This part, therefore, will have to be properly incorporated in the Act.

(4) *Building Regulations*: The building regulations form an important part of the administrative activity of the local bodies. Had it not been for the unwieldiness of the report, a draft of the building regulations might have been appended. Ample power should be vested in the municipality by which it can require the demolition or reconditioning of a building which does not come up to the standard.

(5) *Fixation Of Standards*: This ought to form a part of the building regulations, and enactment will naturally go along with the same. The question of standards, however, is very important and has, therefore, been treated separately. A good deal of technical consideration along with financial one, is needed for the fixation of standards.

(6) *Capital Raising*: Housing on a National scale will require organised and planned husbanding of the national resources. The capital required for the purpose of housing on a national scale, therefore, will have to be guided by the principles of national and public finance fixed under national planned economy. All financial matters including powers for raising capital will have to be fixed and defined in the projected legislation.

(7) *House Letting*: Housing created under National Service will bring in a variety of problems for house letting. It is presumed that labour-housing will come under public service and its management will have to be ensured accordingly. The various problems and difficulties arising out of social, sentimental and economic conditions of the labour classes as well as the play and interplay of political and economic forces will require a sort of house-letting code, with, perhaps, legislative sanction behind it. Such a code will be one of the most difficult tasks set before the Central Planning Board; proper care and precaution in this behalf will, therefore, go a long way in obtaining ease and efficiency of the actual day to day management of National Housing.

(8) *Prevention Of Exploitation*: Though Housing as National Service is an accepted ideal under planned national economy, private enterprise is not prohibited at least in the initial stage. It is likely that there will be cases in which the private owner is in a position of vantage. In such cases, it will be necessary to regulate tenancy, rent and standard; though the problem itself will not persist in so acute a form as it does today because of the competitive better and cheaper housing projected to be provided under National Service. It will have to be tackled in a fundamental way particularly because of the combined effect of positional value of the private-owned housing and the inertia and apathy of the labour itself.

There are other minor items which require legislative treatment; these are as follows:—

- (I) Management of housing provided by National Service.
- (II) Inspection and control of the private-owned housing.
- (III) Prevention of diversion of the facility from the needy to the non-needy,
- (IV) Prevention of land speculation.
- (V) Change in the Insurance and Co-operative Act so as to give latitude for loans for middle class housing and for public loans for industrial housing.
- (VI) Enacting for co-operation between industrialists and experts for practical progress in industrial technique.

Though minor at this stage, these questions will assume great importance when the scheme is nearer initiation. For example, 11 Acts of the English Legislature providing financial help for housing under various forms failed in their effectiveness to reach the really needy families who are still unhoused in the majority of cases. It will be seen from illustrations like this that a great deal of care, greater foresight and still greater investigation will be necessary before taking actual steps with regard to the National Housing Scheme.

CHAPTER XII

MATERIALS, LABOUR AND OTHER ASPECTS

The question of organisation of labour and material trade in connection with building industry is very important. It has been assessed that the number of labourers on constructional works and allied industries is next only to that in agriculture. Unfortunately, we have not been in a position to collect the necessary data. Statistics regarding imports, indigenous manufacture and raw materials and labour employed in such industries will require the co-operation of various authorities and access to their records.

A list of articles required in connection with building industries is given in the Appendix 4. For the organisation of the industry the following has to be considered :—

- (I) What items should be produced on a mass scale?
- (II) What articles should be manufactured on a factory scale?
- (III) What should be the arrangement for marketing and distribution?
- (IV) How much mechanization of the carrying trade or transportation is advisable, looking to the general national interest and how much of it can be effected?
- (V) What means should be adopted for encouraging the local production of those articles that will have to be left out of mass or factory scale production?

These are items that require detailed and spot study.

The building materials are classified as articles (i) vital to the country (ii) necessary for making the country self-sufficient; (iii) amenable to large scale treatment; (iv) appropriate for nationalised industry; (v) suitable for industries that can be developed on the basis of assemblage and cottage industries; and (vi) articles that can be manufactured immediately on industrial basis.

Illustrative lists on the above-mentioned basis have been given in the appendix 5 a to 5 h.

Rough analysis of various items that go to make up the total cost of housing schemes has been given in appendix 6. It will be seen, therefrom, that factory-scale production required for the State housing programme alone will be between Rs. 4,000 to Rs. 5,000 millions. This raises the question of adequacy or otherwise of the materials required for the housing schemes. The demand on building material at present is so fluctuating that markets in a particular case either become saturate or inadequate.

Many a housing scheme in foreign countries received a severe set-back because of the sudden demand on a less elastic market. It is, however, to be noted that for almost all the materials for housing, the supply in India is potentially adequate. It will, therefore, be necessary to plan out production of materials before actually starting the projected housing scheme. It will, perhaps, be advisable to nationalise industries like: (1) iron (2) cement (3) water, sewage and other pipes, though the existing industry may not be touched except for some legitimate and desirable control. These industries depend upon the natural resources of the nation such as quarry, lime stone, clay deposits, coal, forest produce, ores and the like. The consumption of products of these factories is spread over all parts of the country. These products are absolutely essential for the housing schemes as well as most of the schemes of the government, and semi-government bodies. A sudden demand on these industries will tempt them to increase the prices or they may not be able to meet the demand. Steps should, therefore, be taken to ensure a steady and cheap supply. Regarding self-sufficiency, though India is not up to the mark, taking proportion of the money value, however, as criterion, the situation is not so bad as is feared. But from the National point of view even this drain is unwarranted and undesirable. It should not be difficult to manufacture these articles or their substitutes in India and ensure National self-sufficiency, in the building industry.

Regarding tools and plant required in construction, India is woefully deficient. If locomotives can be manufactured in India, there need not be any difficulty in manufacturing in this country the mechanical plants given in the list of the appendix 5 g.

To facilitate manufacture and marketing, it will be necessary to standardize the requirements and reduce the number of variations. It should be incumbent on the indenting department to adopt these types so that there may be economic load factor for the factories: as an illustration, out of the innumerable patterns of levels and theodolites, the Government of India have prepared specification for one type and a sort of monopoly of manufacture is given to a particular firm. A system like this modified from the national point of view will enable the manufacture of almost all the mechanical plants, including mechanized vehicles thought to be necessary from the national standpoint for the carrying industry of the building materials.

The present is the most opportune time to establish factories for the said articles and plants; first because of the difficulty of import, secondly high prices, thirdly of the probability of not getting many of the imported articles for some time, even after the cessation of war, e.g. the British Government have banned the export of surveying instruments and the like.

Location of these industries will be a tough problem. The provinces will try their best to be self-sufficient and may overrule other important economic considerations. It is supposed, however, that there will not be any great difficulty in counteracting such centrifugal tendencies.

In addition to the industrializing effort, steps will have to be taken for improving and encouraging indigenous methods, e.g., though brick and pottery should be very much advanced industries in India, in view of the fine alluvial clay being available in greater part of the country, crude and wasteful methods are followed which require replacement by scientific and systematic methods so as to obtain reduction in quantity of fuel and to secure maximum quality and strength.

The foregoing discussion has given a definite indication that the organisation of the building industry cannot be efficient and effective without standardisation, both from the point of the manufacturers and that of the consumers. It will have to be seen that the standards and specifications are suited to the purpose without being unnecessarily high or low. The number of forms and types will have to be reduced to the minimum so as to decrease the cost of production, e.g., pottery works are complaining that they have to manufacture gulley traps and such other specials in a large number of types as each sanitary engineer specifies his own pattern. Same is the case with valves and hydrants. In addition to this reduction of redundant patterns, standardization is to be made for interchangeability. No serious attempt has yet been made on these lines, and it is high time that this should be taken up by the All-India Research and Standards Committee, that we recommend to be established. This committee will be more or less the brain centre of the activity in connection with housing schemes and the building trades. It should be the common meeting ground of the national planners, technical experts and, most important, the industrialists. It is hoped that the latter will cease to take short-sighted views and wholeheartedly co-operate with the Research and Standards Committee. As proposed under Legislation, necessary enactment can be undertaken so as to encourage or enforce references to this committee. It will not be very difficult to arrange for the finances of such a committee, as there is every likelihood that it will receive good amounts by way of testing charges, consultation fees and advice money. The research section of the committee might feel the financial pinch in the beginning but it is hoped that the Central Housing and Planning Board will enable the research section to get over the difficulties in the initial stages.

The functions of the proposed committee, though self-evident, will cover a vast field. In addition to the primary function of preparing standards and type-specifications, it will render statistical service and work as a clearing house of information.

It will test the various materials as exist and suggest the possible ways of improvement. It is expected to discover new materials wherever possible. It will be its duty to unearth old recipes and modes of production and methods of construction. Had there been such an active committee functioning, the secret of the colour technique of the Ajanta frescos or the timber ribs of Carla caves or of the rustlessness of iron pillar at Delhi, and the like, would have been found out, preserved and brought into practical use. It has been recorded that some blacksmiths in the southern part of India were actually smelting rustless iron within living memory. Even now, the colour prepared out of ordinary materials such as pomegranate skins, amla branches, myrobalans and the like are such that they are not affected by acids when applied to woolen threads. The Research Committee is expected to bring about a happy marriage of such traditional knowledge with modern scientific progress. Large scale experiments will have to be undertaken as is necessary and peculiar to building industries. Research from the house-using point of view will be necessary so as to invent devices to make house-keeping easy and houses more liveable and less costly. The Committee will have to subject all proprietary brands to searching investigations so as either to expose their fictitiousness, or to emphasise their good points. Private entrepreneurs and individual corporate bodies have made experiments; e.g., a new type of cheap cement for rural use, salt as dust abator, cotton for strengthening roads, molasses for providing elastic and dust-proof road surfacing, traditional glossy plaster replacing glazed tiles and the like have been brought to notice. Inventions and researches on those lines will have to be undertaken and once the usefulness of the Committee is established its continuity and legislative or moral authority will be established with benefits to all concerned.

The organisation of labour connected with building trade is comparatively less difficult because of the fact that the building traditions are age-old. In most of the mofussil towns and much more in rural areas, the hereditary artisan is the chief technician. Unfortunately, their knowledge has become more or less fossilized and stagnation has occurred. Education with professional bias is urgently necessary in such a way as to broaden the outlook of such workmen without losing inspiration from their traditional knowledge. The potentiality of labour for building trade is very great so as to give equally efficient and skilled workers as in any other country in the world. The main obstruction in the way of proper expression of the innate ability of the Indian craftsmen (technicians, and engineers) is the constant dinning into their ears that they are not sufficiently skilled. Given equal opportunities, Indians will stand second to none in any field of human activities of the world. To preserve what is best and to progress for the

better, the age-old system, with necessary modification, of early, continued and concentrated apprenticeship should be revived a regular national and recognised basis. The building trade is one of those trades where due to scattered nature and non-amenability to complete mechanization as in factory, labour plays an important part. From quarrying to construction, most of the processes require dexterity of hand and limbs, rather than a great deal of theoretical knowledge. Barring some big industrial cities, all the urban and rural areas will have to depend upon manual labour. For this reason, systematic apprenticeship and organised recruitment shall have to be codified by the housing and planning boards for all types of skilled and unskilled labour. The question such as standard of wages, formation of trade unions and the like are so interlocked with other questions of general urban and rural labour that it will have to be left to those in charge of labour questions in general. The question of output, however, stands on a different footing. There is a general impression that the output is decreasing with the lapse of time. The fact has not been convincingly proved. Cases of diminution of output have been known to be connected with poverty and general lowness of vitality, but not absolutely with want of skill. On the other hand decrease in the sense of duty appears to be a growing contributory cause to the decrease in the output. This is a fit subject for the research committee to investigate. Another cause of decreased output is constant fear of unemployment, if work is finished earlier. Competent authorities have found that to ensure the proper output and work according to decided tasks, the worker must be ensured almost permanent employment which will go to increase his vitality and contentment and consequently his output. With national economy planned, and a big housing programme, this should not be difficult to achieve.

There are some minor aspects connected with the subject of National Housing. Many a housing scheme in foreign countries have been completely upset by the formation of rings, which brought up the prices to unusually high levels. Another point of foreign experience is too much of housing activity in one area along with paucity of the same in another, with the resulting dislocation. Such constant shifting of labour and workers in materials has to be avoided.

The operation of red tape has adversely affected many a housing scheme. From another point of view if the same brain is asked to evolve designs for different places there is every likelihood of dullness and absence of vitality creeping in. Stereotype buildings will affect both the utility and the beauty of whole locality. It is suggested, therefore, that housing and planning boards will take advantage of the experience and knowledge of all those who are willing to contribute their quota in National

Housing ; e.g., Private practitioners like architects and engineers should be given opportunity to give their best in the evolution of forms of constructional methods and kindred matters.

This brings the question of architecture. The un-informed layman has nebulous ideas about it, and he appears to be presuming that architectural beauty is not a necessity but a concession to be relegated to the background of the problem. It is to be emphasised that architectural beauty is neither a luxury nor a costly necessity. Beauty costs no more than ugliness. It is recommended that in all the programmes of housing and planning boards, due place should be given to the demands of architecture in deciding both the internal and external form. In doing this, every care will have to be taken that there is a genuine Indian feel both inside and outside the house. Any disregard on this count is bound to strike a discordant note. This point was emphasised by the lovers of Indian Culture both Europeans and Indians headed by Sir Francis Younghusband in their petition to the Secretary of State. The facts addressed therein were proved to the hilt by an independent Government Committee ; but the then Secretary of State did not act according to the inevitable conclusion. A warning, therefore, is necessary so that the mistake may not be repeated and an excellent opportunity available once in a century or two may not be lost for ever.

Construction programme has now been recognised as a stabilizer of economic forces. It has been computed that for each worker employed directly on a construction programme, two or more are given employment indirectly in the manufacture and transportation of building materials and equipments. Moreover, still further employment is created as a result of the demand, exercised by these workers for consumers' goods. The secondary employment thus created by construction programmes during depression have been calculated as being perhaps roughly as large as, the primary employment given directly or indirectly by construction expenditure. It has been found that there are more or less regular cyclical periods of depressions and booms. It has also been noticed that depressions create panic and make it more depressed, with the result that there is considerable disturbance or confusion. It is worthy of consideration whether the National Housing programme will allow both contraction during prosperity and enlargement during depression so as to obtain an even flow of the economic currents.

This should not be mixed up with the idea of relief works—the main purpose of which is to give work to persons threatened with starvation. The purpose here is to provide a definite stimulus to the economic system as a whole and to stabilize the same by reducing the unevenness of cycles of depression and prosperity. The success of such a policy will depend upon the

thoroughness with which advance plans—engineering, financial and administrative—are prepared, so that sufficient flexibility of the programme can be obtained and utilized as a controller of economic forces. If this method is judiciously adopted and comprehensively executed, there is every likelihood of obtaining reduction in cost and stability in the standard of living.

CHAPTER XIII

SUMMARY OF CONCLUSIONS

Housing conditions in rural India are very unsatisfactory and those in cities and industrial towns are worse. National Housing requires to be tackled on an All India basis. The term 'Housing' includes not only the provision of comfortable shelters but also of such surroundings and services as would keep the worker fit and cheerful for all the days of the year.

It is recommended to create statutory authorities namely (1) Central Housing & Planning Board ; (2) Provincial Housing and Planning Boards. The former will be concerned with general principles, policy, programme, finance and technique on broad lines. The latter will guide and control all schemes but not their details. Both will undertake necessary legislation. The initiative and execution will be delegated to local authorities either District Council or Municipality or a Special Statutory body or a Statutory Sub-Committee.

Woman's role in National Housing being very important, arrangement is recommended to be made so as to give an effective voice to the woman in the actual execution of the housing and planning schemes.

✓ Rural housing has to be taken up in coordination with rural reconstruction effort. There shall be regional as well as local amenities, on a pre-planned basis including improvement and expansion. The villager's house will cater for the functional requirements of the occupier and will have necessary structures and fittings so as to make his life healthy and happy. The villager's contribution will be in the form of labour and that of the State in the form of materials generally. Rural housing will be based on ownership and not on tenancy. There shall be mass propaganda in various forms by way of help and guide. Construction will be after models as fixed by Central & Provincial Boards modified by local authorities. ✓

The economic condition of the workers will not permit them to pay a rent for their housing which would give adequate return to the private individuals who may be interested in providing such housing. It is, therefore, recommended to be a State concern, under the aegis of the planning and housing boards. There is no restriction on private enterprise suitably controlled but the main burden will fall on the State. Labour housing by employer is not recommended.

For improvement and slum clearance removal of industries to the outskirts, wherever possible, is recommended. Sub-standard and insanitary houses as well as insanitary areas are

recommended to be removed on pre-planned basis. Vertical development may be adopted to wipe out overcrowding, sub-standard units and shortage wherever removal is not feasible.

Development is to be co-ordinated with improvement and slum clearance both in planning and finance. All virgin lands are recommended to be developed by the State alone on the basis of master plan. The land should bear the cost of all necessities and most of the amenities, to be provided on the recommended scale. All indiscriminate expansion should be thoroughly and firmly stopped. Efforts should be made for creating self-sufficient and self-supporting industrial townships wherever possible. All new industries should be established on this principle.

The minimum accommodation for a family should be as under :—

Main room	=	15' x 10'	=	150 sq. ft.
Kitchen	=	8' x 6'	=	48 sq. ft.
Verandah	=	9' x 6½'	=	58½ sq. ft.
Bath room	=	7' x 3½'	=	24½ sq. ft.
W. C.	=	4' x 3'	=	12 sq. ft.

Standards for site, streets, amenities, house, materials, fixtures and fitments should be on the basis recommended in the body of the report.

The ultimate national requirements of such tenements is estimated to be 10 millions of which one fourth, i.e. 2.5 millions are proposed to be constructed in the first ten years' plans. Overall cost of each tenement is assumed to be Rs. 1,250/-. The finance required in the first ten years will be Rs. 3,125 millions, proposed to be raised by floating loans.

There is every likelihood of a net return of about 3% on the basis of a rent of 10% of the family income which is bound to increase on account of planned economy and industrialisation. If there be any deficit, it is recommended to be made up by an excise of 1% ad valorem on the total output of building industries and allied trades as well as of the industries whose labour is proposed to be ultimately housed.

Legislation is recommended to be undertaken on a comprehensive scale so as to provide ample powers and fix onerous and optional duties on the statutory bodies recommended to be created.

Thorough organisation of labour and material is recommended to be undertaken in the order of importance. The articles vital to the country and necessary for self-sufficiency should be taken up by planned industries at once. Present opportune time should be utilised for starting easily developable

industries. Standardization for quality, interchangeability, avoidance of redundancy, and for encouragement of national industries is to be taken up at once. An All-India Standards and Research Committee is recommended to be established. Co-operation between national planners, technical experts and the industrialists is to be emphasised.

A suggestion is made to the effect that National Constructional programme might better be arranged so as to work as a stabilizer of public finance.

Appendix I.

QUESTIONNAIRE ISSUED BY THE HOUSING SUB-COMMITTEE
OF THE NATIONAL PLANNING COMMITTEE

(1) How far would it be correct to regard, in a system of planned National Economy, the provision of Housing accommodation for the people a matter of National Service, or public Utility, and to what extent it would be justifiable to leave it a field for private, profit-seeking enterprise?

(2) If you consider the provision of Housing to be a Public Utility Service which ought to be operated by the community collectively, or by any delegated authority within the community, what differentiation would you make as between Housing in Towns and Cities and those in Villages? (N. B. For the purpose of this question a Town may be taken to be a place where at least 5,000 people in the aggregate live habitually; and all those places where less than that number live may be considered as Villages).

(3) What are the authorities which, in your opinion, should be required by law to provide adequate Housing accommodation for the people in Towns, assuming the Service to be operated as a Public Utility Enterprise?

(4) What powers in general of acquiring space, developing locality, providing all the amenities and services of civilised life, raising capital, letting houses when built, making byelaws for the comfort, safety, and convenience of the inhabitants of these houses, etc. would you entrust to the public Authority required to provide Housing? And how would you entrust them?

(5) If Housing in Towns (or Villages) is left to be provided by private, profit-seeking enterprise, what regulations, if any, would you suggest for the control and supervision of that enterprise, so as to prevent undue exploitation of the tenants of such houses? With special reference to the scale and payment of rent, the provision of amenities and comforts as well as conveniences of life to the residents, and due attention you think to be proper return for a private enterprise engaged in housing for working class?

(6) How far would it be desirable as well as practicable to provide housing by means of caste or community, or other forms of Co-operative Building Societies, with suitable assistance and financial aid from the community collectively. How far would it be desirable and practicable to provide such housing by Private enterprise?

Do you expect any untoward unexpected evil consequences to arise (e.g. the revivification of the caste system or the inten-

sification of the communal antagonism or 'suburbanism', or undue stratification of the community in a given place into different segments divided from one another by differences of economic conditions or of social status) from the method of housing mentioned above?

(7) If housing in a Town (or village) is required to be provided by the local Municipal (or District) Council, what safeguards would you suggest against the possible development of some, or all, of the evil tendencies mentioned in the preceding question?

(8) How far in your judgment is it right and desirable to insist upon every considerable employer or workers to provide his own housing accommodation for each of his workers? What precautions would you advise to guard against a possible abuse of this facility, or privilege to workers housed by their employers?

(9) What are the sources and methods by which the finances needed for providing Housing on a nation-wide scale, together with the amenities and services of modern civilised life, would be supplied?

(10) What precautions would you adopt against the Housing provided as a National Public Utility Service being abused, or perverted, to become an instrument or symbol of class exclusiveness, or caste segregation of any elements of the population, without at the same time interfering unduly with the conveniences of the average citizen in selecting his neighbours?

(11) What p.c. do you think reasonable in the total cost of building for several items such as (i) Land, (ii) Roads & Sewers (Development of the land area), (iii) labour, and (iv) Building materials?

(12) What inducement can you offer for a private enterprise to take up housing for labour class people?

(13) Do you think Insurance Companies should finance housing schemes as colonies for working classes or as Town Planning schemes and under what safeguards?

(14) What criteria would you adopt for judging the suitability of housing accommodation, and its adequacy, when provided by some Public Authority as a National Service, as between the several sections of the community? i.e. capacity to pay rent, number of persons to be housed in a given unit, the kind of life they would have to lead according to the weather or altitude or the use to which the house is put?

(15) What standards would you lay down and how to judge of the suitability and adequacy of housing accommodation with due regard to provision of comforts, conveniences and amenities of civilized life including services such as Water Supply and

Sanitary Equipment to the people housed, to the numbers housed and to the kind of work to be done in that house?

What authority should lay down such standard and under what conditions?

(16) Besides Housing for the dwellings of people what other buildings such as Reading Rooms, Gymnasiums, places of worship, Hospitals, etc., would be needed, in accordance with the plan, which the Planning Authority must ensure being provided in the different parts of the country in an adequate degree?

(17) How far would you suggest Housing accommodation provided in accordance with the plan, should also pay adequate regard to the inclusion of such fixtures and fittings in every house as would render house work quick and easy?

(18) In constructing Housing and providing all its attendant services amenities on a mass scale, what room do you think would be available for securing Architectural beauty in design and appearance, as well as all convenience of dwelling places?

(19) What other considerations would it be necessary to be borne in mind, besides those already indicated in the preceding question for securing the ease and comfort of the woman in the house, and the children of all classes, particularly in densely populated areas of Industrial towns?

(20) Would you please add a typical plan of a rural, as well as an urban housing-building, for an average family of two adults and three children and one dependent, which you consider fulfil the conditions and desideratum you have laid down.

(21) What considerations do you think should be particularly borne in mind in laying out the housing areas in any considerable centre of population where a multiplicity of Industries have been developed, and congestion of the population has occurred, so as to reduce this congestion, and set apart appropriate area for appropriate purpose, providing all amenities of civilised life?

(22) By what agency would you suggest should such a scheme of Town-Planning, or proper layout of residential areas be carried out, including the provision of all the necessary services such as transport and amenities of civilised life, some public Authority, or private Corporation? If the latter, what precautions would you suggest should be adopted to guard against undue profiteering on the part of the private proprietors?

(23) What are the important industries for the production and supply of Building Materials, which must be established in the country, so as to facilitate the provision of the necessary Housing Accommodation, in accordance with the National Plan, most efficiently and economically? Do you think that any such important industries should be run as national concerns?

(24) What building materials, to what extent, and from what countries, are imported into this country? Where, and in what quantities, are the basic materials needed for such Industries available in India?

(25) How far do you consider it would be possible to distribute, in accordance with the National Plan, the location of these Industries in the several parts of the country, so as to make each unit, as far as possible, self-dependent in this regard, or able to provide its needs most efficiently and economically?

(26) To what extent, in your opinion, is the country adequately provided with the skilled labour needed for the service of Housing and Roads, as well as other services and amenities of civilised life connected with good housing provision? How would you secure the supply of such skilled, trained, or experienced labour, if you consider its available supply inadequate?

(27) To what extent is the present production in India of essential building material sufficient to meet the demands of National Housing? In what directions should it be accelerated?

(28) Do you think it advisable to standardize the quality of Building Materials by establishment of Research Boards either provincial or All-India one, and how do you propose to finance the expenses of such Boards?

S. B. Joshi,
Jt. Hon. Secretary,
Housing Sub-Committee,
of National Planning Committee.

Appendix 2.

STANDARDS IN FOREIGN COUNTRIES

Extracts from P. E. P. 'Housing in England.'

The scale resulting from the adoption of this basis, with allowance for sex separation, above ten years of age, is as follows :—

(a) Man and wife, two rooms. (b) Man and wife plus one child, two rooms. (c) Man and wife plus two children of the same sex or under 10, three rooms. (d) Man and wife plus three children of the same sex or under 10, four rooms. (e) Man and wife plus four children of the same sex or under 10, four rooms. (f) Man and wife plus two children of different sexes, three rooms. (g) For men and wife and more than two children of different sexes ; add rooms so that not more than three children of one sex need sleep in one room. (h) For one extra adult, add one room. (j) For two extra adults of the same sex, add one room to (a) or two rooms to (b) or one room to (c). (k) For two extra adults of different sexes, add two rooms, except where a room can be shared with a child under 14, or without the standard of one and a half per room being exceeded.

The above purely numerical standard must be used in conjunction with other criteria which cannot always be numerically expressed. It is suggested that these criteria should be :—

(a) Size of Rooms : No room should be counted in the calculation of a minimum which has a floor area of less than 90 sq. ft. in which the height to the ceiling averages less than 7 ft. 6 ins. or in which there is not a minimum space of 360 cubic feet per person. Rooms of 65-90 sq. ft. floor area may only be reckoned as half rooms.

(b) Structural Separation : No dwelling can be included in the minimum which involves permanent use by a family of rooms which are not structurally separated from those of other families. (The Census definition of a structurally separate dwelling is : Any room, or set of rooms, intended or used for habitation, having separate access either to the street or to a common landing or staircase. Thus each flat in a block of flats is a separate unit, a private house which has not been structurally sub-divided is similarly a single unit, whether occupied by one family or several families. But where a private house has been sub-divided into maisonettes or portions, each having its front door opening on to the street or on to a common landing or staircase to which visitors have access, then each such portion is treated as separate unit).

(c) Light and Air : The angle from the lowest inhabited

floor level of any dwelling or block of dwellings (measured from the outer face of the wall) subtended by any obstruction to light should in no case exceed 45 degrees. Windows must not be smaller than one-tenth of floor area, with a 50 per cent minimum opening. All bedrooms without a flue, w.c.'s and larders should be provided with an air-brick of 9 in. by 9 in. 50 per cent open, or the equivalent in ventilation.

(d) Approach :—If the dwelling is on an upper floor it must be reached by stairs which are safe and reasonably lit, and must not be more than four storeys high unless a passenger lift is provided without extra charge. There must be a paved way from the street by which access is gained.

(e) Sanitation : There must be a separate W. C. for each family, within the structurally separate dwelling. There must be efficient and direct connection with the main drainage system of the area.

(f) Water : There must be a constantly available supply of safe drinking water laid on within each structurally separate dwelling, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(g) Artificial Lighting : There must be provision for lighting adequate to prevent risk of fire or injury to eyesight in ordinary conditions of use, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(h) Cooking : There must be provision for cooking of a capacity adequate to the maximum size of family for which the dwelling is appropriate, in working order, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(j) Heating : There must be provision for heating every living room, with reasonable efficiency, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay.

(k) Washing and Bath : There must be provision for washing clothes and for bathing the body within the building, at a rate which will allow the reasonable needs of the family to be satisfied at a charge that they can afford to pay. Where properly managed communal arrangements for washing and drying clothes are available at the same or less cost within the distance of ten minutes' walk these may be considered adequate.

(l) Storage : There must be provision for clean and hygienic storage of a limited quantity of fresh food, for utensils, and for storage of coal or coke where required. There must be proper facilities for drying clothes, preferably indoors, so that they need not be dried in the kitchen or sitting room.

(m) **Repair :** The structure as a whole and all essential equipment must be kept within a state of repair which is safe and serviceable for the occupants. There must be machinery for seeing that repairs for which the tenants are liable, as well as repairs for which the landlord is liable, are satisfactorily carried out and for redecoration when necessary.

(n) **Refuse :** There must be adequate hygienic provision for the temporary storage and for the regular collection of refuse, & for the cleaning of approaches to dwellings.

(o) **Vermin :** Damp, rats, bugs, cockroaches and fleas must not be present.

(p) **Management :** There must be a routine arrangement for hearing and dealing with complaints at reasonable intervals, and for the regular and efficient inspection and repair of the Property.

EXTRACTS FROM REPORT OF THE BOMBAY RENT

ENQUIRY COMMITTEE.

It is necessary that a minimum standard of amenities should be prescribed by law. It should be made applicable even to existing buildings, in so far as it is practicable. The amenities which should be compulsorily provided for are as follows :—

(i) There should be no back to back houses and in a house; no back to back tenements with one-room. Each such tenement should have only one entrance with provision for through ventilation.

(ii) A one-roomed tenement with a minimum size of 180 sq. ft. should have a small partition wall not more than 6 ft. in height, to divide the kitchen from the front portion of the room. It should have a 'mori' or nahani and a loft. The flooring should be of cement concrete, shahabad stone or any other material impervious to damp. The height from floor to ceiling should not be less than 10 ft.

(iii) The length of a chawl should not be more than 125 ft. in any single direction exclusive of the area required for latrines, washing places, bath-rooms, etc. On every floor, for every 4 rooms, there should be one latrine(and one washing place at least of 16 sq. ft. in size. There should also be on every floor two separate closed bath-rooms, one for men and the other for women ; a direct water-connection and a metal dust-bin with a cover for depositing refuse for every 5 rooms.

(iv) A building should be provided with a storage water tank. It should have its common conveniences and passages adequately lighted. The entire building should also be white-washed at least once a year.

AMERICAN STANDARDS

First—The average size house desired is between 5 & 6 rooms.

Second—Small kitchens or kitchenettes are objectionable. Kitchens large enough for general dining purposes are preferred. Even the tenants of better grade houses, in which separate dining rooms were provided, dined a portion of the time in the kitchen. In the few houses where provided, combined dining and living rooms were held in disfavour; in many of these cases, the people managed to use some other room for dining, although such space was manifestly too small, and resulted in serious crowding.

Third—Built-in features, such as buffet, china-closets and book-cases, are not generally desired, except in the higher grade house, because most tenants have furniture which serves the same purpose; and such attached facilities result in a lack of space for furniture. The addition of these, moreover, is to be discouraged upon the standpoint of cost. While aware that arguments have been advanced in favour of these built-in features, on the basis that they permit a saving on the part of tenant by relieving him of necessity of the purchase of furniture, the reasons for their omission are of great weight.

Fourth—Objections are raised to single bedrooms; many people using double beds only. When only two bedrooms are provided, they should be double rooms; when three or more are used, it is rarely safe to plan more than one single room, except in houses of eight or nine rooms and houses designed for lodgers.

Fifth—Objection is raised to having the refrigerator in the basement; a space convenient to, but not in, the kitchen, being requested.

Sixth—A grade entrance to a landing on the stairs, running from the first floor to basement, is favourably commented upon. Refrigerator space may be arranged off this landing as an added convenience.

Seventh—If the cellar contains a furnace, it has been found that, in order to keep fruit and vegetables, a space should be partitioned off for this purpose. This compartment should have no window, but should have outside ventilation by running a 2 in. gas pipe through the wall and placing a wire netting on the inside, to prevent insects and mice from entering. Where porch foundations are constructed of masonry walls, this space forms an admirable fruit closet. This, however, entails additional expense, as the porch foundation must be run down to full cellar depth, instead of just frost line, and a door way provided into the cellar.

Furniture Requirements :—To intelligently recommend minimum room sizes, it will be necessary to know what they are to

contain in the way of furniture. To that end the following list and size of furniture is offered :

Living Room		Bed Room (double)	
Piano :	5'-6" x 2'-4" x 4'-8"	Double Bed :	4' 6" 6'-6"
Table :	2'-0" x 3'-6"	Dresser :	3'-6" x 2'-0"
3 Chairs :	20" x 18"	Other Piece :	3'-0" x 1'-10"
Or		Two Chairs :	16" x 18"
One Chair and Davenport :	6'-0" x 2'-4"	Single Bed Room.	
Dining Room.		Single Bed :	3'-0" x 6'-6"
Table :	54" diameter	Dresser :	3'-6" x 2'-0"
Buffet :	5'-0" x 1'-10"	Other piece :	3'-0" x 18'-10"
Six Chairs :	16" x 18"	One Chair :	16" x 18"

In addition to giving space for the above listed furniture, the wall space will be interrupted by windows, doors and hot air registers.

Minimum Room Sizes : In the living room, dining room and bedrooms, the following minimum sizes have been prompted by a careful study of a large number of satisfactory plans.

A living room should be at least 12 ft. by 14 ft. exclusive of any encroachments, such as closet space or portion of stairway issuing from living room.

A dining room should contain not less than 120 sq. ft. with 10 ft. the least possible dimension.

A double bed room should contain not less than 120 sq. ft. the smallest dimension being not less than 9 ft. 6 inches.

A single bedroom should not be less than 80 sq. ft., the smallest dimension being not less than 7ft. 10 inches.

The bathroom should not be less than 35 sq. ft., with a minimum width of 5ft. In such a room, the fixtures would be placed along the wall, the long way of the room. The tub, which should measure 2 ft. 6 in. by 4 ft. 6 in., would take 2 ft. 6 in. space, plus one in. for clearance, or 2 ft. 7 in.; the wash stand, measuring 18 in. by 21 in. would require 2 ft. 0 in. wall space, and the toilet, measuring 20¼ in., width of low down tank, would require 2 ft. 0 in. wall space; or a total length of 6 ft. 7 in. necessary wall space to house fixtures. This permits 5 inches margin to work in, which allows for irregularities in roughing—in of plumbing or general construction.

The kitchen area depends on several factors. From a survey of eighteen house plans, in which a separate dining room was provided, it was developed that, in an average size house, about 17 per cent. of the entire first floor area was used for the kitchen.

Assuming a house 24 ft. square, or 576 sq. ft. in area, the allowable space for kitchen would be approximately 98 sq. ft. Being guided by a further stipulation that the room shall be not less than 7 ft. in width, the greatest possible perimeter is 42 feet.

The requirements to be met in a kitchen are : (a) a door to rear porch ; (b) a door to dining room ; (c) a door to cellar ; (d) at least one window (preferably in a wall other than the wall with outside door) ; (e) a kitchen case which, when no other cup-board or pantry is provided, should measure 5 ft. in length ; (f) a standard sink and drip board, measuring 5 ft. in length ; (g) space for stove which, when placed in corner of room, requires 6 ft. of wall space. These various items require a total of 30 ft. of wall space in a room with 42 ft. The 12 ft. remaining is divided into small spaces between the various items listed.

However, by careful designing, it is often possible to reserve enough of this space for a table, 2 ft. by 3 ft. It will be seen that in a kitchen, using the minimum width of 7 ft., it will be difficult to place the table so as to sit around its four sides.

From these observations it will be apparent that the greatest care is required to design the small kitchen, and that the use of this kitchen for dining is almost impossible.

Having arrived at the minimum sizes of first floor rooms necessary to accommodate average furniture, similar detailed studies may be made for the second floor. A summary of such tests has been made after a review of the tables giving data on family dwellings, prepared by the United States Housing Corporation, and also by a careful study of its standard plans. The area of all bedrooms and bath, excluding closets, trunk rooms, storage spaces and stair halls, should be 72½ per cent. of the total area of the second floor, measurements in all cases being to inside finished walls. Should a plan fall slightly below this percentage, it need not necessarily be rejected, and some plans may be found to give higher percentages ; but, striking an average, the plans should realise the percentage given.

Recommendations of Authorities for comparison :—Various views have been expressed as to what should constitute minimum requirements for a satisfactory house. That there should be a difference of opinion among those who have made a study of the problem is easily understood when we realize the divergent characteristics of humanity. Furthermore, the variations represent unquestionably, views as to different classes of dwellings desired. Some of these are abstracted in the following paragraphs.

Veiller's Views.—Houses for skilled workers at Williamsport, Pa. Sawyer Park, recommended by Mr. Lawrence Veiller, Secretary, National Housing Association, contain the following features :

Every house has a well lighted and ventilated cellar, with concrete floor and a hot air furnace, with pipes to each room on the first and second floors. Bathroom has porcelain tub, wash bowl and toilet fixtures. Kitchen has a sink and porcelain wash tub. Every house has front porch and an entrance to kitchen. Houses are piped for gas and wired for electricity ; clothes closets are provided. In addition to the above, a kitchen cabinet and a linen closet are recommended for each house.

Groben's Recommendations.—The opinions of William E. Groben, of Ballinger and Perrot, Architects of Philadelphia, Pa. are as follows :

Essentials for unskilled, low paid workmen's houses are permanent water-tight construction of walls and roof ; sufficient sunlight and ventilation, and windows in every room. Private toilet, with sanitary water closet, having sewer connection ; sink in kitchen, with running water and sewer connection, are necessary. Gas or electric light and proper heating apparatus ; bed room large enough for parents with infant children ; bed room for male children ; bed room for female children, are the minimum requirements.

Essentials for skilled, high-paid workers' houses contain the above, plus cast iron enamelled bath tub, with running water and waste wash bowl in bathroom, with tub and toilet, with hot water supply ; and a living room separate from dining room and kitchen.

Accessories called for as essentials by some skilled, higher paid American workmen consist of cellar, laundry tubs, front porch, wall-paper and tiled bathroom.

Allen's Ideas.—The recommendations of Leslie M. Allen, of the Alberthaw Construction Co. contain the following as housing essentials :

Water-tight roof, walls and floors ; separate bed room for parents ; separate bed room for male children and for female children ; living room for cooking, eating and general day use ; uninterrupted daylight and ventilation through windows in every room ; suitable heating arrangements ; private toilet room, with sanitary water closet and sewer connection ; sink in kitchen with running water fit for drinking, and waste.

Further additions required by the American family are cellars, closets, bath tubs with running water, window screens and separate parlor.

Desirable improvements include porch and verandah ; lavatory bowl ; hot water, supplied to bath tub and bowl ; window shades & window blinds ; wall paper ; and laundry tubs.

Kitham's Opinions.—The views of Walter H. Kitham, of Kitham & Hopkins, Architects of Boston are :

The question then arises as to what constitutes fundamentals. I should say light and air, hot and cold water; facilities for bath tubs, even at the expense of leaving out a wash bowl. Refrigerator space, and as many bed rooms as possible. I should not so class furnaces, piazzas, fire places, parlors separate from the kitchen, nor set wash bowls. I am not so sure of the necessity of set wash tubs in these days of wet wash laundries. Kitchens must have accommodation for simple stock of groceries, either in pantry or in a cabinet of some sort.

U. S. Dept. Labor Standards:—The following were promulgated by a committee of architects and civicists:

Row or group houses normally not to be more than two rooms deep; no living quarters in basement; every bed room to have a clothes closet; every room to have at least one window opening directly to the exterior; minimum height of room 8; minimum areas, bed rooms, 80 sq. ft.; parlor, 120 sq. ft.; dining room, 108 sq. ft., kitchen should be 108 sq. ft. A toilet and bath for each house or apartment.

Albany Health Dept. Regulations:—The following are quoted from the published ordinances of this City:

Each room must have at least one window with area of 12 sq. ft.; no room shall be less than 90 sq. ft. in floor area, nor less than 7 ft. wide; no ceiling in dwellings shall be lower than 8 ft. 6 in; each toilet room requires 6 sq. ft. of window space opening to outside; each dwelling shall have one sink with running water.

Ontario Housing Committee Objects.—The following is quoted from the report of this Citizen's Committee, issued in 1918:

There must be some definite classifications taken as a basis in formulating standards. Careful investigation of living conditions has established certain requirements as essential, and others as desirable. There will undoubtedly be some criticism of any attempt to classify essentials, and there is bound to be diversity of opinion, but for our purpose the essential features may be summarised as follows:—

1. Sufficient land to give each family privacy and plenty of air.
2. Water-tight floors, walls and roof.
3. One or more rooms for cooking, eating & general use.
4. Bedroom for parents' use.
5. Bedroom for male children.
6. Bedroom for female children.
7. Provisions for toilet, with sanitary water closet and sewer connections.
8. Running water supply fit for drinking.

9. Kitchen sink, with waste connection to sewer.
10. Uninterrupted day light and ventilation, for windows in every room.

Additional features which are so desirable as to be almost essential are:

1. Bath tub and lavatory, with hot and cold water supply.
2. Laundry tubs, with hot & cold water supply.
3. Direct sunlight in all rooms.
4. Second room in addition to that used for cooking.
5. Clothes closet.
6. Porches and verandahs.

Future additions of desirable features would include:

1. Electric lights.
2. Separate dining room.
3. Cellar.
4. Furnace for heating.

Some comment may arise on the omission of cellar from the list of essentials. There are those who claim that the cellar is essential for the storage of fuel, canned fruit, vegetables, etc., and that, since foundation walls are necessary, it costs no more to provide a cellar than to omit. This latter question will be considered along with the following items entering into the house construction. Regarding the storage of fuel, etc.; a careful survey of conditions will disclose the fact that with many families the income will not provide sufficiently large quantities to require a cellar for storage. On the other hand, where cellars are provided, they will frequently be found to contain a miscellaneous assortment of unsanitary rubbish, which constitutes a serious fire menace.

Data of U. S. Bureau of Labor Statistics.—As indicative of the kind of houses most generally employed in industrial developments, the data of the United States Bureau of Labour Statistics may prove both instructive and interesting. An investigation covering two hundred and thirteen separate companies, including subsidiary companies of large corporations, showed the number of men employed was 466,991, of whom 160,645 or 34 per cent. were accommodated in houses controlled by the companies. Of the 53,176 individual dwellings considered, it appears that 25,582 or 48 per cent. were single dwellings, 18,871, or 36 per cent, double dwellings, and 6,014 or 11 per cent., row dwellings.

It is interesting to note in passing that, in the early stages of industrial housing, as, for instance, in the urban New England

mill tenements, the row type prevailed, with the double dwelling next most common. The proportion of the row type shows a steady decline as industrial housing has developed, although now there is a growing appreciation of the group dwelling and to some extent of the row type of dwellings.

As regards the number of rooms, it was found, in the aforementioned investigation that 15,672 houses, or 30 per cent. had four rooms; 9,413, or approximately 17 per cent, had five rooms; and 9,127 or approximately the same percentage, had six rooms. It is apparent that the typical dwellings contained four, five or six rooms. It does not follow that these proportions are for application. Quite to the contrary, as we know industrial housing to-day, it presents a far different problem than the earlier examples indicate; nevertheless, these statistics record the general history of the movement and are of benefit in searching for the next step.

As regards the general construction of the houses, the frame structure was found to be the most prevalent; brick used about one-tenth as much; other materials less prevalent than brick.

Recommended Minimum Requirements by John Knowls:— From information obtained by a study of the intimate family life in various industrial towns, after consideration of the many practical elements entering into the question, and taking into consideration the express opinion of many qualified authorities, the author's recommendations as to the minimum requirements of "An Industrial Workers' Home" are as follows:—

1. *Material.*—Permanent weather proof construction of exterior walls and roof.
2. *Cellar.*—Cellar to be provided, except in localities where impractical or unnecessary.
3. In case cellar is omitted, first floor to be at least 2 ft. above ground and supported on masonry piers or foundations carried below frost line; and the clear space enclosed but adequately ventilated.
4. Where cellar is provided, it shall have cement floor and floor drain.
5. Cellar to be properly lighted and ventilated.
6. No living quarters to be in basement.
7. A separate chimney flue to be run to the cellar for future installation of a furnace.
8. Adequate provision must be made for heating the house, but furnace should not be of minimum requirements. All heating fixtures, whether using gas or other fuel, must be provided with vents to flues.
9. Gas piping to be provided for kitchen range and hot

water boiler.

10. *Rooms.*—One room for parents and infant child and enough rooms for other children for proper segregation of the sexes.

11. Room sizes to accommodate minimum furniture as listed. The furniture to be drawn into scale on plans, so as not to conflict with windows, doors or hot air registers.

12. Row or group houses to be not more than two rooms deep; except in rows where combinations of units (as one 4-room, two 6-room, and one 4-room) allow for proper ventilation to the rooms of the deeper unit by the nature of their arrangement.

13. *Duplexes, Double Duplexes, etc.*—In all such units, provision shall be made for obtaining as great a degree of privacy as is enjoyed at least in the row type house. Separate front and rear entrances, separate cellars when cellars exist, with independent plumbing lines, and heating and lighting facilities. It is also recommended that means of circulation between each apartment and private cellar be effected without going outside the house.

14. *Closets.*—Every bedroom must have clothes closet in direct connection with it.

15. Closet or case of adequate size for keeping necessary china, kitchen utensils, staple supplies etc., must be arranged for in kitchen.

16. *Entrances.*—There must be means of entrance other than by the front door.

17. Front porches, while desirable, are not a minimum requirement.

18. In no case should the stairs have a rise of over 8 inches and tread of less than 9 inches.

19. *Ventilation.*—There shall be a clear height of not less than 6 ft. 6 in. from cellar floor to under side of first floor joist. A minimum clear story height of 8 ft. shall generally obtain for first and second storeys, but in cases of second storey rooms coming under sloping roofs, it shall be required that flat portions of ceiling be over an area of at least 40 sq. ft. with 3½ ft. minimum flat ceiling width and a clear height of 6 ft. over an area of at least 80 sq. ft. with a minimum width of 7 feet. (Attic rooms not subject to these requirements).

20. There shall be in all cases an air space, with minimum of 8 in. from ceiling to roof, with provision that such space be ventilated directly to outside air.

21. Every bedroom to have at least one window opening directly to outer air.

22. One window to be sufficient for single rooms, two win-

dows for double rooms. No room to have less than 12 sq. ft. of window area.

23. Bathroom to have one window of not less than 6 sq. ft. area.

24. Water closet compartment to have one window of not less than $4\frac{1}{2}$ Sq. ft. opening directly to outer air.

25. Skylight may be used in lieu of window for bathroom or water closet compartment.

26. Window frames to be of such design that screens may be used.

27. Water Supply: - Running water to be required in connection with kitchen plumbing fixtures. (Hot water connection is desirable).

28. A water closet in separate compartment, properly ventilated, must be provided when bathroom is omitted.

29. While bathroom is greatly to be desired, it is not to be a minimum requirement; provided convenient and complete bath house facilities are arranged for and properly maintained for community use.

30. Either laundry trays to be provided in cellar or combination tray and kitchen sink in kitchen.

31. Electricity to be furnished whenever possible. One switch to be provided for throwing on light on entering house and one switch to control cellar light from top of cellar stairs.

* * * *

The national Conference of Charities and Correction held at Cleveland (United States) in 1912 formulated its housing standard as follows:

"The Right to Home. Social welfare demands for every family a safe and sanitary home; healthful surroundings; ample and pure running water inside the house; modern and sanitary toilet conveniences for its exclusive use, located inside the building; adequate sunlight and ventilation; reasonable fire protection; privacy; rooms of sufficient size and number to decently house the members of the family; freedom from dampness; prompt and adequate collection of all waste materials. These fundamental requirements for normal living should be obtained by every family, reasonably accessible from the place of employment at a rental not exceeding 20% of the family income." (Proceedings P.P. 391, 392).

The standard that has been actually achieved in the United States and various countries of Europe is given below in brief:

United States. "Minimum house—four rooms; living room, kitchen, two bedrooms and bath". (The Housing of the Unskilled Wage Earner, E. E. Wood, p. 11).

England: "It is now laid down that for a normal working class family there shall be provided a dwelling containing a

parlour, kitchen, a scullery, three bed-rooms and a bath room in addition to the ordinary conveniences. (Housing Barnes. P. 26).

London County Council: "There are a few cottage flats of three and four rooms containing scullery and bath; the great majority are cottages of from four to seven rooms and bath. The scullery contains sink, wash tubs...." (Housing Progress in Western Europe, E. Wood, p. 63).

Housing Act 1924: The act provides that "it shall be the duty of a Local Authority on submitting proposals to satisfy the Minister, that the rate of density of the houses will not, except with the consent of the Minister exceed eight per acre in an agricultural area and twelve per acre elsewhere."

Holland: Amsterdam. Five rooms, sewer connected toilets, running water and electric lights.

Belgium: Twelve dwellings to an acre, space in front for flowers and in the rear for vegetables. Antwerp Five Rooms.

France: Paris. Four rooms is the most frequent type.

Italy: Rome. Many apartments have three rooms and a few are larger.

Germany: Large airy and well lighted apartments of two or three rooms.

Government of Bombay had called for prize designs to meet the requirements of working class people which resulted in a first prize design being for 5 tenancy group house, single storied giving a net floor area of 260 sq. ft. for each tenancy costing Rs. 1143 for tile room covering. There was an additional area for two sanitary annexes of 60 sq. ft. each provided for the common use of 5 tenancies. This design was not however issued to the public as a standard type to be adopted but was recommendatory.

The floor area of 260 sq. ft. was made up of two rooms each of 100 sq. ft. one kitchen 25 sq. ft. and a verandah 35 sq. ft. Such design was calculated to provide for 38 tenants to the acre. Taking 5 persons per tenants this gives a density of 190 persons per acre. This design, though then considered to be the finest, was suggested to be useful for people a little better off than the working class people.

The standard of over-crowding according to the City of Bombay Municipal Act, 1888, Section 379-A (4) is as follows:—

"A room used exclusively as a dwelling shall be deemed to be overcrowded when the number of the adult inmates is such that the amount of floor space available for each adult inmate is less than 25 superficial feet and for each person under the age of 10 years less than $12\frac{1}{2}$ superficial feet, or when the air space for each adult inmate is less than 250 cubic feet, two children under 10 years of age counting as one adult."

The standard of overcrowding according to the Building Act, 1936, of England, Section 58, is as under :—

(1) A dwelling-house shall be deemed for the purposes of this Act to be overcrowded at any time when the number of persons sleeping in the house either—

(a) is such that any two of those persons, being persons 10 years old or more of opposite sexes and not being persons living together as husband and wife, must sleep in the same room ;

(b) is in relation to the number and floor area of the rooms of which the house consists, in excess of the permitted number of persons, as defined in the 5th Schedule to this Act.

(2) In determining for the purpose of this Section the number of persons sleeping in a house, no account shall be taken of a child under one year old, and a child who has attained one year and is under 10 years old shall be reckoned as one-half of a unit.

Fifth Schedule.

... The expression "The permitted number of persons" means, in relation to any dwelling-house, either—

(a) the number specified in the second column of Table I in the annex hereto in relation to a house consisting of the number of rooms of which that house consists, or

(b) the aggregate for all the rooms in the house obtained by reckoning, for each room therein of the floor area specified in the first column of Table II in the annex hereto, the number specified in the second column of that Table in relation to that area which ever is less. Provided that in computing for the purposes of the said Table I the number of rooms in a house, no regard shall be had to any room having a floor area of less than 50 square feet.

TABLE I.

When a house consists of :—

(a) one room	.. 2
(b) two rooms	.. 3
(c) three rooms	.. 5
(d) four rooms	.. 7½
(e) five rooms or more	.. 10 with an additional 2 in respect of each room in excess of five.

TABLE II.

Where the floor area of a room is :—

(a) 110 square feet or more	 2
(b) 90 sq. ft. or more, but less than 110 sq. ft.	 1½
(c) 70 sq. ft. or more, but less than 90 sq. ft.	 1
(d) 50 sq. ft. or more, but less than 70 sq. ft.	 ½
(e) Under 50 sq. ft.	 Nil.

RURAL STANDARDS

Belgium.—The plans supplied comprise ;

In the basement : Cellar and dairy.

On the ground floor : Two rooms (kitchen-living-room and a bed room) and an entrance hall from which staircases lead to the upper floor and cellar.

On the upper floor : two attic bedrooms and third bedroom with bathroom. A corridor separates the bedrooms and leads directly to the bathroom.

The bed-rooms are of good size.

The plans of the Societe Nationale de la Petite Propriete Terrienne also comprise a scullery-washroom on the ground floor.

France.—Householders are recommended to improve rural houses having only a ground floor surmounted by a loft, by building an upper floor in place of the loft and fitting bed-rooms there. If the height of the loft allows, attic bedrooms can be fitted up in it.

Householders are also recommended to install a separate scullery communicating with the kitchen and to have a minimum of three bedrooms (parents, girls, boys), the common kitchen-living-room being able to take a bed at need. A covered porch or a hall, or both, is highly recommended.

Latvia.—The houses in the most modern farms have :

On the ground floor : Porch, hall, kitchen with bread-oven and separate scullery, two bedrooms with stove, and staircase leading to the upper floor ;

On the upper floor : Two bedrooms.

Another type intended for the agrarian reform settlements has a kitchen with bathroom.

Some agricultural labourers' houses have only the ground floor surmounted by a loft, and comprising two bedrooms and a kitchen.

Netherlands.—The latest types of houses on the older most recently built over, comprise ;

On the ground floor : Hall, kitchen-living-room with separate scullery, two bedrooms, staircase to upper floor.

On the Upper floor : Two bedrooms and a small loft.

The labourers' lodgings (generally two in each labourer's house) comprise :

On the ground floor : Hall, kitchen-living-room with separate scullery, the living-room being available for sleeping if necessary.

On the first floor : Two or three bedrooms.

In communes with less than 10,000 inhabitants, the proportion of houses with three or more habitable rooms was 36% in 1899, 45% in 1909, and 71% in 1930.

Poland.—The old-style rural houses usually consist of the ground floor surmounted by a loft. The smallest new type comprises the ground floor and one or two bedrooms on the upper floor.

In houses in the agrarian reform settlements, it is proposed to add a bathroom to the present type.

Sweden.—The standard plans of houses for agricultural and forest workers and small holders comprise :

Basement : Concrete cellar (wash-room, dairy, provision store-room).

Ground floor : Porch, hall, kitchen-living-room (with alcove for small children), one or two bedrooms, staircase to upper floor.

Upper floor : One attic bedroom and a loft in which another bedroom could be fitted up, if necessary.

The collective agreements between employers and agricultural labourers stipulate that the lodgings of the latter shall include two rooms and a kitchen, a clothes-closet and a store-room.

It has been observed that rural workers retain the habit of sleeping many people in the same room in order to keep a separate parlour.

An investigation in 1936 showed that rural lodgings comprising a kitchen and one bedroom represent a third of the whole, while those containing a kitchen and two bedrooms amount to hardly three-fifths. The kitchens are generally used for sleeping, and one of the rooms, if there are several, or if not, the only room, is kept as a parlour ("bestroom").

Czecho-Slovakia.—A common type of house has ground floor and loft, with kitchen, living room (benches along the walls), three bedrooms containing several beds, and wash-room with bath. The staircase to the loft is in the hall.

The ground floor is sometimes built over a cellar, and there

is a verandah porch in front of the house. In many cases there are only two bedrooms.

Agricultural labourer's houses containing several lodgings usually comprise a kitchen with larder and one bedroom ; on the upper floor there is a loft without bedroom.

Yugoslavia.—Rural houses properly so called usually comprise a hall, a kitchen-living-room with larder, and two, or sometimes three, bedrooms ; on the upper floor is a loft. The inhabitants frequently gather in one room during the winter.

Around Zagreb.—The ground floor is occupied by the wine cellar and the provision store-room ; on the upper floor which is reached by a staircase leading to a balcony surrounding the house there is a hall, two bedrooms and a kitchen, from which a staircase leads to the loft.

A recent standard type, built according to the plans of a provincial institute of hygiene, comprises ground floor with hall, kitchen, four bedrooms, lavatory and larder. The cellar is used for wine-making, and is reached directly from outside.

When there is an upper floor, it contains a bedroom and a loft.

DIMENSIONS

Belgium.—The general type of building for a small holding with outbuildings under the same roof as the living quarters measures $11 \times 15 = 165$ square metres. Such a building is only provided when the small holder has from 3 to 10 hectares (according to the fertility of the soil) of ground.

France.—The minimum dimensions are laid down in the Departmental Sanitary Regulations issued in pursuance of the law of February 15th, 1909, on the Protection of Public Health, and in the administrative regulations accompanying the Law of August 31, 1929, on the Improving of the Housing of Agricultural Labourers. The minimum floor-surface of a living room is 9 square metres and the minimum height from floor to ceiling 2.70 metres. On the top floor (attic loft) the 9 sq. metres floor-surface is measured at 1.30 metre from the ground and the cubic content of the room must not be less than 22 cubic metres.

Latvia.—The minimum height 2.3 metres ; it is, however recommended to allow from 2.6 metres to 2.8 metres, though 2.3 metres is admissible for the top storey.

In the labourer's cottages, the floor-space, kitchen included, must be from 40 to 50, square metres for one family, from 50 to 80 square metres for two families and more than 80 square metres for three families.

In recently erected buildings, heights of 2.70 metres on the ground and 2.30 metres on the first floor are met with.

Netherlands.—The minimum dimensions are laid down by the Housing Law (Wooningwet) of June 2nd, 1901.

Rooms seem to range from 2.70 metres to 2.80 metres in height; the living rooms are fairly big, but the bedrooms seem small (in some cases, 5 to 8 square metres).

Poland.—The regulations for cheap housing may be applied to rural housing. The standard plans supplied to peasants usually allow for rooms 2.80 metres high on the ground floor, and 2.40 metres high on the first floor. The rooms are large.

Sweden.—As already stated, collective agreements between agricultural employers and labourers fix the minimum area of a family dwelling at 35 square metres excluding the hall and storeroom.

Investigations made in Sweden show that half the living rooms in dwellings with two rooms and kitchen have not as much as 15.2 square metres floor space, and the kitchens 15.5 square metres, and that the average area of dwellings of one room and kitchen is 36.2 square metres, and of dwellings with two rooms and kitchen 50 square metres; that only 10% of dwelling with two rooms and kitchen are more than 2.70 metres high; that a good 20% are less than 2.10 metres high; that more than 25% of the people occupying small dwellings have less than 10 cubic metres of air-space per person; and that almost half the members of families with three children or more under 15 years of age do not even enjoy this minimum of air-space in their bedrooms (overcrowding).

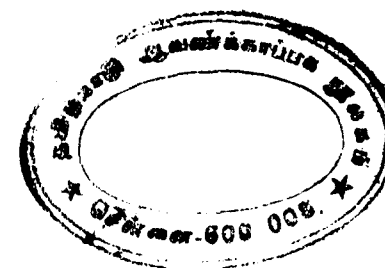
The standard plans provided for rooms 2.40 metres high on the ground floor and 2.20 metres high on the upper floor; the kitchen-living-rooms are rather large, as they have separate sculleries and pantries; bedrooms are about 12 square metres, but have cupboards extra; some have an area of from 20 to 25 square metres, but these are often partitioned.

DWELLINGS FOR AGRICULTURAL WORKERS IN GERMANY.

The living area of the dwellings is not to be less than 50 sq.m. and for large families the minimum is 55 sq.m. In most of the buildings already constructed these figures have been exceeded. The ground-floor usually contains a combined kitchen and living-room, a bedroom for the parents and a small bedroom for the children, as well as entrance hall and pantry. There must be a cellar under one of the rooms for storing potatoes and other field-produce. Under the roof a chamber is constructed, and a further one can be added later on. For workrooms roughly 30 sq. m. are available in the small-holdings and own-homes, and 15 sq.m. in the works-dwellings. It is also desirable to have a fodder-kitchen and this is provided in almost every case. The out-houses for livestock have a coverage of from 10 to 20 sq.m.

They contain a stall for cows and a pigsty. In the case of own-homes for grape-gatherers or wood-men in decidedly mountainous districts not cultivating any land on their own account, the work-rooms can well be restricted in size. Similar exceptions are also made for agricultural craftsmen if they provide a workshop in which to pursue their trade.

Different types of buildings are adopted in keeping with the tradition of the different parts of the country. It is, however, a general rule that single houses shall be built, i.e. no multi-family houses. As an exception double-houses are permitted where a farmer or agriculturist needs two dwellings for his employees. In such cases the families are to be separated from each other, if at all possible.



X: 75.2' N2944
N47

Appendix 3a.

TAXATION

Calculation of income @ 1% advalorem excise on the total output of industries where labour is to be housed by the State

The total disbursement for labour per year in Bombay Mills alone comes to about

.. Rs. $4.5 \times 12 = 54$ millions/year.

The total disbursement for labour per year by all concerned including mills in Bombay may be assumed

.. Rs. 80 millions/year.

Therefore :

The total disbursement for labour by all concerned in the whole of India : assumed: 5 times that of B'bay Presidency

.. Rs. $5 \times 160 = 800$ millions/year.

Value of the total output of all industries assumed to be 5 times that of total disbursement for labour in the whole of India

.. Rs. $5 \times 800 = 4000$ millions/year.

Therefore : Excise @ 1% Advalorem

.. $\frac{\text{Rs. } 4000}{100} = 40$ millions/year.

Appendix 3b.

Table showing income, out-going, balance and resulting rate of interest, for housing programme by the State.

Assumption :

1. Rs. 1250 as average cost of a unit tenement, all inclusive, having building for Rs. 1,000 and land for Rs. 250.
2. Rs. 6/- to be the rent per month per unit tenement on the basis of 10% of the family income as assumed to be increased to Rs. 60/- per month from the present one of Rs. 40/- per month, under National Plan.
3. Alternatively rent of Rs. 4/- per month per unit tenement on the basis of 10% of Rs. 40/- per month as the family income in industrial centres assumed to be static in spite of National Planned Economy.

Item No.	Description.	Rent per month Rs. 6/-	Rent per month Rs. 4/-
1	Income from rent $12 \times$	72	48
2	Out goings : (a) Sinking fund : 88% (3% — 50 years life) on Rs. 1,000 capital per unit tenement. ..	8.8	8.8
	(b) Insurance $3\frac{1}{16}\%$ on $9\frac{1}{10}$ cost & $3\frac{1}{16} \times 1\frac{1}{100} \times 9\frac{1}{10} \times 1000$..	1.7	1.7
	(c) Administration, Maintenance, Collection etc. 1% on $9\frac{1}{10}$ the cost $1 \times 12\frac{1}{100} \times 9\frac{1}{10} \times 1000$..	9	9
	(d) Rates and Taxes :— 12% on income $72 \times 12\frac{1}{100} : 48 \times 12\frac{1}{100}$	8.64	5.76
	(e) Vacancies, defaults, etc. 5% on income $72 \times 5\frac{1}{100} : 48 \times 5\frac{1}{100}$	3.6	2.4
		31.74	27.66
3	Net income : return on capital of Rs. 1250 ..	40.26	20.34
4	Therefore : Rate of interest	3.20	1.60

Note : If Rs. 4/- per month is assumed to be the final chargeable rent and the deficiency is decided upon to be made up by 1% excise to be distributed over 2.5 million tenements to be constructed in the first 10 years instead of the total requirements of 10 million tenements, the income per tenement will increase by $40 \div 2.5 = \text{Rs. } 16$ per tenement. Therefore Net return will be $20.34 + 16 = \text{Rs. } 36.34$ yielding $36.34 \times 100 = 2.8\%$

1250

Appendix 4.

List of materials and their products used in construction works.

Blasting materials :—Gunpowder ; Cartridges ; Fuses ; Detonators ; Dynamite ; Electrical Detonators ; Blasting tools.

Asbestos :—Roofing sheets ; Ceiling and partition sheets ; Rain-water pipes and gutters ; Soil pipes ; Water pipes ; Rubber rings for joints ; Fire-proofing.

Brushes :—Bristle and wire brushes (floor, road, plaster) ; Oil painting ; Colour and white washing ; Sable hairbrushes (painter's) ; Manufacture of bristles and fibres ; Brooms.

Asphalt :—Roads—base and surfacing ; roof-paint ; Water-proofing sheets ; materials and compounds ; preservative ; paint ; mastic ; damp-proof ; construction ; asphaltic cement ; asphaltic lining.

Tar :—Road ; paint and preservative.

Bricks :—Ordinary brick, fire-brick ; salt-glazed bricks ; yellow bricks ; facing bricks ; engineering bricks ; hollow bricks ; hollow flooring bricks ; sand-lime bricks.

Cement :—Ordinary cement ; rapid hardening cement ; quick setting cement ; cement fondu ; black or aluminous cement ; coloured cements.

Cement Products :—Cement blocks ; hollow blocks ; slabs ; tiles ; garden decorations jalli works ; house decorations ; poles ; pipes.

Tiles :—Cement ; marble ; glazed ; unglazed ; stone slabs ; clay-channels.

Roofing tiles :—Flat mangalore tiles ; half-round ; flat channelled ; (clay and cement) slate.

Chemicals :—Aluminium compounds (water treatment, preservative washes) ; copper sulphate (colour-washing) ; caustic soda (cleansing) ; sodium silicate (water-proofing) ; bleaching powder (water-treatment) ; chlorine liquid (water-treatment) ; Ammonia (water-treatment) ; sulphur (wall-washing).

Paints & Varnishes :—Base, vehicle, pigment, drier, ready mixed and dry, proprietary brands, paint removers, varnishes, wax.

Tower Clocks :

Stoneware :—Salt-glazed—pipes, specials and accessories ; sanitary fittings (latrine seat, soil pan, wash basin, sinks, public urinal). Vitreous—Sanitary fittings (soil pan, wash basin, bidet, urinal).

Electro-plated-ware : See Hardware and Plumbing.

Glass :—Sheet, crown, plate wire glass, figured, fluted, ribbed, knobs and handles, mirror glass (cupboard), vitrolite.

Furniture :

Glue :—Joinery, drawing, colour washing.

Iron and iron products :—Rolled steel— round, square and hexagonal, twisted bars, flats—equal and unequal angles, tees, Z, I and channel sections, rails, high tensile steel, wire coils, plates, sheets, wire ropes (black and galvanized) wire fencing (barbed, simple, woven), expanded metal, wire net, wire gauze, perforated sheets; bolts, nuts, screws; nails; rivets; hooks; washers; steel pipe (welded, rivetted, etc.); pressed sheets (tank, ceiling, partition, cornices, etc. and fencing); brackets, buckets, cast, steel, tool steel, wrought iron pipes (black and galvanized); specials and accessories, drawn tubes; Mannasman poles (telegraph and telephone); telescopic poles etc.

Tools :—Ghamelas, Phawrahs, shovels, pickaxes, crowbars; hammers, axes, chisels, and other mason's and carpenter's tools, files.

Castings :—Pipes, specials, accessories (rain water drain, flushing, soil, gas, steam) sewage fittings, railings, posts.

Building Hardware :—Hinges, stoppers, alldrops, hasp-clasp, hooks, pegs, brackets (shelf) door locks, oxidised fittings, plated fittings, clips.

Instruments and apparatus :—Drawing—compasses, pens, dividers (simple and proportional); straight edge, spring bows, stencils, steel scale and wooden and ivory scales, set—squares (wood, celluloid, ebonite, steel), protractor (steel, celluloid, ivory, semi-circular, circular and rectangular; pentagraph, ediograph, french and railway cruves (wood, celluloid) flexible curves (rubber, steel); planimeter.

Survey—Steel chains, steel tapes, metallic tapes, flexible tapes, steel bends, instruments (levelling various types); theodolites, optical square, cross-staff, plane table, compass, ghat-tracers, barometric level, binoculars, levelling staves.

General—slide rules, flow measures, cardboard scales, strength-testing machines—(steel, cement, timber) sieves, pressure gauges, deflection-metres.

Drawing materials.—Thick paper, mounted paper (seamless and jointed), ferro-prussiate (cloth and non-cloth) ferro-gallic (cloth and non-cloth) Ammonia paper, pencils, coloured pencils, inks, correctors, colours (tubes, cakes, pens), brushes; squared paper (rolls and sheets); tracing paper and cloth; erasers (ink and pencil).

Electrical.—Wires, switches, bells, shades, bulbs, plugs, brackets, water-tight fittings, fans, domestic appliances, lighting conductors.

Plants :—Rollers (steam, oil, bullock, hand); concrete mixers, mortar mills, pumps (centrifugal, rotary, diaphragm); stone crushers, cranes, barrows, chain-pulley blocks, pulley sheaves, vibrators, asphalt heaters, asphalt sprayers, paint-sprayers, sand-washers, pile-drivers, dredgers, block making machines, crab-winches, ejectors, fire engines, fire-extinguishers.

Tools :—Pickaxe, crowbar, hammer, axe, sledge hammer, chisel, ghamelah, pawrahs, shovel, mason's level carpenter's tools, spatula, mason's tools, smith's tools.

Brassware :—Hinges, alldrop, stopper, handles, knobs, hooks, and eye, hasp-clasp, doorlock, rings, brackets, pegs, tubes, bars, wire gauze.

Water fittings :—Sluice valves, stop-cocks, bib-cocks (electro-plated, chromium-plated and unplated); air valves, hydrants, stand posts, ferrules, ball valves, reflux valves, venturimeters, water meters.

Metalware :—Alluminium railings, lead-sheets, pig lead, lead woolzinc sheet, perforated zinc sheet.

Lime :—Quicklime, hydraulic lime, water-proofing.

Waterworks plant :—Chemical measures and mixers, filtration fittings, flow control, discharge measures, pressure filters, air apparatus, chloroform and chlorine apparatus, water softener.

Pipes :—Cast iron; wrought iron (black and galvanized); steel; spun-hume; hume steel; asbestos; glazed stoneware; rustless, corrugated, rivetted pipes; lead and copper pipes.

Timber :—Playwood, presswood, bentwood.

Sewage disposal plants.

Scientific articles and plant :—Air conditioning; insulation boards, fire extinguishers; domestic filters; wall boards; ceilings; fiber ceilings (gypsum, cork, fibre).

Decorative articles :—Statues, fountain, vases etc.

Appendix 5a.

I. VITAL ARTICLES.

Blasting materials :—Gunpowder, cartridges, fuses, detonators, dynamite, electrical detonators.

Chemicals :—Aluminium compounds (water treatment, preservative washes), caustic soda (cleansing), bleaching powder (water treatment), chlorine liquid (water treatment), sulphur.

Appendix 5b.

II. ARTICLES FOR SELF-SUFFICIENCY.

Blasting materials :—Gunpowder, cartridges, fuses, detonators, dynamite, electrical detonators, blasting tools.

Asbestos products :—Roofing sheets, ceiling and partition sheets, rainwater pipes and gutters, soil pipes, water pipes, rubber rings for joints, fire-proofing, lagging.

Brushes :—Bristle and wire brushes (floor, road, plaster) all painting, colour and white washing, sable hair brushes (painters'), manufacture of bristles & fibres; brooms.

Bitumen or Asphalt products :—Base and surfacing (roads), roof-paint, water proofing sheets, materials and compounds, preservative, paint, mastic, dramp-proof construction, asphaltic cement and lining.

Chemicals :—Aluminium compounds (water treatment, preservative, washes), copper sulphate (colour washing); caustic soda (cleansing); sodium silicate (water-proofing), bleaching powder, chlorine liquid and ammonia (water treatment); sulphur.

Paints and varnishes :—Base, vehicle, pigment, drier, dry and ready mixed paints, paint removers, varnishes, wax.

Tower Clocks :—

Stoneware and vitreous materials.—Sanitary fittings (soil-pan, wash basin, bidet, urinal).

Electro-plated ware :—

Glass.—Sheet, crown, plate, wire glass, figured, fluted, ribbed knobs, and handles, mirror glass, vitrolite.

Iron and Iron Products :—Rolled steel (round, square and hexagonal, twisted bars, flats, equal and unequal angles, tees Z, I and channel sections); rails, high tensile steel, wire coils, plates, sheets-galvanized (plain and corrugated), tinned sheets, wire ropes (black and galvanized), wire fencing (barbed, simple, woven), expanded metal, wire net, wire gauze, perforated sheets.

Tools : Ghamelas, phawrahs, shovels, pickaxe, crowbars, hammers, axe, chisels, files and other mason's & carpenter's tools.

Building Hardware :—Hinges, stoppers, alldrops, hasp-clasp, hooks, pegs, brackets (shelf), door-locks, oxidised fittings, plated fittings, clips.

Instruments And Apparatus

Drawing :—Compasses, pens, dividers (simple and proportional), straight edge, spring bows, stencils, steel scales, wooden and ivory scales, set-squares (wood, celluloid, ebonite, steel), protractor (steel, celluloid, ivory, brass), semi-circular, circular and rectangular; pentagraph, edigraph, french and railway curves (wood & celluloid), flexible curves (rubber and steel), planimeter.

Survey :—Steel chains, steel tapes, metallic tapes, flexible tapes, steel bends, levelling instruments (various types), theodolites optical square, cross staff, plane table, compass, ghat tracers, barometric level, binoculars, levelling staves, Prismatic compass.

General :—Slide rules, flow measures, cardboard scales, strength-testing machine (steel, cement, timber), sleeves, pressure gauges, deflection metres.

Drawing Materials :—Thick paper, mounted paper (seamless and jointed), ferro-prussiate (cloth and non-cloth), ferro-gallic (cloth and non-cloth), ammonia paper, pencils, coloured pencils, inks, correctors, colours (tubes, cakes, pens), brushes, stickings, squared paper (rolls and sheets), tracing paper and cloth, erasers (ink and pencil).

Electrical fittings :—Wires, switches, bells, shades, bulbs, plugs, brackets, water-tight-fittings, fans, domestic appliances, lightning conductors.

Plants :—Rollers (steam and oil, bullock, hand), concrete mixers, mortar mills, pumps (centrifugal rotary, diaphragm), stone crusher, cranes, barrows, chain pulley blocks, pulley sheaves, vibrators, asphalt heaters, asphalt sprayers, paint sprayers, sand-washers, pile-drivers, dredger, block-making machines, crabwinch, ejectors, fire-engines, fire-extinguishers excavators.

Water Fittings :—Sluice valves, stop-cocks, bib-cocks (electroplated, chromium-plated and unplated) air-valves, hydrants, standposts, ferrules, ball-valves, reflux valves, venturimeters, water meters.

WATER-WORKS APPLIANCES

Lead and Zinc :—Lead sheets, pig lead, lead wool, zinc sheet, perforated zinc sheet.

Water-works plant :—Chemical measurers and mixers, filtration fittings, flow control, discharge measures, pressure filters, air apparatus, chloronome and chlorine apparatus, water softener.

Pipes :—Cast iron, wrought iron (black and galvanized), steel, spun-hume, hume steel, asbestos, glazed stoneware, rustless, corrugated, rivetted, lead, copper.

Wood products :—Ply wood, pressed wood, bentwood.

Sewage Disposal Plant :

Scientific Articles and Plant :—Air conditioning, insulation boards, fire extinguishers, domestic filters, wall-boards, ceilings, fibre ceilings (gypsum, cork, fibre).

Lifts :—

Fire-fighting appliances :—

Rubber Products :—

Appendix 5c.

III. EASILY DEVELOPED ARTICLES

Asbestos Products :—Roofing sheets, ceiling and partition sheets, rain water pipes and gutters, soil pipes, water pipes, fire-proofing, lagging.

Brushes :—Bristles and wire brushes, oil painting, colour and white washing, sable hair brushes, manufacture of bristles and fibres, brooms.

Tar :—Road painting and preservative.

Bricks :—Ordinary bricks, fire bricks, salt-glazed, yellow, and facing bricks, engineering bricks, hollow bricks, flooring bricks and sand-lime bricks.

Cement :—Ordinary cement, rapid hardening cement, quick-setting cement, cement fondu, black or aluminous cement, coloured cement.

Cement Products :—Cement blocks, hollow blocks, slabs, tiles, garden decorations, jalli works.

Tiles :—Cement, marble, glazed, unglazed, stone slabs, clay channels.

Roofing Tiles :—Flat Mangalore tiles, half-round, flat-channelled, slate.

Chemicals :—Caustic soda.

Paints & Varnishes :—Base, vehicle, pigment, drier, ready-mixed and dry, proprietary brands, paint removers, varnishes and wax.

Stoneware :—Salt-glazed pipes, specials and accessories, sanitary fittings; (latrine seat, soil pan, wash basin, sinks, public urinal), vitreous sanitary fittings (soil pan, wash basin, bidet, urinal, towel rail, bath rail).

Electro-Plated Ware :—

Glass :—Sheet, crown, plate, wire-glass, figured, fluted, ribbed, knobs and handles, mirror glass, vitrolite.

Glue :—Joinery, drawing, colour washing.

Iron & Iron Products :—Rolled steel (round, square, hexagonal, twisted bars, flats, equal and unequal, angles, tees, Z, I and channel sections), rails, high tensils, steel, wire coils, plates, sheets galvanised (plain and corrugated), tinned sheets, wire ropes (black and galvanised), wire fencing (barbed, simple, woven), expanded metal, wire net, wire gauze, perforated sheets, iron products, bolts, nuts, screws, nails, rivets, hooks, washers, steel pipes, pressed sheets, brackets, buckets, cast steel, tool steel, wrought iron pipes, specials and accessories, drawn tubes, Manasman poles, telescopic poles.

Tools :—Ghamelas, phawrahs, shovels, pickaxe, crowbars, hammers, axe, chisels, files, masons' and carpenters' tools.

Castings :—Pipes, specials, accessories, sewage fittings, railings, posts.

Building Hardware :—Hinges, stoppers, alldrops, hasp-clasp, hooks, pegs, brackets (shelf), door-locks, oxidised fittings, plated fittings, clips.

Electrical fittings :—Wires, switches, bells, shades, bulbs, plugs, brackets, water-tight fittings, fans, domestic appliances, lightning conductors.

Brassware :—Hinges, alldrops, stoppers, handles, knobs, hook and eye, hasp-clasp, door-locks, rings brackets, pegs, tubes, bars, wire-gauze.

Water fittings :—Sluice valves, stop-cocks, bib-cocks, air valve, hydrants, stand posts, ferrules, ball valve, reflux valve, venturimeter, water meter.

Lime :—Quick lime, hydraulic lime, water-proofing.

Pipes :—Cast iron, wrought iron (black and galvanised) steel, spun Hume, Hume-steel, asbestos, glazed, unglazed, stoneware, rustless, corrugated, rivetted, lead and copper.

Wood Products :—Plywood, pressed wood, bentwood.

Appendix 5d.

IV. FACTORY SCALE ARTICLES.

Asbestos products :—Roofing sheets, ceiling, and partition sheets, rain water pipes and gutters, soil pipes, water pipes, rubber rings for joints, fire-proofing, lagging.

Brushes :—Bristle and wire brushes (floor, road, plaster), oil painting, colour and white washing, sable hair brushes (painters'), manufacture of bristles and fibres, brooms.

Asphalt Products :—Roads—base and surfacing, roof paint, water proofing sheet, mastic, damp-proof construction, materials and compounds, preservative, paint, asphaltic cement, asphaltic lining.

Tar :—Road paint and preservative.

Bricks :—Fire-bricks, salt-glazed bricks, yellow bricks, facing bricks, engineering bricks, hollow bricks, hollow flooring bricks, sand-lime bricks.

Cement products :—Cement blocks, hollow blocks, slabs, tiles, garden decorations, jalli works, house decorations, poles.

Tiles :—Cement, marble, glazed, unglazed, clay-channels.

Roofing tiles :—Flat Mangalore tiles, flat channelled (clay and cement).

Chemicals :—Copper sulphate, sodium silicate, ammonia.

Paints & varnishes :—Base, vehicle, pigment, drier, dry and ready mixed, proprietary brands, paint removers, varnishes, wax.

Tower clocks—

Vitreous stoneware materials.—Sanitary fittings (soil pan, wash basin, bidet, urinal, towel rail, bath rail).

Electroplated ware.

Glass :—Sheet, crown, plate, wire glass, figured, fluted, ribbed, knobs and handles, mirror glass, vitrolite.

Furniture—

Iron products :—Bolts, nuts, screws, nails, rivets, hooks, washers, pressed sheets (tank, ceiling, partition, cornices etc. and fencing), brackets, buckets.

Tools :—Ghamelas, phawrahs, shovels, pickaxe, crowbars, hammers, axe, chisels, files, masons' and carpenters' tools.

Castings :—Railings and posts.

Building hardware :—Hinges, stoppers, alldrops, hasp-clasp, hooks, pegs, brackets (shelf), door-locks, oxidised fittings, plated fittings, clips.

Instruments and apparatus—

Drawing :—Compasses, pens, dividers (simple and proportional), straight edge, spring bows, stencils, steel, wood and ivory

scales, set-squares (wood, celluloid, ebonite, steel), protractor (steel, celluloid, ivory, brass) semi-circular, circular and rectangular; pentagraphs, ediograph, French and Railway curves (wood and celluloid), flexible curves (rubber, steel), planimeter.

Survey :—Steel chains, steel tapes, metallic tapes, flexible tapes, steel bends, instruments (levelling—various types), theodolites, optical square, cross-staff, plane table, compass, ghat-tracers, barometric level, binoculars, levelling-staves, prismatic compass.

General :—Slide rules; flow measurers; cardboard scales; strength-testing machines—steel, cement, timber, sieves; pressure gauges deflection meters.

Drawing materials :—Thick paper, mounted paper (seamless and jointed), ferro-prussiate (cloth and non-cloth), ferro-galic (cloth and non-cloth), ammonia paper, pencils, coloured pencils, inks, correctors, colours (tubes, cakes, pens), brushes, stickings, squared paper (rolls and sheets), tracing paper and cloth, erasers (ink and pencil).

Electrical fittings :—Switches, bells, shades, bulbs, plugs, brackets, water tight fittings, fans, domestic appliances, lightning conductors.

Plant :—Concrete mixers, pumps, stone-crushers, cranes, barrows, chain-pulley blocks, pulley sheaves, vibrators, asphalt heaters, asphalt sprayers, paint sprayers, sand washers, pile-drivers, dredgers, block-making machines, crab-winches.

Brassware :—Hinges, alldrops, stopper, handles, knobs, hook and eye, hasp-clasp, door-locks, rings, brackets, pegs, tubes, bars, wire gauze.

Water fittings :—Sluice valves, stop-cocks, bib-cocks, air-valves, hydrants, stand posts, ferrules, ball valves, reflux valves, venturimeter, water meters.

Water-works appliances :

Metal work :—Aluminium railings, lead sheets, pig lead, lead wool, zinc sheet, perforated zinc sheet.

Water-works plant :—Chemical measurers and mixers, filtration fittings, flow control, discharge measurers, pressure filters, air apparatus, chloronome and chlorine apparatus, water softener.

Wood products :—Plywood, pressed wood, bentwood.

Scientific articles & plant :—Air conditioning, insulation boards, fire extinguishers, domestic filters, wall boards, ceilings, fiber ceilings (gypsum, cork, fibre).

Lifts.

Fire-fighting appliances.

Rubber products.

Appendix 5e.

V. MASS-SCALE ARTICLES.

Bitumen :

*Bricks :—*Ordinary, facing bricks, hollow bricks.

*Tiles :—*Stone, slabs.

*Roofing tiles :—*Flat Mangalore tiles, Flat-channelled (clay and cement), slate.

*Lime :—*Quick-lime, hydraulic lime, water-proofing.

Appendix 5f.

VI. NATIONALIZABLE INDUSTRIES.

*Cement :—*Ordinary cement, rapid hardening cement, quick-setting cement, cement fondu, black or aluminous cement, coloured cements.

*Cement products :—*poles and pipes.

*Stoneware materials :—*Salt glazed pipes, specials, and accessories, sanitary fittings (latrine seat, soil pan, wash basin, sinks, public urinal).

*Iron and Iron Products :—*Rolled steel (round, square, hexagonal, twisted bars; flats, equal and unequal angles, tees, Z, I and channel sections; rails), high tensile steel, wire coils, plates, sheets-galvanized, and black, plain and corrugated, tinned sheets, wire ropes (black and galvanized), wire fencing (barbed, simple, woven), expanded metal, wire net, wire gauze, perforated sheets, steel pipes, cast steel, tool steel, wrought iron pipe (black and galvanized), pipe specials and accessories, drawn tubes, Mannasmann poles (telegraph and telephone) telescopic poles, etc.

*Castings :—*Pipes, specials, accessories (rain water drain, flushing, soil), sewage fittings.

*Electrical goods :—*Wires.

*Plant :—*Rollers (steam and oil, bullock, hand), special pumps (centrifugal, rotary, diaphragm), ejectors, fire-engines, fire-extinguishers.

*Pipes :—*Cast-iron, wrought iron (black and galvanized), steel, spun-hume, hume steel, asbestos, glazed stoneware, rustless, corrugated, rivetted, lead copper.

Timber.

Sewage disposal plants :—

Mineral oil products :—

Appendix 5g.

VII. TOOLS & PLANTS

Blasting tools :—

*Tools :—*Ghamelas, phawrahs, shovels, pickaxe, crowbars, hammers, axe, files, chisels, masons' and carpenters' tools.

*Plant :—*Rollers (steam and oil, bullock, hand), concrete mixers, mortar mills, pumps (centrifugal, rotary, diaphragm), stone crusher, cranes, barrows, chain-pulley block, pulley sheaves, vibrators, asphalt heaters, asphalt sprayers, paint-sprayers, sand-washers, pile-drivers, dredger, block-making machine, crab-winch, ejectors, fire-engine, fire-extinguishers.

Appendix 5h.

VIII. COTTAGE-INDUSTRY SCALE ARTICLES.

*Brushes :—*Bristle and wire brushes (floor, road, plaster), oil painting, colour and white washing, sable hair brushes (painters'), manufacture of bristles and fibres, brooms.

*Roofing tiles :—*Half round tiles.

*Paints and varnishes :—*Pigment, wax, ready mixed paints, varnishes.

Electro-plated ware :—

Furniture :—

*Glue :—*Joinery, drawing, colour-washing.

*Drawing materials :—*Thick paper, mounted paper.

*Brassware :—*Hinges, alldrop, stopper, handles, knobs, hook and eye, hasp-clasp, door-lock, rings, brackets, pegs, tubes, bars, wire-gauze.

*Water fittings :—*Stop-cocks, bib-cocks, ferrules.

Appendix 6.

ANALYSIS OF HOUSING COST

It has been found that for the residential areas the proportions of site to the house and over-all cost is on the average 1 to 4 and 1 to 5 respectively. The site cost is distributed on the average among various items of development as follows:—40% Roads; 15% Water-supply; 30% drainage, both storm and sewerage, 15% Land and sundries. The greater portion of development cost will be represented by direct payments for labour engaged in excavation, quarrying etc. Because road cost will almost wholly be spent in quarrying and labour work. Similarly half the amount of storm drainage will be spent in such types of works as quarrying. It is only in sewage and water pipes that the greater portion of the cost is spent in materials. Thus half the cost of development is spent on quarrying and labour and half on materials which can be manufactured on factory scale. Similarly the money spent on the house is distributed as under:—40% walling; 6% paving; 10% flooring; 20% wood work; 12% roofing; 12% finishings and sundries. The greater part of the house cost will be spent on brick or stone, timber and roofing tiles; and some part on lime and cement. The part of the cost spent on materials, that can be manufactured on factory scale will differ with the design and may thus vary between 30% to 60% or even more. If the average is taken at the lower figure, the factory scale materials for both site and house will be nearly Rs. 400/- to Rs. 500/- per tenement estimated to cost Rs. 250/- for site and Rs. 1,000/- for house. The estimated number of tenements for Nation's future requirement for industrial housing is calculated as 10 million tenements. The factory scale material required for this purpose will thus amount to Rs. 4,000 to Rs. 5,000 million.

✓
Resolutions of the National Planning Committee
On the Report of the Sub-Committee on
National Housing.

The Final Report of the Sub-Committee on National Housing, was presented by Mr. S. D. Prabhavalkar, Chairman of the Sub-Committee, on the 10th May 1940. Mr. S. B. Joshi, Jt. Secretary of the Sub-Committee, was present, while the Secretary, Dewan Bahadur V. G. Shete, was unable to attend. Discussion concluded on the same day. The following resolutions were passed.

1. We recommend the creation of statutory authorities namely (i) Central Housing and Planning Board; (ii) Provincial Housing and Planning Boards. The former will be concerned with general principles, policy, programme, finance, technique, standardisation and research on broad lines. The latter will guide and control all schemes, but not their details. Necessary legislation will be undertaken which will provide for the initiation and execution of the programme. Woman's role in National Housing being important, we recommend that they be given adequate representation on these Boards.

2. Rural Housing should be undertaken in coordination with rural reconstruction, and should generally be based on ownership, and not tenancy, of the house and site, the latter on a basis of long lease if ownership is not possible. The programme of such rural housing should be carried out with due regard to the environment as well as the resources of the country, and with such aid from the State as may be necessary. The programme should include particularly the building of Panchayat Ghars in villages where community life and cultural activities of the villagers can be developed, including school, library, lecture hall, co-operative store and the like. Adequate equipment for games and sports should also be provided. The Panchayat Ghar should make due provision for the needs of women and children.

The State aid mentioned above should particularly include advice or assistance in matters of village sanitation and skilled labour.

3. Cattle should be accommodated in such a manner that the health of human beings does not suffer and proper sanitary arrangements are provided.

4. Urban housing is to be regarded as a public utility service, the responsibility for which primarily rests with the State. This should not, however, exclude private enterprise, suitably controlled by the State.

5. Definite standards for various types of unit house accommodation shall be laid down by the appropriate authority.

6. The State will make requisite arrangements for financing the Housing programme, if necessary, by loan. ✓

SUMMARY OF DEVELOPMENTS

The need for providing an organised, co-ordinated, planned system of Housing for the country as a whole has come to be recognised more and more clearly in recent years. At the present time, the bulk of the population,—at least in towns—lives in houses provided by others,—capitalist builders mostly, building to rent their structures, and having in their tenants no other interest but the receipt of monthly, quarterly or weekly rent. The conditions of living in such houses, and the evils it gives rise to have been examined in the Introduction and so we need not cover the same ground over again. The problem, however, has changed since its first emergence as a matter of decongestion in overcrowded centres; and so a glance at the evolution and transformation of the question would not be out of place in this Summary.

The growth of large concentration of population in certain areas came first in the wake of the Industrial Revolution in Britain. As these new centres of population had grown up anyhow,—without any plan or layout,—the health and morals, the comfort and convenience, of those congregated in these towns suffered grievously; and their reaction showed itself on the entire country. The first problem, therefore, was that of slum clearance which brought town planning, or the establishment of garden cities, with safeguards against rack-renting that could scarcely be effective. But the matter began to attract attention long before World War I in the industrialised countries of Europe and America.

It was, however, left to World War I, owing to the displacement of large numbers, to the wholesale destruction of a great number of houses in the principal industrial centres of the belligerent countries, and to the subsequent demands for rehabilitation, to place the problem of providing living room for the displaced masses at the top of the urgent questions included in any programme of postwar reconstruction.

In India, the question of providing decent houseroom for the masses was, perhaps, not so acute as in Europe, until World War II was well under way. Modern Industrialism under private enterprise motivated by profit, with its inevitable concomitant of an ever increasing concentration of large numbers of wage-earners in factories and workshops, had come to this country even before the beginning of World War I. The working population of cities like Bombay or Calcutta lived in busties or barracks, mere pigeon holes than house room, where neither sun nor air could enter freely, where smoke accumulated to ruin the eye and water was polluted to bring all kinds of disease and debility, where vermin of all description competed with men and women for whatever space was available for living. The demand, however, to provide

decent housing for urban populations was, in the earlier days of the problem, more in the nature of clearing or improving slums, and bringing about decongestion, than in the shape of finding mere living room for the growing mass of the proletariat,—workers and others, who, for one reason or another, were displaced from their old habitations, and were unable to find decent living room on reasonable terms in their new places of residence.

Attention was paid, no doubt more to this need of urban areas, with particular emphasis on industrial classes, than to villages. In the latter case, the need to find actual living space is not yet so acute as in the case of the towns, though even there, the question of a decent housing system, with all the equipment and fittings for sanitary arrangements and labour saving devices, like a decent and plentiful water supply made accessible in every dwelling, is by no means negligible. In the urban areas, however, with their heavy and increasing pressure of population upon available space, the demands of health and sanitation, comfort and convenience, of the dwellers in such house-room as is available make the problem acute to the utmost degree. In fact, the very finding of living space is a problem by itself; while the proper lay-out of every house and factory, office and workshop, with all the amenities of civilised life and convenience for citizens in the shape of all public utilities and social services necessary under conditions, is an incidental growth, which has become even more important than perhaps the basic problem itself. Town planning, regional planning, house designs, standard space and equipment, and reasonable rent or easy conditions of acquiring proprietorship by the occupier,—are all problems so closely interlocked, that without careful plan co-ordinating all these facets of the main problems, any satisfactory solution must be despaired of.

The Introduction has outlined the ingredients of the task before the planning authority in this behalf. The report of the Sub-Committee goes more into details of a technical, civic, as well as financial character. The growing importance of the problem is evidenced by the increasing reference to it in ever growing gravity by Commissions and Committees of enquiry, like the Royal Commission on Labour, the Town Planning Committees in various centres; and Government proposals for specific schemes of housing development in particular areas which need not be reviewed in detail in this Summary. They all emphasize the same problem, in all its variety of local conditions and national requirements.

The origin of many an Improvement Trust in India, is found in the ravages of the bubonic plague at the commencement of this century in the principal towns in India. The lands acquired, the slums destroyed, the plots developed, new streets laid out

with adequate lighting, new houses built with proper drainage and water supply, were in this first phase, carried out with the primary objective of combating epidemic diseases; and so sufficient attention was not paid to the conditions of living for the inmates inside the tenements or houses built upon the Improvement Trust plots where dwelt like ants the wage-slaves of private industry. *A fortiori*, no attention was paid to the price charged, the rent asked, for this indispensable necessity of life to the worker and the drone alike. The Bombay Improvement Trust began operations in 1902-3; while the Bombay Development Plan came twenty years after. It was perhaps the first systematic attempt at providing housing for the industrial classes on a large scale, with mass production of standard pattern. That scheme had many shortcomings, with many critics. One of them, the late Prof. Patrick Geddes, called them Bolshevik Barracks—sunless, airless holes, fit breeding ground for discontent and despair, leading eventually to an eruption wherein the good ran as much risk of being swept off as the evil. Both these Organisations were amongst the pioneer attempts to recognise the duty, the obligation or the responsibility of the employer of labour on a large scale, and failing him, of the community as a whole, to provide housing for its workmen or citizens with all the equipment and amenities, utilities, and services that modern city life demands. Their example has been copied in varying forms, and with varying success in other cities. But the problem, in so far as it has been tackled by these means, is only one item in the vast conglomerate that makes up this complex whole. And it has given rise to new issues of a wholly new nature. If housing has to be provided for the entire mass of the urban population, on whom must rest the primary responsibility to do so?—on the individual seeking accommodation, on the community of which he is a member, or on the employer who lives on the surplus value created by his workmen? The individual was at first left to find his own house room. And who does not know the consequence of this riot of *laissez-faire*, who has read the "Jungle" of Upton Sinclair or the "Song of the Shirt" by Thomas Hood?

The slum owner and jerry builder were inevitable outcome, necessitating Rent Control when the social conscience was sufficiently roused. The legislative control over rents charged for privately owned house room,—which also made its first appearance in Bombay after World War I,—left many loopholes or created many evils, which are today found in the *Pugree* System. It was soon found that the measure would barely touch the fringe of the immense and complex problem of national dimensions. The principle of compulsory acquisition of urban land from the private proprietor with compensation came to birth in the same emergency, opening an unsuspected avenue of corruption. The reorientation of the city's transport, water, lighting and drainage

systems, its open spaces and amusement centres, its schools and hospitals, factories and workshops, sanatoria and homes served to emphasize the myriad facets of growing complexity. Adequate and suitable housing is such a matter of urgent necessity, that it cannot be left to private enterprise utterly uncontrolled and wholly innocent of a social conscience. And the mere control of Rent,—the price for housing,—would also not suffice. The community as a whole must, in the ultimate analysis, shoulder this responsibility, not only to find house room for its members, but to equip and maintain it in a predetermined standard of comfort and convenience, service and utility.

If the community collectively assumes this obligation, in the ultimate analysis, it need not, necessarily, take the primary initiative in providing accommodation for every citizen. The consciousness of the backing of the State, and its right of final and supreme control, would suffice to organise and provide a nationwide Housing System on co-operative lines for all those who are not employed as wage-earners under a specific employer, or who do not choose to live in houses provided by the employer; or who are employed directly by the State, whether in its civil services of all departments, defence organisation, or commercial and industrial enterprise or service. A welcome trend in modern times is to impose, by law, the primary responsibility for this purpose upon the employer of large-scale labour, whether Government statutory bodies, or private corporations. The Charter of Labour, given in the Introduction to the Report of the Labour Sub-Committee, outlines the conditions under which such responsibility should be discharged, including the terms on which such housing could be occupied, and the conditions on which any subsidy from the public exchequer may be given to such employers. The more liberal and progressive among the employing class has realised the value of such service provided for their workers. The result is shown in the following Summary of Housing Schemes sponsored by employers and indicates the degree to which this device has helped to solve the main problem.

HOUSING FOR GOVERNMENT EMPLOYEES

Government's own policy regarding provision of house room for workers employed in industrial establishments owned and operated by them is far from satisfactory. They do not take this as an obligation of the employer; but would provide quarters for their employees only when funds permit; and that, too, only where conditions are such that private enterprise does not adequately meet the demand for housing, or where it is necessary for special reasons to provide quarters for certain classes of staff near to their place of work. No wonder private employers would follow no higher model.

Coal Mine Owners in Bihar and Orissa, Sugarcane growers and Tea Planters in Assam endorse this policy, and would do no more. The Collieries in the Jharia Coalfield provide approved types of houses whose design, construction, ventilation and general amenities are controlled by the Jharia Mines Board of Health. Every house in the Coalfields has to be licensed and no license is granted unless the standards are complied with. If a worker is found occupying an unlicensed house, his employer or management is liable to prosecution.

In Assam, all residential employees on Tea Gardens are provided with rent-free quarters in barracks or 'lines', as they are called. These are regularly inspected by district and sub-divisional officers, and endeavour is made to maintain a fairly high degree of sanitation. Provision of other amenities, utilities and services is not the duty of the employer providing such accommodation.

Sugar factories also afford housing for their employees because the factories are located near large sugarcane plantations. But here, also, a reasonable standard of comfort and amenities remains a desideratum.

Large slum clearance programmes have been drawn up by Municipalities and Improvement Trusts in almost all the larger towns and cities in India, but adequate house room for the growing proletariat is still a crying need in all such places. In the last eight years, however, slum clearance has progressed by acquisition and demolition of slums. But their replacement by model housing schemes is delayed by the shortage of building materials.

The pioneer work in the field of Industrial Housing has been done by the railways, which have spent nearly 50 crores of rupees to date, in providing adequate residential quarters for different classes of their employees. The Government of Bombay is another house-builder on a large scale, having built 207 chawls with nearly 17,000 tenements for industrial labour in Bombay City. It is a part of an ambitious scheme launched in 1920 by the late Lord Lloyd, then Governor of Bombay, for the construction of 625 Chawls having 50,000 tenements in all. The rents of the tenements in these chawls vary from Rs. 5 to Rs. 8 per month, which were found to be much beyond the capacity of the ordinary mill hand. They could not remedy the evil of over-crowding since by pooling their resources the workers could pay such rents, which singly they could not afford. The earlier built tenement houses under the Bombay Development Scheme were, as remarked already, lacking in many of the amenities, which, added to the high rent demanded, made the entire scheme unpopular, its authors severely criticised, apart from the enormous opportunity it offered for land speculation and corruption in other respects.

The Municipalities of Calcutta, Bombay, Cawnpore, Madras and Karachi, the Calcutta and Bombay Port Trusts and the Improvement Trust in Bombay have likewise done much to provide housing for other classes of industrial workers.

Perhaps the most magnificent schemes of industrial housing conceived in India by private employers are those launched by the Tata Iron and Steel Company Limited at Jamshedpur and by the Empress Mills of Nagpur under the agency of Messrs. Tata Sons Ltd. The Tata Iron & Steel Company has laid out the town of Jamshedpur on garden city lines. Up to June 1945 it had constructed 8,428 houses of different types for its employees, and has now a further extensive programme of housing construction in hand as soon as the difficult conditions created by the War are removed. A special officer has been engaged to look after Town Planning. 5,000 quarters are planned to be built during the next five years. The total capital cost up to 31st March 1945 was about Rs. 143 lakhs. The Company has furnished all quarters carrying a rent of Rs. 15 a month and above with electric lights and fans, and the work of electrification of the lowest rented quarters is in hand. Besides its own direct enterprise in house-building, the Company grants loans on liberal terms to its employees for building their own houses on land leased to them.

The Tata Iron and Steel Company maintain a number of restaurants inside their works at Jamshedpur to provide wholesome meals and refreshments to the workmen at cost price. The Company has its own plant for the manufacture of ice and soda which are provided free of charge to the employees. They can wash and change and leave their babies to be looked after in their absence, these babies being served with milk and biscuits free of charge. Communal factors, such as the religious prohibition of Hindus to eat their food in the company of members of other communities, want of space and the constructional layout of the majority of the smaller industrial establishments, were among the reasons given by the managements, who do not provide rest shelters and/or tiffin rooms for their workmen.

In 1923, the Empress Mills, Nagpur, obtained from the Government on lease for 27 years extensive land in a locality known as Indora, and constructed a Model Village with up-to-date sanitary and other conveniences for its operatives, where each worker could own or rent a cottage for himself. Two sizes of plots, each measuring 53' x 36' and 53' x 45', are allotted, on condition that not more than one-third of the area is built upon. Two types of model houses have been built by the mills, houses on the smaller plots costing about Rs. 960 each, and those on the larger plots Rs. 1,500 each, on valuations and cost of construction before the war. Most of these are provided with their own flushed latrines; and water taps are laid in all the houses. Some of the

houses built by the Mills have been sold to the workers who pay the cost by easy instalments covering a period of five to seven years, while some have been rented to them. Many houses have been built by the workers themselves on plots of land sub-leased to them with moneys advanced to them on easy terms. The Colony has a large garden or park of its own, good roads, street lights and play-grounds equipped with swings, shoots, etc., for children.

Many of the Jute Mills in Bengal and Cotton Mills in Bombay City and other Centres have provided housing for fair percentages of their total staffs, but the majority of textile workers in India are not housed by their employers.

It is of interest to observe that the Government of India, following the recommendation of the Royal Commission on Labour, amended the Land Acquisition Act in such a way as to enable owners of industrial concerns to acquire land for the erection of workers' dwellings. During the War several Provinces passed more or less rigid Rent Control Acts; while the Central Government have passed Ordinances subsequently turned into Acts, giving powers to fix rents, to requisition houses and grant compensation. A considerable amount of new building has also taken place during the War; but these structures were built for temporary use; and cannot be said to solve the main problem in any effective manner.

Epidemics of Plague and Cholera invariably causing large mortality originate in over-crowding of labourers employed in canal areas in connection with the crushing etc. of sugar-cane. Housing conditions in these areas, including those of some sugar factories, are incompatible with decent sanitation. The temporary huts often consist of brush-wood, thatch or bamboo matting, without any plinth, and with no windows or opening which serves as a door. Inside the huts no person can stand upright. Often no adequate provision is made for supply of drinking water. Too frequently, it is obtained from the nearest *nulla*, or irrigation channel or stagnant pool of percolation water, all of which are normally polluted by human and animal excreta and by manures from crops. Latrines are seldom provided, and the banks of irrigation channels and of other water-supplies are resorted to for the purposes of nature. It is obvious that such conditions provide an ideal breeding ground for cholera germs and their rapid spread.

Housing conditions are by no means ideal even in rural areas of industrialised Provinces. The Government of Bombay, finding it desirable to take powers to control such labour housing and sanitation in areas outside municipal and cantonment

limits, and to make orders which would ensure that employers of labour provide reasonable sanitary conditions and open provision shops for their labour in such areas, enacted the Bombay Non-Urban Labour Housing Sanitation and Provision Shops Act, 1944, in the month of April 1944. Under this Act, Government have power to make regulations in respect of any non-municipal or non-cantonment area of any employer in respect of the following matters :—

- (1) the provision of plinths for and adequate ventilation and lighting in quarters ;
- (2) provision of adequate open spaces ;
- (3) prevention of over-crowding ;
- (4) prescription of adequate floor area per person ;
- (5) provision of proper drainage and sanitation ;
- (6) adequate supply of water ;
- (7) provision of grain and grocery shops ;
- (8) lighting ;
- (9) medical aid ;
- (10) prevention of fouling of water supplies ; and
- (11) segregation of infected persons.

Controlling Officers, to be appointed by Government who have been given wide powers to call upon employers to carry out such matters as they may order, will be responsible for the administration of the Act.

Rest Shelters, Dining Rooms and Canteens. Section 33(1) of the Indian Factories Act 1934, makes it obligatory for all factories employing more than 150 workers to provide adequate shelters for the use of workers during periods of rest. Apart from this, almost all large industrial establishments in India did provide tiffin rooms and rest shelters for their workmen. Most concerns had also permitted the establishment of tea stalls on the premises. These small mercies excepted, little effort had been made to run co-operative canteens on the lines of those which are associated with most of the large factories in the West. Pioneer work in this direction had been done by E. D. Sassoon & Co. in Bombay, which had established large canteens in all their mills. The Company in each case bore the salaries of staff and the on-cost for equipment, and hot meals were supplied to the workmen at actual cost. The Company had also established a hostel for boarding and lodging its poor women workers.

In May 1939, the Millowners' Association, Bombay, recommended to all its member mills to set up canteens in each mill

with the help of the Indian Tea Market Expansion Board. A number of Mills adopted the suggestion, and permission to make deduction from the wages of workers on account of canteen coupons sold to them was granted by the Chief Inspector of Factories, on the understanding that the canteens were run on a non-profit basis. Substantial surpluses are being built up from these canteens especially in those mills where no rents or interest on loans are charged. The Association decided, that after certain charges for depreciation and reasonable rent had been met, the surpluses realised should be spent for general welfare work, e.g. provision of milk and biscuits for children in creches, installation of cold drinking water facilities in the departments, health exhibitions, recreation, club equipment including books, journals, a radio set etc.

About the middle of the year 1943, the Government of India recommended to all employers, through the Employers' Federation of India and the All-India Organisation of Industrial Employers, the opening up of more canteens for workers. Government had previously recommended the institution of canteens in periods of emergency but they stressed the following advantages of canteens in the present circumstances :—

- (1) provision of food at cheap rates would be of great assistance to workers separated from their families as they would otherwise be forced to purchase at high rates in a restaurant ;
- (2) communal feeding secures real and substantial economy in the use of foodstuffs while ensuring at the same time adequate nutritive value ;
- (3) canteens are particularly useful in times of emergency when normal arrangements for the supply of food may be dislocated.

The Defence of India Rules give the Government of India and the Provincial Governments statutory powers to enforce the provision of canteens similar to those in the United Kingdom. Government have, however, decided not to place any legal responsibility on employers in this matter in the initial stages, as voluntary effort was expected to obtain satisfactory results.

In October 1943 the Central Board of Revenue issued instructions to all Income-Tax authorities stating that any loss incurred by employers in running canteens for workers should be allowed as a revenue loss in assessing income and excess profits tax, while cost of building and equipment of canteens would be chargeable as capital expenditure.

The Indian Tea Market Expansion Board maintains five Working Centres in India ; at Bombay, Calcutta, Madras, Lahore and Cawnpore and organise new canteens in industrial establishments. It has a large trained staff for this purpose. The canteens are started and run by the Board until such time as they run smoothly and to the satisfaction of the workers when they are handed over as going concerns to the managements concerned. The expenses of the actual canteen staff are met from the sales of prepared tea and eatables, but the whole of the cost of the Inspecting Staff which supervises the proper running of the canteens started by the Board is met by the Board. Up to the beginning of June, 1945, the Board had opened over 200 canteens in industrial establishments in India of which over 50 were in Bombay. The Superintendent of the Bombay Division of the Board is Mr. N. C. Gupta who has his office in the Bombay Mutual Annexe Building, Gunbow Street, Fort, Bombay.

As for that class of the people which is not employed by Government or any other specific employer, the housing problem is becoming every day more intense and complex. Efforts have in recent times been made to promote cooperative enterprise in home owning, with Government aid in the shape of loans, plans and designs; and some facilities in the supply of materials. These houses must, however, conform to the standard plan or design; and also to the regulations regarding buildings made by the Municipalities or other public authorities concerned in that behalf. Town Planning is expected to advance by this means, as the lay-out of streets, transport and drainage system, water supply and open places and amusement parks or playgrounds are all integrated in such plans. Industrial and commercial areas are, under such plans, designed to be separated from the residential areas, though the latter have still to be conditioned by the pecuniary ability and individual taste of the owner occupant.

None of these attempts exhaust the problem as a whole. Private enterprise has, accordingly, still a vast field in this regard; and the possibility of the urban landlord exploiting the needy householder is not ruled out. Recent control measures are apt to be evaded, or circumvented, even if they ever are more than palliatives. If this problem, therefore, of adequate house room, on a predetermined standard scale, is to be solved satisfactorily on the national level, it must form part of the National Plan; and be tackled as a common need of the entire community. Further, the Building Industries,—to give a collective name to all enterprises engaged in the production of all kinds of building materials,—must be rationalised; and the supply adjusted to demand without any room for profiteering, if this great item in planned national economy is to be successfully and finally solved.

Public and Semi-Public Houses

The problem of Housing has hitherto been considered mainly, though not exclusively, as a matter of providing dwellings, particularly in large centres of population. Housing, however, in the sense of providing appropriate structures for the different uses to which such accommodation has to be put, to provide, conduct, and maintain the numerous Social Services which make up modern social life, includes a very much larger variety than would be comprised in the term as hitherto generally considered.

It is important as well as necessary to consider this other aspect of the problem as part of the National Plan for a variety of reasons. Buildings for public and semi-public use would not only be different in size, design and equipment from the dwellings for the various classes of population; they would need different equipment, and their location, layout, appearance would need to be more specially studied, than may be the case in regard to the dwellings of the masses. We would not, of course, even in the latter case, rule out altogether the element of architectural beauty, and therefore of harmony in design, while we attend to the convenience of the inhabitants from the standpoint of space or equipment provided. Inasmuch, however, as, in the former case, the public and semi-public buildings are representative of the community's sense of fitness, appearance, proportion, harmony with the environment, and equipment, they must necessarily demand much greater care and attention than may be the case in the ordinary Housing serving as dwellings for the bulk of the population.

Classes and Types

The public and semi-public buildings may be considered in several classes:—

(a) Public buildings proper, namely Government Secretariat and Administrative Offices, including camps, barracks, arsenals etc. for National Defence; Courts of Law, and their appendages of Jails and Correction Houses, Police Stations and Post Offices which ramify in every part of the country. These would not be confined only to the headquarters of the Provinces, districts, or taluqas. Every village must have a community hall of its own for promoting social and cultural activities of the village population. These might demand in their own way, as much attention to design and location as the more imposing edifices at the Local or Central Capitals.

(b) Schools and Colleges, Laboratories and Libraries, and other similar institutions devoted to educating the young, deve-

loping their mind and body, and conducting scientific research or experiments, also present a problem in design, and still more as regards appropriate equipment, to make each such structure suitable and convenient for the use for which it is intended. It may be that reasons of economy may necessitate the use of some of these buildings for more than one purpose, at different hours of the day, or during different seasons of the year. But even so, the task of suitable furnishing and necessary equipment of these places cannot be neglected or under-estimated. The problem must, therefore, form part of the National Plan when it is at last framed and put into execution.

(c) Hospitals and Dispensaries, Nursing Homes and Sanatoria, Asylums or Mental Hospitals, make yet another category of public or semi-public structures which cannot be located at a few centres only. They are necessary adjuncts of modern life, and as such will have to be provided in every part of the country. Their equipment would also be fundamentally different from buildings of the preceding class; and, as such, the industries connected with the supply of the necessary equipment, furnishings or fittings, apparatus and instruments, will play no small part in a comprehensive National Plan.

(d) While the health and enlightenment of the people and the administration of the country is attended to in the three preceding classes, their entertainment and cultural growth would be provided by Theatres and Music Halls, Cinemas or Lecture-Halls. Stadia or Gymnasias and Baths for Sports and Physical Training form yet another group of semi-public buildings, which not only make an expression of the public taste, for the time being, but also minister to the cultivation and development of that taste to as high a degree as possible. They would consequently demand care and attention second to none in the classes mentioned above, if the popular conscience is roused to the necessary pitch.

(e) Buildings in connection with Railway Termini or Stations, Sheds, Godowns; and similar facilities at air-ports shipping berths, docks and their warehouses, are in a class by themselves. They are meant for purposes wherein the utilitarian motive necessarily predominates. But even so, comfort and convenience, compatible with their design and appearance, cannot be overlooked.

(f) Public markets, shops or emporia for the display and sale of goods and services, and housing for the associated services of commerce in the shape of Banks, Insurance Companies, and Transport Services, are becoming in modern large centres of population daily more important as well as imposing. Perhaps this section of building activities may not demand the same

priority, and even the same integral place in the aggregate of national planning in that sector. Private enterprise may perhaps be left much more room so long as our economy is not wholly socialised. But, even so, their place in the daily life of municipal areas, at any rate, will not be negligible.

(g) For modern industrial centres, such indispensable adjuncts as hotels and restaurants, cafes and cafetaria; and even in rural areas, facilities of travel and rest, in the shape of Dak-bungalows, Wayside Inns, Dharmashalas or Musafarkhanas, are all necessary. They would accordingly have to form part of the Plan, if not from the Central, at least from the Local or Provincial approach. The equipment and working of these places of public resort is also a somewhat specialised branch, wherein the engineer, the architect, and the utilitarian will have to collaborate, to make them fit for the service required of them.

(h) No mention need be made in this section of Factories, Workshops, and other structures for carrying on productive enterprise or distribution Service, as these may be said to have been considered already from the point of view of housing their operatives. Their own structure and appearance must needs correspond to the purpose they are meant to serve. Their mechanical equipment, likewise, need not concern us so very much at this point and for the same reason. But their location, layout, and relation to the rest of the public or private structures around them is a matter of crucial importance which demands increasing attention to what has come to be known as "Town Planning". We must think, not only of the City Beautiful in such planning; but also of the City Healthful, the City Helpful, and the City Useful.

Planning, however, in this sense of the term, is not, and must not be, restricted only to the larger centres of the population known as Towns and Cities. The appearance and layout of each unit, where human beings live and work and have their being, is essential, especially in an organised, conscious purposeful society, if man is to be content not with bread alone. It would, therefore be necessary to add a much more important section on 'Town and Village Planning', without going too much into details. Such planning has attracted spasmodic attention in the past; its inclusion as an integral part of a national plan, remains yet to be accomplished.

Housing Industries

The Terms of Reference of this Sub-Committee have specifically mentioned the Industries connected with Housing. These, however, are not confined only to the production and provision of building materials, e.g. brick, mortar, cement, iron and steel, glass, rubber or wood-work of all kinds. The additional re-

quirement, varying with the degree of civic amenities and public utilities prevailing, includes : an adequate supply of water on the premises ; light and heat, as much for regulating the temperature of the habitation as an aid in cooking ; the necessary utensils, furniture, wiring for electricity or piping for gas ; telephones and other similar devices, which collectively make housing both convenient and comfortable. The industries, therefore, that must be considered in this connection must have a much larger connotation than implied in the primary materials needed for putting up a structure. These industries exist in the country in a fair measure ; they need to be coordinated and developed on a national scale. The several Panel Reports concerned with these have indicated targets, and the ways and means of attaining them, which must attract immediate attention of the planning authority.

It is unnecessary to go into the question of the number and variety of these public and semi-public structures. The National Plan, however, will not be complete unless it includes specific items for adequate provision of these structures in every region or centre of population, as an integral part of such a National Plan. This may not be achieved from the Centre, so much as by the Local Authorities, whether of the town, district, taluqa, or village. But the Centre must provide necessary inspiration, guidance and assistance, which very often the Local Authorities may not command in the same degree.

Town and Village Planning

The most important question in the problem of Town or Rural Planning is, as already noted, in regard to the appropriate location of industries, with due regard to the convenience of the workers engaged therein, and also of the rest of the population. The Bhore Committee on Public Health, reporting in 1946, laid down certain basic conditions for effective Town and Rural Planning Legislation, which, because of its importance and relevance, is quoted below :—

The Zoning and Location of Industry by Legislation

(a) Town and Rural Planning Acts should be passed by Provincial legislatures setting up in each Province a separate Ministry for Housing and Town and Rural Planning with wide powers to deal with the housing of the industrial population and with the zoning and location of industry.

(b) Before the establishment of any new industry or factory is agreed to by the Provincial Government, the Minister should satisfy himself that, in the layout, adequate provision is made for the housing of workers, for their transport to and from the factory and for adequate environmental amenities.

(c) We wish strongly to reiterate the recommendation of the Royal Commission on Labour that Provincial Governments should take steps to prevent industries being established in places where there will not be sufficient room for adequate housing or other necessities such as water supply, electric power etc. This should be the function of the Ministry of Housing and Town and Rural Planning if established, and, under the appropriate legislation, rules should be framed to regulate the growth of industries from this point of view.

(d) Where possible, having regard, of course, to the relevant economic factors, new industries should be dispersed in rural areas so that the local inhabitants may derive the fullest benefit from industries being brought within their immediate circle. The present system of establishing factories near or in big towns, where the workers are forced to live in crowded tenements and under artificial and insanitary conditions, is harmful alike to the town dwellers and the workers themselves. The health problem of workers in such industries would be greatly simplified if industrial establishments could be located in rural surroundings.

These are guiding principles of such legislation which may have to be modified according to the peculiar situation of each town. It must also give adequate authority and powers to the local body concerned e.g. an Improvement Trust to clear slums, rebuild areas, provide transport and other utilities or services.

Administrative Aspect of Town Planning

The Bhore Committee has made recommendations, also, with regard to this subject of Town Planning from the administrative angle as well. They have noted that the bulk of the centres of population, whether rural or urban, have grown up in this country without any preconceived plan of scientific expansion. With the intensive fillip to industrial development resulting from the exigencies of the last War, existing towns have grown far more rapidly, and new centres of population have come into being, which are also matters of accident rather than of deliberate planning. The growing volume of public activities and increasing consciousness of their rights in point of modern civic amenities and social services have emphasised the need for comprehensive and deliberate planning. Accordingly, the Committee recommends :—

(1) A Ministry of Housing and Town and Village Planning be established in each Province to facilitate all the necessary attention being devoted to the matter.

(2) At the Centre there should be a Housing Ministry including in its scope town planning, to coordinate the direct

responsibility for planning and execution which must rest with Provincial Governments. At the Centre there will have to be an expert in town planning, who, for the purpose of administration, may, according to the Bore Report, be attached to the establishment of the Director General of Health Services under the Ministry of Health. This officer should be the consultant to other departments of Government concerned with building activity e.g. Railways, Posts and Telegraphs. All requests from the provinces for financial support from the Centre in respect of their town and country planning schemes should be scrutinised by him from the technical point of view. The Central Directorate of Town and Village Planning should also function as an information bureau for town planners throughout the country.

(3) The Provincial Ministry of Housing and Town and Village Planning should have a technical expert as its adviser, called the Director of Town and Village Planning, with suitable subordinate staff under him. All local authorities, Improvement Trusts, building societies, industrial organisations, private estate development concerns, and Government Departments should submit their schemes for such development or slum clearance, if they come within certain prescribed standards, to the Provincial Ministry of Housing and Town and Village Planning for previous sanction. The Director of Town and Village Planning will be responsible for the technical scrutiny of all these schemes, their modification if and where required, and coordination with the general Plan relating to each town or village.

(4) The Committee has noted that Legislation to regulate planning in respect of towns exists in the provinces of Madras, Bombay, the Punjab and the United Provinces. But, as far as we are aware, no such provision exists in respect of rural areas. We consider that legislation should be enacted in all the provinces on a fairly uniform basis, and that it should include, within its scope, both urban and rural areas. We therefore, suggest that the Central Government should in consultation with town planning experts, draw up model legislation and recommend its adoption by the provinces or, with their approval, secure the enactment of an all-India measure. In either case, the proposed legislation should include all the requirements that modern conceptions regarding Town and Village Planning would suggest for incorporation.

City Improvement Trusts

(5) **Large Cities**—In some of the larger and more congested cities in India Improvement Trusts have been engaged, for some time, in slum clearance and the improvement of housing. The results have not, however, been satisfactory in a number of

cases, because cleared areas resulting from costly demolition operations have been allowed to be built over without an overall Plan or adequate control. The existing legal and administrative procedure should, where necessary, be so modified as to ensure that such undesirable developments are not permitted to continue. The Committee recommend that Improvement Trusts should be established in all the larger cities of the country for dealing with slum clearance and rehousing problems. One of the handicaps from which existing Improvement Trusts suffer is lack of technical assistance. Every trust should be required to employ a town planner on its staff, as soon as trained personnel of this class becomes available in sufficient numbers.

(6) **Other Urban Areas**—The urban areas for which the establishment of Improvement Trusts is likely to be considered not feasible will, from the point of view of size and importance, be such as to make them suitable for inclusion in the district health organisation proposed by that Committee. The District Health Board should be made responsible for the Planning of such urban areas, which should, as an Improvement Trust, be required to maintain on its establishment a trained Town Planner.

(7) **Rural areas**.—The Committee recognise it would be difficult in the early stages of the programme to extend planning operations into the rural area as a whole. During this period attention should be confined to the lay-out of new villages e.g. on reclaimed land or culturable waste taken into cultivation, which may be established as the result of developments in industry, mining, agriculture, or the settlement of demobilised personnel. In the case of all new villages, the Provincial Director of Town and Village Planning should be consulted beforehand by the department concerned and he should design the lay-out.

(8) **Location of Industry**—The haphazard location of industries in inhabited areas must be forbidden. The matter must be controlled by proper legislation. Legal provision exists in certain provincial Local Self-Government Acts for enabling the local authority to regulate the location of new or existing industries within their areas. Adequate provision should be made, where it is not found to-day, for controlling the location of industry included in the proposed model legislation for town and village planning. The lay-out of any new industry should be submitted to the Ministry of Housing and Town and Village Planning for previous approval; and that should also apply to residential accommodation provided for industrial workers. A colony for such workers should not be permitted on a temporary basis for a longer period than three years and, even during this period, adequate provision should be made

for such amenities as roads, water, drainage, sanitation, and lighting.

(9) **Training Facilities for Town Planners**—The Bhore Committee make two recommendations in regard to the training of town planners. One is that a certain number of selected individuals should be sent to Europe and America for training in the subject. The other is that town planning experts from abroad should, if necessary, be recruited on short-term contracts, and that training centres should be set up at least in a few universities in the country.

Bhore Committee on Housing

As indicated in the Introduction, though primarily concerned with the health of the people and ways and means of promoting and safeguarding it, the Bhore Committee has necessarily considered the problem of Housing, even as dwellings only. They are naturally concerned with the reaction upon public health by over-crowding in single-room tenements, which practically ignore every essential of maintaining the health of the inhabitants. The equipment of these dwellings, also ignoring or neglecting altogether the most elementary necessities of life such as sanitary fittings etc. no less demands their attention. The growth of the Housing Service since 1920 in European countries has emphasized the consciousness, rapidly spreading in the industrial proletariat in this country also, about their right to live in decent habitations. They consequently demand its inclusion in the Fundamental Rights of the Citizen in the new Constitutions now in the making.

Housing has increasingly become a public utility as much as it always was, and still remains, an individual necessity. The Committee, therefore, include in the maintenance services, or utilities necessary to provide in what may be called civilised housing, abundant and easy water supply, adequate protection against fire, and also against any disturbance of the peace, the use of light and roads, facilities for the education of their children as well as attention to their health when in accident or disease by qualified medical or nursing attendants. In their National Housing Schemes, the European countries have adopted most of these amenities, now regarded as elementary requirements which no one seriously disputes as necessary to be provided by collective enterprise. The Bhore Committee's recommendations, therefore, with regard to India are contained in the following :—

"In India a long-term policy, comprehensive in scope and modern in outlook, is essential for a satisfactory solution of the housing problem. The objective to be attained is the creation of

hygienic houses in adequate numbers and of adequate size, in 'sanitated' areas equipped with all the facilities necessary for community life. In the execution of the housing programme Governments and public authorities should perform the following functions:—

- (i) the planning, execution and regulation of housing programmes, including participation by local authorities and Improvement Trusts in house construction and maintenance ;
- (ii) the grant of financial assistance by long-term loans at low rates of interest, or grants-in-aid.
- (iii) the prescription and enforcement of standards and
- (iv) the promotion of housing research.

Functions of the Provincial Governments:—Upon Provincial Governments must rest the primary responsibility for dealing with housing and town and village planning. **The housing of the people is essentially a State responsibility.** It may, of course, be delegated under suitable conditions and in defined areas, to local bodies or public authorities such as Improvement Trusts. Elsewhere it will be necessary to utilise every available agency if a comprehensive programme is to be planned and executed within a reasonable time. Provincial Governments should consider the establishment of a Statutory body, under the direction and control of the Ministry of Housing and Town and Village Planning, with financial resources and power to plan and execute a province-wide house construction and town and village development programme on a 20-30 year plan, in five yearly stages. The Provincial Ministry of Health is deeply concerned in the proper execution of any housing schemes, and should be responsible for the control and enforcement of minimum standards in the design and construction, not only of houses, but also of environmental amenities, such as water supply, sanitation and recreation. The two Ministries must work in close co-operation with one another and the staff of the Ministry of Health must, at all stages, be in contact with those who are responsible for the execution of housing schemes and town and village planning.

Functions of the Local Authority

Our recommendations for provincial and district health administration will, if implemented, establish certain new local authorities in the place of existing ones. We visualise the creation of separate district organisations to deal with health, education, public works and communications in order to provide more favourable conditions for efficient administration. In carrying out a province-wide housing and planning policy in

urban and rural areas, the work of enforcement of standards, from the health point of view, will fall upon the district health organisation and its officers. On the other hand, the actual construction and maintenance of housing colonies will be carried out by the district agency which deals with public works, and which, in this connection, will be under the control of the Ministry of Housing and Town and Village Planning or the authority to which the Ministry has delegated its powers.

Housing Standards

"We have set out certain general recommendations regarding the minimum standards to be prescribed for all houses built under public or private auspices. For details regarding these standards reference may be made to paragraphs 25 to 33 of chapter XIII of Volume II of our report.

Type Plans

"The legal enforcement of housing standards is only one method of approach towards raising the quality of construction. Type plans and estimates covering a considerable range of cost, material and sizes should be prepared. These plans and estimates should be based on local rates of cost, as far as possible, and should incorporate locally procurable material and they should be made readily available to the general public.

Housing for the Lower Income Groups

"We believe that an India-wide housing programme should give first priority to the needs of the lower income groups of the population. It is not easy to fix an upper limit of income suitable for all provinces. In the South it might be Rs. 100 to 150 a month and in the North Rs. 150 to 250. The limit would have to be fixed by each Provincial Government.

Urban Areas.

"In many towns and cities industrial workers live interspersed with the general population and the housing problem must, therefore, be considered for the community as a whole and not for industrial workers only, bearing in mind the income levels we have suggested for defining the working class population. We believe that future developments in the housing sphere will be regulated on proper lines if such developments are undertaken under public auspices, particularly in the larger urban centres. We have already said that the responsibility for providing houses for the people rests on the Governments of the country. Local authorities and industries should, no doubt, bear their share of the cost but the State cannot escape the fundamental responsibility.

Rural Areas

"The housing problem in rural areas presents special difficulty. The Governments concerned, through such local authorities as may be suitable, should be responsible for enforcing minimum standards in any new village construction. They should also assist, with finance, advice and example, in the improvement of existing houses in rural areas. Type designs for new houses and suggestions for the improvement of existing ones should be made available to the villagers through the Health and other appropriate Departments. As in the case of housing in Urban areas, Governments should be prepared to finance or assist in financing any approved schemes for new housing or housing improvement, whether sponsored by the Governments themselves, by local authorities, by co-operative banks or societies or by private interest. Governments must, however, exercise control over the planning and execution of such schemes and in particular, over the rents to be charged for new houses and any increase in the existing rents in the case of housing improvement.

Water Supply.

According to the 1939 report of the Public Health Commissioner with the Government of India, only 253 towns out of a total of 1,471 towns of all sizes in British India possessed protected water supplies. The population served by those was about 12.7 millions or 48.7 % of the aggregate population of all the towns, but only 4.5% of the total estimated population of British India in that year.

Rural water supplies are drawn mostly from wells, tanks, rivers and streams and they are almost completely unprotected.

Our Proposals.

"A vigorous policy should be adopted immediately by Governments for the development of a water supply programme, which should aim at providing the entire population under their charge with safe water for drinking and domestic purposes within a period of about 35 years. The initiation of the scheme should not be left to local authorities and sufficient funds should be made available to complete the programme within this period. Technical bodies, which may be designated Central and Provincial Water and Drainage Boards, should be established in order to assist Governments in the Planning and execution of water and drainage schemes on a comprehensive scale.

Functions of Water and Drainage Boards, Central and Provincial.

The Central Board will perform the dual task of carrying out, in the Central Administered Areas, the same duties which

the Provincial Board will perform in its own territory as well as of dealing with various matters of interest and importance to more than one province, such as the conservation of water on an all-India basis and inter-provincial problems of drainage and river pollution. In addition, the Central Board will assist the Central Government in carrying out its general policy of promoting co-ordinated effort in the provinces and of giving financial aid and technical advice in the furtherance of their water and drainage schemes.

The more important among the functions to be performed by the Central and Provincial Boards in their respective areas include (1) the conservation of the available sources of water in their respective territories and its allocation to the different needs of the community, (2) the general planning of water supply and drainage schemes and the preparation of a priority list in respect of such schemes, (3) various technical matters such as the standards to be prescribed for the purification of water and sewage, the training and registration of water operators and the investigation of special local problems such as the purification of trade wastes, removal of fluorides, etc., and (4) the recommending of grants to the Governments concerned for water and drainage schemes.

Water Conservation on an Inter-provincial Basis

"The importance of this question was forcibly brought to our notice by the Superintending Engineer, Public Health Engineering Department, the United Provinces. He said, 'the depletion of the main rivers in this province, particularly the Jumna and the Ganges, by the wholesale extraction of large quantities of water by the Irrigation Departments of the Punjab and the United Provinces, has had very serious repercussions on the water supply of several large towns in this province, particularly Agra and Cawnpore'. He also pointed out that it has aggravated another problem, namely large scale river pollution from trade wastes.

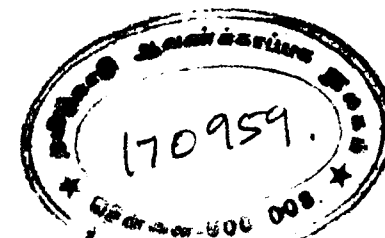
"The question of conserving all the available sources of water throughout the country and of so allocating the supply, from a common source, to meet the reasonable demands of the individual provinces concerned, is of paramount importance from the stand point of the health and general welfare of the people and we have come to the conclusion that this matter calls for special consideration. Where an urgent decision on such a matter is required, the Central Government should be empowered to give a temporary decision which should be binding on the provinces concerned, until a final settlement is reached through the award of an Arbitration Board or any other suitable body to which reference should be made with the least practicable delay.

We consider that the same procedure should apply to inter-provincial problems of river pollution by trade wastes and sewage. Even when an urgent decision has to be taken by the Central Government we consider it necessary that such decision should be taken only after consulting the Central Water and Drainage Board and the Central Board of Health in regard to the technical and administrative aspects of the question.

"As regards the other subjects included under the heading "Environmental hygiene" such as general sanitation, river and beach pollution, control of insects, rodents and other vectors of disease etc., we have set out detailed proposals in the relevant portions of chapter XIV of Volume II. These, if implemented, will, it is anticipated, make for a considerable improvement of the existing unsatisfactory state of affairs."

No apology is needed for this somewhat lengthy extract from the Report of the Health Survey and Development Committee. It is a comprehensive survey, with constructive suggestions, easily feasible, on a wide variety of subjects. The intimate connection of public health with proper and adequate housing, with all the necessary services, utilities and amenities, needs no explanation. The new Government of Free India, is, however, much too much preoccupied with the more urgent problems arising out of Partition to be able to devote immediate attention to these suggestions or take in hand such long-term programmes of reconstruction. But their enunciation is valuable, not only as pointer for the road lying immediately ahead, but also as definite steps to be taken, measures to be devised, means to be provided, if the goal is to be reached.

K. T. SHAH.



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Printed by Kantilal N. Bhatt at the States' People Press, Fort, Bombay
and published by M. K. Vora for Vora & Co., Publishers Ltd., Round
Building, Bombay 2.