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WORKERS' EDUCATION

TIME and again it is urged from the platforms that a machinery has to be evolved to enable the participation of the workers in management.

The dearth of sound and responsible leadership at the different levels of working class has been felt keenly by those who work for the welfare of the industrial workers.

The need for greater discipline and a tenacity to work hard to increase the quantum and quality of the turnover of workers has been well recognised by those who strive for increase in production and efficiency.

Cooperative participation in the management, responsible leadership and discipline of workers can be based on either fear or knowledge.

Under totalitarian systems, the aforesaid factors may be achieved by engendering fear, but in a democratic system, they can be nurtured and cultivated only by enlightenment borne out of knowledge.

In the United Kingdom and other countries, it is common for young workers to attend evening classes in educational institutions especially catering to their needs. Facilities so offered for self improvement of workers will be an asset that will yield rich dividends before long.

JANUARY - FEBRUARY, 1962

THREE

OUR INDUSTRIAL MEN

SIR JEHANGIR GHANDY

GHANDY, SIR JEHANGIR - Born 1896; Director - in - Charge : The Tata Iron & Steel Co. Ltd., Jamshedpur, 1954. Graduated with Honours in physics and Chemistry, Bombay University; Post-graduate studies at School of Business Administration, Columbia University, New York, and Metallurgical and Steel Works Engineering at the Carnegie Institute of Technology, Pittsburgh. Member : Iron and Steel Institute, Great Britain; Fellow of the Institute of Fuel, Great Britain. Member : Council of the Institution of Engineers, India.

Joined the Tata Iron and Steel Co. Ltd., as Metallurgical Engineer, 1921; General Manager, 1938, Director - in - Charge, 1954.



DIRECTOR :	Tata Sons Private Ltd;	CHAIRMAN :	The Indian Tube Co. (1953) Ltd;
"	Tata Industries Private Ltd;	"	West Bokara Ltd;
"	Tata Engineering & Locomotive Co. Ltd;	"	Belpahar Refractories Ltd;
"	Bisra Stone Lime Co. Ltd;	"	Tata / S & L Sales Ltd;
"	Tinplate Co. of India Ltd;		

MEMBER : Board and Governing Body of Council of Scientific and Industrial Research;
 " Board of Governors of Indian Institute of Technology, Kharagpur;
 " Court of Governors of Administrative Staff College and National Institute of Management;
 " Indian Advisory Committee of the Nuffield Foundation.

Sir Jehangir was made a C. I. E. in 1941 and knighted in 1945. He was made an Honorary Lt. Col. in the Territorial Army in 1952 and an Honorary Colonel in April 1957. He was awarded the Padma Bhushan on the Republic Day, 1958.

Industrial INDIA

The Jay Engineering Works Limited Calcutta

The Company came into operation in the year 1935 and shifted to the existing premises in 1938. Before the War they were manufacturing only a few hundred Sewing Machines, which had to be suspended as they were called upon to help war production during the years from 1940 to 1944.

After the cessation of the last World War in 1945 they started reorganising the factory for the manufacture of Sewing Machines and Electric Fans.

In the following years the Company had to pass through various difficulties for want of trained personnel, Plant and Machinery and raw-materials. But under the inspiring guidance of its Chairman, Sir Shri Ram, Kt., the Company marched ahead and today it has become the biggest manufacturer of Sewing Machines and Fans in the country. They have also the proud privilege of building the largest single unit Fan Factory in the world.

The covered space for the Sewing Machine plant is 7,50,000 sq.ft. and that of the Fan factory is 3,00,000 sq.ft.

Sewing Machines

They are manufacturing 25,000 machines per month of various types, including industrial sewing machines. They are also making sewing machine needles.

Electric Fans

In the new factory, they are manufacturing Electric Fans. Their present production is at 50,000 fans per month. This is being increased to 75,000 per month. Their product range varies from Ceiling Fans to Table, Pedestal, Cabin, Air Circulators, etc.

Total Capital invested

Rupees Eighty Million in both the Plants.

Output Value

Rupees Eighty five Million per year.

Fixed Capital

Approximately Rupees Thirty million

FURTHER MANUFACTURING PROGRAMME

Sewing Machines

Automatic Zig-zag, semi-automatic, Straight Stitch machines, new Universal Streamlined Domestic and Link model machines are being developed. These will be available for export market.

Electric Fans and Motors

Fractional H. P. Motors — they are already making 1/10th and 1/8th H. P. Motors and have also designed Universal motors for sewing machines. They will be in production in another 3 months' time. New models of Ceiling and Table Fans are further being brought into bulk production.

Strength of Employees

5,000

Feeder Units

Foundry — A semi-automatic foundry has been converted into a complete automatic unit to produce 1,250 tons of castings per month.

Present production : 900 tons per month.

Number of Employees : 600. After automation the number will come down to 350.

60 % of the plant has been fabricated locally.

Laminated Board Manufacture

To meet their demand for furniture for Sewing Machines they have set up a separate Plywood Unit to manufacture Plywood sheets and Laminated Boards.

Ancillary Units

They have developed over 250 ancillary units by giving them technical know-how, raw materials, tools and in some cases machinery, to supply components and parts for both the factories.

These units employ nearly 5,000 people and they purchase goods worth Rs. 12,00,000 per month from them. These units are situated within a radius of 8 / 10 miles.

Raw materials

For both their products, i.e., Sewing Machines and Fans, mostly indigenous raw materials are used. Only special alloy steels are being imported which come to about 5 % of the total cost.

Industrial Relations

Their greatest capital is human capital. Ever since the inception of this enterprise they have found in their employees a great fund of goodwill and willing co-operation but for which this expansion could not have been possible. They have an agreement with Jay Engineering Workers' Union and have clarified the areas of responsibility of Management and that of the Union along with grievance procedure. They have had no strike since the very inception of the factory.

Incentives and Bonus

All their employees are rewarded individually or on group basis through various types of incentive plans. Over and above this direct production incentive, management gives to the extent of 1/3rd of the nett annual profits as profit sharing bonus to all employees.

The total average earnings of their employees come to over Rs. 285 per month per worker.

Amenities

They have a subsidized canteen. They charge for full meal 1/3rd of the cost. Their factory is covered under State Health Insurance Scheme. They have built about 500 two-roomed tenements and charge nominal rent. They have workers' News Bulletins, Workers' Club, Library, Dramatic Club, Sports Club, Provident Fund Scheme, Co-operative Credit Society and Annual Fair when all members of the families of the employees visit the Factory and have lot of fun.

Training

They have a training school to train all levels of operators. They also operate a supervisory training scheme. Facilities are given to their executives and workers to have specialised training in India and abroad.

Design Office

They have specialised designers to design new products, special purpose machines, jigs, fixtures and small tools.

Tool Rooms

They have very well-equipped tool rooms for both the factories, employing nearly 400 skilled tool makers to produce all their requirements of special purpose machines, jigs, fixtures and small tools. They had to spend comparatively much higher amounts on the capital outlay on this department, as from outside very little help in the form of tools and equipments is available in the country.

Prototype Section

They have a separate Prototype Section where new products are developed and prototypes built. This section is under a German specialised designer. They have about a dozen qualified engineers working in this section for development of new methods and new processes, under the guidance of the German Engineer.

Industrial Engineering

This section is responsible for handling of materials, plant lay-out, work measurement, and application of various productivity techniques and has helped considerably in reducing the cost of production.

Statistical Quality Control

They have been using S. Q. C. Techniques for the last 7/8 years and have incorporated it in the Inspection Department.

Suggestion Scheme

Under this scheme they not only invite suggestions from the workers for improvement and

effecting economy in their manufacturing processes but also put before them their problems and invite their suggestions. Very ingenious and useful devices and ideas have been put forward at all levels. Employees are rewarded for such suggestions. There is great enthusiasm due to a feeling of participation in the working.

Our Third Five Year Plan

They are fixing their goals still higher when they propose to set up another Sewing Machine Factory of similar size to produce fully automatic Zig-Zag, Semi-automatic and Straight-stitch Sewing Machines. They have further plans to diversify their product line by introducing the manufacture of sealed units for refrigerators and air-conditioners with foreign technical collaboration.

They are also enlarging their production of Fractional H. P. Motors to 20,000.

Their estimated target of production will be at a level of 200 million rupees per year. As against their export target of Rs. 12.5 million for the year 1960/61. They propose to enhance their exports to the tune of 60 million rupees in the coming years.

They have gathered considerable experience in the production technology, especially in mass manufacturing methods. This experience and the goodwill of their people will help them to attain their targets with ease.

They believe that exports for them are very vital; they cannot pay for the capital, plant and machinery including imported raw materials without exporting their goods. Their demand for imported plant and machinery, including raw materials, will go on increasing with the development and diversification of their lines.

As a matter of fact, the demand of consumer goods all over the world is ever expanding and in our country all the more so. They feel they have a very bright future and have an important role to play in the country's economic growth and industrial development.

SALES ORGANISATION

Within the Country

They have a wide network of over 1800 selling points and 1400 servicing centres spread throughout the country, where trained mechanics are in attendance. Their aim is to reach every village with a population of 5000 where they shall have their sales and service arrangements.

Tailoring and Embroidery Schools

They did not restrict their activity only to manufacture of sewing machines, but also thought it their duty to educate the women who will evidently use these machines in the art of sewing and embroidery. With this aim in view they started opening Usha Tailoring & Embroidery Schools throughout the country. They have now over 725 such schools running in the country and abroad where over 50,000 students are getting training under the supervision of highly trained teachers.

Servicing

They maintain trained mechanics at every selling centre for rendering quick service to their customers. They have also provided Mobile Vans to move into the remote villages for giving free service on the spot. Besides, regular "Service Weeks" are organised at various centres.

Exports

Company started exporting Sewing Machines and Electric Fans in the year 1948-49. The export during the first year (1948-49) was 469 Sewing Machines and 331 Electric Fans. The exports in the year 1959-60 were 41,930 sewing machines and 43,858 electric fans, valued at Rs. 82,51,573. With the rise in production and in view of the country's need for foreign exchange, the Company embarked on a dynamic export drive in the year 1957. This has involved heavy expenditure by way of frequent travels by Company's representatives to various foreign markets. The competition in the export market has also been severe. It has particularly called for a lot of courage and sacrifice to

introduce and establish export of Sewing Machines to highly industrialised countries like the U.S.A., Canada, U.K. and European countries.

The export figures for the last two years show that their dynamic export activity has produced tangible results. For instance, they exported a total of 57,490 sewing machines during the 9 year period of 1948-49 to 1957-58. Their export figure for the 2 years period (1st April 1958 to 31st March 1960) is 65,697 sewing machines. This means an increase of about 15% in export during these two years over the total export of first 9 years

Similarly, they exported a total of 44,503 electric fans during the 9 year period of 1948-49 to 1957-58. Their export figure for the two year period (1st April 1958 to 31st March 1960) is 65,465 electric fans. This also means an increase of about 25% in export during these two years over the total export of first 9 years.

Comparing on a year to year basis, 1958-59 registered an increase 80% in export over the year 1957-58. The year 1959-60 represents an increase of about 89% over the year 1958-59.

Main Market

They are represented in most of the countries throughout S. E. Asia, Middle East, Africa, U. K. and the Continent as well as U. S. A. and Canada.

The broad split-up of Sewing Machines export in percentage, is given below:—

48% to U. K. & Continent

25% to Middle East

15% to South East Asia

6% to Africa

6% to U. S. A. & Canada

The broad split-up of Electric Fans export in percentage is also given below:—

55% to S.E. Asia

36% to Middle East

9% to Africa

Future Plans

They had set for themselves the following export targets for the year 1st April 1960 to 1st March 1961:—

Sewing Machines ... 100,000 Nos

Electric Fans ... 75,000 Nos.

This in terms of money amounts to an export of over 15.5 million rupees.

ADVERTISING

Company's activity in the field of advertising in India and abroad is explained below

In India

They are one of the leading advertisers in the country. Apart from the conventional methods of advertising, such as showing of films in cinemas, fixing of big hoarding boards and fixing large and

small Neon-Sign throughout the country, they have also undertaken some additional and equally effective means of publicity.

They are publishing three Magazines (a) *Usha Sewing Club*—for the benefit of those who sew at home. (b) *House Journal*—known as *USHAVANI*. This magazine gives the news about Company's activities in various fields. (c) *Technical Journal*—known as *Technical Digest*. It deals mainly with subjects of technical interest relating to Sewing Machines & Fans production.

They have evolved an original style of medium and small size exhibitions. These exhibitions consist of a variety of portable equipments which are carried to the nook and corner of the country for the purpose of demonstrating their products to the people in small towns and rural areas. They also display in these exhibitions garments and embroidered articles to popularize the art of sewing and embroidery in the country.

Abroad

Company sets apart a budget every year for advertising her products abroad. Products are sent for display in various International Exhibitions in which India participates. Sewing and Embroidery Schools are presently being run in Thailand, Singapore, Federation of Malaya and Ceylon to popularise their Sewing Machines in these countries.

MODERN MANAGEMENT IN A CHANGING ECONOMY

By
DICK CARLSON

Dick Carlson, a partner of Rogers, Slade & Hill, a well-known American management consulting firm of New York City, has been in management consulting work since he first opened his own office in San Francisco in 1931.

During recent years he has specialised in the areas of organisation, executive development and over-all management controls and he has covered a wide variety of major assignments in the fields of finance, insurance, distribution, manufacturing, mining, and transportation, as well as management consulting assignments in the U. S. A. Federal Government, and in many large cooperatives in the U. S. A. Canada and Europe.

One of his recent assignments was the position of President of the American National Growers Corporation and American National Foods, Inc., nation-wide marketing organisations in the U. S. A.

Mr. Carlson is a member of the faculty of the Graduate School of Credit and Financial Management, which is conducted at Stanford University each summer by the Credit Research Foundation. He is the author of "Management Functions and Policies"; "Planning Your Future"; "Guideposts for Evaluating Management Performance"; "Management Controls in a Changing Economy"; "Developing the Management Team" and numerous other management papers and reports.

INTRODUCTION

First, let's take a look at the changes which are taking place in five major areas which have a definite bearing upon the changing economy and the management of co-operatives. Of special interest for the discussion are:

- (1) population; (2) productivity;
- (3) innovations; (4) automation
- and (5) marketing.

1. Population

The population in the U. S. A., for example, is increasing at the rate of 4 - 5 million a year. It is forecast that the population will be 190 million by 1965 (a 20% increase), and 220 million by 1975 (a 40% increase). Other countries are having similar increases in population and each manager should be aware of the impact of those population changes have upon his operations, and how they affect his long range plans.

2. Productivity

In the area of productivity, Mr. Ralph J. Cordiner, President of General Electric, (U. S. A) has stated that: "By 1965 GE will have to produce and sell twice the volume with only 11% more people on the payroll; because of decreased hours, we will have to produce twice as much for every payroll hour".

Mr. Cordiner has also stated: "Not customers, not products, not plants, not money, but MANAGERS may be the limit on General Electric's growth."

3. Innovations

"Improvement in living standards," says Peter Drucker, in his books, "America's Next 20 years," is a result of innovations ... without constant innovations we would still be living at the 1750 standard of living.

"A shortage of innovations rather than a shortage of capital is what keeps an 'underdeveloped country' undeveloped.

"During the past ten or fifteen years, the basic innovations that have *caused* a major impact on the American economy were nearly all non-technological ... only one can even remotely be called an innovation in product or productive process: i. e., material handling."

4. Automation

The technological revolution of the second half of the twentieth century is automation, just as the assembly line and mass production brought about a revolution in industry during the first half of this century. It is predicted, however, that automation may develop faster in the second half of this century than the assembly line did in the first half of this century.

"Automation involves an over-all analysis of the business and a complete re-design of the operations on automation principles. Piecemeal replacement is not possible under automation, and the concept that labour is a current expense which fluctuates with volume is obsolete under automation.

"In the era of automation, the greatest need will be in management; the manager will have to be highly educated in the handling of systematic knowledge," says Drucker. He further states that: "In an automated business the intuitive manager is obsolete."

5. Marketing

As you know, dynamic changes are taking place in distribution methods. Modern management brought about a change of viewpoint, particularly in the distributive fields, which has caused many revolutionary changes in various industries affected.

Changing a company's operating objective, from "a net profit on sales" to "a net return on invested capital" can have a dynamic effect upon many phases of its operations.

The function of marketing research and the development of the position of Director of Marketing has also had a dynamic impact upon the activities of many companies that have adopted

modern marketing techniques, practices, and policies.

The Evolution of Modern Management

Professional management and modern management have evolved very rapidly during the past 25 years. Briefly, until approximately 1840 the only way a person became a manager was to own the business. Gradually organization of large companies began to develop and the men who controlled them were largely promoters, capitalists, and attorneys. About 1890 combinations of corporations began to evolve and the lawyers came into ascendancy as the chief executive of the newly formed syndicates. Legislation which began about 1910 affected further combinations of corporations so that as changes took place up to approximately 1920 bankers and the stock manipulators rose to the ascendancy as the heads of large co-operations. By about 1940 the modern professional manager began to emerge; in some cases considerably earlier than this. It might be said that professional management and modern management, as it is known today, has developed largely within the past 25 to 40 years.

Another type of ownership is now developing through the control of investment trusts; pension funds; insurance funds, etc. The professional investment managers for these owners of large blocks of capital are not interested in gaining a position of management control in an operating company or a place on its Board of Directors; but they quietly move their clients' investment funds from companies, industries, products, and geographical areas where returns (or future returns) on capital are not as attractive as they should be to other areas that offer more attractive returns.

This quiet movement of large blocks of investment capital to industries, individual companies, and managements than can insure investors an adequate return of capital will continue to have a tremendously dynamic effect upon the techniques and the art of modern management; it will certainly accelerate the growth and the requirements of professional management in the years to

come, and it will also accelerate the development of new concepts of business organization, production, distribution, personnel management, finance, and management measurements and controls.

In the period ahead there will be greater and greater need for innovations in methods, tools, and techniques for measuring management performance, and the development of management competence, as well as innovations in various technological areas. In this era of modern management many products, services, methods and practices that have been successful in the past are now becoming obsolete, as rapidly as the propeller type airplane is becoming obsolete in the jet age.

Now, let's ask ourselves: WHO is management? Is it just the Manager and the Department Heads? Does it include the board of Directors? Does it include Supervisors? Anyone else? It is the consensus of recognized authorities that the term "Management" includes:

"All persons in any organization who are officially vested with authority and accountability for directing those who get work done."

This concept says that "Management" includes the Board of Directors, the Manager, department heads, and all others who are responsible for supervising the work of others.

Finally, let's ask ourselves: WHAT is the Job of Management, and what are the purposes of management controls, in a changing economy?

You are probably familiar with a number of different definitions of management, but, for purposes of this discussion, may we put it this way:

The job of Management requires the ability to:

1. *visualize* results desired; interpret needs and markets ... forecast significant trends and identify major problems.
2. *Establish* objectives, policies, and criteria for measuring results ... formulate plans, programs, and related controls.

3. *Attain* results through people ... build and maintain a sound organization, competently staffed.
4. *Look* for improvements ... appraise results; make decisions; effect remedial action.
5. *Develop* subordinates ... understand people; inspire confidence; motivate teamwork; maintain respect, discipline, training, and morale.

To state it another way —

The *first* job of management is to visualize results desired; interpret customer needs and potential markets for its organization's services; to evaluate its current operating position; to identify and forecast significant areas and trends, and problems related thereto.

Forecasting is foreseeing anticipated actions; predicting significant trends, interpreting what future results are indicated (one, three, five, or ten years hence) based upon past performance and foreseeable changes, and determining the most effective areas within which strategy decisions must be made.

The *second* job of management is to develop and establish objectives, policies, programs, budgets, and whatever other basic controls are necessary for governing the administration of an organization's affairs most effectively.

In doing this most effectively, the Chief Executive (president or general manager) must coordinate and direct the abilities of his staff; utilize the benefits of group thinking, consultative management, and other modern management techniques that are available today.

Objectives are the goals we hope to attain; the end results desired. Every organization needs to periodically review and clarify its objectives; to make certain that its objectives, when attained, will be the realization of the satisfactions desired by all concerned.

The *third* job of management is to attain results through people. This requires an entirely

different set of skills than those required in order to get results through our own efforts. Some of the skills are, for example, "How to plan, lay out, and make work assignments most effectively; how to instruct; how to improve methods; how to maintain good human relations; how to delegate responsibility and maintain controls; how to conduct conferences and meetings; and how to utilize most effectively the power of 'group thinking' in the solution of operating problems."

The *fourth* job of management is to "look for improvements," continuously. This requires awareness, the desire to make improvements, and skill in appraising performance for conformity with established criteria and standards; to recognize and initiate the need for changes, and to effect remedial action wherever indicated. It requires the ability to break down each job for which an executive or supervisor is responsible and to answer such questions as:

1. "What is the purpose of this job; why is it necessary?"
2. "Where should it be done; when should it be done; who should do it?"
3. "How should it be done?"

Improvements require change. Changes are often painful, but there is no improvement except through change.

The *fifth* job of management is to develop subordinates — those who report directly to each respective executive and supervisor. This requires another set of special skills and abilities such as (a) how to secure the highest productivity with a minimum of effort; (b) how to conduct individual appraisals of work performance; (c) how to provide individual guidance and counsel as necessary, and (d) how to conduct effective personal follow-through until job satisfaction and desired improvements are accomplished.

An analysis of the major *management problems* in many organizations indicate that most of the, problems of management arise from a few basic causes.

Probably the underlying cause of more operating problems than any other single factor is the lack of adequate management objectives, policies and controls, established at the level of the Board of Directors.

Many executives get so busy with day-to-day activities that they don't schedule, set aside, time for investigating and analyzing the fundamental *causes* of their problems; or the Board of Directors do not take time to establish adequate objectives, policies and controls required to evaluate the overall results of staff performance, to assure the Board that the results for which the Board and the Staff are each accountable are being achieved.

Another viewpoint of modern management is the concept that "Management" breaks down into three major areas:

1. The Management of People
2. The Management of Things
3. The Management of Money

Each of these distinct areas require specific management skills, knowledge, and interests.

An organization's *future* welfare depends upon the actions of its Board of Directors — the soundness and expediency with which Board decisions are determined, interpreted, and carried out by the staff.

Still another concept of modern management is a recognition of "five major functions" which have been identified as follows:

- I. Planning
- II. Organization and Staffing
- III. Direction and Leadership
- IV. Coordination
- V. Controls

I. PLANNING

Ever since the days of the Rochdale pioneers, co-operatives have been struggling with the problem of management. In fact, during the entire history of co-operative effort co-operatives have flourished or fallen by the wayside, largely because of effective or ineffective management. Some co-operative organizations were fortunate in finding and retaining good managers in the early days who began to demonstrate the importance of sound organization and good management to co-operative success.

What is Planning?

Planning is *foreseeing* anticipated achievement; *foreseeing* problems and developing solutions. Planning is the fact-inspired thinking, dreaming, and scheming necessary to determine our objectives and to lay out the road maps we expect to follow.

Good management starts with planning, be it co-operative or any other type of business. To look ahead is the beginning. All history of co-operative progress shows that advancement has been made only through careful planning.

Planning bridges the chasm between where we are now and where we want to be. "The leader conceives the things for which he strives as things already attained."

So, co-operative management today needs to determine tomorrow's objectives ... what to do, who is to do it, and when it is to be accomplished.

A major problem for many top executives is how to control and manage one's time and energy. It is fundamental to good planning by top management and each executive must solve this problem for himself. Recently the operating vice president of one of our largest corporations made an analysis of the things that waste executive's time. In summary, they are:

1. Unsatisfactory or unfavorable working conditions.

2. Griping and complaining

3. Poor attitude toward the job.

4. No personal plan of growth.

5. Lack of clear-cut policies.

6. Inadequate job descriptions.

7. Executive impulse.

8. Unwise division of responsibility.

9. Ineffective supervision

He went on to analyse the controls that will help executives to do a more effective planning job. They are:

1. Plan the day's schedule.

2. Establish priorities.. Who does what? When?

3. Avoid detailed supervision by teaching subordinates.

4. Maintain a list of objectives, a daily diary, a fact book, a yearly calendar, and a budgetary control program.

5. Make appropriate and effective use of meetings and committees.

6. Plan and project annual objectives quarterly.

If top management carries out its over-all responsibilities, it will see to it that each successive level of management completes its phases of specific and short-range planning necessary in order to accomplish the objectives and programs established for the organization as a whole.

Such planning includes setting up and developing objectives, policies and programs; identifying and solving problems; determining ways and means to reach established objectives, and arranging the sequence of steps and schedules of activities to attain the desired end results.

So taking time out for proper planning means much time saved in the long run and fewer management problems.

Actually, the function of planning is general and very broad. It includes formulating objectives, purposes, policies, standards, and practices. It also calls for the development of controls that direct current activities in line with approved objectives.

Planning then breaks down into four major areas-general, specific, long-range, and short-range. The higher the echelon of management, the more it is concerned with long-range planning - the trends that affect the long-range future welfare of the co-operative, and the development of the organization's over-all objectives, policies, programmes, structure, staffing and other administration problems in the organization's affairs.

Accurate answers to the 10 key questions on the following chart will give you a profile of how well the job of management planning is done in your organisation.

Then, management can determine the areas where their planning should be improved.

Planning includes setting up and developing objectives, policies and programs; identifying and solving problems; determining the best, easiest, and quickest ways and means of reaching established objectives, and arranging the sequence of steps and schedule of activities necessary for the accomplishment of desired end results.

Place a check mark in those spaces which indicate your true appraisal of your present attainment in each of the areas listed below.

1. **Objectives and Policies.** Are clear-cut statements of the Company's over-all objectives and policies released and interpreted; Are policies reviewed periodically and kept up-to-date? _____
2. **Basic Controls.** Are organizational and functional charts, manuals, and other basic controls released and maintained on a current basis? _____
3. **Plans and Programs.** Are current statements available which project the organization's major financial, sales, production, operating and/or other plans and programs ahead for the next one, three, and five years? _____
4. **Budgets.** Are annual operating budgets reviewed and projected quarterly; Are reports regarding conformity to Budget issued regularly and remedial action effected as required? _____
5. **Cash Requirements.** Have cash requirements been planned so that the organization will be adequately financed to meet its needs for the foreseeable future? _____
6. **Markets.** Have adequate marketing analyses been completed which portray the potential sales volume or service requirements of the organization over the next several years? _____
7. **Growth and Development.** Have adequate statements and plans for growth and development been prepared and are they kept up-to-date? _____
8. **Product Improvements.** To what extent have adequate research plans and programs for product improvement been developed; to what extent are they effective; kept-up-date; projected toward long-range objectives? _____
9. **Staffing Needs.** Are current plans and programs adequate for meeting Management's staffing needs during the next two, three, five years? _____
10. **Summary Reports.** How satisfactorily do Summary Periodic Reports to the Board of Directors portray the organization's operating results in conformity with objectives, programs, and schedules as approved by the Board? _____

[illegible]

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A. Base of Good Management

Sound organization creates the pattern - the framework, no less - that vitally affects the performance and effectiveness of all members of management. This is a lesson already learned by many large businesses. One leading industrial executive says, "More than 40 years of practical experience and observation in both government and industry have convinced me that the most shocking wastes of human spirit and capabilities occur through poor organization ... most defects in organization arise from disregard of a few fundamental laws."

1. Highly-paid staff members spending time doing jobs what do not require their specialized training and experience.
2. Responsibilities, authorities and accountability are incorrectly balanced; there is uneconomical division and/or duplication of work.
3. Departments and sections do work which should be centralized to service groups; unnecessarily complicated routines are involved in the accomplishment of simple and less important jobs.
4. Unnecessary reports, statistics, records, etc., are maintained.
5. Auditing and management controls are *not* maintained effectively.

Step 1. *Clarify* in writing the over-all objectives, purposes, and end results desired for the organization as a whole - the summary results of the total money, personnel, and facilities utilised by the organization.

Step 2. *Determine* what major *activities* are necessary in order to accomplish the desired objectives and end results.

Step 3. *Group* these activities into closely related functions in conformity with the specialized abilities, interests, and skills of "functional teams of personnel" whose efforts can be most effectively co-ordinated, integrated and controlled. This grouping must be simple ; it must be tailor-made for each organization, accepted by those persons affected, and contribute to the :

- a. Maximum effectiveness of economy of total operations.
- b. Ease of direction, co-ordination, and control.
- c. Most effective utilization of the *total* work force.
- d. Maximum utilization of each employee's highest abilities, skills and interests.

Every executive position in the organization should, in so far as possible, be related to the performance of a single leading function, for which he is held accountable.

- e. Future growth and development of the organization with a minimum of changes in the basic structure.

The structure as a whole and each part thereof should be specifically related to the accomplishment of definite objectives and purposes, and must create a pattern, or climate, which encourages :

- Every function and every position in the organization should be prescribed in writing - accurately, briefly, and clearly.
- d. Ease of communications, up and down and across all organizational levels.
 - e. Optimum productivity, morale, and job satisfaction on the part of every person in the organization,

- a. *Develop* the “ideal” organization structure in conformity with principles indicated in Steps 1 to 4.
- b. Identify the major problems and differences between the “ideal” structure and the present structure; analyze viewpoints,

c. Review the potential utilization of the present staff; resources, facilities, markets, services, products, etc., and determine, in priority of importance, what would be the most practical and beneficial improvements that can be made immediately. Then develop a tentative schedule of subsequent changes.

- Staffing is also a function of organization and the top executive should establish and direct the maintenance of basic controls required to assure high standards governing the selection, the compensation, and the development of his key staff and subsequently through them the selection, compensation and development of supervisory personnel and all employees throughout the organization.

By applying the ten tests of organization and staffing in the following chart, a co-operative may rate itself - and identify quickly where any improvements should be made in the areas of organization and staffing in order to bringing about desired performance in the organization as a whole.

Sound organization creates the pattern – the framework, no less – that vitally affects the performance and effectiveness of all members of management. Most defects in organization arises from disregard of a few fundamental principles. The function of organization includes both *structure* and *staffing*.

1. **Accountability.** Is each department organized around the achievement of a major company objective for which *a single executive* is held finally responsible and accountable in conformity with definite standards ? _____
2. **Authority.** Is there a clear line of formal authority running from the top to the bottom of the organization ; Does everyone know exactly to whom he reports, what he is accountable for, and what standards he is required to meet ? _____
3. **Progression.** Do all positions within each department, and the company as a whole, provide a natural ladder of progression and increasing scope so related in sequence of difficulty that at all times employees are in training for advancements as vacancies occur ? _____
4. **Relationships.** Have all functional responsibilities, relationships, and authorities been clarified ; Are lines of command, sources of advice, and channels of communication definite and clear-cut ? _____
5. **Effectiveness.** Does the Organization Structure (pattern) creat a climate that encourages maximum executive performance, effectiveness, and accountability ? _____
6. **Duties and Responsibilities.** Are the objectives of each organizational unit and the duties and responsibilities of every position within the organization prescribed in writing ? _____
7. **Qualification Requirements.** Have qualifications standards for each position been prescribed in terms of specific knowledge, skills, and personal qualities required ; How effectively are they being used for the selection and promotion of qualified employees ? _____
8. **Compensation.** Have compensation standards been prescribed in terms of position classifications, grades, and adequate pay ranges applicable to every position in the organization ; How effectively are they being administered ? _____
9. **Utilization.** Is each executive and supervisor held finally responsible for the selection, compensation, development, productivity, and morale of all persons who report to him ; for the maximum utilization of the highest abilities, skills, and interests of each employee within his jurisdiction ? _____
10. **Performance Appraisals.** Is a systematic program of periodic appraisals of executive performance at all levels carried out effectively ; does Top Management require and use adequate analyses of the results of such appraisals ? _____

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STORES CONTROL

(Continued)

By

an INDUSTRIAL ENGINEER

STORES RECORDS

The following records are commonly maintained by many concerns in this country.

- (a) Bin card-showing quantities only
- (b) Stores Ledger - showing quantities and money values of each item.
- (c) Goods received ledger.
- (d) Stores Requisitions or Indents
- (e) Return to store Note.

A number of intermediate registers and note books are sometimes maintained for interim postings and records. Many of these can be eliminated if proper clinical procedures are instituted.

Form design is a field which has received very little attention in India. As long as the necessary information is available, most managements do not bother about keeping neatly designed forms which facilitate record keeping and achieves economy in stationery.

The stock card should be maintained at the stores and contain the following columns.

- (a) Date.
- (b) Reference Number (i.e. Indent Number, order Number etc.)
- (c) Quantity Ordered
- (d) Quantity Received.
- (e) Quantity Issued.
- (f) Balance Stock.
- (g) Rate per unit of item (money value)
- (h) Initials of clerk posting the entry.

When a new consignment of material is received, the unit rate should be revised as follows:-

- (a) Value of stock in Hand of No unit at previous rate — Rs. V_0
- (b) plus Value of fresh supply of N units — Rs. V
i. e. Value of $(N_0 + N)$ units = Rs. $(V_0 + V)$
- (c) New unit rate = Rs $\left(\frac{V_0 + V}{N_0 + N} \right)$.

These particulars may also be shown on the Stock Card.

The following particulars may also be shown on the stock card itself or another card kept along with it ;

- (a) Average monthly or quarterly consumption.
- (b) The order level and minimum level (these are described later in this paper)
- (c) The order quantity for achieving optimum economy.

The most convenient and efficient method of housing these cards is in visible index pockets kept in trays, which are housed in cabinets as sets of about 20 trays. Coloured indicators can be used to readily indicate the stock position of each item and it is easy to highlight overstocked items, depleted stocks etc. Very attractive designs are marked by various office equipment concerns.

As soon as the stock level of any item reaches the order level, the stores department should advice the purchase department to arrange for supplying the order quantity by the time it is required in the stores. A copy of the purchase order may be sent to the stores for information.

The goods received register may be eliminated provided the processing and handling of Delivery challans and invoices are attended to efficiently. Where there are delays in paper work, this register may be useful.

For purposes of financial accounting it is considered adequate to record in one ledger account the financial aspects of all transactions in regard to one class of material. The stores items should be divided into ten to fifteen groups with a ledger account for each group. A separate account for each item is un-necessary.

All issues, transfer or return to stores of materials should be covered by separate records, viz Requisition, Transfer Note and Return to stores Advices respectively. These should be prepared in quadruplicate (or triplicate) and copies sent to the following sections after certification by stores :

- (a) Accounts sections } The same copy can
- (b) Costing section } some times be used by
- (c) Stores copy to be retained at the stores. } these two sections.

- (d) Book copy to be retained by the department requiring the material. It is advisable to use a distinctive colour for each copy.

These records should contain the following particulars :—

- (a) Name of item and size or type and stores Number.
- (b) Quantity required and quantity issued.
- (c) Job Number or Work Order Number.
- (d) Unit rate and balance stock (to be entered by stores).
- (e) Serial Number, Date and the Department concered.

The stock card should be promptly posted from these records and the current unit rate of each item and the balance stock should be posted on the accounts and costing copies of these records.

INVENTORY CONTROL

While standardisation aims at reducing the variety or the number of different stores items, inventory control aims at reducing or minimising the quantity of each item carried in stocks consistent with overal economy and efficiency. The need for carrying stocks and the disadvantages of large stocks were mentioned at the beginning of this article. We are now concerned with effecting a compromise between the two conflicting approaches.

From the inventory control aspect, all stores items do not have equal importance and it is advisable to classify the items into a few groups.

The following table is prepared covering all the items in the stores.

Item No.	Average usage per month (units)	Cost per unit (Rs)	Usage cost (Rs)
(1)	(2)	(3)	(4) = (2) × (3)
P — 1	60	6—00	360—00
P — 2	100	1—00	100—00
P — 3	20	25—00	500—00
P — 4	300	0—20	60—00
—	—	—	—
—	—	—	—
—	—	—	—

The results obtained from the above table should be grouped as shown below :—

Group	Usage Cost Range	No. of Items	% age of Items	Total usage Value of Items (Rs)	% age of Value
A	Rs. 1000/- Rs. 400/-	156	10.6	1,12,750/-	61
B	Rs. 400/- Rs. 100/-	327	22.3	42,450/-	23
C	Under Rs. 100/-	985	67.1	29,300/-	16
Total		1,468	100	1,84,500/-	100

The following conclusions are finally evident from this table :

(a) Group A of 156 items is 10.6% of the total number of items, claims 61% of the total usage value. These items should therefore be closely controlled, preferably item by item.

(b) Group B comprises 22.3% of the total number of items and covers 23% of the total usage value. The 327 items in this group therefore deserve only a lesser degree of attention.

(c) Group C. 67.1% of the items come within this group but its value is only 16% of the

total usage. An overall control would be adequate for this group.

In regard to each item of stores the following quantities have to be established :

- Order point (or order level)
- Order quantity.

ORDER POINT

Order point is that quantity of stocks in hand at which action has to be initiated in order that the materials would be delivered at the stores just as the stock level reaches the minimum to be carried as a reserve for the maximum possible rate of consumption and delays in supply. The lead time is the time interval between action to re-order is initiated and the time the material is received at the stores.

$$\text{Order level} = \left(\text{Average rate of consumption} \times \text{Average lead time} \right) + \text{Minimum level}$$

$$\text{or} = \text{Maximum rate of consumption} \times \text{Maximum likely lead time}$$

The order level and maximum level can be determined from the above two equations on the basis of estimated average and maximum rates of consumption and the average and maximum lead times.

ORDER QUANTITY

A number of factors have to be considered in determining the most economical quantity to be ordered. Some of these are related to the value of inventory carried and the rest to the frequency of placing orders.

The following items are directly linked with the volume of stocks carried and the annual cost of each, expressed as a percentage of the average inventory value, should be determined. Typical values are shown below for guidances only; the actual values have to be determined in each case and for each type of material, if necessary.

- Storage costs ... 3%
- Interest on investment ... 10%
- Depreciation ... 3%
- Deterioration and Obsolescence ... 1%
- Insurance ... 0.5%
- ... 17.5%

The cost of processing an order and completing the clerical work involved is more or less constant for an order irrespective of the quantity ordered. Trade discounts are also larger in case of bulk orders. The cost factors decrease as the quantity per order increases.

An analytical method of determining the economical order quantity is given below. The following data are assumed in regard to a particular item:—

- Annual requirement — 3000 pieces
- Lead time — 22 days
- Average daily requirement 10 pieces
- Maximum daily requirement — 14 pieces
- Estimated maximum lead time — 30 days
- Cost of handling one order — Rs. 10/-
- Inventory carrying charges — 17.5%

The following deductions can now be made;

- Order Level = $\left(\frac{\text{Max. daily requirement}}{\text{time}} \right) \times \left(\frac{\text{Max. lead time}}{\text{time}} \right)$
= $14 \times 30 = 420$ pieces
- Minimum Level = Order Level — $\left(\frac{\text{Average daily consumption}}{\text{time}} \right) \times \left(\frac{\text{Lead time}}{\text{time}} \right)$
= $420 - 10 \times 22 = 200$ pieces
- Average Inventory = $\frac{\text{Standard order}}{2} + \text{Minimum level.}$
- The unit costs and inventory value for different order quantities are given below.

1. Order quantity	100	200	500	1000	1500
2. Ordering expense per unit (in nP)	10	5	2	1	0.66
3. Estimated price per unit allowing discounts (Rs)	5.20	5.18	5.15	5.12	5.10
4. Average inventory in units	250	300	450	700	950
5. Value of Average Inventory	1,300	1,554	2,318	3,584	4,845

The total annual costs corresponding to the different order quantities are analysed below:—

1 Order quantity	100	200	500	1,000	1,500
2 Purchase cost (i.e. 3000 X unit price)	15,600	15,540	15,450	15,360	15,300
3 Ordering expenses (i.e. 3000 X cost per unit)	300	150	60	30	20
4 Inventory carrying charges (i.e. 17.5% of Average inventory value)	228	272	405	627	846
5 Total cost	16,128	15,962	15,915	16,017	16,166

N.B.- 3000 is the annual requirement of the item.

Since the total annual cost is a minimum (at Rs 15,915/-) for an order quantity of 500, this should be considered the most economical figure.

A number of other formulae for determining the most economical order quantity are also used. The formula suggested by Killorin (Modern Materials Handling - Vol 10) is given below :

$$Q = \sqrt{\frac{2CA}{K}}$$

Where Q - order quantity, in money value.

C - ordering cost per order

A - Annual consumption in terms of money value.

K - Inventory carrying charges as a percentage of average inventory value.

INVENTORY TURNOVER

A useful index of the efficiency of inventory control or materials utilisation is the inventory

turnover ratio, i.e. the number of times the inventory is utilised during the year. In the case considered above, the annual consumption being 3000 units and the average inventory is 450 units (for the most economical order quantity of 500 units), the inventory turnover ratio is 6.67 (i.e. 3000 divided by 450)

This ratio may vary from about 5 to 20 depending on the type of material and the industry concerned. For any one item or class of items, an increase in this ratio indicates better control inventory and vice versa.

INVENTORY VERIFICATION

Two systems of inventory verification are practised viz:

- (a) Perpetual verification
- (b) Periodical verification

The latter is more common and is usually done once or twice a year. This requires the services of a number of persons so that the verification is completed in a short time and often hampers normal operations to some extent.

The better and more efficient method is perpetual inventory verification; a few items are checked daily so that during the course of an year, each item is checked atleast two to three times. The physical inventory as well as the corresponding records should be checked. Any discrepancy or variance between actual stock and the book value should be immediately investigated and a report submitted to the Management.

Excess stocks of any item should also be reported to the Management. If any item is heavily over-stocked in relation to the anticipated rate of its consumption it may be advisable to consider disposal of the surplus. Scrap and waste material should also be regularly disposed of. This will release money blocked up in investment on these and also relieve storage space.

If a system of perpetual inventory verification is operated by a competent person, then the stores organisation can be maintained at a high degree of efficiency throughout the year.

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Designing for quality Control

BY

A. C. BHATTACHARYA,

A. M. I. P. E., A. M. A. I. I. E., A. M. I. LOCO. E.

Sri A. C. Bhattacharya, Asst. Production Engineer, Eastern Railway Workshop, Kanchrapara, served his initial apprenticeship in the same workshop. After that during the II World War he was working with the Civil Maintenance Unit at Kanchrapara. He has associated himself with the Production control work in various capacities. In 1960 he went to U.S.A., U.K., and other continental countries for training in Industrial Engineering under the National Productivity Council's Training Programme. He was the Editor of the journal of Apprentice Engineers, Kanchrapara. His articles have been published in various technical magazines both in India and abroad.

Production, marketing and financial plans are the traditional tools by which alert management stays competitive. To-day, however, success depends considerably upon another important factor - control of quality. Improved product salability comes more from better product quality, since poor quality is remembered long after cheap price is forgotten.

In the process of production there are certain variables which affect the quality of the product. For example there are the variations in the raw materials used with regard to their physical properties, finish, and dimensions; machines and tools are subject to wear, and there is the human factor with different degrees of skill and aptitude. A systematic control of these variables is what has been known during all these years as quality control.

To-day quality control means something more. It does not confine its activities to the shop floor, as the inspection function used to be, but starts with product design and ends only when the product reaches the customer and meets with his satisfaction. The quality control effort recognizes that the determination of quality and of cost actually takes place through the entire industrial cycle.

Quality Control Activities.

A proper system of quality control is based essentially on the following major activities:

- (i) Design Control;
- (ii) Control of incoming purchased parts and raw materials;
- (iii) Process control.
- (iv) Storage Control;

- (v) Reject salvage programme; and
- (vi) Control of quality costs.

The design control aims at making the product right from the very start. The activities in this sphere take the form of:

- (a) Determining standards of quality required in the product. This work is carried out by the quality control engineers in conjunction with the design engineers keeping in view the end-use of the product, and the product acceptability. Process capability, evaluation of customer quality preferences and determination of prices customers are willing to pay for these preferences are the relevant factors considered at this stage.
- (b) Planning the inspection standards. It involves determining what has to be checked and how? Dimensional standards and the degree of accuracy required, standards of finish, characteristics of the product, and tolerances and allowances, which provide the key to interchangeability, are set to guide the inspectors.

Inspection equipments to-day range from the simple gauge to complex electronic testing. Human judgment is not always reliable and mechanical aids have therefore come into play either to replace or supplement the human element. Depending on the product to be inspected, the determination of proper inspection equipments to be used, is an important function of the design control for quality. The possibility of designing inspection and testing equipment that can be physically integrated with manufacturing equipment to permit the machine to check its own work is also explored at this stage. Automatic gauging, balancing, and the like are cited as instances in point. The equipments used are themselves subject to wear. The need for their care and regular attention has also to be catered for at the planning stage.

In determining the methods and procedures to be used for inspection, they are to depend upon

the type of inspection applied in the organisation. Where possible inspection is to be carried out as near as possible to the workplace and at points where it has been found that defective work most often occurs.

While process inspection has gained favour over the Shop centralised inspection system, the modern tendency is to go in for statistical sampling plans where mathematical theory is applied to the measurement of variability of manufacture and for obtaining rules which guide the action necessary to reduce the variability. 100% repetitive inspection apart from the cost factor involved, has its, fatigue and hence limits its effectiveness. Acceptance sampling procedures and control charts the essential tools in statistical quality control, eliminate this fatigue and provide better information regarding reasons for quality troubles.

Incoming Material Control

In this area, a system has to be evolved for a very close co-ordination between the purchasing department and the quality control department. The acceptance of lowest quotation cannot always be a right step in this connection. It was Ruskin who wrote long ago: "There is hardly anything in the world that some man cannot make a little cheaper. People who consider price only are this man's lawful prey."

The quality control department should report on the quality performance of the present suppliers to the purchasing function, depending on which the question of future placement of orders on them, is to be regulated. This system induces quality consciousness amongst the suppliers and may ultimately result in establishing quality-certification programme or guarantee system by the suppliers themselves eliminating thereby the necessity of in plant incoming inspection.

The work of the incoming material control should extend to the evaluation of the quality capability of the potential suppliers to provide facts that assist purchasing to select quality-conscious manufacturers.

Quality control people should be allowed to work with the suppliers to make them understand the quality control requirements of the purchase orders they have to execute.

However efficient the organisation, there may be a considerable waste of time and material if there is no proper system of incoming material control both with regard to the inspection of parts and raw materials purchased as well as to the establishment of good quality relationships with suppliers.

Process Control.

Studies in the quality capability of machine tools and other manufacturing processes with the help of statistical techniques constitute an important function of the quality control department. They not only provide data for the product design to minimize rejects and scraps but also determine the method and tooling to be used for improved processing methods.

By analyzing complex in-process quality problems that have been fed back to it by inspection and test, it is possible to eliminate defects and develop improvements in quality levels.

They also help in detecting where the standards set have been too high and may be brought down much to the advantage of a reduction in costs.

Storage Control

In designing for quality control, adequate protection against product deterioration, contamination and damage of both incoming and finished products during storage, should be provided for.

Careful handling of the products, their storage before issue or despatch, proper system of identification to facilitate the correct issue of the material are some of the points to be considered in this connection. Keeping the products rust- and corrosion-free, is an important function of the storage control.

Indoor and outdoor storage for materials and products should be left to the quality control department to decide.

Reject Salvage Programme.

One of the important factors in quality control is the reject salvage programme. Although quality control aims at the prevention of defective work, but it is usually impossible to do so, for which a salvage programme become necessary to prevent undue wastage of material and man power.

A study of rejected parts may reveal that, in a number of cases, it is possible to rectify them by re-working. Where this is not possible a system of "reduce to produce" is attempted, when the products are stripped off and serviceable parts taken out for re-use. In certain cases, the products which are sub-standard may be sold off under concession. When all these attempts fail, the material is scrapped and either sold, or returned to the store for recovery of the basic material.

There is a natural tendency to take the easy way and use the best material when available, but no one relishes the time when its stock dries out and salvaged parts are the only source of supply to fall back upon.

Quality Consciousness.

Designing for quality control will remain incomplete if arrangements are not made to build quality consciousness among the people. Although quality is everybody's job in business, in the process of manufacture, ofcourse, it is the shop operators who really count. Unless quality rates high enough in their minds, it is difficult to achieve success in the matter. One of the important features in quality control is its aim to build operator responsibility for, and interest in, product quality. This may be done by letting the operator know what they are supposed to do, what they are in fact doing, and what they can do to improve quality.

As a regular feature effects of faulty workmanship on subsequent processes and on the final

product should be explained to the operator so that they learn to appreciate one another's difficulties. They should also be informed with regard to the end-use of the product in order to foster pride in workmanship. As a means of generating interest among the men, their ideas should be solicited off and on. Suggestion-award scheme, quality campaign week are some of the effective channels to receive such ideas.

Setting up plant quality committee to find out ways and means for getting the attention of the operators in quality matter, and generating their interest through contests, posters and other advertising features, is another step in this connection.

Lastly, in line with the modern management techniques, control for quality should take the form of:

- (a) Setting specific goals
- (b) Organising for effective team work
- (c) Delegating responsibility, authority and accountability for full performance; and

- (d) Measuring and providing for feed back results.

Working conditions including lighting, proper work station layout and cleanliness and tidiness in the work shop play an important part in maintaining high morale, without which good quality work is unlikely or may be impossible. Elimination of congestion resulting from bad planning and orderly housekeeping are other influencing factors to be considered in this connection.

It is an age of specialization. From manpower to management and methods to machinery, all effort has become increasingly pinpointed towards its most effective channel. This is equally true in the field of quality control. Training the quality control people in detecting quality problems quickly and correcting them promptly before they become costly is an important phase in designing for any effective control in quality. To-day quality control effort means having highly qualified and specialized people and not a body of "police-men" as they used to be too often in the past.

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Associate Director

Institute of Social Sciences Loyola College, Madras.

THE "MAN" IN MANAGEMENT

From 15th to 17th November, the National Productivity Council, the Madras Institute of Management and the Madras Productivity Council presented "A Seminar on Personnel Management and Industrial Relations". The Seminar took place in the L. I. C. Building, Madras in ideal conditions for cool thinking and lofty views. The members of the team were: Mr Saul M Silverstein who after a very successful career as professor and engineer, is now President of Rogers. Among his many other qualifications he is the recipient of the Human Relations Award for 1961 and is Vice-President and Director of the Council for International Progress in Management (USA), Inc. Mr. John D. Foster has held many important management posts and is at present Director of Personnel for the

Port of New York Authority. He is also Vice-President and Chairman of many Boards and Committees for management. Mr Walter J. Burke is a trade unionist of 25 years standing. He is at present District Director and member of the international executive board of the United Steel Workers of America, one of the largest unions in the U.S.A. He is also on a number of governmental boards and committees. Mr. Richard W. Humphreys belongs to the "brainy" tradition in trade unionism. He is the Education and Research Director of the Allied Industrial Workers Union, America. In addition he has had considerable teaching experience in industrial relations.

The objective of the Seminar was a "free exchange of ideas and experiences" on the role of

management and unions, considered as both groups and individuals, and on the many problems of industry, particularly on production. About ninety participants from labour and management took part, most of them actively, in the discussions. The Seminar was highly successful, especially in respect to stimulating ideas and raising problems for the lively discussions that followed. The Seminar Team proved to be a happy combination of varied and practical experience, sound theory, a good sense of humour, and a natural ability to elicit interest.

Naturally each one profited from the Seminar according to his previous back-ground and his present status. But there could have been few subjects discussed which did not increase the knowledge of both management and labour. In



Welcome speech at inaugural session by Sri. K. P. Ramaswamy, President of the Madras Institute of Management

fact, one of the fruits of the Seminar was the realisation that, at bottom, the problems and interests of management and labour are the same and are dominated by human values rather than by technical procedures. As just remarked, each one was more struck by a given point than by another according to his occupation. Few of the participants, however, were not impressed when they were told that bad industrial relations are "always, always, always," to be blamed on management and that if management reforms itself then industrial relations re-adjust themselves automatically. To many also

it was an eye-opener to learn how the one-three year agreement is discussed, drawn up and signed by management and union alone. The fact that government was not there dictatorially to lay down rules, regulations and agreement was a pleasant surprise.

Mr. Silverstein spoke from many years of experience when he explained how, through constant personnel contact and monthly meetings with union representatives, he maintained a very high standard of industrial relations in his own factory. How to achieve such happy results was well demonstrated at the end of the sessions by the screening of a remarkable film, taken during the actual discussions for the annual agreement between management and labour in Mr. Silverstein's own plant. The film was made from a "live" T. V. showing of the discussions, the participants not knowing when they were appearing on the screen and when they were not. This fact conveyed great reality and conviction to the whole preceeding. Once again, there was favourable comment on the absence of government representatives during collective bargaining. This seems the appropriate time to insert Mr. Silverstein's warning to Indian management that they should not constantly appeal to Government for help in their difficulties instead of tackling those problems themselves. A constant recurrence to Government, he remarked, always results in handing over to Government more and more controls over Business, according to him, a very undesirable state of affairs.

Mr. Foster raised interest on all the topics with which he dealt, particularly so when he dwelt on the use of psychological tests for selection and training at all levels, but especially from foremen upwards. The use of these tests has become routine procedure in large American concerns. The Rorschach (Ink-blot) test, he said has proved useful in eliminating undesirable types, but it has not proved so useful in selecting the best type. Moreover, this test arouses opposition since in the U. S. it is the standard test employed in mental hospitals. The Rorschach has been largely substituted by the

Thematic Aperception Test, an ambiguous set of pictures to which the candidate gives the explanation he thinks suitable. All were intrigued to hear of "Sensitivity Training", a two-weeks course for management, claiming to transform choleric, raving, raning, impossible managers and directors into the very very model of a modern manager general.

A very distorted picture of the proceedings were the impression conveyed that interest was exclusively centred on management problems. Trade unionism claimed an equal share in the interest of all. In treating these questions, Mr. Burke impressed the audience by the clarity and method he employed while the profundity of Mr. Humphreys' reasoning provoked lively discussions. The union members of the Team, while making no uncalled for concessions, brought out, clearly how responsible unionism has become, how very up-to-date in its knowledge of current economic problems and how this responsibility and knowledge is manifested during a crisis. The management members of the Team stressed how they preferred to deal with a union that had all the facts and could argue its case coherently and intelligently. This, evidently, is a great improvement over the fist-shaking, abuse-shouting proceeding of a not very distant past.

Unlike the Indian bargaining scene, the American setting is not cluttered up with a number of unions in the same factory. One factory, one union and one bargaining agent is the general rule. If more than one union tries to get control of a factory, the contest is settled by a democratic knock-out vote. The union having the majority vote becomes the sole representative of labour in that concern. If at any time an agreement on an industrial dispute cannot be reached by union and management, they then agree to arbitration. The two parties choose their own arbitrator out of a list of names of uneven number. They also share on a 50-50 basis in Paying the fees of the arbitrator. And they usually conclude by accepting his verdict as final and binding. This is a further step in settling a dispute without governmental intervention.

All the discussions during the Seminar brought out the paramount importance of the human element the "man" in management. (Philologists will shudder at this use since "man" in management comes from the Latin *manus*, a hand. But the slogan is clear in its meaning and serves its purpose). No production scheme - or any other scheme - that fails to give first place to the human element in industry will succeed. Certain schemes may be brutally forced along at the expense of human consideration. This can only be for a time. It is not only right to give priority in planning to men, but it the only method that in the long run is successful and pays. During the Seminar, all the arguments brought out by management and labour only served to emphasize this important aspect.



Mr. Saul M. Silverstein addressing the participants

Since the Seminar was a real success it will bear the weight of a few critical remarks. Apparently not all the participants realized that the Team had been in India only a few weeks and had come, as they explicitly stated, to share their knowledge and experience of American management and union so that the participants themselves might apply the knowledge to Indian conditions. Time was wasted by a few participants in either endeavouring to instruct the Team on their own special views or in airing their own ideological preoccupations. If the Team, or some one else acting for them had been a little less forbearing with these quite useless interruptions, valuable time would have been saved.

(Contd. on page 34)



EXECUTIVES

G. B. RAMASARMA

Born: February 20, 1915.

Educated at Andhra University, B. Sc. (Hons) in Chemistry, 1936; carried out research work in the Biochemistry Department of the Indian Institute of Science, Bangalore from 1936 till joining in March 1943 as biochemist in the laboratories of Messrs. Raptakos, Brett & Co. Ltd., Bombay; obtained Ph. D. of Bombay University in 1949. Elected Associate of the Royal Institute of Chemistry in 1944 and Fellow in 1949. Did post-doctoral research at University of Wisconsin, Madison; University of Illinois, Urbana; and Washington University, St. Louis, Mo. U. S. A. during April 1948-December 1950. Contributed several papers on nutrition, biochemistry and pharmaceuticals (Particularly on vitamins, liver extract and microbiological essays) to Indian and foreign scientific journals and obtained 6 patents. Editor of the Indian Journal of Pharmacy since 1954. Member of the Development Council for Drugs and Pharmaceuticals, and the Pharmacy Council of India.

Present position and address: Director and Chief, Research & Control Division, Raptakos, Brett & Co. Private Ltd., Worli, Bombay-18.

OF INDIA

Mr. B. P. AGARWALLA



Born at Jharia on 12th July, 1910.

Educated at St. Xavier's College, Calcutta. Chiefly interested in Coal Mining and Refractory manufacturing. He is the Chairman of Indian Mining Federation, Calcutta and Dhanbad Productivity Council, Dhanbad. He is the Committee Member of the Federation of Indian Chambers of Commerce & Industry, New Delhi. He is also a member of the Mining Geological & Metallurgical Institute of India The Geological Mining & Metallurgical Society of India, Divisional Railway User's Consultative Committee, E. Rly., Coal Transport, Coal Distribution and Coal Production Advisory Committees, Rotary Club of Dhanbad and Calcutta Polo Club.

He is the Director of:

1. Seebpore Coal Co. Ltd.
2. Bengal Nagpur Coal Co. Ltd.
3. North West Coal Co. Ltd.
4. B. P. Agarwalla & Sons (Private) Limited.
5. Dhansar Engineering Co. (Private) Limited.
6. Jharia Firebricks & Pottery Works (Private) Limited.
7. Indian Carbon Ltd., Calcutta.

He has attended 5 International Conferences as a representative from India. Several of his articles have appeared from time to time in leading News papers and Magazines on Mining and other matters.

Contd. from page 31)

And the Team itself could have been more outspoken in its criticism of the defects of Indian management and unionism which must have been apparent during the discussions. Doubtless, both



A section of the participants at the Seminar

as guests and newcomers to the country, in these days of international touchiness and recrimination they felt obliged to steer clear of hearty condem-

nation of defects they observed, lest they run into some fierce opposition. But since the participants had come, *ex professo*, to learn and improve themselves and their methods, they ought to have been ready and gracious enough to hear criticism of their defects in industrial relations.

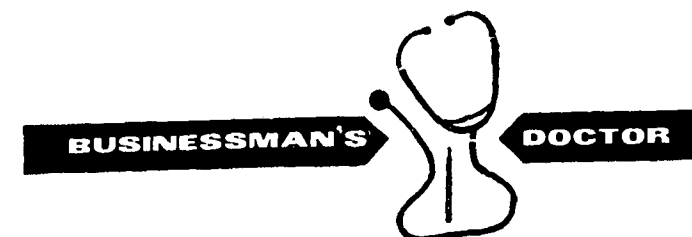
Perhaps the very brevity of the Team's visit precluded any very hard hitting. And so it can only be hoped that they come again and give us a very welcome repeat performance. As one participant remarked, it is only on looking back after it was all over that one realises that a lot more was learnt and assimilated than appeared while the sessions were in progress. This fact alone proves the worth of the Seminar, for while facile, flash-in-the-pan brilliance produces no lasting results, hard-headed thorough, down-to earth discussion, carried on with grace and honour, have lasting results.

A GOOD TRAINING PROGRAMME

An effective apprenticeship programme, as recommended by the Federal Committee on Apprenticeship, should provide for the following.

- * the starting age of an apprentice to be not less than 16
- * a schedule of work processes in which an apprentice is to receive training and experience on the job.
- * organized instruction designed to provide the apprentice with knowledge in technical subjects related to his trade. (A minimum of 144 hours per year is normally considered necessary).
- * a progressively increasing schedule of wages
- * proper supervision of on-the-job training with adequate facilities to train apprentices
- * periodic evaluation of the apprentice's progress, both in job performance and related instruction, and the maintenance of appropriate records
- * employee-employer cooperation
- * recognition for successful completion

(Excerpt from an article on "National Apprenticeship Programme" appeared in December '61 issue of "American Labour Review".)



GROWING GRACEFULLY INTO MIDDLE AGE

It is hard to say when, a person reaches middle age and it is still harder for the person concerned to realise that he has reached middle age. It might be that he suddenly hears someone referring to him as the 'old man' or it might be, he finds, that people around him are younger than what they used to be or worse still, it might be that he finds his own 'middle' increasing in circumference.

The average person takes the onset of middle age with good humour and he might even consider himself quite lucky that he has reached this age without any serious mishap. In fact if, the person handles 'middle age' well it might turn out to be the best and most productive period of his life.

A few changes in middle age and how best to combat them will be considered here.

First of all, there is a slowing down of the pace of life. There is a slowing down in walking, talking and other physical activities. The tolerance to physical exercise is much lower than what it used to be and the person gets breathless more quickly. In general, there is a limitation to all physical activity and there is no getting away from that fact. These limitations do not matter in the

least and there is no mark of greatness of courage in pretending to be what we, are not. A sensible way to counteract limitations like agility, strength, and speed can be learnt from a famous tennis player who remained a champion even in his fifties by pitting the craft he had learnt against the suppleness and brute force of men less than half his age. An agility of the mind is more useful than an agility of the body.

The second most visible change in middle age is a coarsening and wrinkling of the skin and there may be even patches of discolouration. This fact might be more of a problem to women than men, but even then, it might present a problem to sensitive men and a skin specialist in combination with a Geriatrics specialist might help really bad cases.

More than skin troubles, a very annoying affliction to aging men or may be even to fairly young men, is the onset of baldness, though the famous American film star Yul Brynner has made baldness quite fashionable. The Greeks called the receding of hair from the forehead a "noble baldness" as it indicated a sign of great learning and wisdom. The greying of hair is also a charac-

teristic of middle age and hiding these facts can be only a supreme folly as no one can be deceived by adopting, disguises and therefore it is much wiser to accept these signs of middle age gracefully and with a bold front.

The next great change noted in middle age is a deterioration in memory and in the keenness of imagination. Musicians and poets are said to reach their peak of production by the age of thirty but very few of us live on imagination (least of all businessmen) and therefore this fact need not worry us.

More serious changes can take place in middle age but these changes unless they reach a pathological level need not trouble us if we learn to live a well regulated life with a calm acceptance of age.

I feel the best way to accept middle age is to consider it your friend and not your enemy. To win the game, it has to be played well. Of all the dangers in middle age, cynicism is the worst danger. It is destructive to the individual and those around him. Negative and unproductive attitudes in middle age are rooted in fear and resentment. It may be fear of losing one's good looks, good position or power or the waning of bodily power or even the fear of diseases. It can be a fear of death, loneliness or the fear of being unwanted especially by grown up children. All these fears give a feeling of insecurity, jealousy of the young, and finally a feeling of self pity and resentment. These frustrations and disappointments lead to nothing useful. "Acceptance" is the key word to a happy and successful living at any stage of life especially so in the middle age. This means the acknowledgement of the real limitations that the added years inevitably bring without exaggerating them or seeing them, where they do not exist. Without wasting time one has to cut his losses with good grace and count up the assets. Middle age has its compensations. As Winston Churchill said of the war, so it can be said of middle age—"It is not the beginning of the end but the end of the beginning."

What about limitations? There is an old Spanish saying that a man is either a fool or a physician at forty. By middle age one ought to know what he can do and what he cannot. Men in their middle age can keep going a long time provided they do not work themselves in the pace they did fifteen years ago. Kagawa the Japanese wise man says "Happy, is he who knows how to toil contently within the range of his possibilities".

A balanced life is what we should aim at next. "All work and no play makes Jack a dull boy" or to quote Shakespeare.

"If all the year were playing holiday.

To sport would be as tedious as to work"

Work alternating with rest or recreation is necessary for life at any age. Men have a habit of working until they reach a breaking point ending in neurosis, thrombosis or suicide. It is not merely love of money or the love of power that makes them drive themselves so hard, but it is a feeling of insecurity. Some of the most successful men in the world are those who have such hobbies as painting or drawing.

The next factor is discipline in a balanced manner. Discipline in diet, exercise, work or pleasure should be the watch word. Many of us have an indiscriminate way of eating large quantities. This should be curtailed. By middle age most of us need very little food and that must be perfectly balanced with less of fat and carbohydrates. Exercise too should be equally limited. In the same way work and the different forms of pleasure should be limited. Even while disciplining oneself there is no use in making it an obsession as in that case it might do more harm than good.

A balanced and disciplined life with the calm, mental acceptance of one's limitations is a happy and sure way to grow gracefully into middle age.

News & Notes.

TRAINING PRACTICES IN AMERICAN INDUSTRY

With every change in technology and the employment of new machinery, the skills required of the factory worker have also been changing. There has been a rapid increase in the number of skilled and semi-skilled workers in the labour force, while the number of manual workers has been decreasing.

To keep industry supplied with the requisite number of trained workmen elaborate training programmes have had to be adopted. Both workers and employers in American industry are interested in training.

All Parties Interested

The individual worker is interested because training helps him to make good on the job and gives him an opportunity to advance to a better or more responsible and better paid position.

Organised workers and union officials are interested in training because it improves their bargaining position. Employers are interested because training improves the skills and knowledge and hence the productivity of the workers.

Management is interested in training particularly designed for specific jobs. It looks upon such training programmes as an investment that will pay back greater production. Therefore the training must be channelled to where it is going to be of most use. It must either improve the performance of the worker in his present job or it must prepare him for another job.

Various Methods Used

Since such training programmes call for co-

operation from the workers themselves, the methods are varied to meet different situations and different individuals.

Most large industrial plants have a training department, sometimes as part of some other department but in many cases set up as a department by itself. The job of the training department is to help the operating departments decide who should get the training and what sort of training should be given.

The area which management usually finds most profitable is the training of supervisors. A recent study shows that out of a large number of companies questioned, three out of four were conducting training courses for supervisory staff.

Another area in which many companies have conducted training for many years is in the field of craftsmanship. Here are found not only the workers whose training takes the longest time (on an average as much as four years) but also the people who are most likely to go on to supervisory jobs. The training of these workers is customarily through apprenticeship; and their training, both on the job and in related theoretical subjects, is usually laid out in considerable detail.

Orientation of New Employees

Another type of training programme commonly adopted by industry is for the orientation of new employees. This is a sort of breaking-in process, by which the workers are taught not only the specific jobs they are hired to do but also

something of a more general nature concerning purposes and services of the plant as a whole, how it serves the public, its relations with its employees, and the bearing that each worker's job has upon every other.

The practice of labour-management co-operation in setting up training programmes for workers is increasing throughout the United States. The chief reasons for its success are that training is a matter in which both parties have a genuine interest and a common purpose; and that the problem of training does not give rise to any conflict, as it can be discussed apart from such questions as wages and fringe benefits.

In most cases the training programme is developed by a committee equally representative of the employers and the employees concerned. It is generally understood, however, that the

administration of the programme is management's job.

The top labour-management committee in the field of training is the Federal Committee on Apprenticeship, a group appointed by the Secretary of Labour, to represent the interest of labour, management, and education and to advise him on matters relating to industrial training.

In all of the construction trades and several of the graphic arts trades, there are national joint apprenticeship committees composed of representatives of the employer association and the union.

These national committees develop and project policy on training for the guidance of the local employer and union groups which bargain in their respective trades. Several of these national committees have budgets, directors of apprenticeship, and staff to carry out the various duties.

TRADE AND INVESTMENT OPPORTUNITIES IN MALAYA

A Trade Delegation from Malaya recently discussed with the Government of India the possibilities of increased trade between India and Malaya. The delegation also handed over to the Ministry of Commerce and Industry a list of industries which have been or are being set up in Malaya. It is understood that in regard to new industrial undertakings the initiative is left to private parties-Malayan or foreign. The Delegation informed the Government of India that once a project was approved land is made available at a cheap rate and there is a tax holiday for five years. Protection is also granted after taking into consideration the nature of the industry in question. Besides the development of new industries is likely to create opportunities for supply of equipment components, materials etc., from India.

Indian Businessmen can make use of these opportunities and for this purpose it might be desirable to have their representatives in Malaya. Reproduced below is a list of Industries which are proposed to be developed in Malaya. For further information you may kindly contact the following authorities:-

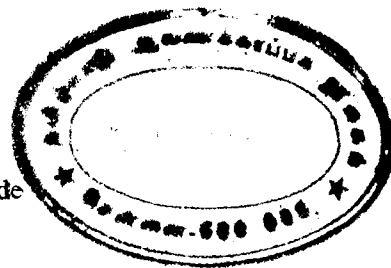
1. The Industrial Development Division, Ministry of Commerce and Industry, Federation of Malaya, **Kuala Lumpur.**
2. The High Commission for India in Malaya, **Kuala Lumpur.**

Schedule of Pioneer Industries / Products as on 30th September 1961

- | | |
|---|--|
| <p>(a) Abrasive Manufacture
Bones, grinding and polishing stones.</p> <p>(b) Agricultural Machinery
1. Agricultural implements suitable for attach-</p> | <p>ment to light and medium horse power tractors including trip dump scrapers, rotary cutters and grader blades.</p> <p>2. Power Driven Lawn Mowers</p> |
|---|--|

3. Self-propelled Rotary Cultivators
4. Tractor-mounted heavy duty Rotary Cultivators.
- (c) **Apiculture and Honey Products.**
 1. Bee colonies
 2. Bee-Keeping equipment
 3. Bee wax
 4. Honey, natural
 5. Other honey products
- (d) **Asbestos Cement Products**
 1. *Asbestos Cement Fabricated Products all types*
 2. *Asbestos Cement Sheets, All types.*
- (e) **Battery**
 1. *Dry Cells, All types including Radio Batteries.*
 2. *Flash light Batteries.*
 3. *Lead Acid Accumulators, All types*
 4. *Parts for the manufacture of Lead Acid Accumulators*
- (f) **Brewing and Malting**
 1. *Beers*
 2. *Stouts*
- (g) **Building**
 1. Plaster Boards and Acoustic Ceiling Boards
 2. Prefabricated Housing Units
- (h) **Cable and Wire**
 1. *Cable Accessories and Fittings.*
 2. *Land and Submarine Cables, Wires and Conductors, All types.*
- (i) **Coir Manufacture**
Mats, ropes and other allied products.
- (j) **Sweets, Chocolates and Toffees.**
- (k) **Container**
 1. Composite Containers of Cardboard and Metal
 2. Corrugated and Solid Fibre board Cartons and Fittings thereof.
 3. Corrugated and Solid Fibre board Sheets.
 4. *Decorated Metal Containers.*
 5. Metal Containers, All types made of Steel Sheets.
 6. *Processed Food Containers.*
- (l) **Chemicals**
 1. *Abrasive Scouring Powder*
 2. *Acetic Acid*
 3. *Adhesives and Glues*

4. Aluminium Sulphate
5. Aluminium Potassium Sulphate
6. Ammonium Chloride
7. Ammonium Sulphate
8. Bleaching Powder
9. Calcium Carbide
10. Carbon Black
11. Carbon Dioxide
12. Carbon Dioxide (Dry Ice)
13. *Cement and Concrete Admixtures and Surface Treatments.*
14. *Chemical Animal Feeds*
15. Chlorine
16. Chlorinated Rubber
17. Cleansing and Scouring Products
18. Composite Building Blocks
19. Disinfectants.
20. *Ethyl Alcohol*
21. Floor Polishes, strippers, sealers and cleaners in paste, cream, liquid, cake and powder form.
22. *Formic Acid.*
23. Furniture Polishes in paste, cream, liquid, cake and powder form.
24. Germicide
25. Glutamic acid waste containing organic nitrogen suitable as adjuncts for soya sauce manufacture.
26. Industrial Acids (Other than Sulphuric, Formic and Acetic)
27. Liquid Ammonia
28. Liquid Anhydrous Ammonia
29. *Matches*
30. Mosquito Repellent Coils
31. Mineralising chemicals for timber preservation
32. Naphthalene Balls and Tablets
33. Shoe Polishes and Cleaners in paste, cream, liquid, cake and powder form.
34. *Sodium Glutamate*
35. Sodium Hydroxide
36. Sodium Silicate
37. Starch
38. Sulphur
39. *Sulphuric Acid*
40. *Synthetic*



- | | |
|------------------------------------|---|
| 41. Titanium Dioxide | 2. Domestic Refrigerators |
| 42. Urea | 3. Electric Irons, Kettles and Toasters. |
| 43. Zinc Oxide | 4. <i>Self-Contained Packaged Air-Conditioning Units and Air Conditioning Plant Components.</i> |
| (m) Diamond Polishing | 5. Standard Fans |
| Polished Diamonds. | 6. <i>Table Fans</i> |
| (n) Domestic Electrical Appliances | 7. Washing Machines |
| 1. Air Conditioning Units. | |

WHAT IS THE ASIAN PRODUCTIVITY ORGANIZATION ?

THE APO is a productivity organization composed at present of eight Asian countries, namely, Republic of China, India, Japan, Republic of Korea, Nepal, Pakistan, Philippines, and Thailand. It was formerly established on May, 26, 1961, and is non-political, non-profit making, and non-discriminatory in character. Other Asian governments may be admitted to membership in the Organization by becoming parties to the Convention.

Objective

The objective of the Organization is, by mutual cooperation to increase productivity in the countries of Asia. The APO seeks to gain this objective through the adoption of new and progressive attitudes of mind and new productivity techniques, and through a concerted drive among Member countries to improve and strengthen their national productivity efforts.

Activities

In the fulfilment of its objective the Organization may - -

1. Institute programs for the adequate development of productivity on the knowledge, experience and constitutions of other organizations and specialized agencies.
2. Furnish, on application by a Member information and advice without reserve for implementing productivity programme initiated or proposed by that Member.
3. Periodically survey and assess the progress made on the various productivity programs of Members and promote cooperative research and studies for solving the productivity problems of Members.
4. Assist Members to establish, strengthen and constantly improve their respective national productivity programs.
5. Establish and maintain or assist to establish and maintain Regional Centers on specialized aspect of productivity as its budget will permit.

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