Project Management and Entrepreneurship Development
This book is a part of the course by Jaipur National University, Jaipur.
This book contains the course content for Project Management and Entrepreneurship Development.

JNU, Jaipur
First Edition 2013

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<td>ANC</td>
<td>Ancillary Industries</td>
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<td>ARR</td>
<td>Average Rate of Return</td>
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<td>CFTRI</td>
<td>Central Food Technological Research Institute</td>
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<td>CM</td>
<td>Configuration Management</td>
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<td>CMS</td>
<td>Change Management System</td>
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<td>CPM</td>
<td>Critical Path Method</td>
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<td>DIC</td>
<td>District Industries Centre</td>
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<td>ECAFÉ</td>
<td>Economic Commission of Asia and the Far East</td>
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<td>EFT</td>
<td>Earliest Finishing Time</td>
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<td>EOU</td>
<td>Export Oriented Units</td>
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<td>EST</td>
<td>Earliest Start Time</td>
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<td>FICCI</td>
<td>Federation of Indian Chambers of Commerce and Industry</td>
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<td>GERT</td>
<td>Graphic Evaluation and Review Technique</td>
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<td>HT</td>
<td>High Tension</td>
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<td>IDBI</td>
<td>Industrial Development Bank of India</td>
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<td>IRR</td>
<td>Internal Rate of Return</td>
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<td>KVIC</td>
<td>Khadi and Village Industries Commission</td>
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<td>LFT</td>
<td>Latest Finish Time</td>
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<td>Marketing Development Assistance</td>
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<td>MSME</td>
<td>Micro, Small and Medium Enterprises</td>
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<td>MUN</td>
<td>Mahila Udyan Nidhi</td>
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<td>NABARD</td>
<td>National Bank for Agricultural and Rural Development</td>
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<td>NAYE</td>
<td>National Alliance of Young Entrepreneurs</td>
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<td>NIESBUD</td>
<td>National Institute for Entrepreneurship and Small Business Development</td>
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<td>NISIET</td>
<td>National Institute of Small Industries Extension Training</td>
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<td>NMCC</td>
<td>National Manufacturing Competitiveness Council</td>
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<td>NPV</td>
<td>Net Present Value</td>
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<td>NRDC</td>
<td>National Research and Development Corporation</td>
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<td>NSIC</td>
<td>National Small Industries Corporation</td>
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<td>OCBs</td>
<td>Overseas Corporate Bodies</td>
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<td>PERT</td>
<td>Programme Evaluation Review Technique</td>
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<td>PMRY</td>
<td>Prime Minister’s Rozgar Yojna</td>
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<td>PURA</td>
<td>Provision of Urban Amenities in Rural Areas</td>
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<td>SSI</td>
<td>Small-Scale Industries</td>
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<td>SSSE</td>
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<td>STEP</td>
<td>Science and Technology Entrepreneur Parks</td>
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<td>SWOT</td>
<td>Strengths Weakness Opportunities and Threats</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>TCO</td>
<td>Technical Consultancy Organisation</td>
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<td>TREAD</td>
<td>Trade Related Entrepreneurship Assistance and Development</td>
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<td>TRYSEM</td>
<td>Training of Rural Youth for Self Employment</td>
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<td>VCI</td>
<td>Village and Cottage Industries</td>
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Chapter I
Project Management

Aim
The aim of this chapter is to:

• introduce the concept of project
• explain project life cycle
• explicate the need for project management

Objectives
The objectives of this chapter are to:

• explicate the phases of project management
• elucidate the objectives of project management
• explain project formulation

Learning outcome
At the end of this chapter, you will be able to:

• enlist the terms related to CPM
• understand project appraisal and evaluation
• define project report
1.1 Introduction
A project simply means an investment opportunity exploited for profit. It is an idea or a plan which is intended to be carried out or a finite task to be completed. In Gillinger’s words, “Project is a whole complex of activities involved in using resources to gain benefits.” The World Bank defines a project as “an approval for a capital investment develops facilities to provide goods and services.”

1.2 Project Life Cycle
The project is initiated to achieve a mission and is said to be completed when the mission is achieved. The project lives between these two cut off periods and this intermediate time is called Project Life Cycle. Project life cycle consists of the following three stages:

- **Pre-investment phase:** It is concerned with formulation of objectives, demand forecasting, evaluation of input characteristics, selection of strategy, projections of financial profile, cost benefit analysis and finally pre-investment appraisal. Some expenditure has to be incurred in the form of conducting surveys, feasibility studies, etc.
- **Construction phase:** This stage consumes maximum expenditure. Construction phase consists of developing the infrastructure for the project. The capital requirement includes cost on land, buildings, civil works, machinery equipment, ancillaries, etc.
- **Normalisation phase:** The primary objective of this stage is to produce the goods and services for which the project was established. The expenditure has to be incurred on raw materials, fuel, utilities, and administration and operation maintenance, etc.

1.3 Project Management
Project management is the process of planning, organising, monitoring and controlling all aspects of a project and motivating all involved to achieve project objectives of safety and completion within a defined time, cost and performance. Harson has defined project management as, “the achievement of a project’s objectives through people, and involves organising, planning and control of the resources assigned to the project together with the development of constructive human relations with all those involved, both in company and with the other companies involved.”

1.3.1 Phases of Project Management
It consists of the following phases:

- **Project identification:** It refers to identification of business/investment opportunities. It involves scanning of the environment to find out investment opportunities.
- **Project formulation:** It is the translation of the idea into concrete project with scrutiny of its important preliminary aspects.
- **Project appraisal:** It involves searching, scrutiny, analysis and evaluation of market, technical, financial and economic variables. It examines the viability of the project.
- **Project selection:** It is the process of choosing a project rationally in the light of objectives and inherent constraints on the basis of appraisal.
- **Project implementation:** It is the stage of birth of an enterprise. At the end of this stage, the idea becomes a reality.
- **Project follow-up and evaluation:** It is the process of assessing the performance of the project after it started functioning. Project evaluation simply means assessing the progress of the project.

1.3.2 Objectives of Project Management
The ultimate objective of project management is to attain the objectives for which the project has been undertaken. The other objectives of project management are as follows:

- To achieve maximum productivity at minimum cost.
- To maximise income and return.
- To minimise risk and uncertainty.
- To eliminate waste and improve efficiency.
- To make the most efficient and effective use of resources- manpower, money, materials, technology, etc.
1.3.3 Roles and Responsibilities of Project Manager

The following are the roles and responsibilities of a project manager:

- Managing personnel
- Satisfy government, customer, promoters and public
- Coordinating and integrating activities across multiple functional lines
- Defining and maintaining the integrity of the project
- Setting targets and development of systems and procedures for accomplishment of project objectives
- Developing project-execution plan
- Coping with risk associated with project management
- Managing human interrelationships
- Maintaining the balance between technical and managerial project functions

1.3.4 Need for Project Management

The need for project management arises due to the following reasons:

- Complexity of the project: Project involves time, effort, money, etc. If there is any fault in planning or implementation of projects, the resources put in the projects would be a waste.
- Achievement of objectives: Unless projects are managed well, the objective for which the projects are undertaken cannot be achieved.
- Environmental changes: A project should be well equipped to meet the environmental challenges. The success of the project depends upon how the project is able to cope with the changing environment.
- Competition: To face out the competition, provision of a good or a service is not sufficient. It must provide a package which meets an entire need rather than just part of that need.
- Constraints: The constraints relate to time, materials, demand, labour, etc. The success of a project depends on how well it is possible to manage the so called constraints.
- Risk and uncertainty: At every stage of project life cycle, there are challenges and problems. As the project moves, new challenges and problems may arise. The risks and uncertainties cannot be eliminated but can be minimised through proper management of project.
- Time overrun and cost overrun: If a project takes more time than the scheduled time, it is known as time overrun. If a project incurs more cost than the budgeted amount, it is called cost overrun.
- Project control and evaluation: It is done either at the end of the project or few years after the completion of the project. This enables to learn lessons from the projects.

1.4 Project Formulation

It is the process of examining technical, economic, financial and commercial aspects of a project. It is the process and steps through which an opportunity becomes a project in which the entrepreneur is willing to invest his time, money and other resources. This study is undertaken to find out whether the proposed project would be feasible or not.

The following are the major problems that the entrepreneur can face:

- Knowledge about government regulations: The entrepreneur must have a thorough knowledge about government regulations, policies, licensing procedures, etc.
- Absence of external economies: A project has to depend upon other industries for the supply of raw material, power, spares, etc.
- Non-availability of technically qualified personnel.
- Resource mobilisation.
- Selection of appropriate technology: Modern technologies developed in the advanced countries may not be suitable for adopting in the developing countries.
1.4.1 Elements of Project Formulation
Project formulation involves a number of elements. They are summarised in the following sections:

Feasibility analysis
It involves an examination of the project idea in the light of internal and external constraints. Internal constraints arise because of the limitations of the project sponsoring body. The external constraints arise due to the characteristics of the environment. If on feasibility analysis, the project is found feasible, the same is put to further analysis.

Techno-economic analysis
It is mainly concerned with the identification of the project demand potential and selection of the optimal technology suitable for achieving the project objectives. This study includes:
- Estimation of demand or market potential: The entrepreneur has to estimate the expected share of the sale in the market, intensity of competition, mobility of products to other places, etc. The data collected from various sources are first complied, tested and tabulated in a form suitable for interpretation.
- Selection of technology: It refers to that combination of controlled variables which will ensure the achievement of the project objectives with minimum expenditure of resources.

Project design and network analysis
A project comprises certain sequential activities which are interrelated. These activities can be shown in the form of a diagram, which is called network diagram. Project design is concerned with the development of a detailed work plan of the project and its time estimates. When a network is designed, its analysis is carried out to identify the optimal course of action so as to complete the project with the minimum of time and cost, subject to the available resources. Important network analysis techniques are PERT (Programme Evaluation Review Technique) and CPM (Critical Path Method).

Input analysis
Input analysis is primarily concerned with the identification, qualification and evaluation of project inputs. The objective of input analysis is to identify nature of resources needed to estimate the quality of the required resources and to ensure that there is continuous and adequate supply of inputs. Input analysis is the basis for financial analysis and cost benefit analysis.

Financial analysis
It involves estimates about the project costs and revenues and the funds required for the project. It seeks to find out whether the project will generate income to realise the ultimate objective for which it is undertaken.

Social cost benefit analysis
Under cost benefit analysis, the investment projects are evaluated from the point of view of the society as a whole. The cost benefit analysis aims at analysing the real contribution of an investment project towards welfare of the country as a whole. It implies the enumeration and evaluation of all the relevant costs and benefits. It can be applied to both private and public investments.

Pre-investment appraisal
The proposal gets the final and formal shape. The purpose of pre-investment appraisal is to enable the concerned authorities to take an investment decision about the project, i.e., to accept or reject.

1.5 Technical Analysis
Technical analysis of a project is essential to ensure that necessary physical facilities required for production will be available and the best possible alternative is selected to procure them. The object of technical analysis is to assess the technical soundness of the project. This is considered essential for the long-term success of the project. The following sections will deal with what all are included in the technical analysis of a project.
Material inputs
It is essential to assess the availability of materials, inputs and utilities. Utilities include power, water, steam, fuel, communication facilities, transport facilities, etc. The feasibility study of material should include the following variables:

- The availability of quality and quantity of raw material
- Price elasticity of raw material
- Perishable time of raw material
- The factors on which the availability of raw material is depended

Manufacturing process/technology
Technologies simply refer to the tools, devices and knowledge that help in the transformation of inputs into outputs. It is the application of knowledge, encompassing the related concepts of science, innovation, invention and discovery. It is the application of scientific knowledge to practical commercial purpose.

The technical know-how can be procured from the following sources:

- Foreign collaboration
- Consultancy organisations
- Machinery suppliers
- Promoter’s knowledge and experience
- Recruitment of suitable technical personnel
- CSIR laboratories and National Research and Development Corporation (NRDC)

An entrepreneur may use either indigenous technology or imported technology. When he is not satisfied with indigenous technology, he can make use of imported technology. This process of availing global technology is called technology transfer.

Plant capacity
It refers to the volume or number of units that can be manufactured during a given period. Plant capacity is also called production capacity. The following factors should be taken into consideration for the plant capacity:

- Technological requirement
- Input constraints
- Investment cost
- Market consideration
- Resources of the firm
- Government policy

Plant location
It refers to a fairly broad area, where the enterprise is to be established like city, industrial zone or coastal area. The success of a project depends on the location, to a certain extent. They are discussed as follows:

- Proximity to raw material
- Nearness to market
- Availability of infrastructure facilities
- Transport and communication facilities
- Effluent disposal
- Labour
- Government policies
- Climatic condition
- Environmental considerations
**Size of the plant**
The efficiency and profitability of a project are very much influenced by its size. Size of the plant depends on the manufacturing process, availability of raw materials, capital investment needed and the size of the market. Size of the plant depends on:

- Availability of raw materials and power
- Technology/process to be adopted
- Size of the market
- Size of the plant and machinery
- The location of the project
- The product mix
- Capital investment required

**Product mix**
Product mix or range is decided according to market requirement. It refers to the set of all the products offered by a firm for sale. The range of products to be marketed depends on the following:

- Nature of business
- Nature of product
- Competition
- Tastes of consumers
- Size of target market
- Plant capacity

**Factory design**
It refers to the plan for a particular type of building, arrangement of machinery and equipment and provision of service facilities, lighting, heating etc. in the building. Factory design comprises layout of building and layout of factory. Important benefits of a good factory design are as follows:

- Storage and movement of material
- Service facilities
- Supervision
- Employee morale
- Productivity

**Machineries and equipments**
The requirement of machinery and equipment is dependent on production technology and plant capacity. It is also influenced by the type of project. To determine the kind of machinery and equipments required for manufacturing industry, the following procedure may be followed:

- Estimate the likely levels of production over time
- Define various machinery and other operations
- Calculate the machinery hours required for each type of operation
- Select machineries and equipments required for each function

The equipments required for the project may be classified into the following types:

- Plant equipments
- Mechanical equipments
- Electrical equipments
- Instruments
- Controls
- Internal transportation system
Plant layout
Proper plant layout can reduce manufacturing cost by saving money and time. It refers to the arrangement of the machines, equipments and other physical facilities within the factory premises. It is a floor plan for determining and arranging the desired machinery and equipment in the best place to permit the quickest flow of material at the lowest cost with least amount of material handling in processing the product from the receipt of raw materials to shipment of the finished product. The five types of plant layout are:

- Product layout: It is also called line layout. In this type, machines and equipments are arranged in the sequence or order in which they are used in the manufacture of a given product. It is best suited in mass production, because it allows continuous flow of material in process towards the finished product stage.
- Process layout: It is also called as functional layout. In this type, similar machines are placed in one place according to the operations or functions they perform.
- Combined layout: Here, some of the machines may be arranged in product layout and some others in process layout. It combines the advantages of both the layout forms.
- Stationary layout: The men and equipment are moved to the materials which remain in one place. The product is completed at that place where the material lies. It is also called fixed position layout. It is necessary in ship building, aircraft manufacturing, job welding shops, etc.
- Cellular layout: This is an innovative layout, and based on group technology principles. In this type, machines dedicated to sequences of production are grouped into cells.

1.6 Network Analysis
The network techniques have their origin in the late fifties in USA. These techniques were developed to facilitate planning, scheduling and monitoring the projects in an integrated manner, so that these could be completed within the constraints of desired time, cost and performance.

1.6.1 Meaning of Network Analysis
Network is a combination of activities and events of a project. Network analysis is a system which plans projects by analysing the project activities. Network analysis is one of the most popular techniques used for planning, scheduling, monitoring and co-coordinating large and complex projects comprising a number of activities. It is concerned with evaluation of time and resources profile of project activities.

1.6.2 Objectives of Network Analysis:
The objectives of network analysis are as follows:
- It is a powerful tool for planning, scheduling and controlling of projects.
- It helps to minimise total cost.
- It shows in simple way the interrelationship of various activities constituting a project.
- It helps delegation of the power and authority.
- It facilitates management by exception.
- It avoids production delays.
- It leads to optimal use of resources.
- It helps to minimise time for a given cost.
- It helps the entrepreneur to complete the project in time.
1.6.3 Terms Related to Network Analysis

The terms related to network analysis are as follows:

- Network: Network refers to series of related activities which results in some product or service.
- Network diagram: It is the backbone of network technique. It shows the activities and events of a project in a logical sequence. It is also known as project graph or arrow diagram.
- Activity: It means the element of job or task or item of work to be completed in a specific time. Activity consumes time, money, effort and resources. Each activity is represented by an arrow.
- Event: It represents the start or end of an activity. An event is generally represented by a circle called node. Each activity has 2 events- tail event and head event. Tail event is the beginning of an activity. Head event is the end of an activity.

1.6.4 Steps in Network Analysis

The steps taken in network analysis are as follows:

- Preparation of network
- Estimation of time to perform each activity
- Computation of critical path schedule
- Interpretation of results

1.6.5 Network Techniques

A number of network techniques have been developed. Few of them are given below:

- CPM: Critical Path Method
- PERT: Program Evaluation Review Technique
- GERT: Graphic Evaluation and Review Technique
- RAMS: Resource Allocation and Multi Project Scheduling
- RPSM: Resource Planning and Scheduling Method
- MAP: Manpower Allocation Procedure
- LOB: Line of Balance

Among these, CPM and PERT are the most widely used network analysis techniques in project management.

1.6.6 Critical Path Method (CPM)

It was developed in 1956 by Morgan. R. Walker of DuPont Company and James. E. Kelly of Remington Rand. After preparing the network diagram and indicating the time for each activity, we can identify the various possible paths.

Application of CPM

CPM can be used in the following areas:

- Construction of building or highway
- Construction of dams or canals
- Communication networks
- Production planning
- Maintenance and overhaul of aeroplanes or oil refinery
The various terms related to CPM are defined below:

- **Path**: It refers to unbroken or continuous chain of activities from the start event to end event in the network diagram.
- **Critical path**: It is the path which takes longest duration. It is represented by double or thick arrow line to distinguish it from the other non-critical paths.
- **Critical activities**: These are activities lying in the critical path and its delay in start will cause a further delay in the completion of the entire project. Activities with zero floats are called critical activities. Such activities require special attention.
- **Preceding activities**: Activities that must be completed immediately prior to the start of another activity are called predecessor activities.
- **Succeeding activities**: Activities that cannot be started until one or more of other activities are completed, but immediately succeed are called successor activities.
- **Concurrent activities**: Activities which can be accomplished concurrently or simultaneously are known as concurrent activities.
- **Earliest Start Time (EST)**: It is the earliest time an activity can start on the assumption that all its preceding activities started at the earliest possible times. It is calculated by moving from first to last event in a network diagram.
- **Latest Start Time (LST)**: It is the latest possible time an activity can finish without delaying the project on the assumption that all subsequent activities are finished as planned. It is the difference between the latest finish time and the estimated time for the activity to be completed.
- **Earliest Finish Time (EFT)**: It is the sum of the earliest start time and the estimated time to perform the activity (i.e., EST + activity duration).
- **Latest Finish Time (LFT)**: It is calculated by moving backward, i.e., from last event to first event of the network diagram.
- **Forward pass**: The objective is to determine the earliest expected start and finish of the constituent activities of a project.
- **Backward pass**: It is the process of determining the latest allowable starting and finishing time of an activity. The computation starts at the end event of a project and moves backwards.
- **Float (Total Float)**: It means the amount of excess or spare time up to which an activity can be delayed without affecting the overall completion time of the project. It is the difference between the latest finish time and earliest start time. Total Float = LFT – EFT or LST – EST
- **Free float**: It is the excess of the available time over the required time when the activity, as well as its successor activity start as early as possible. Free Float = EST of the successor – EFT of the present Activity
- **Independent Float**: It is the amount of time an activity could be delayed, if preceding activities finish at their latest and subsequent activities start at their earliest. Independent Float = EST of successor – LFT of predecessor – Duration. If a negative value of independent float is obtained, then independent float is taken as zero.

**Steps in CPM**

Steps in CPM are as follows:

- Arrange all activities in a logical sequence.
- Construct arrow diagram and number all the events.
- Mark activity times on arrows.
- Calculate earliest and latest starting/finishing times and mark these times on arrow diagram.
- Identify critical path.
For example:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>2</td>
</tr>
<tr>
<td>1-3</td>
<td>3</td>
</tr>
<tr>
<td>2-4</td>
<td>3</td>
</tr>
<tr>
<td>3-4</td>
<td>5</td>
</tr>
<tr>
<td>2-5</td>
<td>3</td>
</tr>
<tr>
<td>4-6</td>
<td>2</td>
</tr>
<tr>
<td>5-6</td>
<td>4</td>
</tr>
</tbody>
</table>

Solution:

Fig. 1.1 Network diagram
(Source: http://www.universityofcalicut.info/syl/EntrepreneurshipDevelopment279.pdf)

In the above diagram, 3 possible paths can be identified as follows:

- 1-2-5-6 requiring $2+3+4 = 9$ months in completion of the project
- 1-2-4-6 requiring $2+3+2 = 7$ months in completion of the project
- 1-3-4-6 requiring $3+5+2 = 10$ months in completion of the project

The third path (1-3-4-6) takes longest time in the completion of the project and hence it is the critical path. The activities in the critical path are critical activities and these activities can be delayed to the extent of float available without affecting the overall project duration.

The following are the advantages of CPM:
- It makes better and detailed planning possible.
- It helps in ascertaining the time schedule.
- Control by management becomes easy.
- It identifies most critical elements and thus more attention can be paid on these activities.
- It facilitates optimum utilisation of resources.

The following are the limitations of CPM:
- It is based on the assumption of precise known time for each of these activities.
- It ignores statistical analysis in determining the time estimates.
- It facilitates solution for the problem.

1.6.7 Programme Evaluation Review Technique (PERT)

It was developed by a navy sponsored research team composed of D. G. Malcolm, J. R. Rose boom, C. E. Clark and W. Fazar in 1958. PERT is a network technique of scheduling and controlling the project where activity times cannot be precisely estimated. Its primary purpose is to facilitate the planning and controlling of a project in order to achieve lower costs, reduce project time and more effective co-ordination and utilisation of human and physical resources. PERT deals with the problems of uncertain activity time schedule. Generally 3 time estimates that are used are:
• Optimistic time (to): It is the shortest possible time in which an activity can be completed. The probability of happening this is 1 in 100.
• Pessimistic time (tp): It is the maximum possible time in which an activity can be completed, if everything goes wrong. The happening this also might be 1 in 100.
• Most Likely time (tm): This lies in between ‘to’ and ‘tp’. It is the estimated time in the normal conditions that an activity would require.

The expected time of each activity would be calculated by the following formula:
\[ t_e = \frac{t_o + 4tm + tp}{6} \]

**Steps in PERT**
The following steps are used in PERT:
• Activities are arranged in a logical sequence.
• Network diagram is drawn and events are numbered.
• Using 3 time estimates, the expected time for each activity is calculated.
• Slack is calculated and critical path is identified.
• The total project duration is worked out.
• Standard deviation and variance for each activity are found.

\[ \text{Variance} = \left( \frac{t_p - t_o}{6} \right) \]

\[ \text{Standard deviation} = \sqrt{\left( \frac{t_p - t_o}{6} \right)} \]

**Slack**
It is similar to float. Float is associated with activity and used in CPM. Slack is associated with event and is used under PERT. It is the difference between the latest allowable time and earliest completion time. Slack is the maximum time an activity can be delayed without delaying the completion of project. Slack is zero on critical activities.

**Applications of PERT**
The major areas where PERT can be used are:
• In managing accounts and budgeting of the organisation.
• In administration such as planning manpower profile or paper work of the organisation.
• In maintenance and major repairs of ships, rockets, steel furnaces, scheduling aircrafts, etc.
• In installing and recognising new systems such as plant, machinery, computers, etc.
• Research and development projects.
• Defence projects.

Advantages of PERT are as follows:
• Reduces cost and time.
• Easily shown in chart form.
• Permits effective control.
• It provides updated information about the project.
• Provides improved estimates of the expected time to complete an activity by using multiple time estimates.
• It facilitates the right action, at the right point and right time in the organisation.
Limitations of PERT are as follows:

- Developing a clear and logical network is difficult.
- In some projects, not all activities can be so clearly identified.
- It is not useful in certain kinds of projects, in projects which are subject to change.
- It emphasises only on time and not cost.
- There may be errors in time estimation.

### 1.7 Financial Analysis

It is defined as the process of obtaining relevant information about a project in order to ascertain its financial viability. The preliminary steps involved in the financial analysis include:

- Estimation of total capital outlay involves in the project.
- Estimation of operating costs.
- Estimation of operating revenue.

Its purpose is to find out whether the project is attractive enough to secure funds needed for its various activities and whether the project will be able to generate enough income to achieve the objective for which it is undertaken.

#### Estimation of capital outlay

Capital outlay of a project refers to the sum of the expenditure till the date of starting commercial production. It includes all advance expenditure. Cost of fixed assets, duties and taxes. Consultancy charges, interest charges, intangible expenses, registration fees and provision for contingencies. The capital cost outlay is required not only for assessing fund requirement, but also for ascertaining the economic viability of the project. Capital cost outlay is shown in the statement of capital cost estimation.

#### Estimation of operating costs

Operating costs are those which have to be incurred after the project commences production. Operating costs vary with quantity of output. Operating cost cover material cost, labour cost, overhead costs and incidental expenses. A pro forma of operating costs shows the operating cost estimates.

#### Estimation of operational revenue

Operating cost is incurred to generate operating revenue or sales. It is necessary to assess the demand potential and the anticipated sale price of the goods. Sales and production are closely related and they can be estimated together through an estimate of production and sales. It shows details of installed capacity, value of sales, etc.

#### Estimation of working results

For assessing the profitability of a project, the estimates of operating costs and revenues are matched, using a pro forma profit and loss statement. It will show details on expected sales, net sales, cost of production, gross margin, general and administrative expenses, taxes, dividend, etc.

#### Estimation of financial position

In order to ascertain the financial position of a firm, at any given point of time, a pro forma balance sheet is prepared with the help of projected assets and liabilities. It helps in the preparation of projected funds flow and cash flow statements and to compute various ratios on profitability, liquidity and solvency of the project.

#### 1.7.1 Analysis of Operational Strategy

The operational strategy can be evaluated by employing the techniques, such as breakeven analysis, sensitivity analysis and risk analysis, which are explained in the following paragraphs.
Breakeven analysis
The breakeven analysis is the most widely used technique of cost volume profit analysis used in its narrow sense. It is the point at which losses cease and profits begin. Breakeven point is an equilibrium point or value between costs, prices and profits. Indeed it is a balancing point, a point of no profit no loss. It is also called zero point costs. In a broad sense, it refers to a system of analysis that can be used to determine the probable profit at any level of activity. It is a tool of financial analysis whereby the impact on profit position of the changes in volume, price, costs and mix can be estimated definitely and accurately.

Computation of BEP is as follows:
BEP is found out by using the formula or using a graph. It is computed by using the following formula.

\[
BEP \text{ (Units)} = \frac{Fixed \text{ Cost}}{Contribution \text{ per Unit}}
\]

\[
BEP \text{ (Units)} = \frac{Fixed \text{ Cost}}{total \text{ contribution}} \times Sales
\]

Sensitivity analysis
The technique of sensitivity analysis helps in studying the impact of crucial variables like raw material, sales volume, sales price, degree of capacity utilisation, etc., over the economic viability of an enterprise. Under this approach, the value of different key variables is changed in a systematic manner. In other words, change is effected in one variable and the other variables are assumed constant and the results are analysed to find out sensitivity of various variables with respect to their impact on profit margin.

Risk analysis
The risk analysis helps in identifying the sources of risks, such as rise in prices of raw material, taxes and duties, product price, etc., which have great bearing in determining the future returns for the project. Accordingly, risk analysis offers an opportunity to the investor to redesign his proposed project.

1.8 Project Financing
Finance is one of the foundations of economic activity of mankind. It is needed for starting the business and also to keep it going. It is rightly described as the life blood of any industrial or commercial undertaking. On the basis of the purpose for which finance is required, finance or capital may be classified into fixed or block capital and working or circulating capital.

1.8.1 Fixed capital
It refers to the amount required for acquiring fixed assets like land, building, machinery, etc.

Factors governing fixed capital requirements
The amount of fixed capital requirement of a project depends on the following factors:

- Nature of project
- Size of the project
- Diversity of production line
- Method of production
- Method of acquiring fixed assets

1.8.2 Working Capital
It consists of funds invested in current assets. There are two concepts of working capital. One is gross concept and the other is net concept. Gross concept working capital refers to the amount of funds invested in current assets. Working capital is equal to total current assets. Net concept working capital refers to the excess of current assets over current liabilities. Working capital is equal to current assets minus current liabilities.
Types of working capital
It is broadly classified into two- permanent working capital and variable working capital.

- Permanent or fixed working capital: It is the minimum amount of working capital required to ensure effective utilisation of fixed assets and support the normal operation of the business. It is again divided into two:
  - Initial working capital: It is the capital with which the project is commenced.
  - Regular working capital: It is the minimum amount of the liquid capital to keep up the circulating capital from cash to inventories, to receivables and back again to cash.

- Variable working capital: This is the additional capital needed to meet seasonal and special needs. It is again divided into two:
  - Seasonal working capital: It refers to the additional working capital required during busy seasons.
  - Special working capital: It may be required to carry on a special sales campaign or financing slow moving stock or financing a period of strike or lockout etc.

Factors determining working capital
The factors determining the working capital depend upon the following factors:

- Character of business
- Size and volume of business
- Length of processing period
- Turnover
- Terms of purchase and sales
- Seasonal variation
- Importance of labour
- Cash flow
- Stock
- Cyclical fluctuations

1.8.3 Sources or Means of Finance
There are basically two sources available for financing project- internal sources and external sources. If the size of the project is large, the fund requirement will have to be financed from external sources. The technique of raising capital from multiple sources is known as layered financing. The various sources of project finance are:

- Sources of long-term funds (finance fixed capital requirements)
  - Issue of shares
  - Issue of debentures
  - Term loans from specialised financial institutions like IFCI, IBRD, etc.
  - Venture capital

- Sources of medium-term funds (finance fixed working capital requirements)
  - Public deposits
  - Deferred credits
  - Lease finance
  - Subsidy and other incentives/assistance from the government
  - Hire purchase

- Sources of short-term funds (finance working capital requirements)
  - Trade credit
  - Commercial banks
  - Accounts receivable
1.9 Project Appraisal and Evaluation

The project has to be appraised in relation to the feasibility of the technical, economic, financial, commercial, managerial, social and other aspects of the project. It is defined as critical and careful second look at the project by a person not associated with the project preparation. The objective of a project appraisal is to decide whether to accept or reject an investment proposal.

Elements of project appraisal

There are several aspects of project appraisal. They are as follows:

- **Technical feasibility**: It includes detailed estimates of the goods and services needed for the project—land, machineries and equipments, raw material, trained labour, etc. Location of the project should be given special attention in relevance to technical feasibility. Another important feature of technical feasibility relates the type of technology to be adopted for the project.

- **Economic viability**: It is a study on capital cost, working capital, operating cost and revenue, marketing, profitability, etc. It also includes an appraisal of anticipated demand and capacity utilisation.

- **Commercial viability**: The appraisal of commercial aspects of a project involves a study of the proposed arrangements for the purchase of raw materials and sale of finished products, etc. The main objective is to see that the proposed arrangements will ensure that the best value is obtained for money spent.

- **Financial feasibility**: It seeks to ascertain whether the project is financially viable regarding the cost of project, cost of production and profitability, cash flow estimate and pro forma balance sheet. It will study whether the project will satisfy the return expectations of those who provide the capital.

- **Managerial competence**: Proper evaluation of managerial ability and talent is an essential part of appraisal of a project. While evaluating the management, background of the entrepreneur and promoters, their character and integrity, past records of promotion, etc are studied.

- **Social consideration**: The social objectives of a project are also considered keeping in view the interests of the public. The projects which offer large employment potential or those located in backward areas or projects which will stimulate small industries or growth of ancillary industries are given special consideration.

- **Ecological analysis**: It is necessary to ensure whether the project causes pollution, whether it disturbs the equilibrium of ecology and whether it fits into the environment.

- **Project risk analysis**: Projects face a host of risks, such as project completion risk, resource risk, price risk, technology risk, political risk, interest rate risk, etc. An analysis of such risks is helpful in the appraisal of a project.

1.10 Methods of Profitability Appraisal

The most important and popular of these can be classified into a broad category as non-discounting techniques or traditional methods. It does not take into consideration the time value of money. Important traditional methods are discussed in the following paragraphs.

1.10.1 Urgency Method

Urgency or degree of necessity plays an important role and project that cannot be postponed is undertaken first.

1.10.2 Payback Method

It is cash-based technique. It is a period over which the investment would be paid back. It is a breakeven point of the project, where the accumulated returns equal investment. It is also called ‘pay-out’ or ‘pay-off’ period or ‘recoupment’ or ‘replacement period’.

- When annual cash inflows are equal: when cash inflows/benefits are even or equal, payback period is calculated as follows:

\[
\text{Payback period} = \frac{\text{Original cost of project (cash outlay)}}{\text{Annual net cash inflow (net earnings)}}
\]
For example, if cash outlay is Rs. 5,00,000 and Annual net cash inflow is Rs.1,00,000 for 7 years

\[
\text{Pay Back Period} = \frac{500000}{100000} = 5 \text{ years}
\]

The whole cost of the original investment is recovered in five years.

- When annual cash inflows are unequal: When cash inflows/benefits are not equal, payback period is calculated in the form of cumulative cash inflows as follows:

For example, if the cost of the project is Rs.1,00,000 and the cash inflows are: 1st year Rs.10,000; 2nd year Rs.15,000; 3rd year Rs.25,000; 4th year Rs.30,000 and 5th year Rs.30,000. Payback period to recover original investment of Rs.1,00,000 comes to 4 yrs and 8 months. Rs.80,000 is recovered in 4yrs and to recover the balance Rs.20,000, 8 months are required.

\[
\frac{20000}{30000} = \frac{2}{3} \text{ years or 8 months}
\]

Payback period can also be calculated as follows:

\[
\text{Pay Back Period} = E + \frac{B}{C}
\]

Where,

- E = No. of years immediately preceding the year of final recovery
- B = Balance amount still to be recovered
- C = Cash inflow during the year of final recovery

1.10.3 Post Payback Method

The post payback method has been evolved to overcome the limitations of payback method. Under this method, the entire cash inflows generated from a project during its working life are taken into account. It is calculated as under:

\[
\text{Post Pay Back Profitability} = \frac{\text{Total Cash Inflows in Life} - \text{Initial Cost}}{\text{Annual Cash Inflows} \times (\text{Total Life} - \text{Pay Back Period})}
\]

The second alternate formula is useful only when annual cash inflows are equal.

1.10.4 Average Rate of Return Method (ARR)

It represents the ratio of the average annual profits to the average investment in the project. It is based on accounting profits and not cash flows. This is also known as Accounting Rate of Return Method or Return on Investment Method or Unadjusted Rate of Return Method. ARR is found out by dividing average income by the average investment. It is calculated with the help of the following formula:

\[
\text{ARR} = \frac{\text{Average Income or Return}}{\text{Average Investment}} \times 100
\]

Where,

\[
\text{Average Income or Return} = \frac{\text{Original Investment} + \text{Scrap value}}{2}
\]

OR

\[
\text{Original Investment} - \text{Scrap value} + \text{Scrap value} \times \frac{2}{2}
\]
The higher the ARR, the better the project: If the projects are mutually exclusive, the project with the highest rate of return is selected. If the calculated ARR is equal to or more than the company’s target rate of return, the project will be accepted. If the calculated ARR is less than the company’s target rate of return, the project will be totally rejected.

**1.10.5 Net Present Value Method (NPV)**

NPV method involves discounting future cash flows to present values. The cash outflow (i.e., initial investment whose present value is the same) is deducted from the sum of the present values of future cash inflows (returns or benefits). The balance amount is NPV which may be either positive or negative. If the NPV is positive, it means that the actual rate of return is more than the discount rate and it contributes to the wealth of the shareholders. A negative NPV indicates that the project is not even covering the cost of capital. It means that the actual rate of return is less than the discount rate.

Computation Procedure of NPV consists of:

- Determination of minimum rate of return: To discount cash flows, a minimum rate of interest should be selected. This is generally the firm’s cost of capital (i.e., the minimum rate of return an investor expects from the firm to earn on the proposed investment).
- Computation of PV of cash inflows and outflows: The present value of cash flows for different years may be calculated with the help of the following formula:

\[
PV = \frac{C_1}{(1-r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \ldots + \frac{C_n}{(1+r)^n}
\]

Where,

- \(C_1, C_2, C_n\) = Cash inflows for \(n\) years
- \(r\) = Discount factor or interest rate
- \(n\) = Number of years

In practice, the ‘Present Value Table’ is used to calculate PV.

\[
PV = \text{Cash Inflow} \times \text{Discount Factor of the Concerned Period}
\]

- Computation of NPV: The difference between total present value of cash inflows and total present value of cash outflows should be found out. The resulting amount is the Net Present Value (NPV).

In the case of mutually exclusive or alternative projects, (where only one project is to be selected) accept a project that has the highest positive NPV. In the case of individual investment, accept a project if it’s NPV is positive. If the NPV is negative, reject it.

**1.10.6 Benefit Cost Ratio (Profitability Index Method)**

Two projects having different investment outlay cannot be compared by NPV method because it indicates the NPV in absolute terms. In such a situation, benefit cost ratio should be applied. It is the ratio of benefits (cash inflows) to (cash outflows). It is the ratio present value of cash inflows to present value of cash outflows. Thus, it measures present value of returns. This method is also known as Profitability Index or Present Value Index Method.

Benefit Cost Ratio is computed as follows:

\[
\text{Benefit Cost Ratio} = \frac{\text{Present Value of Cash Inflows}}{\text{Present Value of Cash Outflows}}
\]
“Accept the project if its PI (Profitability Index) is more than one and reject the project if its PI is less than one. In the case of mutually exclusive projects, the project with higher PI is to be selected. If the PI is higher, the project is better.

1.10.7 Internal Rate of Return (IRR)

IRR was first introduced by Joel Dean. In IRR, we try discounting at different discount rates until we reach the rate at which the present value of cash inflows to present value of cash outflows (investment). Thus, internal rate of return is the rate at which total present value of future cash flows is equal to initial investment. In other words, it is the rate at which NPV is zero. This rate is called the internal rate because it exclusively depends on the initial outlay and cash proceeds associated with the project and not by any other rate outside the investment.

Calculation of IRR

NPV indicates the present value of the cash flows of a project at a particular discount rate. IRR attempts to ascertain the interest rate at which the present value of cash inflow is made equal to the initial investment. IRR is a time adjusted rate of return which equates present value of cash inflows, with original cash outflow. IRR can be calculated through the following steps:

• Obtain the annuity table factor using formula:

\[ F = \frac{Investment\ of\ the\ project}{Annual\ cash\ inflow} \]

• Locate the factor in the annuity table, corresponding to the number of years of the project, to obtain the discount percentage intervals.

• Ascertain the exact discount percentage using interpolation.

\[ IRR = Lower\ percentage + difference\ between\ percentages \times \frac{NVP\ at\ lower\ rate}{Difference\ between\ NVP} \]

Example:

A project costs Rs.6000 and is expected to generate cash inflow of Rs.2,000 over its life of 5 years. Find IRR.

Find annuity table factor using the formula:

\[ F = \frac{Investment\ of\ the\ project}{Annual\ cash\ inflow} \]

\[ = \frac{6000}{2000} = 3 \]

As per the table, interest percentage for factor 3 (between 18% and 20%)

- 18% Rs = 3.127
- 20% Rs = 2.900

The exact percentage is between 18% and 20% (because factor lies between 2.900 and 3.127)

\[ IRR = 18% + 2% \times \frac{0.127}{0.227} \]

\[ = 19.12% \]
The calculated IRR is compared with the desired minimum rate of return. If the IRR is greater than the desired minimum rate of return, the project is accepted and if it is less than the desired minimum rate of return, then the project is rejected.

1.11 Project Evaluation

It is the final stage of project management. The process of measuring the progress made and assessment of the results of a project is known as project evaluation. It is derived from the Latin word ‘Valuere’. It means determination of value of an activity or a thing. It is the process of appraising the progress and performance in relation to the project’s initial or revised plan. It also appraises the project against the project goals and objectives. It measures how far the objectives have been achieved so far.

Importance of project evaluation

Project evaluation helps the organisation improve its projects management skills on future projects. It helps to know whether the project is moving according to the plan or not. It brings into light the project’s strengths and weaknesses. It gives the management a good idea of how the project is progressing. Thus, project evaluation measures the success of a project.

1.12 Project Report

A project report may be defined as a document with respect to any investment proposal based on certain information and factual data for the purpose of appraising the project. It states as to what business is intended to be undertaken by the entrepreneur and whether it would be physically possible, financially viable, commercially profitable and socially desirable to do such a business. Project report is an essential document for procuring assistance from financial institutions and for fulfilling other formalities for implementation of the project. The project report (Detailed Feasibility Report) is based on a preliminary report or pre-investment report. Thus, the project report is a post investment decision report.

1.12.1 Objectives of the Project Report

The basic aim of a project report is to assess the financial viability of a project as well as the soundness of its production, marketing and other related aspects. It serves the following main objectives:

- It facilitates business planning and planning the future course of action.
- It enables an entrepreneur to compare different investment proposals and select the most suitable project.
- It provides a SWOT analysis, wherein the strengths, weaknesses, opportunities and threats involved in the projects as shown.
- The project report enables the entrepreneur to ensure that he is proceeding in the right direction.
- In case of public sector projects, this report would also enable the concerned authorities to take an objective decision on the project.
- It facilitates project appraisal.
- It helps the financial institutions to make appraisal as regards financial, economic and technical feasibility.

1.12.2 Importance of a Project Report

Project report is a written plan of the project to be undertaken for the attainment of objective. It enables an entrepreneur to know the inputs required and confirms that he is proceeding in the right direction. It spells out the reasons of allocating resources of the firm for the production of goods and services during a specific period. An important aspect of the project report lies in determining the profitability of the project with minimum risks in the execution of the project. The important uses of Project report are as follows:

- It helps the entrepreneur in establishing techno-economic viability of the project.
- It helps in getting term loan from banks and financial institutions.
- It helps in approaching bank for getting working capital loan.
- It helps in securing supply of scarce raw materials also.
It gives a general idea of resource requirements and means of procuring them.
It shows the feasibility of the project and possibility of achieving profits.

1.12.3 Contents of a Project Report
It contains relevant information in detailed and systematic manner as below:
- Introduction: General information regarding the company and production description.
- Background of the promoter: Name, address, age, family background, educational qualification, work experience, investment potential, etc.
- Product: Details of products to be produced, details of application of the product, proposed product mix, product standard, etc.
- Market and marketing: Market potential analysis, major buyers, area to be covered, trade practices, sales promotion devices, trade practice and trade channels adopted by the competitors, demand analysis, proposed market research, etc.
- Location: Location advantages, criteria for selecting the location, exact location of the project, other choices.
- Production process: Details of technology, process flow chart, manufacturing process, production programme, etc.
- Raw material: List of raw materials required in terms of quality and quantity, sources of requirement, cost of raw materials, etc.
- Utilities: Water, power, steam-sources and costs, effluent disposal, etc.
- Transport and communication: Method, possibility of getting and costs of transport.
- Manpower requirement: Requirement of skilled, semi skilled personnel, technical and non-technical personnel, cost of procurement, capacity, and suppliers cost, alternatives available, cost of miscellaneous assets.
- Land and building: Land area, construction area, cost of construction, detailed plan, plant lay out along with cost.
- Plant and machinery: Details of machinery and equipment required.
- Cost of project and sources of finance: Working capital required, preliminary and pre-operative expenses, contingencies and arrangements for the meeting the cost of project.
- Financial viability of the project: Cost of production and profitability for the first year, breakeven analysis, and analysis of cash flow and fund flow statements.

1.12.4 Requisites of an Ideal Project Report
The essentials of an ideal project report are as follows:
- Project report should be prepared with the help of an expert team.
- Assumptions in the project report should avoid extremities.
- Project report is the means and not the end.
- Product demand, capital resources, raw material availability, labour resources, etc must be estimated properly after considering varied factors.
- Project report should be based on proper survey and systematic preliminary study of the project.
- Thorough discussions must be made with experts, various personnel of concerned departments before finalising the report.
- The end result should be to receive finance and to get the project implemented.
- Complete satisfaction of the entrepreneur/promoter should be ensured, before the report is submitted to the financial institutions.
1.12.5 Problems Faced in the Preparation of a Project Report

An entrepreneur may face the following problems while preparing a project report:

• Strict condition of promoter’s contribution may dampen the enthusiasm of entrepreneurs.
• All lending institutions demand a lot of documents before credit is granted.
• Problems regarding working capital assessment due to unrealistic assumptions.
• Time overrun will lead to cost overrun.
• Lending institutions expect strict specifications with regard to size of the land, buildings, sources of machinery, their costs, etc.
• A number of clearances have to be obtained from the government departments. This causes strain and wastage among entrepreneurs.
A project simply means an investment opportunity exploited for profit. It is an idea or a plan which is intended to be carried out or a finite task to be completed.

Project is a whole complex of activities involved in using resources to gain benefits

The project is initiated to achieve a mission and is said to be completed when the mission is achieved.

The project lives between these two cut off periods and this intermediate time is called Project Life Cycle.

Project management is the process of planning, organising, monitoring and controlling of all aspects of a project and motivating all involved to achieve project objectives of safety and completion within a defined time, cost and performance.

The achievement of a project’s objectives through people, and involves organising, planning and control of the resources assigned to the project together with the development of constructive human relations with all those involved, both in company and with the other companies involved.

Project formulation is the process of examining technical, economic, financial and commercial aspects of a project.

Technical analysis of a project is essential to ensure that necessary physical facilities required for production will be available and the best possible alternative is selected to procure them.

Proper plant layout can reduce manufacturing cost by saving money and time.

The network techniques have their origin in the late fifties in USA. These techniques were developed to facilitate planning, scheduling and monitoring the projects in an integrated manner so that these could be completed within the constraints of desired time, cost and performance.

Network is a combination of activities and events of a project.

CPM was developed in 1956, by Morgan R Walker of DuPont Company and James E Kelly of Remington Rand.

PERT was developed by a Navy sponsored research team composed of D. G. Malcolm, J. R. Roseboom, C. E. Clark and W. Fazar in 1958.

PERT is a network technique of scheduling and controlling the project, where activity times cannot be precisely estimated.

Financial analysis is defined as the process of obtaining relevant information about a project in order to ascertain its financial viability.

Capital outlay of a project refers to the sum of the expenditure till the date of starting commercial production.

The breakeven analysis is the most widely used technique of cost volume profit analysis used in its narrow sense. It is the point at which losses cease and profits begin.

Finance is one of the foundations of economic activity of mankind.

There are basically two sources available for financing project- internal sources and external sources.

The project has to be appraised in relation to the feasibility of the technical, economic, financial, commercial, managerial, social and other aspects of the project.

NPV method involves discounting future cash flows to present values.

Project evaluation is the final stage of project management. The process of measuring the progress made and assessment of the results of a project is known as project evaluation.

A project report may be defined as a document with respect to any investment proposal based on certain information and factual data for the purpose of appraising the project.
References


- Lecture - 1 *Project and Production Management - an Overview*. [Video online] Available at: <http://www.youtube.com/watch?v=obzp6biyAN0> [Accessed 05 September 2013].


Recommended Reading


**Self Assessment**

1. A project simply means an investment opportunity exploited for ________.
   - a. loss
   - b. profit
   - c. gain
   - d. achievement

2. Project life cycle consists of how many stages?
   - a. Two
   - b. Four
   - c. Three
   - d. Five

3. Match the following

<table>
<thead>
<tr>
<th>1. Project Identification</th>
<th>A. It involves searching, scrutiny, analysis and evaluation of market, technical, financial and economic variables.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Project Formulation</td>
<td>B. It is the process of choosing a project rationally in the light of objectives and inherent constraints on the basis of appraisal.</td>
</tr>
<tr>
<td>3. Project Appraisal</td>
<td>C. It refers to identification of business/investment opportunities.</td>
</tr>
<tr>
<td>4. Project Selection</td>
<td>D. It is the translation of the idea into concrete project with scrutiny of its important preliminary aspects.</td>
</tr>
</tbody>
</table>

   - a. 1-C, 2-D, 3-A, 4-B
   - b. 1-A, 2-B, 3-C, 4-D
   - c. 1-D, 2-A, 3-B, 4-C
   - d. 1-B, 2-C, 3-D, 4-A

4. CPM was developed in ________.
   - a. 1956
   - b. 1953
   - c. 1947
   - d. 1960

5. Project ____________ is the final stage of project management.
   - a. analysis
   - b. report
   - c. evaluation
   - d. estimation

6. ____________ analysis of a project is essential to ensure that necessary physical facilities required for production will be available and the best possible alternative is selected to procure them.
   - a. Technical
   - b. Project
   - c. Network
   - d. Ratio
7. Which of the following statement is false?
   a. Technical feasibility includes detailed estimates of the goods and services needed for the project- land, machineries and equipments, raw material, trained labour, etc.
   b. Economic viability is a study on capital cost, working capital, operating cost and revenue, marketing, profitability, etc., but will not include an appraisal of anticipated demand and capacity utilisation.
   c. The appraisal of commercial aspects of a project involves a study of the proposed arrangements for the purchase of raw materials and sale of finished products, etc.
   d. Financial feasibility seeks to ascertain whether the project is financially viable regarding the cost of project, cost of production and profitability, cash flow estimate and proforma balance sheet.

8. A project ____________ may be defined as a document with respect to any investment proposal based on certain information and factual data for the purpose of appraising the project.
   a. analysis
   b. evaluation
   c. report
   d. management

9. Which of the following statement is true?
   a. Production process is the detailed information regarding the company and the production description.
   b. Production process includes details of family background, educational qualification, work experience, investment potential, etc.
   c. Production process is the details of knowledge of products to be produced, details of application of the product, proposed mix, product standard etc.
   d. Production process is the details of technology, process-flow chart, manufacturing process, production programme, etc.

10. PERT is a ___________ technique of scheduling and controlling the project, where activity times cannot be precisely estimated.
    a. network
    b. project
    c. financial
    d. appraisal
Chapter II
Entrepreneur and Fundamentals of Entrepreneurship

Aim

The aim of this chapter is to:

• introduce the term entrepreneur
• explain evolution of the concept of entrepreneur
• explicate the qualities of a successful entrepreneur

Objectives

The objectives of this chapter are to:

• enlist the characteristics of an entrepreneur
• elucidate the nature and characteristics of entrepreneurship
• explain the risks involved with entrepreneurship

Learning outcome

At the end of this chapter, you will be able to:

• identify the barriers to entrepreneurship
• understand the factors that affect entrepreneurial growth
• define an entrepreneur and entrepreneurship
2.1 Introduction

According to George Bernard Shaw, people fall into three categories:

- Those who make things happen.
- Those who watch things happen.
- Those who are left to ask what did happen.

Generally, entrepreneurs fall under the first category.

2.2 Evolution of the Concept of Entrepreneur

The word ‘entrepreneur’ is derived from the French word entreprendre. It means ‘to undertake’. Thus, entrepreneur is the person who undertakes the risk of a new enterprise. Its evolution is as follows:

- Early period: The earliest definition of the entrepreneur as a ‘go-between’ is Marco Polo. He tried to establish trade route to the Far East. He used to sign a contract with venture capitalists to sell his goods. The capitalist was the risk bearer. The merchant adventurer took the role of trading. After his successful selling of goods and completing his trips, the profits were shared by the capitalist and the merchant.

- Middle ages: The term entrepreneur referred to a person who managed large projects. He was not taking any risk, but was managing the projects using the resources provided. An example is the cleric who is in charge of great architectural works, such as castles, public buildings, cathedrals, etc.

- 17th century: An entrepreneur was a person who entered into a contractual arrangement with the government to perform a service or to supply some goods. The profit was taken (or loss was borne) by the entrepreneur.

- 18th century: It was Richard Cantillon, French Economist, who applied the term entrepreneur to business for the first time. He is regarded by some as the founder of the term. He defined an entrepreneur as a person who buys factor services at certain prices with a view to sell them at uncertain prices in the future.

- 19th century: The entrepreneurs were not distinguished from managers. They were viewed mostly from the economic perspective. He took risks, contributed his own initiative and skills. He planned, organises and led his enterprise.

- 20th century: During the early 20th century, Dewing equated the entrepreneur with business promoter and viewed the promoter as one who transformed ideas into a profitable business. It was Joseph Schumpeter who described an entrepreneur as an innovator. According to him, an entrepreneur was an innovator who developed untried technology.

- 21st century: Research Scientists have pointed out that it is not always important that an individual comes up with an entirely new idea to be called an entrepreneur, but if he is adding incremental value to the current product or service, he can rightly be called an entrepreneur.

2.3 Meaning and Definition of Entrepreneur

An entrepreneur is ordinarily called a businessman. He is a person who combines capital and labour for the purpose of production. He organises and manages a business unit assuming the risk for profit. He is the artist of the business world.

In the words of J. B. Say, “An entrepreneur is one who brings together the factors of production and combines them into a product.” He made a clear distinction between a capitalist and an entrepreneur. Capitalist is only a financier. Entrepreneur is the coordinator and organiser of a business enterprise. Joseph A Schumpeter defines an entrepreneur as, “one who innovates, raises money, assembles inputs and sets the organisation going with the ability to identify them and opportunities, which others are not able to fulfil such economic opportunities.” He further said, “An entrepreneur is an innovator playing the role of a dynamic businessman adding material growth to economic development.”
2.4 Characteristics of an Entrepreneur

An entrepreneur is a highly achievement oriented, enthusiastic and energetic individual. He is a business leader. He has the following characteristics:

- An entrepreneur brings about change in the society. He is a catalyst of change.
- An entrepreneur is an action-oriented and a highly motivated individual, who takes risks to achieve goals.
- An entrepreneur accepts responsibilities with enthusiasm and endurance.
- An entrepreneur is a thinker doer, planner and worker.
- An entrepreneur can foresee the future, seize the market with a salesman’s persuasiveness, manipulate funds with financial talent and smell errors, frauds and deficiencies with an auditor’s precisions.
- An entrepreneur undertakes a venture not for his personal gain alone, but for the benefit of consumers, government and society as well.
- An entrepreneur builds new enterprises. He possesses intense level of determination and a desire to overcome hurdles and solves the problem and completes the job.
- An entrepreneur finds the resources required to exploit opportunities.
- An entrepreneur does extraordinary things as a function of vision, hard work, and passion. He challenges assumptions and breaks rules.
- Although many people come up with great business ideas, most of them never act on their ideas.

2.5 Definition of Entrepreneurship

In the words of Stevenson and others, “Entrepreneurship is the process of creating value by bringing together a unique package of resources to exploit an opportunity.” According to A.H. Cole, “Entrepreneurship is the purposeful activities of an individual or a group of associated individuals undertaken to initiate, maintain or organise a profit-oriented business unit for the production or distribution of economic goods and services.”

All activities undertaken by an entrepreneur to bring a business unit into existence are collectively known as entrepreneurship. It is the process of changing ideas into commercial opportunities and creating values. In short, entrepreneurship is the process of creating a business enterprise.

2.6 Nature and Characteristics of Entrepreneurship

The features of entrepreneurship are as follows:

- It is a function of innovation.
- It is a function of leadership.
- It is an organisation-building function.
- It is a function of high achievement.
- It involves creation and operation of an enterprise.
- It is concerned with unique combinations of resources that make existing methods or products obsolete.
- It is concerned with employing, managing, and developing the factors of production.
- It is a process of creating value for customers by exploiting untapped opportunities.
- It is a strong and positive orientation towards growth in sales, income, assets, and employment.

2.7 Innovation and Entrepreneurship

Innovation is one of the underlying dimensions of entrepreneurship. It is a key function in the entrepreneurial process. Without innovation, an entrepreneur cannot survive in the modern competitive business world. Entrepreneurship is a creative and innovative response to the environment and an ability to recognise, initiate and exploit an economic opportunity. An entrepreneur is an innovator who introduces something new in an economy.
As per the Schumpeter’s view, a person becomes an entrepreneur only when he or she is engaged in innovation. Innovation is equal to competitive advantage. The entrepreneurs today realise the need for innovation. Innovation adds value to the product. It is only through innovation, the organisations can survive the increasing competition in the market place.

2.8 Risks Involved with Entrepreneurship
Entrepreneurship involves numerous risks which are as follows:

- **Financial risk**: The entrepreneurship has to invest money in the enterprise on the expectation of getting in return sufficient profits along with the investment. He may get attractive income or he may get only limited income. Sometimes, he may incur losses.
- **Personal risk**: Starting a new venture uses much of the entrepreneur’s energy and time. He or she has to sacrifice the pleasures attached to family and social life.
- **Career risk**: This risk may be caused by a number of reasons, such as leaving a successful career to start a new business or the potential of failure causing damage to professional reputation.
- **Psychological risk**: Psychological risk is the mental agonies that an entrepreneur bears while organising and running a business venture. Some entrepreneurs who have suffered financial catastrophes have been unable to bounce back.

2.9 Barriers to Entrepreneurship
Entrepreneurial development is very slow in under-developed and developing countries. This is due to the presence of several factors. Gunnar Myrdal pointed out that Asian societies lack entrepreneurship not because they lack money or raw material but because of their attitudes. These barriers to entrepreneurship are classified into three and are discussed in the following sections.

2.9.1 Environmental Barriers
The following are the important environmental barriers to entrepreneurship:

- **Non-availability of raw material**: Non-availability of raw materials especially during peak season is one of the obstacles inhibiting entrepreneurship. This leads to competition for raw material.
- **Lack of skilled and desired labour**: This is the most important resource in any organisation. Unfortunately, desired manpower may not be available in an organisation. This is either due to the lack of skilled labour or due to lack of committed or loyal employees in the organisation.
- **Lack of good machinery**: Good machines are required for the production of goods, because of rapid technological developments, machines become obsolete very soon. Small entrepreneurs find it difficult to get large amount of cash for installing modern machinery.
- **Lack of infrastructure**: Lack of infrastructure facilities is a major barrier to the growth of entrepreneurship particularly in under developed and developing economies. The infrastructural facilities include land and building, adequate and cheap power, proper transportation, water and drainage facilities etc.
- **Lack of funds**: There are various methods by which an entrepreneur arranges for funds, e.g., own savings, borrowings from friends and relatives, banks and other financial institutions. Many people do not enter into entrepreneurial activities because of lack of funds.
- **Other environmental barriers**: Lack of business education, Lack of motivation from government, corruption in administration, high cost of production, etc. are the other environmental barriers that inhibit the growth of entrepreneurship in underdeveloped countries.

2.9.2 Personal Barriers
Personal barriers are those barriers that are caused by emotional blocks of an individual. Some of the personal barriers may be outlined as below:

- **Unwillingness to invest money**: Even though people have money, still they do not come in entrepreneurship. They are not willing to take the risk of investing money in business.
• Lack of confidence: Many people think that they lack what it takes to become an entrepreneur. They feel that they could not master all the skills. Thus most people are reluctant to become entrepreneurs.

• Lack of motivation: When an individual starts a new venture, he is filled with enthusiasm and drive to achieve success. However, when he faces the challenges of real business or bears loss, or his ideas don’t work, he loses interest or motivation.

• Lack of patience: The desire to achieve success in the first attempt or to become rich very soon is the prime motivating factor of modern youth. When such dreams do not come true, they lose interest. This gradually drives them to fail in business.

• Inability to dream: Entrepreneurs, who are short on vision or become satisfied with what they achieve, sometimes lose interest in further expansion/growth of business.

2.9.3 Social Barriers
The social attitude inhibits many people even from thinking of starting a business. The important social barriers are as follows:

• Low status: The society things that entrepreneurs are the people who exploit the society. Thus, the attitude of the society towards entrepreneurs is not positive.

• Customs and traditions of people: Most people want a real job. Even parents who are entrepreneurs wouldn’t like their children to be entrepreneurs. Thus, lack of support from society and family hinder the growth of entrepreneurs.

2.10 Factors Affecting Entrepreneurial Growth
There are large numbers of varied factors which contribute to the growth of entrepreneurship. These factors can be broadly classified into five. These factors are explained in detail below.

2.10.1 Psychological Factors
Inspiration for achievement prepares an entrepreneur to set higher goals and achieve them. The important psychological factors influencing entrepreneurial growth may be outlined as:

• Need for achievement: Need for achievement means the drive to achieve a goal. People who have need for achievement will be so much self-confident that they do not believe in mere luck. If an individual has need for achievement, he will become a successful entrepreneur.

• Personal motives: These have been found to be one of the crucial factors responsible for entrepreneurship amongst individuals. Bill Gates dreamt that one day he would become the richest person. His dream became a reality later.

• Recognition: Many people become successful entrepreneurs just for getting recognition from others.

• Need of authority: ‘Need of authority’ will inspire men to work. When they become entrepreneurs, they can exercise authority over managers, employees, etc.

2.10.2 Cultural Factors
There are three kinds of cultural factors that affect the entrepreneurial growth. The Cultural factors consist of:

• Tangible manmade objects like furniture, buildings, etc.

• Intangible concepts like laws, morals, knowledge, etc.

• Values and behaviour acceptable within the society.

The important cultural factors influencing entrepreneurial growth are as follows:

• Culture: Culture is closely related with accepted values and human behaviour. For e.g., some societies have customs of polygamy and some have not.

• Religious beliefs: According to Max Weber, entrepreneurship is a function of religious beliefs and the impact of religion shapes the entrepreneurial culture. He emphasised that the entrepreneurial energies are exogenous supplied by means of religious beliefs.
• Minority groups: Hoselitz explained that the supply of entrepreneurship is governed by cultural factors, and culturally minority groups are the spark plugs of entrepreneurial and economic development. Minority groups like the Jews and Greeks in Medieval Europe, Lebanese in West Africa, and the Indians in East Africa have important roles in promoting economic development.

• Spirit of capitalism: It guides the entrepreneur to engage in activities that can bring more and more profits. The profit-motive character coupled with the attitude towards acquisition of money urges the individual to start new venture.

2.10.3 Social Factors
The sociological and environmental factors during childhood, school, college and job environments, and also, mobility, occupation and support from parents mould a person into an entrepreneur. The social factors include:

• Legitimacy of entrepreneurship: System of norms and values within a socio-cultural setting is responsible for the emergence of entrepreneurship. The degree of approval or disapproval granted to entrepreneurial behaviour will influence its emergence and its characteristics, if it does emerge.

• Social marginality: Individuals or groups on the perimeter of a given social system or between two social systems provide the personnel to assume the entrepreneurial roles. Social marginality is likely to promote entrepreneurship are largely determined by two factors, namely the legitimacy of entrepreneurship and social mobility.

• Family, role models and association with similar type of individuals: If an individual has a supportive family, he or she is more likely to become an entrepreneur. Similarly, if an individual has role models who have been successful in entrepreneurship, certainly, he may be motivated to start ventures. If a person is in association with entrepreneurs, this may add to his or her desire of setting up a new venture. Reliance, Tata, Birla, etc. depend upon family-based inheritance. Roberts has developed the idea of the ‘entrepreneurial heritage’ to describe the importance of the family background for the entrepreneur. This heritage includes factors, such as the father’s occupation, the family work ethic and religion, family size and the first born son, growing up experience and so on.

• Caste system: Certain religions and castes encourage the growth of entrepreneurial talent. Some religious communities like the Parsis, Marwaris and Sindhis seem to have an affinity for entrepreneurial activity. The caste system in Hindu society has promoted to the growth of business and professional skills.

• Occupation: Those born in rich families with silver spoons in their mouth have not only an advantage of having financial resources for carrying out business, but also learn the business skill by continuous interaction and contacts with parents, customers, employees and visitors in family shops, offices and homes.

• Education and technical qualifications: Education is the best means of developing a man’s resourcefulness which encompasses different dimensions of entrepreneurship. It may be expected that the high level of education may enable the entrepreneurs to exercise their entrepreneurial talent more efficiently and effectively.

• Social status: Every human being aspires for a high social status and once he achieves a reasonable level, his aspirations and desires start getting multiplied. People work hard to maintain their status as it also contributes to their entrepreneurial growth.

• Social responsibility: It is the obligation to the society in which the business enterprise operates. An entrepreneur generates employment for others besides helping himself.

2.10.4 Economic Factors
Economic factors also influence the growth of entrepreneurship. The important economic factors are:

• Infrastructural facilities: Entrepreneurship development requires certain basic infrastructure like power, transportation, communication, technical information, etc. These provide external economies and improve the efficiency of investments by entrepreneurs. These infrastructural facilities are scarce in less developed countries. The entrepreneurs themselves have to procure these facilities at their own cost. They have to obtain these facilities at higher costs. This will greatly discourage the entrepreneurship development. In advanced countries, those who are desirous of starting an enterprise will find no difficulty in procuring the infrastructural facilities at reasonable costs.
Financial resources: Finance is the lifeblood of any business activity. Capital is required to obtain materials, machinery, equipment, etc. and to undertake innovation. Capital is regarded as lubricant to the process of production. The lack of financial resources discourages the youth and potential entrepreneurs to start new ventures. Hence, the need for fixed and working capital should be adequately met, if new entrepreneurs are to come forward and grow.

Availability of material and know-how: Entrepreneurship is encouraged only if there is an adequate supply of materials and know-how. Easy availability of materials attracts more individuals towards entrepreneurship. Technical know-how is essential for innovation. With technical knowledge, men discover sophisticated techniques of production.

Labour conditions: The quality rather than quantity of labour is another factor which influences the emergence and growth of entrepreneurship. The availability of cheap labour positively affects entrepreneurship. Labour problem can be solved not by capital intensive technologies but by increasing their mobility, by offering them facilities, incentives and concessions in every remote corner of the country.

Market: The size and composition of market influence entrepreneurship in their own ways. Practically, monopoly in a particular product in a market becomes more influential for entrepreneurship than a competitive market.

Support system: Ability, initiative and support systems include financial and commercial institutions, research, training, consultancy services, ancillary industry, etc.

Government policy: The socio-political and economic policies of the government inhibit or foster entrepreneurial growth. Land and factory-sheds at concessional rates, adequate sources of power, supply of materials and other physical facilities should be provided by the government to facilitate the setting up of new enterprises. The government has a dominant role to play in the industrial development of backward regions with a view to attain a balanced regional development.

2.10.5 Personality Factors

The supply of entrepreneurship in a society is largely influenced by the presence of individuals with initiative, foresightedness and organising and managerial competence. The following personality factors contribute to the entrepreneurial development:

- Personality: The entrepreneurial personality comprises of the person, his skills, styles and motives. Impressive personality and individual skills help to develop entrepreneurship. These qualities are required for entrepreneurs because they have to work with officers, managers, engineers, labourers, customers, investors, govt. officers, ministers, etc.

- Independence: Another personality factor which influences entrepreneurship is independence. An entrepreneur works out plans on his own, searches and explores resources and experiences and uses inner urge to make the enterprise a success instead of waiting for suggestions or directions from others.

- Compulsion: Certain compelling reasons also force the people to become entrepreneurs. These include:
  - Unemployment or dissatisfaction with existing job or occupation
  - Use technical or professional knowledge and skills
  - Investing idle funds

A large number of technically qualified people after gaining initial experience and confidence and not being satisfied by their growth in the profession have a compulsive reason to try entrepreneurship.

2.11 Qualities of a Successful Entrepreneur

In order to organise and run it successfully, the entrepreneur must possess some qualities and traits. They are as follows:

- Willingness to make sacrifices and assume risks: A new venture is full of difficulties and unanticipated problems. In such an inhospitable environment, the entrepreneur has to be prepared to sacrifice his time, energy and resources in order to carry out the venture and make it a success.
• Hard work: Willingness to work hard distinguishes a successful entrepreneur from an unsuccessful one. For example, Azim Premji (chairman of Wipro) works in his office fourteen hours every day. He is a successful entrepreneur. He is one of the richest persons in India.

• Optimism: Successful entrepreneurs are not worried by the present problems that they face. They are optimistic about the future. This enhances their confidence and drives them towards success. Some of the world’s greatest entrepreneurs failed before they finally succeeded.

• Self confidence: This is the greatest asset of a successful entrepreneur. He must have the confidence to make choices alone and bounce back when he fails.

• Leadership: Successful entrepreneur generally has strong leadership qualities. He should be a good judge of human nature and a good leader. He must be able to select, train and develop persons who can properly manage and control the labour force. McClelland identified two main characteristics in an entrepreneur:
  • Doing things in a new and better manner.
  • Decision making under uncertainty.

A successful entrepreneur must be capable and well-informed, a successful leader of men, a keen judge of things, courageous and prudent. Above all, he must be gifted with a large measure of practical common sense. There are not many Fords, Tatas, Birlas, Thapars and Ambanis in the world. Entrepreneurship is not limited to any class, community or religion. There is no age-bar for any person who possesses certain behavioural traits and attitudes to become an entrepreneur.

### 2.12 Need for Achievement

It is the psychological need to achieve. It provides drive to the entrepreneur to set up a new venture, to achieve targets, to sense problems and opportunity, to take much risk so as to run the business successfully. It is nothing but a person’s desire either for excellence or to succeed in competitive situation. Thus, achievement motivation means a drive to overcome challenges in reaching higher goals. It is a strong desire to achieve a higher goal and make dreams come true. In short, it is the strong desire to win.

### 2.13 Types of Entrepreneurs

Entrepreneurs may be classified in a number of ways. The following paragraphs will discuss the various types of entrepreneurs.

#### 2.13.1 Classification on the Basis of Type of Business

Entrepreneurs are classified on the basis of the type of business that they do. They are:

• Business entrepreneur: He is an individual who discovers an idea to start a business and then builds a business to give birth to his idea.

• Trading entrepreneur: He is an entrepreneur who undertakes trading activity, i.e.; buying and selling manufactured goods.

• Industrial entrepreneur: He is an entrepreneur who undertakes manufacturing activities.

• Corporate entrepreneur: He is a person who demonstrates his innovative skill in organising and managing a corporate undertaking.

• Agricultural entrepreneur: They are entrepreneurs who undertake agricultural activities, such as raising and marketing of crops, fertilisers and other inputs of agriculture. They are called agripreneurs.

#### 2.13.2 Classification on the Basis of Use of Technology

Entrepreneurs who are classified on the basis and use of technology are as follows:

• Technical entrepreneur: They are extremely task oriented. They are of craftsman type. They develop new and improved quality goods because of their craftsmanship. They concentrate more on production than on marketing.
• Non-technical entrepreneur: These entrepreneurs are not concerned with the technical aspects of the product. They develop marketing techniques and distribution strategies to promote their business. Thus they concentrate more on marketing aspects.

• Professional entrepreneur: He is an entrepreneur who starts a business unit but does not carry on the business for long periods. He sells out the running business and starts another venture.

2.13.3 Classification on the Basis of Motivation
On the basis of motivation, entrepreneurs are classified into four groups. They are:

• Pure entrepreneur: They believe in their own performance while undertaking business activities. They undertake business ventures for their personal satisfaction, status and ego. They are guided by the motive of profit. For example, Dhirubhai Ambani of Reliance Group.

• Induced entrepreneur: He is induced to take up an entrepreneurial activity with a view to avail some benefits from the government. These benefits are in the form of assistance, incentives, subsidies, concessions and infrastructures.

• Motivated entrepreneur: These entrepreneurs are motivated by the desire to make use of their technical and professional expertise and skills. They are motivated by the desire for self-fulfilment.

• Spontaneous entrepreneur: They are motivated by their desire for self-employment and to achieve or prove their excellence in job performance. They are natural entrepreneurs.

2.13.4 Classification on the Basis of Stages of Development
On the basis of stages of development, there are three types of entrepreneurs. They are:

• First generation entrepreneur: He is one who starts an industrial unit by means of his own innovative ideas and skills. He is essentially an innovator. He is also called new entrepreneur.

• Modern entrepreneur: He is an entrepreneur who undertakes those ventures which suit the modern marketing needs.

• Classical entrepreneur: He is one who develops a self supporting venture for the satisfaction of customers’ needs. He is a stereo type or traditional entrepreneur.

2.13.5 Classification on the Basis of Entrepreneurial Activity
Entrepreneurs are also classified on the basis of entrepreneurial activity. They are:

• Novice: A novice is someone who has started his/her first entrepreneurial venture.

• Serial entrepreneur: A serial entrepreneur is someone who is devoted to one venture at a time but ultimately starts many. He repeatedly starts businesses and grows them to a sustainable size and then sells them off.

• Portfolio entrepreneurs: A portfolio entrepreneur starts and runs a number of businesses at the same time. It may be a strategy of spreading risk or it may be that the entrepreneur is simultaneously excited by a variety of opportunities.

2.13.6 Classification by Clarence Danhof
On the basis of American agriculture, Clarence Danhof classified entrepreneurs in the following categories:

• Innovative entrepreneurs: They are generally aggressive on experimentation and cleverly put attractive possibilities into practice. An innovative entrepreneur, introduces new goods, inaugurates new methods of production, discovers new markets and reorganises the enterprise. Innovative entrepreneurs bring about a transformation in lifestyle and are always interested in introducing innovations.

• Adoptive or imitative entrepreneurs: Imitative entrepreneurs do not innovate the changes themselves, they only imitate techniques and technology innovated by others. They copy and learn from the innovating entrepreneurs. While innovating entrepreneurs are creative, imitative entrepreneurs are adoptive.

• Fabian entrepreneurs: These entrepreneurs are traditionally bounded. They would be cautious. They neither introduce new changes nor adopt new methods innovated by others entrepreneurs. They are shy and lazy. They try to follow the footsteps of their predecessors. They follow old customs, traditions, sentiments, etc. They take up new projects only when it is necessary to do so.
• Drone entrepreneurs: Drone entrepreneurs are those who refuse to adopt and use opportunities to make changes in production. They would not change the method of production already introduced. They follow the traditional methods of production. They may even suffer losses, but they are not ready to make changes in their existing production methods.

Entrepreneurs may be broadly classified into commercial entrepreneurs and social entrepreneurs.
• Commercial Entrepreneurs: They are those entrepreneurs who start business enterprises for their personal gain. They undertake business ventures for the purpose of generating sales and profits. Most of the entrepreneurs belong to this category.
• Social Entrepreneurs: They are those who identify, evaluate and exploit opportunities that create social values and not personal wealth. Social values refer to the basic long standing needs of society. They focus on the disadvantaged sections of the society. They play the role of change agents in the society. In short, social entrepreneurs are those who start ventures not for making profits but for providing social welfare.

2.14 Copreneurs
Copreneurs are entrepreneurial couples who work together as co-owners of their business. They are creating a division of labour that is based on expertise as opposed to gender studies show that companies co-owned by spouses represent one of the fastest growing business sectors. Marcia Sherrill with her husband William Kleinberg (USA) runs Kleinberg Sherrills, a leather goods and accessories business. She says, “There is nothing more exciting than nurturing a business and watching it grow with someone you love.”

2.15 Intrapreneurs
The term intrapreneur was coined in USA in the late seventies. Many senior executives of big companies in America left their jobs and started small business of their own. They left the organisation because they did not get any opportunity to apply their own ideas and innovative ability. These entrepreneurs become successful in their own ventures. Some of them caused a threat to the corporations they left. These types of entrepreneurs have come to be called intrapreneurs. They believe strongly in their own talents. They have the desire to create something of their own. They want responsibility and have a strong drive for individual expression and more freedom in their present organisational structure. When this freedom is not forthcoming, they become less productive or even leave the organisation to achieve self actualisation elsewhere.

2.16 Ultrapreneurs
Now-a-days, new products and services are conceived, create, tested, produced and marketed very quickly and with great speed. Therefore, today’s entrepreneur needs to have a different mindset about establishing and operating a business. This mindset is called ‘ultrapreneuring’. An entrepreneur with this mind set is known as ultrapreneur. The concept of ultrapreneuring is to identify a business opportunity, determine its viability and form a company. It requires assembling a super competent management team, who then develops, produces and markets the product or service in the shortest optimum time period. They create business and then sell out, merge or combine.

2.17 Functions of an Entrepreneur
Entrepreneur is a lead player in the drama of business. According to Kilbi, an entrepreneur has to perform four groups of functions:
• Exchange relationship
  • Perceiving market opportunities
  • Gaining command over scarce resources
  • Purchasing inputs
  • Marketing of the products and responding to competition
• Political administration
  • Dealing with public bureaucracy (concession, licences and taxes)
  • Managing the human relation within the firm.
  • Managing customer and supplier relations.
• Management control
  • Managing finance
  • Managing production

• Technology
  • Acquiring and overseeing assembly of the factory.
  • Industrial engineering.
  • Upgrading process and product quality.
  • Introducing new products.

According to Arther H. Cole, an entrepreneur performs the following functions:
• Determining the objectives of the enterprise and revising the objectives in the light of changed circumstances.
• Developing an organisation including efficient relations with subordinates and all employees.
• Securing adequate finance.
• The requisition of efficient technological equipment.
• Developing a market for the products and devising new products to meet customers demand.
• Maintaining good relations with public authorities and with society.

### 2.18 Women Entrepreneurs

Women constitute about 50% of the world population. In traditional societies, they are confined to performing household activities. Hence, women are generally called home makers. In modern society, they have moved out of the house and are taking part in all areas of life. Today, the entrepreneurial world is open to the womenfolk. Thailand tops the list with 18.5% of women as entrepreneurs followed by India with 14.1% women entrepreneurs. Japan has the lowest rate of women entrepreneurs with just 0.6% women as entrepreneurs.

#### 2.18.1 The Concept of Women Entrepreneurship

According to the general concept, women entrepreneur may be defined as a women or a group of women who initiate, organise and operate a business enterprise. The government of India has defined a women entrepreneurship as “an enterprise owned and controlled by a women having a minimum financial interest of 51% of the capital and giving at least 51% of the employment generated in the enterprise to women.” Kerala government defined women industrial units as units owned/organised by women and engaged in small scale and cottage industries with not less than 80% of the total workers. With effect from 6th Feb. 1992, the definition of ‘Women Entrepreneurs’ is as follows: “Small scale industrial units/industrially related services or business enterprises managed by one or more women entrepreneurs in proprietary concerns in which she/they will individually or jointly have share capital of not less than 51% as partners/shareholders/directors of private limited company, members of co-operative society.”

#### 2.18.2 Problems of Women Entrepreneurs

The basic problem of a woman entrepreneur is that she is a woman. Women entrepreneurs face two sets of problems specific to women entrepreneurs. These are summarised as follows.

• Shortage of finance: Women and small entrepreneurs always suffer from inadequate fixed and working capital. Owing to lack of confidence in women’s ability, male members in the family do not like to risk their capital in ventures run by women. Banks have also taken negative attitude while lending to women entrepreneurs. Thus, women entrepreneurs rely often on personal saving and loans from family and friends.

• Shortage of raw material: Women entrepreneurs find it difficult to procure material and other necessary inputs. The prices of many raw materials are quite high.

• Inadequate marketing facilities: Most of the women entrepreneurs depend on intermediaries for marketing their products. It is very difficult for the women entrepreneurs to explore the market and to make their product popular. For women, market is a ‘chakravyuh’.
• Keen competition: Women entrepreneurs face tough competition from male entrepreneurs and also from organised industries. They cannot afford to spend large sums of advertisement.

• High costs of production: High prices of material, low productivity. Under utilisation of capacity, etc. account for high cost of production. The government assistance and subsidies would not be sufficient for the survival.

• Family responsibilities: Management of family may be more complicated than the management of the business. Hence she cannot put her full involvement in the business. Occupational backgrounds of the family and education level of husband have a direct impact on the development of women entrepreneurship.

• Low mobility: One of the biggest handicaps for women entrepreneur is her inability to travel from one place to another for business purposes. A single woman asking for room is looked upon with suspicion. Sometimes licensing authorities, labour officials and sales tax officials may harass them.

• Lack of education: About 60% of women are still illiterate in India. There exists a belief that investing in woman’s education is a liability, not an asset. Lack of knowledge and experience creates further problems in the setting up and operation of business.

• Low capacity to bear risks: Women lead a protected life dominated by the family members. She is not economically independent. She may not have confidence to bear the risk alone. If she cannot bear risks, she can never be an entrepreneur.

• Social attitudes: Women do not get equal treatment in a male dominated society. Wherever she goes, she faces discrimination. The male ego stands in the way of success of women entrepreneurs. Thus, the rigid social attitudes prevent a woman from becoming a successful entrepreneur.

• Low need for achievement: Generally, a woman will not have strong need for achievement. Every women suffers from the painful feeling that she is forced to depend on others in her life. Her pre-conceived notions about her role in life inhibit achievement and independence.

2.18.3 Remedies to Solve the Problems of Women Entrepreneurs

The following measures may be taken to solve the problems faced by women entrepreneurs in India:

• In banks and public financial institutions, special cells may be opened for providing easy finance to women entrepreneurs. Finance may be provided at concessional rates of interest.

• Women entrepreneurs’ should be encouraged and assisted to set up co-operatives with a view to eliminate middlemen.

• Scarce and imported raw materials may be made available to women entrepreneurs on priority basis.

• Steps may be taken to make family members aware of the potential of girls and their due role in society.

• Honest and sincere attempts should be undertaken by the government and social organisations to increase literacy among females.

• In rural areas, self employment opportunities should be developed for helping women.

• Marketing facilities for the purpose of buying and selling of raw and finished goods should be provided in easy reach.

• Facilities for training and development must be made available to women entrepreneurs.

• Family members do not like women to go to distant places for training. Therefore, mobile training centres should be arranged. Additional facilities like stipend, good hygienic crèches, transport facilities, etc., should be offered to attract more women to training centres.
2.18.4 Measures taken for the Development of Women Entrepreneurship in India

Women empowerment should be one of the primary goals of a society. Women should be given equality, right of decision-making and entitlements in terms of dignity. They should attain economic independence. The most important step to achieve women empowerment is to create awareness among women themselves. Development of women can be achieved through health, education and economic independence. Realising the importance of women entrepreneurs, Government of India has taken a number of measures to assist them. Some of the important measures are outlined as follows:

- **TRYSEM**: Training of Rural Youth for Self Employment was launched on 15th August 1979 which is still continuing. The objective of TRYSEM is to provide technical skills to rural youth between 18 and 35 years of age from families below the poverty line to enable them to take up self employment in agriculture and allied activities, industries, services and business activities. This is a sub scheme of IRDP. Training given through ITIs, Polytechnics, Krishi Vigyan Kendra, Nehru Yuva Kendras, etc has helped many rural women set up their own micro-enterprises with IRDP assistance.

- **Banks**: Banks, particularly commercial banks have formulated several schemes to benefit women entrepreneurs. These include rural entrepreneurship Development programmes and other training programmes, promotion of rural non-farm enterprise, women ventures, etc.

- **NABARD**: NABARD as an apex institution guides and assists commercial banks in paying special attention to women beneficiaries while financing. It has also been providing refinance to commercial banks so as to help the latter institutions to supplement their resources which could be deployed for the purpose of financing women beneficiaries.

- **Industrial policy**: The new industrial policy of government has specially highlighted the need for conducting special entrepreneurship programme for women.

- **Institutions and voluntary association**: Several voluntary agencies like FICCI Ladies Organisation (FLO), National Alliance of Young Entrepreneurs (NAYE) and others assist women entrepreneurs. NAYE has been a leading institution engaged in the promotion and development of entrepreneurship among women. It convened a conference of women entrepreneurs in November 1975. It assists the women entrepreneurs in:
  - getting better access to capital, infrastructure and markets
  - identifying investment opportunities
  - developing managerial and productive capabilities
  - attending to problems by taking up individual cases with appropriate authorities
  - sponsoring participation in trade fairs, exhibitions, special conference, etc.

- **National policy for the empowerment of women, 2001**: As to the commitments made by India during the Fourth World Conference on women held in Beijing during September, 1995, the department of women and children has drafted a national policy for the empowerment of women. This is meant to enhance the status of women in all walks of life at par with men.

2.18.5 Assistance to Women Entrepreneurs

Entrepreneurship does not differentiate the sex. A number of facilities and assistance are offered to the entrepreneurs. However, certain additional incentives or facilities offered to women entrepreneurs are discussed as follows:

- **Small Industrial Development Organisation (SIDO)**: SIDO through a network of SISIs conduct the EDPs exclusively for women entrepreneurs. The aim is to develop entrepreneurial traits and qualities among women and enable them to identify entrepreneurial opportunities, etc.

- **National Small Industries Corporation (NSIC)**: Many NSIC schemes provide preferential treatment to women entrepreneurs. It also conducts entrepreneurs and enterprise building programmes for women.
Industrial Development Bank of India (IDBI)
The schemes of IDBI for women entrepreneurs are summarised as follows:

- Promoter’s contribution: The IDBI set up the Mahila Udyan Nidhi (MUN) and Mahila Vikas Nidhi (MVN) schemes to help women entrepreneurs. IDBI conduct programmes of training and extension services through designated approved agencies and association with other development agencies like EDII, TCOs, KVIC, etc.

- Small Industries Development Bank of India (SIDBI): SIDBI has special schemes for financial assistance to women entrepreneurs. It provides training and extension services. It gives financial assistance at concessional terms in setting up tiny and small units.

- Commercial banks: The “Sthree Shakti Package Scheme” of SBI provides a package of assistance to women entrepreneurs. The consultancy wings of SBI give guidance on project identification and project viability. The programme of assistance such as repair and servicing, photo copying, dry cleaning, retail trade business enterprises, poultry farming, tailoring, etc. The Bank of India has introduced a scheme known as Priyadarshini Yojana’ to help women entrepreneurs.
Summary

- The word ‘entrepreneur’ is derived from the French word entreprendre. It means ‘to undertake.’
- An entrepreneur is ordinarily called a businessman.
- Capitalist is only a financier. Entrepreneur is the coordinator and organiser of a business enterprise.
- An entrepreneur is a highly achievement oriented, enthusiastic and energetic individual. He is a business leader.
- Entrepreneurship is the process of creating value by bringing together a unique package of resources to exploit an opportunity.
- Entrepreneurship is the purposeful activities of an individual or a group of associated individuals undertaken to initiate, maintain or organise a profit-oriented business unit for the production or distribution of economic goods and services.
- Innovation is one of the underlying dimensions of entrepreneurship. It is a key function in the entrepreneurial process.
- Entrepreneurial development is very slow in under-developed and developing countries.
- Personal barriers are those barriers that are caused by emotional blocks of an individual.
- The social attitude inhibits many people even from thinking of starting a business.
- Need for achievement is the psychological need to achieve. It provides drive to the entrepreneur to set up a new venture, to achieve targets, to sense problems and opportunity, to take much risk so as to run the business successfully.
- Copreneurs are entrepreneurial couples who work together as co-owners of their business.
- The term intrapreneur was coined in USA in the late seventies.
- Today’s entrepreneur needs to have a different mindset about establishing and operating a business. This mindset is called ‘ultrapreneuring’.
- Women constitute about 50% of the world population.
- NAYE has been a leading institution engaged in the promotion and development of entrepreneurship among women.

References


Recommended Reading

Self Assessment

1. The word ‘entrepreneur’ is derived from the French word entreprendre. It means to____________.
   a. business
   b. undertake
   c. businessman
   d. capitalist

2. Who is only the financier?
   a. Entrepreneur
   b. Organiser
   c. Entrepreneurial
   d. Capitalist

3. An entrepreneur is ordinarily called a__________.
   a. businessman
   b. capitalist
   c. undertaker
   d. financier

4. Match the following.

| 1. Copreneurs | A. are the ones with different mindset |
| 2. Intrapreneurs | B. undertake the risk of a new enterprise. |
| 3. Ultrapreneurs | C. are entrepreneurial couples who work together as co-owners of their business. |
| 4. Entrepreneurs | D. leave their jobs and started small business of their own. |

   a. 1-A, 2-B, 3-D, 4-C
   b. 1-C, 2-D, 3-A, 4-B
   c. 1-B, 2-A, 3-C, 4-D
   d. 1-D, 2-C, 3-B, 4-A

5. _____________is the process of creating value by bringing together a unique package of resources to exploit an opportunity.
   a. Entrepreneurship
   b. Entrepreneurial
   c. Managing
   d. Recruitment

6. Which of the following statement is false?
   a. Pure entrepreneur believes in their own performance while undertaking business activities.
   b. Induced entrepreneur is induced to take up an entrepreneurial activity with a view to avail some benefits from the government.
   c. Motivated entrepreneur is motivated by the desire to make use of their personal and professional expertise and skills.
   d. Spontaneous entrepreneur is motivated by their desire for self-employment and to achieve or prove their excellence in job performance.
7. ____________ is one of the underlying dimensions of entrepreneurship. It is a key function in the entrepreneurial process.
   a. Improvement
   b. Innovation
   c. Experiment
   d. Research

8. _______________ risk is the mental agony an entrepreneur bears while organising and running a business venture.
   a. Financial
   b. Personal
   c. Psychological
   d. Carrier

9. Which of the following statement is true?
   a. Business entrepreneur is an individual who discovers an idea to start a business and then builds a business to give birth to his idea.
   b. Business entrepreneur is an individual who starts a business unit but carries on the business for long period.
   c. Business entrepreneur is an individual who are motivated by their desire for employment and to achieve or prove their excellence in job performance.
   d. Business entrepreneur is an individual who develops a self supporting venture for the satisfaction of customer’s needs.

10. ___________ barriers are those barriers that are caused by emotional blocks of an individual.
    a. Environmental
    b. Social
    c. Psychological
    d. Personal
Chapter III

Entrepreneurship Development in India

Aim

The aim of this chapter is to:

• introduce entrepreneurship development
• explain the history of entrepreneurship in India
• explicate the structure and organisation of villages

Objectives

The objectives of this chapter are to:

• explicate decline of Indian handicrafts and progressive ruralisation of the Indian economy
• elucidate the process of industrial-transition in India
• explain the colonial exploitation forms and consequences

Learning outcome

At the end of this chapter, you will be able to:

• identify the employment policy in the ninth and eleventh plans
• understand the critique of employment policy
• describe the causes of slow growth of private enterprise
3.1 Introduction

There are so many institutes and organisations which are involved in entrepreneurship development activities and there are people who join these programmes as a stepping stone to become an entrepreneur. It is a known fact that so many management institutes are coming up to cater to the growing needs of industries by supplying traditional managers/corporate managers. The scope of this study is to find out the perception of management students about the entrepreneurship and compare it with those people who have become entrepreneurs.

A manager is one who manages all the resources to match with the organisational needs. In the managerial role, resources are allocated to solve problems and improve the administrative efficiency. The entrepreneurship is a very old concept according to which, anyone who runs business is called an entrepreneur. The more precise meaning of an entrepreneur is; one who perceives a need and then brings together manpower, material and capital required to meet that need. An entrepreneur is one who understands the market dynamics and searches for changes, responds to it and exploits it as an opportunity.

3.2 History of Entrepreneurship in India

The history of entrepreneurship is important worldwide, even in India. In the pre-colonial times, the Indian trade and business was at its peak. Indians were experts in smelting of metals, such as brass and tin. Kanishka Empire in the 1st century started nurturing Indian entrepreneurs and traders.

Following that period, in around 1600 A.D., India established its trade relationship with Roman Empire. Gold was pouring from all sides. Then, as the Portuguese and the English came to India, the scenario started to change. They captured Indian sea waters and slowly entered the Indian business. They forced the entrepreneurs to become traders and they themselves took the role of entrepreneurs. This was the main reason for the downfall of Indian business in the colonial times which had its impact in the post-colonial times too. The colonial era made the Indian ideas and principles rigid.

A region of historic trade routes and vast empires, the Indian subcontinent was identified with its commercial and cultural wealth for much of its long history. Gradually annexed by the British East India Company from the early eighteenth century and colonised by the United Kingdom from the mid-nineteenth century, India became an independent nation in 1947, after a struggle for independence that was marked by widespread nonviolent resistance. It has the world’s twelfth largest economy at market exchange rates and the fourth largest in purchasing power. Economic reforms since 1991 have transformed it into one of the fastest growing economies. However, it still suffers from high levels of poverty, illiteracy and malnutrition. For an entire generation from the 1950s until the 1980s, India followed socialist-inspired policies. The economy was shackled by extensive regulation, protectionism, and public ownership, leading to pervasive corruption and slow growth. The nation has moved towards a market-based system since 1991.

Entrepreneurship is the result of three dimensions working together:

- Conductive framework conditions
- Well-designed government programmes
- Supportive cultural attitudes.

Across these three perspectives of entrepreneurship, two major conclusions are apparent. Firstly, the economic, psychological and sociological academic fields accept that entrepreneurship is a process. Secondly, entrepreneurship is clearly more than just an economic function.

3.2.1 Economy of India before the British-Raj

The Indian economy in the pre-British period consisted of isolated and self-sustaining villages on the one hand, and towns, which were the seats of administration, pilgrimage, commerce and handicrafts, on the other. Means of transport and communication were highly underdeveloped and so the size of the market was very small. To understand pre-British India, it is essential to study the structure of the village community, the character of towns, the character of internal and foreign trade, the state of the means of transport and communications.
3.2.2 The Structure and Organisation of Villages

The village community was based on a simple division of labour. The farmers cultivated the soil and tended cattle. Similarly, there existed classes of people called weavers, goldsmiths, carpenters, potters, oil pressers, washermen, cobblers, barber-surgeons, etc. All these occupations were hereditary and passed by tradition from father to son. These craftsmen were paid a stipend out of the crops at the harvest time in lieu of the services performed.

Most of the food produced in the village was consumed by the village population itself. The raw materials produced from primary industries were the feed for the handicrafts. Thus, the interdependence of agriculture and hand industry provided the basis of the small village republics to function independently of the outside world. Sir Charles Metcalfe writes in this connection: “The village communities are little republics having nearly everything they want within themselves; and almost independent of foreign relations. They seem to last where nothing lasts. This union of the village communities, each one forming a separate little state by itself is in a high degree conducive to their happiness and to the enjoyment of a great portion of freedom and independence.” The villages did acknowledge some outside authority, who in turn may be under a Muslim Nawab or a Hindu king, by paying a portion of the agricultural produce varying between one-sixth to one-third or even in some periods one-half as land revenue. The land revenue sustained the government. There were three distinct classes in village India:
- The agriculturists
- The village artisans and menials
- The village officials

The agriculturists could be further divided into the land-owners and the tenants. Labour and capital needed was either supplied by the producers themselves out of their savings or by the village landlord or by the village moneylender. These credit agencies supplied finance at exorbitant rates of interest but since the moneylender and the landlord were the only sources of credit, the peasants and even the artisans were forced to depend on them. The village artisans and menials were the servants of the village. Most of the villages had their panchayats or bodies of village elders to settle local disputes. The panchayats were the courts of justice. The villages of India were isolated and self-sufficient units which formed an enduring organisation. This should not lead us to the conclusion that they were unaffected by wars or political upheavals. They did suffer the aggressors and were forced to submit to exactions, plunder and extortion, but the absence of the means of transport and communications and a centralised government helped their survival.

3.2.3 Industries and Handicrafts in Pre-British India

The popular belief that India had never been an industrial country is incorrect. It was true that agriculture was the dominant occupation of the people but the products of Indian industries enjoyed a worldwide reputation. The muslin of Dacca, the calicos of Bengal, the sarees of Banaras and other cotton fabrics were known to the foreigners. Egyptian mummies dating back to 2000 B.C. were wrapped in Indian muslin. Similarly, the muslin of Dacca was known to the Greeks under the name Gangetika.

The chief industry spread over the whole country was textile handicrafts. The high artistic skill of the Indian artisans can be visualised from this account given by T.N. Mukherjee: “A piece of the muslin 20 yards long and one yard wide could be made to pass through a finger ring and required six months to manufacture.” Besides the muslin, the textile handicrafts included chintzes of Lucknow, dhotis and dopattas of Ahmedabad, silk, bordered cloth of Nagpur and Murshidabad. In addition to cotton fabrics, the shawls of Kashmir, Amritsar and Ludhiana were very famous. Not only that India was also quite well-known for her artistic industries like marble-work, stone-carving, jewellery, brass, copper and bell-metal wares, woodcarving, etc. The cast-iron pillar near Delhi is a testament to the high level of metallurgy that existed in India.

The Indian industries “not only supplied all local wants, but also enabled India to export its finished products to foreign countries.” Thus, Indian exports consisted chiefly of goods like cotton and silk fabrics, calicos, artistic wares, silk and woollen cloth. Besides, there were other articles of commerce like pepper, cinnamon, opium, indigo, etc. In this way, Europe was a customer of Indian goods during the 17th and 18th centuries. It was this superior industrial status of India in the pre-British period that prompted the Industrial Commission (1918) to record: “At a time when
the West of Europe, the birth place of modern industrial system, was inhabited by uncivilised tribes, India was famous for the wealth of her rulers and for high artistic skill of her craftsmen. Even at a much later period, when the merchant adventures from the West made their first appearance in India, the industrial development of this country was, at any rate, not inferior to that of the more advanced European nations.”

3.2.4 Economic Consequences of British Conquest

India had been conquered before the British too, but those invaders settled in India. The difference of the British conquest lies in the fact that it led to the emergence of a new political and economic system whose interests were rooted in a foreign soil and whose policies were guided solely by those interests. Whereas the early invaders indianised themselves, the British tried to keep a distance between them and the Indian people and thus created the distinction erstwhile not known to Indian history, the foreign rulers and the Indian subjects.

The British rule can be divided into two epochs:

• The rule of the East India Company ranging from 1757 to 1858.
• The rule of the British government in India from 1858 to 1947.

The establishment of the British rule itself was a slow and lengthy process, extending over more than a hundred years. The British conquest which started in 1757 with the Battle of Plassey was completed only by 1858. During this period England was passing through the period of changes in the techniques of production which revolutionised manufacturing. The coming of Industrial Revolution which synchronised with the period of British conquest helped the British to sell machine made goods in India in competition with Indian handicrafts. The British conquest led to the disintegration of the village community partly by the introduction of the new land revenue system and partly by the process of commercialisation of agriculture. The new land system and the commercial agriculture meant untold exploitation of the Indian peasantry and the country was consequently plagued by frequent famines. The British were not interested in developing India as such. The growth of railways or the spread of irrigation or the expansion of education or the creation of revenue settlements were all initiated with one supreme goal, i.e., to accelerate the process of economic drain from India.

3.2.5 Decline of Indian Handicrafts and Progressive Ruralisation of the Indian Economy

Before the beginning of Industrial Revolution in England, the East India Company concentrated on the export of Indian manufactured goods, textiles, spices, etc., to Europe where these articles were in great demand. The Industrial Revolution reversed the character of India’s foreign trade. Tremendous expansion of productive capacity of manufacturers resulted in increased demand of raw materials for British industry and the need to capture foreign markets. As a first step, attempts were made to restrict and crush Indian manufacturers. On the other hand, efforts were made to commercialise agriculture, so as to step up the export of raw materials. The Indian textile handicrafts were the first to be hit. The decline of this industry started a chain reaction leading to the speedy decline of other handicrafts. The process of decline of handicrafts was accelerated by the development of means of transport. The principal causes that led to the decay of handicrafts are described in the following paragraphs.

Disappearance of princely courts

The growth of quite a number of industries and towns was possible owing to the patronage of nawabs, princes, rajas and emperors who ruled in India. The British rule meant the disappearance of this patronage enjoyed by the handicrafts. Cotton and silk manufacturers suffered especially. Besides, the artisans who manufactured specially designed articles for display and decoration of courts also suffered, because of a decline in the demand for works of art.

Hostile policy of the East India Company and the British parliament

The British were always guided by their own interests and never bothered to consider the effects of their policies on the people of India in terms of unemployment, human suffering, famines, etc. They formulated certain policies, and propagated them, but when conditions changed in England they were quick to reverse or suitably alter them. The British economists always tried to provide the theoretical basis of these policies and behind the theoretical formulations were the British interests. For instance, in the first half of the 18th century, the British used tariff with the object of protecting their woollen and silk manufacturers on the one hand and of raising additional revenues to finance continental wars, on the other.
The period 1882 to 1894 was one of complete free-trade. By this time, England had developed industrially to such an extent that unrestricted competition of British manufacturers with Indian handicrafts led to their decline. It was only when England rose to the position of industrial supremacy that free trade was advocated by the British economists and administrators. Thus, the British manufacturers employed the arm of political injustice in order to exploit the Indian market. The selfish policy of the British imperialists crippled Indian industries and helped the process of industrialisation in Britain.

**Competition of machine-made goods**

The large-scale production that grew as a result of Industrial Revolution meant a heavy reduction in costs. It also created a gigantic industrial organisation and, consequently, the machine-made goods began to compete with the products of Indian industries and handicrafts. This led to the decline of textile handicrafts, the largest industry of India. Whereas the British emphasised the free import of machine-made manufactured goods, they did not allow the import of machinery as such.

The decline of Indian handicrafts created a vacuum which could be filled by the import of British goods only. Thus, India became a classic example of a colonial country supplying her imperialist ruler’s raw materials and foodstuffs and providing markets for the goods of her rulers. The development of roads, railways and telegraphs, intensified the competition between indigenous and foreign goods and hastened the process of the decline of handicrafts. The opening of the Suez Canal in 1869 reduced transport costs and made the exploitation of the Indian market easier.

**The development of new forms and patterns of demand**

With the spread of education, a new class grew in India which was keen to imitate western dress, manners, fashions and customs so as to identify itself with the British officials. This led to a change in the pattern of demand. Indigenous goods went out of fashion and the demand for European commodities got a fillip. Besides, there was a loss of demand resulting from the disappearance of princely courts and nobility. Thus, the British rule, silently but surely, alienated the Indians not only from Indian culture, but also diverted in its favour their form and pattern of demand for goods.

The destruction of Indian handicrafts had far reaching economic consequences. It led to unemployment on a vast scale. As textile industry was the worst sufferer in this process, the weavers were hit the most. Lord William Bentinck reported in 1834, “The misery hardly finds a parallel in the history of commerce. The bones of cotton weavers are bleaching the plains of India.”

Another consequence of the decline of handicrafts was the compulsory back-to-the-land movement. The British destroyed the institution of Indian handicrafts but did not care to provide an alternative source of employment. The unemployed craftsmen and artisans shifted to agriculture and increased the proportion of population dependent on land. This trend of the growing proportion of the working force on agriculture is described as ‘progressive ruralisation’ or ‘deindustrialisation of India’. In the middle of the nineteenth century, about 55 per cent of the population was dependent on agriculture, in 1901 it was about 68 per cent, the proportion went up to about 72 per cent in 1931. Thus, the increased pressure of population on land was responsible for progressive sub-division and fragmentation of holdings. It led to an increase in land-rents charged from tenants. It meant an increase in the number of landless labourers. Thus, the crisis in handicrafts and industries seriously crippled Indian agriculture.

**3.2.6 Process of Industrial-Transition in India**

The process of industrial transition in the British period is broadly divided into industrial growth during the 19th century and industrial progress during the 20th century. It was mainly the private sector - whether indigenous or foreign – that carried industrialisation forward. Only after the First World War, some protection was granted to Indian industries otherwise Indian industry had to weather all storms and face world competition on its own strength. This explains the slow growth of industrialisation.
Private enterprise and industrial growth in the 19th century
The outstanding industrial events of the 19th century were the decline of indigenous industries and the rise of large-scale modern industries. This change was brought about by private enterprise. The rise of large-scale industries was slow in the beginning, but by the close of the 19th century, the movement was more rapid.

The period 1850-55 saw the establishment of the first cotton mill, first jute mill and the first coal mine. In the same period, the first railway line was laid in India. In a period of 25 years, that is, by the last quarter of the 19th century, there were 51 cotton mills and 18 jute mills. During the same period, India produced one million tons of coal per annum and the Indian railways had a mileage of 8,000. By the end of the 19th century, there were 194 cotton mills and 36 jute mills, and coal production had risen to over 6 million tons per annum. In spite of the very rapid increase in industrialisation and the fact that the foundations for the development of modern industries for the utilisation of coal and iron resources were laid by the end of the 19th century, India was being gradually converted into an agricultural colony of the British. By 1900, India had become a great exporter of rice, wheat, cotton, jute, oilseeds, tea, etc. and an importer of British goods. In this way, India had become an appendage of the British colonial system.

During the 19th century, it was but natural that British business should pioneer industrial enterprise in India. The Britishers had experience of running industries at home. British enterprise received maximum state-support. Besides, much of the business developed in India was related either to the government or interests in some way connected with Britain. Though industrialisation was started by the British in the 19th century, the Britishers were more interested in their profit and not in accelerating the economic growth of India. Apart from the British, the Parsis, the Jews and the Americans were also prominent, first as merchants and later as industrialists. They were close-knit and highly progressive communities. The Parsis were particularly progressive to rapidly adopt European business methods.

Within the Indian community, conditions were not favourable for the emergence of industrial leaders, partly because of the peculiar way in which factory industry came to India, as compared to its development in England. In the West, two principal groups were ready to set up factories: the merchants and the master craftsmen. The merchants had capital, marketing ability and capacity to manage labour. The master craftsmen did not have capital, but had understood the materials and their proper handling. Because of certain peculiar features, neither Indian merchants nor Indian craftsmen took interest in the factory system. Most Indian merchants belonged to the Baniya or money-lending community. They possessed capital and were always eager for its security and profits. When the factory system was introduced in India by the British, the merchant class found greater opportunities for trade. The development of shipping and the building of railways resulted in larger trade, both external and internal. Besides, there were more opportunities for lending money. Thus, the merchants found greater scope for profits in their traditional occupations and hence did not give them up and take to the factory industries. At the same time, Indian craftsmen too did not play the part played by their western counter-parts in the field of industrialisation because they did not possess large capital. Besides, they were without proper training and education.

However, Indians joined the ranks of industrialists early in the middle of the 19th century and their role grew throughout the period, continuously and steadily. They used the same managing agency system as the Britishers. They were becoming increasingly important members of companies established by the Britishers. Those indigenous business groups who gave up traditional occupations and who took to industrial ventures were Parsis, Gujaratis, Marwaris, Jains and Chettiaras.

Private enterprise and industrial growth in the first half of the 20th century
In 1905, the Swadeshi movement started. It stimulated Indian industries and there was a slow but steady growth in the field of existing industries as well as the establishment of new industries between 1890 and the outbreak of the war of 1914. Over 70 cotton mills and nearly 30 jute mills were set up in the country. Coal production was more than doubled. Extension of railways continued at the rate of about 800 miles per annum. The foundation of iron and steel industry was finally laid during this period.

The war of 1914-18 created enormous demand for factory goods in India. Imports from England and other foreign countries fell substantially. Besides, the government demand for war-purposes increased considerably. As a result, great stimulus was given to the production of iron and steel, jute, leather goods, cotton and woollen textiles. Indian mills and factories increased their production and were working to full capacity. On account of the absence of heavy industries and also of the machine tools industry, they could not develop fast enough.
In 1923, the Government of India accepted the recommendations of the First Fiscal Commission and gave protection to selected Indian industries against foreign competition. Between 1924 and 1939, several major industries were given protection by the government, prominent among them being iron and steel industry, cotton textiles, jute, sugar, paper and pulp industry, matches, etc. Indian industrialists took advantage of the policy of protection extended by the government and developed the protected industries rapidly. They were able to capture the entire Indian market and eliminate foreign competition altogether in important fields.

The outbreak of the war in 1939 created very urgent demand for manufactured goods. The imports from foreign countries declined, while the government demand for them increased. Naturally, the existing industries expanded rapidly. Many new industries which came to be known as war babies were started. During the First World War, the Indian industries suffered again for want of replacements, stores and technical knowledge. The increase in industrial output between 1939 and 1945 was about 20 per cent. The conditions created by the war led to the maximum utilisation of existing capacity. The conditions of shortage created by the Second World War continued in the post-war period, but the overall index of output went up by only 5 per cent between 1945 and 1950. By the beginning of the First World War, the British controlled at least half the production in India’s major industries. However, this control steadily declined. According to one estimate, the British controlled 43 per cent of gross assets in 1914, 10 per cent in 1935 and only 3.6 per cent in 1948.

**Causes of slow growth of private enterprise in India’s industrialisation (1850-1957)**

It is important to find out the reasons why Indian industry did not expand significantly relative to the rest of the economy over the hundred years before Independence. They were:

- **Unimaginative private enterprise:** One important reason frequently mentioned is the inadequacy of entrepreneurial ability. Indians were reluctant to enter the industrial field because of the comparatively easier and secure scope for profit which existed in trading and money-lending. The Britishers who pioneered industrial change in India were not really interested in industrialisation of the country as such. Indian industrialists too were so short-sighted; they rarely bothered about the future and cared very little for replacement and for renovation of machinery. They were influenced by nepotism rather than ability in their choice of personnel. They were also influenced by their trading background, viz., high price and high profit margin rather than low prices and larger sales. They emphasised sales than production. To a certain extent, therefore, unimaginative private enterprise was responsible for the slow growth of industrialisation in this country.

- **Problem of capital and private enterprise:** In the 19th and 20th centuries, Indian industrialists had suffered from lack of adequate capital. Just as British enterprise was prominent, so also British capital was significant in India’s industrialisation. A larger part of the total invested capital in modern enterprises in India was imported from Britain. Capital was scarce not only because the resources of the country were underdeveloped but also because the avenues for the investment of surplus wealth were few. There were no government loans, company stocks and debentures. Accordingly, people held their wealth in the form of gold and silver.

  There was complete absence of financial institutions to help the transfer of savings to industrial investment. The indigenous financial institutions concerned themselves with rural money-lending and financing of internal trade. Institutions which concerned themselves with rural savings for a comparatively long period were altogether neglected. In the early days of industrialisation, people were generally hesitant to entrust their savings to the company promoters.

  Banking was not highly developed in India and was more concerned with commerce rather than with industry. The Industrial Commission wrote in 1918, “The lack of financial facilities is at present one of the most serious difficulties in the way of extension of Indian industries.” By 1870, there were only two joint stock banks of more than Rs. 5 lakhs capital each in the country. Even in the beginning of the 20th century, there were only 9 such banks. The swadeshi movement gave a fillip to the starting of banks, but the number of bank failures in this period was so great as to cancel any good effect from banking expansion. The private bankers and joint stock banks did provide funds for industrial enterprises, but this aid was limited to well-established concerns only.

  It is interesting to note that Indian factory-owners followed closely the British system as regards capital resources. In the beginning, funds for investment came from surpluses earned in rural money-lending and trading. In course of time, new resources were also tapped. For instance, rulers and princes, those who amassed wealth from opium trade and in the cotton boom during the civil war in America, wealthy professionals, doctors
and lawyers, government officials, etc., were induced to part with their wealth and savings for investment in industrial enterprises. The textile mills of Ahmedabad and to a small extent those of Bombay and Sholapur attracted deposits from the public. It is true that shortage of capital did affect industrialisation in India, but too much importance should not be given to this factor alone.

- Private enterprise and the role of government: One of the important reasons and according to some authorities, the most important reason for the slow growth of Indian industries was the lack of support from the government. In the 19th century, the government did provide certain overhead investments which helped private enterprise. Examples were the railways and communications. However, the government did not provide the other conditions essential for private enterprise. The important fact to remember is that in the critical years of growth (between 1850 and 1947), Indian enterprise was operating under a foreign government which was extremely unsympathetic to native private enterprise.

The tariff policy in India reflected the needs of business interests in Great Britain. The British interests advocated free access to the Indian market. Till 1924, the government refused to impose custom duties on the import of foreign goods. Even when they imposed low duties on some goods for purposes of collecting revenue, they sought to neutralise their effects by imposing equivalent excise duties on goods of local origin. When the government ultimately adopted a policy of protection, it did not give protection to all industries, but only to a few selected industries which fulfilled certain specified conditions.

It may be mentioned here that the British government in India leaned heavily on industry in Britain for its large purchases of equipment for public utility in health and education, railway and military supplies, etc. Even simple machines and standard supplies were imported. Those orders could have served to stimulate expansion in Indian industry. In spite of these difficulties, we must admire the achievements of India’s indigenous business communities since 1850. At the same time, we can readily understand why these industrial efforts were not sufficient to accomplish a transition to industrialisation, to spark modernisation of agriculture and industrial activities comparable to those achieved in sovereign independent nations.

### 3.2.7 Colonial Exploitation: Forms and Consequences

The major form through which the exploitation of India was done was trade. Later, the British started making investments in Indian industries and the process of economic drain started through investment income in the form of dividends and profits. In addition to this, India had to pay the costs of British administration, in the form of home charges. They included salaries of British officers (both civil and military), payment of pensions, furloughs and other benefits, as also interest payments on sterling debt. The main forms of colonial exploitation were:

- Trade policies aimed at developing a colonial pattern of trade in which India would become an exporter of foodstuffs and raw materials and an importer of finished goods.
- Encouragement of British capital to take up direct investment in Indian consumer goods industries.
- Encouragement of finance capital, through the managing agency system, to appropriate a major portion of the profits through various malpractices.
- To force India to pay the costs of British administration as well as to finance the wars and expeditions undertaken by the British government.

**Exploitation through trade policies**

Trade policies were used against India by the East India Company and later by the British government to drain away wealth from India to feed the expanding British industry with raw materials and also to encourage the trend towards commercialisation of agriculture, so that the Indian economy could be transformed as an appendage of the British colonial system. Thus, trade policies were a very convenient, but a potent source of exploitation.
Exploitation of cultivators to boost indigo-export

East India Company wanted to encourage indigo export. Some European planters were settled in Bengal. They were given land at a very nominal price. They forced the cultivators on their land to cultivate and sell the indigo plant at a very low price. Even other zamindars were compelled to allocate a portion of their land for indigo cultivation. Once an agreement was signed with a zamindar or a ryot accepted the advance for cultivation, he had to suffer the ruthless exploitation of the indigo planters who made fabulous profits from its export.

Exploitation of artisans through Company agents

During the 18th century, the East India Company wanted to benefit from the export of Indian cotton and silk fabrics which enjoyed a worldwide reputation. For this purpose, the Company made use of agents called as Gomastas. The gomastas, who were Indians in the employment of the Company, would go to the village and force the artisans to sign a bond to deliver a certain quantity of goods at a price to be fixed by the gomasta. The price fixed was at least 15 per cent and in extreme cases, even 40 per cent lower than the market price. In case, an artisan refused to accept the advance offered by the Company’s gomasta, he was punished by flogging and in certain cases, by imprisonment. In this way, through the Company’s gomastas, the East India Company was able to procure cotton and silk fabrics at very low prices. Thus, the poor artisan was squeezed so that the East India Company made huge profits through the export of these fabrics. The ruthlessness of the Company was so inhuman that the artisans worked like bonded labour and this explains their growing pauperisation.

Exploitation through the manipulation of import and export duties

Though Great Britain professed to be a follower of free-trade, but her trade policies towards Indian goods only revealed that she never followed the policy of free trade. During the 18th century, Indian goods, especially cotton and silk fabrics, enjoyed a lead over the British goods. The aim of British trade policies was to destroy the supremacy of the Indian goods, protect the interests of British industries and ultimately succeed in penetrating the Indian market by the machine-made goods. To achieve this end, several measures were undertaken:

- After 1700, imports of Indian printed cotton fabrics in England were banned. The purpose of this measure was to eliminate the Indian competitor from the British market. The craze for Indian goods was so strong that some smuggling did take place. A case was reported that an English lady who possessed an Indian handkerchief was fined £15.

- Heavy import duties were imposed on Indian goods, other than foodstuffs and raw materials imported from India and very nominal duty on the imports of British finished products into India. The declared policy of the East India Company was to encourage the production of raw cotton, raw jute, sugarcane, groundnuts, raw silk and other raw materials and to discourage the production of goods in India. This policy of unequal trade was forced on India and since India had been subjugated, she could not retaliate but accept this wanton attack on the industry. Ramesh Chandra Dutt citing the famous historian H. H. Wilson mentions, “Had this not been the case, had not such prohibitory duties and decrees existed, the mills of Paisley and Manchester would have been stopped in their outset, and could scarcely have been again set in motion, even by the power of the steam. They were created by the sacrifices of the Indian manufacturer. Had India been independent, she would have retaliated, would have proposed prohibitive duties upon British goods, and would thus have preserved her own productive industry from annihilation. This act of self-defence was not permitted to her; she was at the mercy of the stranger. British goods were forced upon her without paying any duty, and the foreign manufacturer employed the arm of political injustice to keep down and ultimately strangle a competitor with whom he could not have contended on equal terms.”

Towards the beginning of the 20th century, there was a strong demand by the Indian national movement to protect the interests of Indian industries. The British government decided to grant discriminating protection. During the process of implementation, only such industries were granted protection in which the Indian industry had to face competition with some other country and not Great Britain. As Sweden happened to be the competitor, match industry was granted protection. The woollen industry was not granted protection, because the interests of the British came in clash with those of Indian industry. Similarly, cement industry was another example in which protection was denied. However, in this case, the only serious competitor was U.K. Another example was that of heavy chemicals, an industry of national importance, in which protection was denied because there was a clash between British and Indian interests.
Within the framework of the policy of discriminating protection, Great Britain got the clause of Imperial Preference introduced. The sum and substance of this policy was that imports from Great Britain and exports to Great Britain should enjoy the most favoured nation treatment. This could be done by charging much lower import duties or no duties at all on goods imported from Britain. Similar preference to Great Britain was to be shown in exports, vis-a-vis, other nations. Thus, the British government took away by the left hand what it gave in the form of discriminating protection by the right hand. In other words, the policy of imperial preference was used to eliminate competitors from the Indian market so that Great Britain could have full control to exploit it through its trade policies.

Indian public opinion consistently opposed the introduction of imperial preference. Lord Curzon’s government in 1903 definitely pronounced against the policy of Imperial preference on the following grounds:

- About 3/4th of India’s imports came from the British Empire, while the remaining 1/4th was of a kind which British Empire either did not produce or was not in a favourable position to supply.
- In the decision of fiscal policy concerning India, powerful sections of the British people always exerted their influence and there was the danger that India might be forced to shape her policy not in accordance with her own needs but in accordance with the needs of other members of the Empire.
- The government would lose a large portion of the revenue it received from British and colonial imports and it would be left with no alternative, but to make up the deficit by enhanced duties on foreign goods.
- If the matter was thought from the economic point of view, Lord Curzon’s government thought, India had something, but not perhaps very much to offer to the Empire. She had very little to gain but a great deal to lose.

All these arguments produced no effect on the British. The matter was referred to the Indian Fiscal Commission (1923) and the majority of the Commission expressed themselves in favour of imperial preference. Obviously, the British were more concerned about retaining their hold on the Indian market. Though they were great advocates of free trade in theory, in practice they used every device to protect their interests against the entry of other nations, especially Japan, into the Indian market. This would break their monopoly of exploitation which as rulers they were totally unwilling to compromise.

The main purpose of protection was not to help Indian business to undertake investments in India, but to help the British capital find safe and secure avenues of investment. Writing in 1912, Alfred Chetterton in his work ‘Industrial Evolution of India’ in a very forthright comment explained, “Protection would attract capital from abroad, and with the capitalist would come the technical expert and the trained organiser of modern industrial undertakings. Success would undoubtedly attend their efforts, and India would contribute labour and raw materials. The educated Indian would play but a small part; and he would in the course of time realise that the protective duties mainly served to enable Europeans to exploit the country India does not want a protective tariff to enable an artificial industrial system to be created, the masters of which will be able to take toll of the earnings of the country, and establish a drain on its resources which will in the long-run retard progress.” Prophetic though it may appear, later developments showed that the policy of discriminating protection supported by imperial preference produced precisely the same results.

**Exploitation through export of British capital to India**

In the early phase of colonialism, the chief instrument of exploitation was trade, but later the British thought of encouraging investment in India. There were three principal purposes of these investments:

- After the first war of Indian Independence (1857), which the British described as the Mutiny, it was realised by the government that for the effective control and administration of the country, it was essential that an efficient system of transport and communication should be developed.
- In order to effectively exploit the natural resources of India, it was essential to develop public utilities like generation of electricity and water works.
- Thirdly, to promote foreign trade so that food and raw materials collected in various mandis are quickly transported abroad and the goods imported in India are quickly distributed in various markets, the British thought it necessary to link railways with major ports on the one hand and the marketing centres (mandis) on the other. This explains why railway development in India was planned in such a manner that it served the colonial interests.
3.3 Nature of Unemployment in India

India is a developing economy, the nature of unemployment, therefore, sharply differs from the one that prevails in industrially advanced countries. Lord Keynes diagnosed unemployment in advanced economies to be the result of a deficiency of effective demand. It implied that in such economies machines becomes idle and demand for labour falls because the demand for the products of industry is no longer there. Thus, Keynesian remedies of unemployment concentrated on measures to keep the level of effective demand sufficiently high so that the economic machine does not slacken the production of goods and services.

This type of unemployment caused by economic fluctuations did arise in India during the depression in the 1930’s which caused untold misery. However, with the growth of Keynesian remedies, it has been possible to mitigate cyclical unemployment. Similarly, after the Second World War, when war-time industries were being closed, there was a good deal of frictional unemployment caused by retrenchment in the army, ordnance factories, etc. These workers were to be absorbed in peacetime industries. Similarly, the process of rationalisation which started in India since 1950 also caused displacement of labour. The flexibility of an economy can be judged from the speed with which it heals frictional unemployment.

However, more serious than cyclical unemployment or frictional unemployment in a developing economy like India is the prevalence of chronic under-employment or disguised unemployment in the rural sector and the existence of urban unemployment among the educated classes. It would be worthwhile to emphasise here that unemployment in developing economies like India is not the result of deficiency of effective demand in the Keynesian sense, but a consequence of shortage of capital equipment of other complementary resources.

3.3.1 Employment Policy in the Ninth Plan

Job opportunities will need to be created for 53 million persons during 1997-2002 as a consequence of labour force increase, for 58 million during 2002-07 and thereafter for 55 million during 2007-12.

<table>
<thead>
<tr>
<th>Activity Status</th>
<th>Proportion of labour force</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour force</td>
<td>100.0</td>
<td>Working or seeing work on usual status basis.</td>
</tr>
<tr>
<td>Employed</td>
<td>89.55</td>
<td>Usual status employed staying in workforce when classified by their weekly status.</td>
</tr>
<tr>
<td>Unemployed</td>
<td>2.02</td>
<td>Incidence of open unemployment on usual status basis.</td>
</tr>
<tr>
<td>Under-employed</td>
<td>8.43</td>
<td>Usual status employed going out of work when classified by their weekly status.</td>
</tr>
<tr>
<td>Unemployed and underemployed</td>
<td>10.45</td>
<td>Open employment on usual status and the incidence of loss of work by the usually employed when classified by their weekly status.</td>
</tr>
</tbody>
</table>

Table 3.1 Combined incidences of unemployment and under-employment
3.3.2 Strengthening the Informal Sector
As indicated earlier, the formal sector in 1995 provides organised employment to 10 or more persons’ accounts for only 27.53 million workers being employed in them. The rest of the 312 million workers (about 92% of total) were engaged in agriculture as wage labourers or self-employed in informal sector or seek employment in the service sector. Bulks of them were employed in the informal SSI sector which is seriously plagued with the problem of industrial sickness. Despite all talk about helping small scale units, the fact remains that mortality rate among the SSI units has been high, and more and more of bank credit gets sunk in these units. However, this is also true that SSI sector is the principal source of employment and has the capacity to absorb a very large chunk of the labour force.

However, the informal sector is mainly self-employed sector in which due to lack of capital, skill and technology, most of the employment continues to be low-level employment. There is a need to strengthen the resource base of this sector both in terms of capital and technology and skill formation so that productive employment yields a higher level of income.

3.3.3 Growth rates of Employment
The growth rates of unemployment and labour force derived from NSS data are given in table.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Annual growth rate of Employment (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1983-94</td>
</tr>
<tr>
<td>Primary</td>
<td>1.60</td>
</tr>
<tr>
<td>1. Agriculture</td>
<td>1.51</td>
</tr>
<tr>
<td>2. Mining and Quarrying</td>
<td>4.16</td>
</tr>
<tr>
<td>Secondary</td>
<td>2.90</td>
</tr>
<tr>
<td>3. Manufacturing</td>
<td>2.14</td>
</tr>
<tr>
<td>4. Electricity, Gas and Water Supply</td>
<td>4.50</td>
</tr>
<tr>
<td>5. Construction</td>
<td>5.32</td>
</tr>
<tr>
<td>Tertiary</td>
<td>3.53</td>
</tr>
<tr>
<td>6. Trade</td>
<td>3.57</td>
</tr>
<tr>
<td>7. Transport, Storage and Communications</td>
<td>3.24</td>
</tr>
<tr>
<td>8. Financial Services</td>
<td>7.18</td>
</tr>
<tr>
<td>9. Community, Social and Personal Services</td>
<td>2.90</td>
</tr>
<tr>
<td>Total Employment</td>
<td>2.04</td>
</tr>
</tbody>
</table>

Table 3.2 Growth of employment by sectors
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Unemployment Rate</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Combined</td>
</tr>
<tr>
<td>15-19</td>
<td>13.3</td>
<td>19.0</td>
<td>14.4</td>
</tr>
<tr>
<td></td>
<td>(8.8)</td>
<td>(16.6)</td>
<td>(10.3)</td>
</tr>
<tr>
<td>20-24</td>
<td>11.8</td>
<td>18.7</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td>(9.8)</td>
<td>(19.2)</td>
<td>(12.0)</td>
</tr>
<tr>
<td>25-29</td>
<td>8.7</td>
<td>10.9</td>
<td>9.2</td>
</tr>
<tr>
<td></td>
<td>(7.4)</td>
<td>(10.4)</td>
<td>(8.1)</td>
</tr>
<tr>
<td>Sub Group</td>
<td>11.0</td>
<td>15.5</td>
<td>12.1</td>
</tr>
<tr>
<td>(15-29)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30-34</td>
<td>6.1</td>
<td>4.9</td>
<td>5.8</td>
</tr>
<tr>
<td>35-39</td>
<td>5.0</td>
<td>3.7</td>
<td>4.6</td>
</tr>
<tr>
<td>40-44</td>
<td>4.8</td>
<td>2.7</td>
<td>4.2</td>
</tr>
<tr>
<td>45-49</td>
<td>4.6</td>
<td>2.4</td>
<td>3.9</td>
</tr>
<tr>
<td>50-54</td>
<td>4.5</td>
<td>2.1</td>
<td>3.9</td>
</tr>
<tr>
<td>55-59</td>
<td>4.6</td>
<td>2.0</td>
<td>4.0</td>
</tr>
<tr>
<td>60 and above</td>
<td>3.5</td>
<td>3.8</td>
<td>3.5</td>
</tr>
<tr>
<td>All Age Groups</td>
<td>7.2</td>
<td>7.7</td>
<td>7.3</td>
</tr>
<tr>
<td></td>
<td>(5.6)</td>
<td>(73.4)</td>
<td>(6.0)</td>
</tr>
</tbody>
</table>

Table 3.3 Unemployment rates by age group 1999-2000 (As percent of labour force)
(Source: NSSO 50th, (1993-94) and 55th (1999-2000), Round Surveys.)

* Unemployment Rates are on current daily status. Figures in parenthesis give the comparative estimates for 1993-94.

<table>
<thead>
<tr>
<th>Year</th>
<th>Secondary Education and Above</th>
<th>All types of Technical Education</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
</tr>
<tr>
<td>1983</td>
<td>20.4</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>(2.5)</td>
<td>(10.7)</td>
</tr>
<tr>
<td>1987-88</td>
<td>15.9</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>(3.8)</td>
<td>(12.1)</td>
</tr>
<tr>
<td>1993-94</td>
<td>17.0</td>
<td>20.8</td>
</tr>
<tr>
<td></td>
<td>(2.9)</td>
<td>(10.8)</td>
</tr>
<tr>
<td>1999-2000</td>
<td>12.5</td>
<td>18.3</td>
</tr>
<tr>
<td></td>
<td>(3.7)</td>
<td>(11.2)</td>
</tr>
</tbody>
</table>

Table 3.4 Unemployment rates among educated youth (%)
<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment (million)</th>
<th>Growth rate (% per annum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total population</td>
<td>718.21</td>
<td>790.00</td>
</tr>
<tr>
<td>2. Total labour force</td>
<td>308.64</td>
<td>333.49</td>
</tr>
<tr>
<td>3. Total employment</td>
<td>302.75</td>
<td>324.29</td>
</tr>
<tr>
<td>4. Organised sector employment</td>
<td>24.01</td>
<td>25.71</td>
</tr>
<tr>
<td></td>
<td>(100.0)</td>
<td>(100.0)</td>
</tr>
<tr>
<td>5. Public sector</td>
<td>16.46</td>
<td>18.32</td>
</tr>
<tr>
<td></td>
<td>(68.6)</td>
<td>(71.3)</td>
</tr>
<tr>
<td>6. Private sector</td>
<td>7.55</td>
<td>7.39</td>
</tr>
<tr>
<td></td>
<td>(31.4)</td>
<td>(28.7)</td>
</tr>
<tr>
<td>7. 4 as % of 3</td>
<td>7.93</td>
<td>7.93</td>
</tr>
<tr>
<td>8. 2 as % of 1</td>
<td>43.0</td>
<td>42.2</td>
</tr>
</tbody>
</table>

Table 3.5 Total employment and organised sector employment

- Total employment figures are on Usual Status (UPSS-Unemployment rates on usual principal and subsidiary Status) basis.
- Figures in brackets indicate the percentage of employment in the public sector and private sector to total organised sector employment.

### 3.3.4 Employment Policy of the Eleventh Plan

The Approach Paper of the 11th Plan has highlighted the following issues:

- Average daily status unemployment rate, which had increased from 6.1% in 1993-94 to 7.3% in 1999-00 increased further to 8.3% in 2004-05.
- Agricultural employment has increased at less than 1% per annum, slower than the growth in non-agricultural employment.
- Among agricultural labour households which represent the poorest groups, there was a sharp increase in unemployment from 9.3% in 1994-95 to a high level of 15.3% in 2004-05.
- Non-agricultural employment expanded robustly at an annual rate of 4.7% during 1999-2005, but this growth was entirely in the unorganised sector and mainly in low-productivity self-employment.
- Employment in the organised sector actually declined by 0.38% per annum during 1994-2000, despite fairly healthy GDP growth. This is a cause for frustration among the educated youth who have rising expectations.
- According to the annual survey of industries, real wages stagnated or declined even for workers in the organised sector although managerial and technical staff did secure large increase.
3.3.5 Employment Requirements during the Eleventh Plan (2007-2012)
On account of the increasing participation of females, the total increase in labour force will be around 65 million during the 11th Plan. To this, may be added the present backlog of about 35 million. Thus, the total job requirements of the 11th Plan work out are 100 million. The planners aim to provide 65 million additional employment opportunities. As a consequence, the Approach Paper states: “This will not create full employment, but it will at least ensure that the unemployment rate falls somewhat.” However, even this modest goal implies that the rate of growth of non-agricultural employment would need to accelerate to 5.8% per annum from 4.7% in 1999-2005. In other words, a massive reversal is required from the negative employment growth in the organised sector witnessed during the last decade.

3.3.6 Promotion of Employment Generation in the Eleventh Plan
To generate more employment in the economy, the 11th Plan states its strategy in the following words: “Additional employment opportunities in the future will be generated mainly in the services and manufacturing sector and policy initiatives are needed to support this. Measures would need to be taken in the Plan to boost, in particular, Labour intensive manufacturing sector such as food processing, leather products, footwear, textiles and service sectors, such as tourism and construction.”

3.3.7 Critique of Employment Policy
Keeping in view the performance of the last decade of negative employment growth in the organised sector, the Plan is over-ambitious about a huge reversal in the form of 15 million jobs. It may be noted that total employment in the organised sector in 2004 was 26.4 million-18.2 million in the public sector and 8.2 million in the private sector. To hope to increase 10 million jobs in the private organised sector as against the total of 8.24 million jobs at present implies 121% addition to the existing job creating potential. The estimates are thus highly over-optimistic and utterly unrealistic. Not only that, to expect profitable public enterprises to increase job potential in the face of loss making units reducing jobs by about 2 million is also unrealistic. The total job potential of Central Public Sector Enterprises in 2005-06 was of the order of 1.65 million. Again, to think of an expansion in their employment by 2.0 million in the next 5 years appears to be improbable, more so in view of the fact that state level public sector undertakings are mostly incurring huge losses year after year and would not be able to contribute to increase in employment.
Summary

- There are so many institutes and organisations which are involved in entrepreneurship development activities and there are people who join these programmes as a stepping stone to become an entrepreneur.
- In the pre-colonial times the Indian trade and business was at its peak. Indians were experts in smelting of metals such as brass and tin.
- The Indian economy in the pre-British period consisted of isolated and self-sustaining villages on the one hand, and towns, which were the seats of administration, pilgrimage, commerce and handicrafts, on the other.
- The village community was based on a simple division of labour. The farmers cultivated the soil and tended cattle.
- The popular belief that India had never been an industrial country is incorrect. It was true that agriculture was the dominant occupation of the people but the products of Indian industries enjoyed a worldwide reputation.
- The British rule can be divided into two epochs, first the rule of the East India Company ranging from 1757 to 1858, and second, the rule of the British government in India from 1858 to 1947.
- The Industrial Revolution reversed the character of India’s foreign trade.
- The outstanding industrial events of the 19th century were the decline of indigenous industries and the rise of large-scale modern industries.
- During the 19th century, it was but natural that British business should pioneer industrial enterprise in India.
- In 1905, the Swadeshi movement was started.
- By the beginning of the First World War, the British controlled at least half the production in India’s major industries.
- Banking was not highly developed in India and was more concerned with commerce rather than with industry.
- The major form through which the exploitation of India was done was trade.
- India is a developing economy, the nature of unemployment, therefore, sharply differs from the one that prevails in industrially advanced countries.
- The type of unemployment caused by economic fluctuations did arise in India during the depression in the 1930’s which caused untold misery.
- On account of the increasing participation of females, the total increase in labour force will be around 65 million during the 11th Plan.
- Keeping in view the performance of the last decade of negative employment growth in the organised sector, the Plan is over-ambitious about a huge reversal in the form of 15 million jobs.

References

- Entrepreneurship Development Institute of India - Ahmedabad (Gujarat, India). [Video online] Available at: <http://www.youtube.com/watch?v=uxvdEuwVTCk> [Accessed 06 September 2013].
- A small lecture series on Entrepreneurship (Part I of 3) in Jamshedpur, India. [Video online] Available at: <http://www.youtube.com/watch?v=tQwYdMrpeJ0> [Accessed 06 September 2013].
Recommended Reading

Self Assessment

1. In the pre-colonial times, the Indian trade and business was at its peak. Indians were experts in smelting of metals, such as _________ and tin.
   a. arsenic
   b. barium
   c. brass
   d. bronze

2. The Indian economy in the pre-British period consisted of isolated and self-sustaining _________ on the one hand, and towns, which were the seats of administration, pilgrimage, commerce and handicrafts, on the other.
   a. mountains
   b. cities
   c. villages
   d. states

3. How many distinct classes of people were there in Indian villages?
   a. Two
   b. Three
   c. Five
   d. Four

4. Which of the following statement about forms of colonial exploitation is false?
   a. Trade policies did not aim at all in developing a colonial pattern of trade in which India would become an exporter of foodstuffs and raw materials and an importer of finished goods.
   b. Encouragement of British capital to take up direct investment in Indian consumer goods industries.
   c. Encouragement of finance capital, through the managing agency system, to appropriate a major portion of the profits through various malpractices.
   d. To force India to pay the costs of British administration as well as to finance the wars and expeditions undertaken by the British government.

5. _________ policies were used against India by the East India Company and later by the British government to drain away wealth from India to feed the expanding British industry with raw materials.
   a. Market
   b. Business
   c. Trade
   d. Employment

6. Which of the following statement is not the principal cause that led to the decay of handicrafts?
   a. Disappearance of princely courts
   b. Hostile Policy of the East India Company and the British Parliament
   c. Competition of machine-made goods
   d. The commercialisation of Indian handicrafts

7. When did the Swadeshi movement start?
   a. 1940
   b. 1905
   c. 1908
   d. 1930
8. Which one of the following statement is true?
   a. One of the important reasons and according to some authorities, the most important reason for the slow growth of Indian industries was the support from the government.
   b. The tariff policy in Britain reflected the needs of business interests in India.
   c. Till 1924, the government refused to impose custom duties on the import of foreign goods.
   d. It is interesting to note that Indian factory-owners did not follow closely the British system as regards capital resources.

9. The major form through which the exploitation of India was done was ________.
   a. market
   b. business
   c. trade
   d. employment

10. In the early phase of colonialism, the chief instrument of exploitation was trade but later the British thought of encouraging ____________ in India
    a. trade
    b. business
    c. entrepreneurship
    d. investment
Chapter IV
Micro, Small and Medium Enterprises

Aim
The aim of this chapter is to:

- introduce MSME
- explain the classification of enterprises
- explicate the characteristics of MSMEs

Objectives
The objectives of this chapter are to:

- enlist the role and importance of MSMEs in developing countries
- elucidate the problems of MSMEs
- explain the steps for starting SSIS/MSMEs

Learning outcome
At the end of this chapter, you will be able to:

- identify incentives and subsidies
- understand the small industrial development organisation
- define incentive
4.1 Introduction
Small businesses are playing an important role in the industrial economy of the world. These are particularly important in the developing economies. Small business is predominant even in developed countries, such as USA, Japan, etc.

The Micro, Small and Medium Enterprises (MSME) Development Act, 2006
Under this act, the central government shall set up, for the purpose of the act, a board known as the National Board for micro, small and medium enterprises.

4.2 Classification of Enterprises
Following are the classification of enterprises:

- In case of manufacturing enterprises
  - A micro enterprise is one in which the investment in plant and machinery does not exceed Rs. 25 Lakhs.
  - A small enterprise is one in which the investment in plant and machinery is more than Rs. 25 Lakhs, but does not exceed Rs. 5 crores.
  - A medium enterprise is one in which the investment in plant and machinery is more than Rs. 5 crores but does not exceed Rs. 10 crores.

- In case of service enterprises
  - A micro enterprise is one in which the investment in plant and machinery does not exceed Rs. 10 lakhs.
  - A small enterprise is one in which the investment in plant and machinery is more than Rs. 10 lakhs, but does not exceed Rs. 2 crores.
  - A medium enterprise is one in which the investment in plant and machinery is more than Rs. 2 crores, but does not exceed Rs. 5 crores.

Ancillary units
These units provide inputs to other industries. These are engaged in the manufacture of parts, components, light engineering products like cycles, sewing machines, diesel engines, machine tools and electrical applications. The investment in plant and machinery should not exceed Rs. 5 crores.

Export oriented unit
Export oriented units are those SSI units which export at least 30% of its annual production by the end of the 3rd year of the commencement of production.

4.3 Characteristics of MSMEs
The important characteristics of MSMEs are summarised as follows:

- They are generally organised and run by individual entrepreneurs.
- They require less capital.
- They are fundamentally labour-intensive units facilitating greater utilisation of man power.
- They involve the use of simple technology, intensive utilisation of individual skills leading to professional specialisation.
- They cater to the individual tastes and fashions and render personalised service to consumers.
- They are highly localised industries. Using local resources MSMEs are decentralised and dispersed to rural areas.
- They are eligible for government assistance and patronage and for concessional finance by banks, financial institutions, etc.
- They are flexible to a large extent. They are more susceptible to change and highly reactive and receptive to socio-economic conditions.
- They are free from red-tapism and bureaucratic handicaps.
- Compared to large units, MSMEs have lesser gestation period.
4.4 Objectives of MSMEs

The primary objectives of MSMEs are to play a complementary role in the socio-economic set up of a country. The other objectives are as follows:

- To provide increased employment opportunities.
- To provide production of large variety of goods, especially consumer goods through labour-intensive methods.
- To bring backward areas too in the mainstream of national development.
- To improve the level of living of people in the country.
- To create a climate for the development of self-employed experts, professionals and small entrepreneurs.
- To ensure more equitable distribution of national income.
- To ensure balanced regional development as regards industries.
- To encourage the adoption of modern techniques in the unorganised traditional sector or the industry.

4.5 Advantages of MSMEs

The following are the advantages of MSMEs:

- They are relatively more environmental friendly.
- They are generally based on local resources.
- They provide ample opportunities for creativity and experimentation.
- They facilitate equitable distribution of income and wealth.
- MSMEs enjoy government support and patronage.
- These help in balanced regional development.
- It is possible to make necessary changes as and when required.
- These help in reducing prices.
- There is a close and direct personal contact with the customer and employees.
- They create more employment opportunities. They are labour intensive. They offer ample scope for self-employment.
- They require only less capital. It is a boon to a country like India, where capital is deficient.
- MSMEs alone can satisfy individual tastes and offer personalised service to customers.

4.6 Disadvantages of MSMEs

The following are the disadvantages of MSMEs:

- MSMEs suffer from lack of funds. They are financially weak.
- They suffer from lack of managerial and other skills. They cannot employ highly paid officials.
- MSMEs always face tough competition from large businesses.
- They are not well equipped to make advantage of the latest technology and modern methods.
- There is only a little scope for division of labour and specialisation.
- MSMEs cannot afford to spend large sums of money on research and experiments.
- They cannot survive in times of adversity.
- They cannot secure cheap credit.

4.7 Role and Importance of MSMEs in Developing Countries

The role and importance of MSMEs in developing countries are as follows:

- Large employment opportunities: MSMEs are generally labour-intensive. For every Rs. 1 lakh of fixed investment, MSME sector provides employment for 26 persons as against 4 persons in the large-scale sector. Thus, in a country like India where capital is scarce and labour is abundant, MSMEs are especially important.
• Economical use of capital: MSMEs need relatively small amount of capital. Hence, it is suitable to a country like India where capital is deficient.
• Balanced regional development: Generally, small enterprises are located in village and small towns. Therefore, it is possible to have a balanced regional growth of industries. India is a land of villages.
• Equitable distribution of income and wealth: It removes the drawbacks of capitalism, abnormal profiteering, concentration of wealth and economic power in the hands of few.
• Higher standards of living: MSMEs bring higher national income, higher purchasing power of people in rural and semi-urban areas.
• Mobilisation of local resources: The spreading of industries even in small towns and villages would encourage the habit of thrift and investment among the people of rural areas.
• Simple technology: New simple techniques of production can be adopted more easily by MSMEs without much investment.
• Less dependence on foreign capital: MSMEs use relatively low proportion of imported equipment and materials. The machinery needed for these industries can be manufactured within the country.
• Promotion of self employment: MSMEs foster individual skills and initiatives and promote self-employment particularly among the educated and professional class.
• Promotion of exports: With the establishment of a large number of modern MSMEs in the post-independence period, the contribution of the small-scale sector in the export earnings has increased much.
• Facilitate development of large-scale enterprises: MSMEs support the development of large enterprises by meeting their requirements of inputs of raw materials, intermediate goods, spare parts, etc. and by utilising their output for further production.

4.8 Problems of MSMEs

Some of the more important problems faced by MSMEs are as follows:
• Lack of managerial experience: They may not be having specialised knowledge in different fields of management. At the time of initiating the project, they are not in a position to anticipate correctly their financial requirements and the size of market for their products.
• Inadequate finance: Generally MSMEs are not in a position to arrange full finance from their own sources. They obtain finance from unorganised finance sector at higher rates of interest.
• Lack of proper machinery and equipment: Many MSMEs use inefficient and outdated machinery and equipment. This affects the quality of production.
• Lack of technical know-how: Do not have the knowledge about different alternative technologies and processes available for manufacturing their products to improve the quality of products and reduce costs.
• Run on traditional lines: They have not yet adopted modern methods and techniques of production. They have not taken adequate interest in research and development efforts. Hence, they cannot be run efficiently.
• Irregular supply of raw materials: The majority of MSMEs depends on local sources for their raw material requirements. Small entrepreneurs are forced to pay high prices for materials, because they purchase materials in small quantity.
• Problem of marketing: The brand name of the products of MSMEs is acute due to tough competition from large industries. It cannot afford costly advertisement and network of distribution system. There are delays in payment of bills by large purchasers resulting in inadequate working capital.
• Personnel problems: It is difficult for them to get qualified persons to run the business. They cannot provide much training facilities to employees.
• Lack of clear-cut policy of the government: The government may take decisions relating to MSMEs on the basis of political consideration rather than on economic consideration.
Bogus units: The government should look into this aspect seriously, break the stronghold of such vested-interested and promote only genuine entrepreneurship in the country.

Other problems: Inefficient management, non-availability of cheap power, burden of local taxes, etc.

### 4.9 Steps for Starting SSIS/MSMES

As soon as a person decides to become an entrepreneur and to start a MSME, he is required to take a number of steps and formalities one after the other. They are as follows:

- Scanning of business environment: It is essential on the part of the entrepreneur to study and understand the prevailing business environment. Entrepreneur should scan the business opportunities and threats in the new environment. To study the administrative framework, procedure, rules and regulations and other formalities implemented by the government. The potential entrepreneur must assess his own deficiencies, which he can compensate through training.

- Selection of a product: The very success of one’s venture will depend on the rationality of his decision in this regard. The economic viability of the product can be ascertained by considering certain demand aspects, such as volume of demand in the domestic market, volume of demand in the export market, volume of potential demand, a degree of substitution of an existing product, etc. The prospective entrepreneur has to identify the product based on market research or market survey.

- Selection of the form of ownership: He has to select sole proprietorship or family ownership or partnership or private limited company as the form of ownership.

- Selection of location and site: Location is selected after considering certain factors, such as nearness to market, sources of material and labour, modern infrastructure facilities, etc. The entrepreneur has to choose a suitable plot for the factory. He may purchase land directly or choose from an industrial area developed by State Development Corporations like SIDCO, or Directorate of Industries. In order to stimulate industrial growth, the state governments have been given assistance by:
  - Developing areas
  - Development plots
  - Industrial estates
  - Mini industrial units

- Designing capital structure: Apart from the own capital, he may secure finance from friends and relatives, term loans from banks and financial institutions.

- Acquiring manufacturing know-how or technology: Many institutions of government, research laboratories, research and development divisions of big industries and certain consultancy agencies provide the manufacturing know-how.

- Preparation of project report: The report usually covers important items like sources of finance, availability of machinery and technical know-how, sources of raw material and labour, market potential and overall profitability.

- Registration as a small-scale industry: Registration with departments of industries and commerce is only optional. There is no statutory obligation, but small-scale industries can avail various facilities, incentives and concessions offered by the state as well as central government only if they registered as SSI. The registration would be done in two stages.
  - Provisional registration: It will be valid for one year with possible three extensions of six months each. It helps entrepreneur to take necessary steps to bring the units into existence. The provisional registration may enable the party to:
    - Apply to NSIC/SIDO and other institutions for procuring machines on hire purchase basis.
    - Apply for power connection.
    - Apply to local bodies for permission to construct the shed to establish a unit.
    - Apply for financial assistance to SFC/Banks or other financial institutions on the basis of project report.
    - Obtain sales tax, excise registration, etc whenever required.
    - Apply for a shed in an industrial estate/development site in an industrial area/ material for construction of shed as the case may be.
Obtaining statutory licence: Any person should obtain the following licences and certificates before starting the venture:

- Licence from local bodies for:
  - Construction of the building.
  - Installation of plant and machinery.
- Licence from the directorate of factories and boilers for:
  - Approval of factory building.
  - Registration under section 6, 7 and 85 of the Factory Act.
- No objection certificate from State Pollution Control Board.

Apply for power connection: There are 2 categories of power, the Low Tension (LT) and High Tension (HT). A consumer can avail LT only if the connected load is 75 HP and below. If connected load is between 75 HP and 130 HP, the consumer has the option to avail either LT supply or HT supply.

Arrangement of finance: Entrepreneur needs to acquire assists of 2 kinds, namely fixed assets and current assets. Long-term finance is needed to acquire fixed assets like land, building, plant and machinery and for security deposits. Short-term funds are required for acquiring current assets. Current assets are essential for the day-to-day working of the industry. Long-term funds include owner’s capital, subsidy from central/state government, personal borrowings from friends and relatives and long-term loans from financial institutions.

Registration under the sales tax act: Business enterprises are subject to three important taxes- Income Tax, Excise Duty and Sale Tax. Income tax is levied on income as defined under the IT Act of 1961. It is revenue for the central government. Excise duty is a tax levied by the central government. It is the duty levied on the cost of goods manufactured within a country. Sales tax is levied, whenever goods are purchased from within the state. When goods are purchased from outside the state, Central Sales Tax is levied. Application for registration should mention all places of business dealer including the godown in which the goods are stored. The following papers are to be submitted for registration:

- Application for registration in Form 1 duly signed
- Counterfoil of challan for Rs. 100 towards registration fees
- Return of estimated annual turnover in Form No. 10

On the basis of declaration of the anticipated turn over and nature of turnover, registering authority may demand security, which is normally ½ times of the anticipated tax due.

Installation of machinery: Machinery should preferably be installed as per the plant layout.

Recruitment of manpower: The number and type of workers is to be decided. After this, the required workers should be recruited.

Procurement of raw materials: The raw materials may be procured indigenously or may have to be imported by the entrepreneur. The next step is to start production, which is taken up in two stages- trial production and commercial production.

Application for permanent registration: For this, application form has to be made to the GM of DIC through IEO/Taluk Industries Officer. The GM should inform the entrepreneur of the date and time of inspection of the unit. On being satisfied, a registration certificate may be issued by the Directorate of Industries within one month of the receipt of the application. The period of the certificate, whether provisional or permanent will be for a period of 2 years. Renewal certificate would be affected by the GM (DIC) within a period of 3 months from the date of expiry of certificate.
4.10 Government Regulatory Framework for MSMEs

The government has two roles to play, regulatory and protective roles. Government regulates as well as protects small business. It plays the regulatory role by imposing certain restrictions and formalities on small business. It provides assistance and support to small business.

4.10.1 Measures Taken by the Government for the Promotion of MSMEs

There are some measures a government should take to promote MSMEs. Some of the measures taken by the government are discussed in the following paragraphs.

Administrative framework

Administrative mechanism for SSI is being looked after by the Department of Small Scale Industries, Agro and Rural Industries within the Ministry of Industry. With the Department there is Small Industries Development Organisation (SIDO) headed by a department commissioner. SIDO has 27 small industries service institutes, 31 branch institutes, 37 extension centres, 18 field testing centres, four production centres and two footwear training centres. To provide different services and support to village and small entrepreneurs under a single roof, 422 Districts Industries Centres (DIC) have been set up to cover 431 districts out of the total of 436 districts of the country. National Institute of Small Industries Extension Training (NISIET) conduct research and training programmes and provides consultancy services. National Small Industries Corporation (NSIC) deals with marketing including government purchases and supplying machinery on hire purchase.

Policy instruments

Policy instruments adopted by the government to encourage the growth of SSI comprise financial incentives, fiscal incentives, general incentives, special incentives in backward areas, and reservation of items for SSI. They are discussed below:

- Financial incentives: SIDBI provides direct assistance, among others for specialised marketing agencies, industrial estates, acquisition of machinery/equipment, both indigenous and imported, seed capital scheme and National Equity Fund Scheme, bills rediscounting and direct discounting scheme. State and local governments provide financial subsidies like interest rate and capital subsidies, and water and electricity subsidies and subsidies for the acquisition of land.
- Fiscal incentives: These comprise investment allowance, tax holidays, additional depreciation for new plant and machinery. State and local governments provide exemption from electricity tariffs.
- General incentives: These include, among other things, reservation of items for exclusive purchases from SSI, price preference over medium and large units in public sector purchases and scheme for Self- Employment to Educated Unemployed Youths (SEEUY).
- Special incentives in backward areas: Some of the schemes which are operational are concessional finance scheme, transport subsidy scheme, interest subsidy scheme and income tax incentives, etc.

Reservation of items

As per the policy, certain items have been exclusively reserved for manufacturing in the MSME sector. The objective is to protect MSMEs engaged in the manufacturing of such items from the competition of medium and large-scale units.

Statutory boards

The government of India has setup six exclusive boards, namely:

- Khadi and Village Industries Board
- Handloom Board
- Handicrafts Board
- Coir Board
- Seri Culture Board
- Small Scale Industries Board
Establishment of industrial estates
Industrial estate is place where the required facilities and factory accommodation are provided by the government to the entrepreneurs to establish their industries.

Setting up of National Manufacturing Competitiveness Council (NMCC)
NMCC suggests a three-pole structure, “one of the effective measures for accelerating manufacturing growth in this segment lies in promoting growth poles or industrial clusters, referred to in the PURA(Provision of Urban Amenities in Rural Areas) context, in the 2005-2006 union budget speech. The growth poles can cover all three elements of the cluster approach-industrial clusters, artisan clusters and agro-based clusters.” NMCC also suggests that the time is right for exploring mechanisms of how Indian MSMEs could tie up with MSMEs in developing countries for technology as well as trade.

Penalties for delayed payments to MSMEs
The Government has enacted the interest on Delayed Payments Act for the benefit of MSMEs. The Act prescribes that the customers of MSMEs should make the payments within 120 days of accepting the goods. Delays beyond this would attract interest at 11/2 times the prime lending rate of the SBI.

Prime Minister’s Rozgar Vojna (PMRY)
It was launched on 2nd October 1993, with the objective of creating one million jobs in 5 years by giving loans for the creation of tiny and micro enterprise.

Industrial cluster development
An industrial cluster can be defined as a sectorial and geographical concentration of enterprises, especially micro, small and medium enterprises (MSMEs), which have common opportunities and face similar threats.

Assistance for MSME exports
The following are the various means of providing assistance to MSME exports:

- MSMEs are helped in participating in trade exhibitions. The Government would meet the expenses in this regard on space rent, handling and clearing charges, insurance and shipment charges, etc.
- MSMEs are given triple weightage for being recognised as Export Houses, Trading Houses, Star Trading Houses and Super Star Trading Houses.
- Capital Goods Zero Duty Scheme is extended to MSMERs without any conditions.
- Marketing development assistance is given to MSMEs to facilitate market research, publicity, etc.

Other schemes
Other important schemes of providing assistance are briefly discussed as below:

- Integrated Infrastructural Development Scheme: Under this scheme, the central government would contribute Rs 5 crores in the ratio of 2:3 for the development of industrial infrastructure in rural and backwards areas. The objective of the scheme is to promote the location of MSMEs in rural and backward areas and facilitate linkage between agriculture and industry.
- Marketing Development Assistance Scheme: MDA is a new scheme launched in August 2001. This scheme provides following five types of assistance:
  - Assistance to individuals for participating in overseas trade fairs and exhibitions.
  - Assistance to individuals to go on overseas study tours or as a member of a trade delegation going abroad.
  - Assistance for production of publicity material for overseas publicity.
  - Assistance to small industry association to conduct sector- specific market studies abroad.
  - Assistance to SSI Associations to initiate/contest anti-dumping cases.
- Trade Related Entrepreneurship Assistance and Development for Women: TREAD is a scheme for giving trade-related assistance to women entrepreneurs in the form of loans, grants, trade-related training and information, counseling and extension services.
• Preferential government purchases: It is made compulsory for various government-departments and agencies to buy their requirements of a number of items from the constituents of the MSME sector.

### 4.11 Industrial Estates

It is defined as a method of “organising, housing and servicing industry, a planned clustering of industrial enterprises offering standard factory buildings erected in advance of demand and a variety of services and facilities to the occupants.” In short, industrial estate is a place where the required facilities and factory accommodation are provided by the government to the entrepreneurs to establish their industries there. The first and foremost industrial estate was established at Rajkot in Gujarat in 1955.

#### Features of industrial estates

The following are the important features of industrial estates:

- It is a tract of land subdivided and developed into factory plots or sheds.
- It is a planned clustering of industrial units.
- It may be developed in urban, semi-urban or rural areas.
- It may be large, medium or small.
- It may be set up by the government, or by co-operatives or even by private agencies.
- It provides several common infrastructural facilities, such as water, power, roads, training, banks, repairs and maintenance, etc.

#### Advantages of industrial estates

The following are the advantages of industrial estates:

- Economies of scale: It arises because all the industrial units enjoy common infrastructural facilities like water, roads, etc. As the size of the industrial units increases, the costs of estate development and administration per unit of each facility decrease.
- External economies: Several industrial units are clustered together in an industrial estate. This enable them to enjoy the benefits of agglomeration and external economies like improved transport facilities, availability of trained labour, repair facilities, power and water, etc.
- Low investment: Even a small entrepreneur can acquire an industrial plot or shed on rent or hire purchase basis.
- Less risks: Since all units enjoy common facilities and low capital investment, risks are relatively low.
- Mutual co-operation: All industrial units located in an industrial estate face common problems and seek to achieve common objectives.
- Balanced regional development: It is possible to secure a balanced regional development by developing industrial estates in industrially backward areas.
- Saving of time and efforts: An individual entrepreneur is relieved of trouble of searching for suitable space.
- Entrepreneurial development: Industrial estates reduce risks and increase profitability through internal and external economies.

### 4.12 Incentives and Subsidies

In India, entrepreneurs are offered a number of incentives because they fulfil two main objectives of economic development. Firstly, they facilitate decentralisation of industries. They assist in the dispersal of industries over the entire geographical area of the country. Secondly, they facilitate the transformation of a traditional technique into modern technique characterised by improved skills, high production and higher standard of living.

It is the financial and promotional assistance provided by the government to the industries for boosting up industrial development in all regions particularly in backward areas. Incentives include concession, subsidies and bounties. ‘Subsidy’ denotes a single lump-sum which is given by a government to an entrepreneur to cover the cost. It is granted to an industry which is considered essential in the national interest. The term bounty denotes bonus or financial aid which is given by a government to an industry to help it compete with other units in home market or
in a foreign market. Bounty offers benefits on a particular industry; while a subsidy is given in the interest of the nation. The object of incentives is to motivate an entrepreneur to start new ventures in the larger interest of the nation and the society.

The advantages of incentives and subsidies are as follows:

- They act as a motivational force which makes the potential entrepreneur to enter into business activities.
- They encourage the entrepreneur to start industries in the backward areas.
- They help the government to get a balanced regional development.
- They help to develop new enterprises which lead to economic development.
- They make the entrepreneur to face competition successfully.
- They help to reduce the overall problems of small scale entrepreneurs.

The need for incentives and subsidies arises for the following reasons:

- To remove regional disparities in development: Industries may be concentrated and overcrowded in some regions, in order to correct this regional balance, incentives are provided to entrepreneurs. They will start new ventures in such backward areas. Thus, the backward areas become developed and regional imbalances are corrected.
- To provide competitive strength, survival and growth: Several other incentives are provided for the survival and growth of industries. For example, reservation of products, price preference, etc. will improve the competitive strength. Other concessions like concessional finance, tax reliefs, etc., contribute to their survival and growth.
- To generate more employment and remove unemployment: Market adjustments and external economies play a significant role in the economic development of a country. Subsidies cause movement of entrepreneurs from developed areas to developing or backward areas. In short, incentives and subsidies serve as a catalyst to start a dynamic process of development.
- To promote entrepreneurship: Industrial estates, availability of power, concessional finance, capital investment subsidy, transport subsidy, etc. are few examples of subsidies which are aimed at encouraging entrepreneurs to take up new ventures.

Problems relating to subsidies

Some problems may arise in devising and implementing a subsidy system. They are as follows:

- A subsidy may remain unutilised.
- If the administration is inefficient or corrupt, subsidy will not produce the desired results.
- It is very difficult to measure the impact of subsidies.
- Subsidies may lead to inefficiency in the long-run.
- Subsidies once introduced are difficult to withdraw.
- The administrative procedure must be effective.
- The cost of administering a subsidy should be considered.
- The subsidy scheme should be communicated to prospective beneficiaries.
- The quantum of subsidy should be adequate to produce the desired results.
- The target groups to whom the subsidy is to benefit should be clearly determined.

4.13 Small Industrial Development Organisation (SIDO)

The SIDO was formed under the Ministry of Industry. It is a policy making, co-ordinating and monitoring agency for the development of small-scale industries. It maintains a close liaison with the government, financial institutions and other agencies which are involved in the promotion and development of small-scale units. It provides a comprehensive range of consultancy services and technical, managerial, economic and marketing assistance to the small-scale units. It has launched various technology support programmes for the benefit of small scale industries in the country through a number of steps. The steps include the establishment of:
- Process-cum-product development centres
- Tool rooms and training centres
- Specialised institutes
- Regional testing centres with its field testing stations

Functions of SIDO
The main functions of SIDO are co-ordination, industrial development and industrial extension service. Other functions are as follows:
- To estimate the requirements of raw material for the small scale sector and to arrange their supply.
- To collect imported data on consumer items.
- To encourage the setting up of new units by giving them coordinated assistance.
- To prepare project reports and other technical literature for prospective entrepreneurs.
- To secure reservation of certain products for the SSIs.

4.13.1 National Small Industries Corporation (NSIC)
It was set up in 1995 to provide machinery to small scale units on hire purchase basis and to assist these units in obtaining orders from government departments and offices. Its head office is at Delhi. It has four regional offices at Delhi, Mumbai, Chennai and Calcutta. It also has eleven branch offices.

The functions of NSIC are as follows:
- To develop small scale units as ancillary units to large scale industries
- To impart training to industrial workers.
- To market the product of SSIs at home and abroad.
- To help the small scale industries in procurement of scarce and imported raw material.
- To obtain orders for SSI units from government department and offices.
- To provide machinery to SSI units on hire purchase basis.
- To construct industrial estates and establish and run proto-type production-cum-training centres.

4.13.2 National Alliance of Young Entrepreneurs (NAYE)
It is a national-level apex organisation of young entrepreneurs. It assists in promoting new enterprises through first generation entrepreneurs. NAYE sponsored an Entrepreneur Development Scheme with Bank of India in August 1972 on pilot basis. The scheme is known as BINEDS. It is operative in the states of Punjab, Rajasthan, Himachal Pradesh and Union Territories of Chandigarh and Delhi. NAYE has entered into similar arrangement with Dena Bank, Central Bank of India and Union Bank of India. NAYE strives hard for upliftment of young entrepreneurs especially women. It holds workshops, conferences, training programmes, etc. to create awareness in entrepreneurs.

4.13.3 Technical Consultancy Organisation
It was established in different parts of the country to provide consultancy services to small and medium enterprise at reasonable costs. The TCO was established in Kerala (KITCO) in June 1972. Functions and activities of TCOs include:
- Industrial potential surveys
- Preparation of profits and feasibility studies
- Evaluation of project
- Conduct of EDPs
- Assisting in the modernisation, technical up gradation and rehabilitation programmes, etc.
- Undertaking market research and surveys for specific products
- Offering merchant banking services
4.13.4 Small Industries Service Institutes (SISIs)
Small Industries Service Institutes have been established in each state in 1956 as agencies of SIDO. The objective is to develop small-scale industries. The functions performed may be summarised as follows:
- It promotes entrepreneurship and development of SSIs in rural and other underdeveloped areas.
- It supplies market information in selected cases and undertakes market distribution surveys for industrial enterprises.
- It conducts various programmes for workers in other organisations as well as in small industry in certain trades.
- It assesses the capacities of small units for imported/controlled materials.
- It provides technical guidance on the efficient use of wastages and scraps.
- It prepares designs and drawing for production equipment and accessories.
- It ensures that small industry development in India is being done in right lines.
- It provides workshop common facilities to industrialists at reasonable charges.
- It conducts detailed plant studies to locate production and other problems. It initiates and coordinates modernisation of selected industries.
- The institute assists in rehabilitation of sick units.
- It helps to develop ancillary industries. It registers SSI units with NSIC to supply their products to government.
- The institute conducts modernisation studies for technology upgradation.
- It undertakes quality control, energy conservation and pollution control, specialised training programmes on export marketing.
- The institutes also conduct surveys and studies for identification of industries having scope of promotion and development.
- It advises the Government of India and state government on policy matters relating to small industry development.

4.13.5 Khadi and Village Industries Commission
KVIC makes finance available to the implementing agencies in the form of capital expenditure loans. It also extends assistance for setting up of retail sales outlets and also for strengthening of the capital base of the registered institutions and cooperatives. It also assists individual artisans besides formulating liberal pattern of assistance for weaker sections. The loans for Khadi are interest-free, while those for village industries have an interest at the rate of 4% per annum.

Functions of KVIC
The functions of KVIC are as follows:
- To train the artisans.
- To assist village industries in procuring raw materials.
- To assist and support through marketing of finished products of village industries.
- To provide equipment and machinery to producers on concessional terms.
- To undertake research and development programmes for improved implements for silk reeling, more efficient extraction of oil in power ghanis, manufacture of panel boards from banana stems and improved ‘charka’ and looms.
- The main thrust of KVIC is to alleviate rural poverty and to make the village artisans more productive through improved technology and market support.
4.13.6 Science and Technology Entrepreneur Parks (STEP)
STEP is an area where applied research on high tech projects is conducted with the collaboration of multinational companies, universities, technological and research institutes. In 1972 a conventional ‘Techno Park’ was set up by the Birla Institute of Scientific Research.

4.13.7 Small Industries Development Bank of India (SIDBI)
SIDBI was set up on April 2, 1990 as a wholly owned subsidiary of IDBI. It is operating through its head office at Lucknow and a network of 5 regional offices and 25 branch offices in all the states. It is an apex institution for promotion, financing and development of industries in small-scale sector and co-ordination of functions of other institutions engaged in similar activities.

Functions of SIDBI
The functions of SIDBI are listed below:
• Taking steps for technological up gradation and modernisation of existing units.
• Providing services like factoring, leasing, etc. to industrial concerns in the small-scale sector.
• Extending financial support to National Small Industries Corporation for providing leasing hire purchase and marketing support to SSI units.
• Expanding the channels for marketing the products of SSI sector in domestic and international markets.
• Promoting employment oriented industries especially in semi-urban areas to create more employment opportunities and thereby checking migration of people to urban areas.
• Refinancing of loans and advances extended by the primary lending institutions to industrial concerns in the small scale sector and also providing resource support to them.
• It also offers bills discounting and rediscounting facilities. It also has a few schemes of direct assistance.

4.13.8 The National Institute for Entrepreneurship and Small Business Development (NIESBUD)
It is an apex body established in 1983 by the ministry of Industries, Government of India, for coordinating, training and overseeing the activities of various institutions/agencies engaged in entrepreneurship development, particularly in the area of small industry and small business. The institute which is registered as a society under Government of India Societies Act started functioning from 6th July, 1983. The policy, direction and guidance to the institute is provided by its governing council whose chairman is the minister of SSI. It has an executive committee.

Objectives of NIESBUD
The objectives of the institute include the following:
• To evolve standardised materials and processes for selection, training, support and sustenance of entrepreneurs, potential and existing.
• To share internationally, its experience and expertise in entrepreneurship development.
• To train the trainers, promoters and consultants in various areas of entrepreneurship development.
• To provide national/international forums for the interaction and exchange of experiences helpful for policy formulation and modification at various levels.
• To provide vital information and support to trainers, promoters and entrepreneurs by organising research and documentation relevant to entrepreneurship development.

Functions of NIESBUD
The following are the functions of NIESBUD:
• Evolving effective training strategies and methodology.
• Standardising model syllabi for training various target groups.
• Formulating scientific selection procedures.
• Developing training aids, manuals and tools.
- Facilitating and supporting central/state/other agencies in organising entrepreneurship development programmes.
- Conducting training programmes for promoters, trainers and entrepreneurs.

4.13.9 Commercial Banks

It plays an important role in the growth and development of economy in general and enterprise sector in particular. Commercial Bank in India comprises the State Bank of India (SBI) and its subsidiaries, nationalised banks, foreign banks and other scheduled commercial banks, regional rural banks and non-scheduled commercial banks. The period for which loan is granted varies from 7 to 10 years. These loans are repayable in half yearly or yearly installments. Most commercial banks have got specialised units in their administrative structure to take care of the financial needs of the small scale industrial units. The fixed capital needs or the long and medium-term needs of the small scale industrial units are presently being taken care by the banks under their integrated scheme of credit for the small entrepreneurs. The rate of interest charged normally from the small-scale industrial units is between 12% and 15% against 18% from the large-scale units.

4.13.10 Bridge Capital/Finance

Bridge capital is the advance given to cover the finance requirement during the time lag between the sanctioning and disbursement of term loan by financial institutions. It is an assistance given for a short period to help borrower for overcoming the delay in disbursement of a sanctioned term loan or in getting the proceeds of a public issue. It is provided by commercial banks.
Summary

- Small businesses are playing an important role in the industrial economy of the world.
- Ancillary units provide inputs to other industries.
- Export-oriented units are those SSI units which export at least 30% of its annual production by the end of the 3rd year of commencement of production.
- The primary objectives of MSME are to play a complementary role in the socio-economic set up of a country.
- As soon as a person decides to become an entrepreneur and to start a MSME, he is required to take a number of steps and formalities one after the other.
- It is essential on the part of the entrepreneur to study and understand the prevailing business environment.
- Business enterprises are subject to three important taxes- Income Tax, Excise Duty and Sale Tax. Income tax is levied on income as defined under the IT Act of 1961.
- The government has two roles to play regulatory role and protective role.
- Administrative mechanism for SSI is being looked after by the Department of Small Scale Industries, Agro and Rural Industries within the Ministry of Industry.
- Policy instruments adopted by the government to encourage the growth of SSI comprise; financial incentives, fiscal incentives, general incentives, special incentives in backward areas, and reservation of items for SSI.
- The government has enacted the interest on Delayed Payments Act for the benefit of MSMEs.
- PMRY was launched on 2nd October 1993, with the objective of creating one million jobs in 5 years by giving loans for the creation of tiny and micro enterprise.
- Industrial estates is defined as a method of “organising, housing and servicing industry, a planned clustering of industrial enterprises offering standard factory buildings erected in advance of demand and a variety of services and facilities to the occupants.”
- In India, entrepreneurs are offered a number of incentives because they fulfill two main objectives of economic development.
- Incentive is the financial and promotional assistance provided by the government to the industries for boosting up industrial development in all regions particularly in backward areas.
- The SIDO was formed under the Ministry of Industry. It is a policy-making, coordinating and monitoring agency for the development of small scale industries.
- National Small Industries Corporation (NSIC) was set up in 1995 to provide machinery to small scale units on hire purchase basis and to assist these units in obtaining orders from government departments and offices.
- National Alliance of Young Entrepreneurs (NAYE) is a national-level apex organisation of young entrepreneurs.
- Bridge capital is the advance given to cover the finance requirement during the time lag between the sanctioning and disbursement of term loan by financial institutions.

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### Recommended Reading

Self Assessment

1. In the case of a manufacturing enterprise, a _____ enterprise is one in which the investment in plant and machinery does not exceed Rs.25 Lakhs.
   a. small
   b. micro
   c. macro
   d. medium

2. In the case of a service enterprise, a ______ enterprise one in which the investment in plant and machinery is more than Rs.10 lakhs but does not exceed Rs. 2 crores.
   a. small
   b. micro
   c. macro
   d. medium

3. Match the following.

<table>
<thead>
<tr>
<th>1. Economical use of capital</th>
<th>A. The spreading of industries even in small towns and villages would encourage the habit of thrift and investment among the people of rural areas.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Equitable distribution of income and wealth</td>
<td>B. MSMEs need relatively small amount of capital. Hence it is suitable to a country like India, where capital is deficient.</td>
</tr>
<tr>
<td>3. Higher standard of living</td>
<td>C. It removes the drawbacks of capitalism, abnormal profiteering, concentration of wealth and economic power in the hands of a few.</td>
</tr>
<tr>
<td>4. Mobilisation of local resources</td>
<td>D. MSMEs bring higher national income, higher purchasing power of people in rural and semi-urban areas.</td>
</tr>
</tbody>
</table>

   a. 1-D, 2-A, 3-B, 4-C
   b. 1-C, 2-B, 3-A, 4-D
   c. 1-B, 2-C, 3-D, 4-A
   d. 1-A, 2-D, 3-C, 4-B

4. The government has two roles to play, ______ role and protective role.
   a. professional
   b. rigid
   c. safe
   d. regulatory

5. ______ mechanism for SSI is being looked after by the Department of Small Scale Industries, Agro and Rural Industries within the Ministry of Industry.
   a. Policy
   b. Administrative
   c. Reservation
   d. Statutory
6. Which one of the following statement is false?
   a. Scanning of business environment is essential on the part of the entrepreneur to study and understand the prevailing business environment.
   b. Owner has to select sole proprietorship or family ownership or partnership or private limited company as the form of the ownership.
   c. Apart from the own capital, he may secure finance from friends and relatives, term loans from banks and financial institutions.
   d. Many institutions of government, research laboratories, research and development divisions of big industries and certain consultancy agencies cannot provide the manufacturing know-how.

7. ___________ was launched on 2nd October 1993, with the objective of creating one million jobs in 5 years by giving loans for the creation of tiny and micro enterprise.
   a. PMRY
   b. SIDO
   c. MSME
   d. SBI

8. A ___________ cluster can be defined as a sectorial and geographical concentration of enterprises, especially, Micro, Small and Medium Enterprises (MSMEs), which have common opportunities and face similar threats.
   a. enterprise
   b. industrial
   c. essential
   d. entrepreneurship

9. Which one of the following statement is true?
   a. Incentives and subsidies act as demotivational forces which make the potential entrepreneur to enter into business activities.
   b. Incentives and subsidies act as motivational forces which make the unlikely entrepreneur to enter into business activities.
   c. Incentives and subsidies act as motivational forces which make the potential entrepreneur to enter into business activities.
   d. Incentives and subsidies act as motivational forces which do not make the potential entrepreneur to enter into business activities.

10. ___________ is the financial and promotional assistance provided by the government to the industries for boosting up industrial development in all regions particularly in backward areas.
    a. Subsidy
    b. Bonus
    c. Salary
    d. Incentive
Chapter V
Domains of Rural Entrepreneurship

**Aim**

The aim of this chapter is to:

- introduce the concept of rural entrepreneurship in India
- explain food processing
- explicate the policy for food processing

**Objectives**

The objectives of this chapter are to:

- enlist the advantages of poultry keeping
- elucidate cottage and handicraft industries
- explain features of oil industry

**Learning outcome**

At the end of this chapter, you will be able to:

- identify potential of rural tourism in India
- understand history of pottery and clay products in India
- describe modern industry
5.1 Introduction

There are large number of products and services in rural areas, which can be leveraged by entrepreneurs to set up new, small and micro enterprises. In fact, entrepreneurship can be pursued in virtually any economic field. The idea here is to make the readers aware of the linkages between various economic activities within a particular category in the Indian context. The following indicative sectors may be taken into consideration for gainful employment:

- Original enterprises created out of opportunities in supplying rural products to urban consumers and new products to rural consumers.
- Replication of urban experiences in rural settings.

Rural entrepreneurship in India

One of the main aims of development policies in India is to provide employment to millions of unemployed rural youth. India’s rural economy is primarily agricultural-based, but the rapid rise in its population with consequent pressure on land has led the planners to lay greater emphasis on industrial development. The core of the problem in countries like India is surplus agricultural labour and closure of traditional village industries, resulting in unemployment in rural areas and movement or migration of rural youth to urban areas in search of jobs, thus putting more pressure on the urban infrastructure and amenities. Rural industries generated employment for 47.97 lakhs people in the year 1996-97 as against 37.21 lakhs people in the year 1992-93. Of late, agro-based industries have generated several employment opportunities to rural people.

Income and employment potential

Industries in rural areas, which are mostly micro or tiny in structure, are quick yielding. In other words, their gestation period is much less as compared to large-scale industries. Rural industries are labour-intensive and provide large employment opportunities to rural folks of all age groups. Khadi and Village Industries Commission at national-level and Khadi Village Industries Board at state-level have played a pivotal role in this context. The village and small-scale industries were set-up with the following aims:

- To orient the rural population specially the rural youth towards entrepreneurship.
- To increase the levels of earnings of artisans in rural areas.
- To sustain and create avenues of self-employment among the unemployed youth.
- To ensure regular supply of goods and services through use of local skills.
- To develop entrepreneurship in combination with improved methods of production through appropriate training and package of incentives.
- To preserve craftsmanship and art heritage of the country.

5.2 Food Processing

Food processing covers variety of products from various sectors comprising agriculture, horticulture, plantation, animal husbandry, and fisheries and marine products. India is one of the major food producers in the world and has enough availability of a wide variety of food-grains, fruits, vegetables, flowers, livestock, poultry, fish and seafood. Diverse climatic conditions and a long coastline have contributed to India’s position as a large food producer with variety. However, the food processing industry is still a low-key affair and only 2% of fruits and vegetables and 15% of the milk produced are processed in the industries as a whole.

The processed food industry, which ranks fifth in size in the country, represents 6.3% of GDP. It accounts for 13% of the country’s exports and 6% of total industrial investment which is estimated at US$70 billion, including US$22 billion of value-added products. After India started pursuing the path of economic liberalisation, this sector has been attracting Foreign Direct Investment across different parts of the world in almost all the sectors.
5.2.1 Policy for Food Processing
Several policy measures have been taken in the past years with regard to regulation and control, fiscal policy, export and import, exchange and interest rate control and other incentives to increase investment in processed food sector. The government has abolished licensing for almost all food and agro-processing industries except for some items like beer, potable alcohol and wines, cane sugar, hydrogenated animal fats and oils, etc.

Investment approvals upto 51% foreign equity or 100% for NRI and Overseas Corporate Bodies (OCBs) are now permitted. Use of foreign brand names is now freely permitted besides free import and export except for items in the negative lists for imports and exports. Capital goods are also freely importable, including second-hand machinery for the food processing sector.

Excise and import duty rates have been reduced substantially. Many processed food items are totally exempt from excise duty. Reduction on customs duties on plant and equipment, as well as on raw materials and intermediates, especially for export production is also in force. Taxes have been reduced and there is a shift towards market-related interest rates. There are tax incentives for new manufacturing units for varying periods in certain areas especially in the rural sector and backward areas.

5.2.2 Opportunities
Increased levels of literacy, rapid urbanisation and rising per capita income have all caused rapid growth and changes in demand patterns. An average Indian spends about 50% of household expenditure on food items, which is certainly increasing at steady pace due to the liberal policy of the government. With a population of over 1 billion and a 350 million strong urban middle class with changing food habits, the processed food market in the country is expected to grow significantly.

India is relatively inexpensive, but skilled workforce can be effectively utilised to set up large, low-cost production bases for domestic and export markets, if it is extended in the rural belt of the country. The national policy aims to increase the level of food processing from the present 2% of the produce to 10% by 2010 and 25% by 2025. Key investment opportunities, both for catering to the domestic market as well as for exports, exist in many areas of food processing in India. Milk and milk products, meat and poultry, fruits and vegetables, and beer and alcoholic drinks are some of the areas with huge potential.

There are tremendous opportunities in food processing industry especially at a rural enterprise-level, where all raw materials are available at low-cost, with rural youth as the best human resource available. Some of the areas of food processing industry, which can be undertaken as rural enterprises, are discussed in the following paragraphs

Dehydrated fruits and vegetables
Food items are dehydrated either to preserve a perishable raw commodity to ensure its availability round the year or to reduce the costs and/or difficulty in packaging, handling, transporting and storing, by converting it to a dry solid by reducing its weight and volume. Of course, there are other benefits to the user, such as price stability, and also availability for immediate use without preparation.

Grapes, bananas, mango, jackfruit, pineapple, papaya among others are highly nutritious and delicious and can be used as preserved food which has got high potential. Similarly, most of the vegetables are seasonal and dehydration under hygienic conditions makes them available throughout the year at a reasonable cost. These are convenient enough to be used by large-scale catering establishments and for defence services and in various expeditions, etc.

Fruit-based beverages
Fruit-based beverages are relished very much, particularly when served chilled especially during summers. These are nutritious and healthy. Juice, squash, crush, cordial and syrups are popular fruit products. Products like syrups and squashes of orange, mango, lime, pineapple, grape, apple, etc. besides their jams and jellies are very popular among the masses.
Mushrooms
Mushrooms including the commonly known ‘Dhingri’ grow on decaying tissues of plant material under normal conditions. It is light grey in colour and has pleasant flavour. The study at CFTRI, Mysore has shown that it can be cultivated easily under normal conditions of temperature (21° to 28°C) and relative humidity (5% to 75%) for a period of 6 to 8 months in a year in many parts of the country. It can also be cultivated in summer months, by providing extra-humidity and low-temperature with the use of modern techniques.

The spawn (seed material) of mushroom is the ramified mycelium, which is used as seed. The spawn is prepared by inoculating the pure culture of mushroom on paddy straw/jowar straw under certain conditions. This is known as master spawn. This can be stored at room temperature for a period of 3 months from the date of inoculation. Mushrooms have got tremendous market, both domestic as well as international. Local market also has two segments, one is the domestic consumer and the other is the business consumer at hotels and restaurants. Use of mushroom has increased substantially at local-level in the recent past.

Potato products
Attempts to process potatoes into dehydrated products have resulted in the preparation of flat dehydrated potato chips. ‘Flat dehydrated potato chips’ are used as snack food and are consumed after deep-frying in oil followed by sprinkling of salt, pepper, chilly powder, etc.

Coconut products
Desiccated coconut is the dehydrated and shredded kernel manufactured from fresh mature nuts. Shredded coconut is usually produced in seven grades in the order of their fineness. These are macaroon, fine, medium, coarse, chips, tapes and shreds. The fine and medium grades are largely exported, but it has large domestic market as well. Desiccated coconut is mainly used in the manufacture of sweets, cake dressings, pastries, chocolates and biscuits. It is also used in curries and puddings in place of raw coconut or copra. The major consumers of desiccated coconut are biscuit and confectionery industries. It is estimated that 30% of the production goes to biscuit manufacturers, 10% to confectionery and 60% to local bakeries and sweet manufacturers.

Garlic powder
Garlic is mainly used as a condiment in various food preparations and also serves as a carminative and gastric stimulant in many medicinal preparations. As a condiment, it is used for flavouring mayonnaise and tomato ketchup sauce, salad dressings, meat sausages, stews, spaghetti, chutney, pickles, etc. Manufacture of garlic powder from raw garlic bulbs is a well established industry in USA and Europe. Certain segments of our Indian market have a tremendous potential for garlic powder.

Ginger (dehydrated/bleached)
Dry ginger, which is also known as ‘unbleached ginger’, is prepared from the green underground shoots of rhizomes of the plant zingiber officiate by peeling off the outer skin of the rhizomes and drying them in the sun for about a week. Besides India, ginger is also grown in Jamaica, Nigeria, China, Sierra Leone and other places. In India, ginger is predominantly grown in Kerala, West Bengal, Orissa, ‘Madhya Pradesh and North Eastern States.

Mustard oil and powder
Mustard is an important oil crop of the country. India is one of the largest producers of mustard and rapeseed, with an annual production of more than 6 million tons. Mustard seed is used for extraction of edible oil. A product prepared with mustard, salt and vinegar is very popular in Western countries. Mustard oil and powder are used as a condiment in pickles, meat and salad dressings. Indian black mustard is known for its flavour and has potential for export.

Pickles and chutneys
Pickles are a part of Indian food habits. We require spicy adjuncts to make food palatable and enjoyable and in this context, pickles (spiced unfermented preparation) have gained importance in Indian menus. Preservation of fruits and vegetables in the form of pickles is an old art and a variety of these products are made in Indian homes with something very special and specific to the taste of the people. In fact, a good quality pickle is a delicacy. Pickles are of different types. Pickles in oil, pickles in citrus juice and pickles in vinegar are but a few ways of preserving them.
Ginger oil
Ginger oil is used largely as a flavouring agent in various alcoholic and non-alcoholic beverages. It is also used in confectionery, bakery and perfumery. It is used mainly in high-grade perfumes and toiletries. It is also used in food stuff which requires a high pepper aroma.

Cardamom oil
Its main use is in canned soups and meats. In the perfumery industry, cardamom oil is gaining increasing acceptance especially in perfumes and scents used by women.

Turmeric
Turmeric is an important condiment with varied uses in drug and cosmetic industries. It is used medicinally for external application and taken internally as a stimulant. It is also used in religious and ceremonial occasions.

Rice/corn flakes
Rice/corn flakes are traditionally produced by manual pounding of rice grains/wheat grains/corn. With the advent of modern machines, flaking has become easy. These are especially suitable for preparing deep fat-fried (chewda) products. They are also suitable for preparing corn flakes and toasted and seasoned mixtures, energy food, etc.

Bakery industry
Food processing industries have gained increasing importance in comparison to other industries. Bakery is a traditional food industry. Bakery products like bread, biscuits, cakes, etc. are important sources of food and contain proteins, iron, calcium and several group ‘B’ vitamins. These are easy to manufacture and cost-effective items, which can sustain for several weeks at ambient temperatures, except for bread.

We in India have lower per capita consumption of bread and bakery products in the world. Bakery industry in the small-scale sector is labour-intensive and it offers employment to a number of semi-skilled and skilled workers. Such small-scale units can attract entrepreneurs to set up bakery and biscuit manufacturing units in small towns and villages. Bakery units will go a long way to increase employment potential in rural area and also raise nutritional standards among rural population.

The bakery industry plays an important role in integrating rural economy with urban economy in an agro-based country like India. Food industry has acquired added importance in recent times with the government’s intention to give a thrust to agro-based and village industries. This will not only help in creating direct employment, but have a multiplier effect through forward and backward linkages. The industry is, however, plagued by low capacity utilisation and lack of raw materials.

It offers employment to a number of semi-skilled and skilled workers. In India, more than 75 percent of bakery units are household units, located in rural areas, meeting the needs of rural people. It requires less capital investment, employs more labour and uses simple technology which can be handled by rural workers. Most bakeries are situated in rural areas and the raw material is available at cheaper rates. As it is an agro-based industry, it uses or processes the agricultural products, thereby helping the farmers in rural areas. Further, it helps to reduce or eradicate malnutrition in rural area by supplying products with more nutrition and value. Such enterprises will be more effective and useful to earn profit, if it is close to urban population, where consumption of bakery product is more.

Chikki industry
‘Chikki’ is a popular and traditional Indian sweet. It is known by different names in different languages and in different states. The ingredients which go into the production of chikkies are puffed/roasted Bengal gram, groundnut, puffed rice, beaten rice, coconut scrapings individually or in combination. The sweetening agents are added to the preparation. It is a popular item and has potential both in internal as well as export markets. The main production areas of Chikki are Lonawala and Khandala in Maharashtra which are located on the Mumbai-Pune highway. In this area, several small-scale units produce hundreds of varieties of high-quality Chikki.
5.3 Poultry Industry

Poultry farming is one of the fastest growing industries in India. It is quite profitable and can be managed by people of all ages from all walks of life in all sections of the country. The National Commission of Agriculture states that poultry farming has certain special features, which favour its large-scale adoption by small and marginal farmers and agricultural labourers. Land required for poultry farming is small; the capital investment for starting small poultry units is less. Poultry farming can be started on a small-scale and can be expanded gradually. It does not require heavy investment and the raw materials are easily available. Short-term training facilities are available and even uneducated people could set up poultry farms. Profits are earned much sooner than most other farm products.

Some of the advantages of poultry keeping are:

- Supplies nutritious food for people.
- Serves as hobby and sport for some people.
- Requires less capital to start a poultry unit and gives good and quick results.
- Needs little space and can be done in phases.
- Water requirement is less as compared to crop cultivation or dairy farming.
- Waste products like bran and sub-standard grains can be utilised.
- Eradicates garden pests, such as caterpillars, insects and snails.
- Provides rich fertiliser for crop cultivation especially for vegetable gardens.
- Poultry feathers are useful in many ways.
- It is a favourable side business to agriculture.
- Gives income throughout the year.
- Not much labour is involved and generates self-employment.
- Supports many ancillary units.
- Easy to manage, even women and children can look after them.
- Some medicines and tonics are obtained from poultry as by-products.

Presently, it is a well-organised agro-industry, where people with limited or adequate finances can start commercial poultry farming.

Income and employment potential

Rural industries are quick yielding nature. In other words, their gestation period is less when compared to their large-scale counterparts. These industries are labour-intensive and provide innumerable employment opportunities.

5.4 Cottage and Handicrafts Industry

Cottage industries are those industries run within the residences of the artisans by family members without any hired labour, with the use of locally available raw materials and by making little capital investment. The major industrial activities in this scheme include pot making, match making, ghani oil-extraction, bee-keeping, bamboo cane works, basket making, korai mat weaving, stone weaving items, etc.

5.5 Oil Industry

The vegetable oils are essential ingredients of food needed for the growth and maintenance of human body. Crushing of oil seeds to obtain edible oil for human consumption has been an age-old village industry in India. The ‘Telis’ have been an important component of the village society. Either they have been crushing oil-seeds procured by them or providing oil extraction service to oil-seed producers. This provides nutritious oil with natural flavour and taste.

The village oil industry employs lakhs of artisans in rural areas. This industry renders service to the society in two-ways: it supplies fresh, flavoured and nutritious oil to the consumers on the one hand and provides employment to the traditional artisans and others unemployed, on the other. In order to increase the production of oil, all sources of equipment must be utilised. As ‘Ghani’ is a simple machine, which needs low capital and small quantity of raw materials, it must be encouraged.
5.6 Pottery

Pottery is a traditional industry of rural India. In fact, it is an age-old industry where the pottery products are used within rural India by rural folks for cooking (Handi), storing water (Matka and Surai) and crockery and cutlery in the form of Kullar, etc. The urban Indians are using the pottery products for plants, very special kitchen items made up of china clay for serving tea, coffee, clay bowels for preparing curds and serving food.

5.6.1 History of Pottery and Clay Products in India

Most villages in India have a resident potter (Khumhar) who ‘wheels’ out an amazing variety of household utensils and other objects of utility. He sits outside his hut, spinning his wheels with his hands and feet, while creating bowls, mugs, plates, urns for storing and carrying water, flower pots, foot-scrubbers, small pots and myriad other articles required by an Indian household. With the spread of urbanisation, these settlements have now mushroomed on the outskirts of big cities and towns. The most common clay object is the all-purpose matka used for keeping water, sometimes decorated with geometrical and floral designs and kullar (cup-like container) for tea.

Under Technology Vision 2020, a programme has been undertaken with ‘Initiatives in Pottery Sector for Rural Development’ with the help of Akhil Bhartiya Gramudyog Mahasangh (ABGM) with the primary objective of rendering technology development assistance relevant to rural development in various areas. Pottery is one of the areas identified. Three centres have been identified by ABGM for taking up development of pottery in the rural sector located at Jaipur (Rajasthan), Uttam Nagar (Delhi) and Gorakhpur (Uttar Pradesh).

There is a great demand for upgrading of existing technologies and products of rural potters mainly terracotta, to those products which have more market demand and have better returns with higher price. In this direction, several steps are being taken for creating awareness about modern technologies and products amongst the rural potters. In a series of interactive meetings with potters to know about the various problems faced by them and to educate them about alternate technology options, the local potters were told about the characteristics of the clay locally available. Several village and district level organisations are taking initiatives to improve the quality of life of the potters with the use of modern technology.

This is a rural initiative that will motivate the new generation who is not keen on considering these traditional occupations as career options. ABGM with various local level Gramin Vikas Sansthas are taking the initiatives for use of modern technology and promotion of rural art of pottery and clay products. The initiative taken by the railways to use “kullars” has fuelled life in the rural potters as the demand has increased for the pottery and clay products. There are numerous varieties of clay products specially produced for the occasions like lamps for Diwali, toys for Dussehra, pots for seedling at Sankranti, painted pots for marriages and flowers pots, etc.

5.6.2 Scope of Clay Products in India

Besides their normal use, some products are used for decoration as well. These are generally made with special attention by intricate designs (Karigari) on it. These are termed Karigari Pottery. Moreover, the clay products are most commonly used in religious ceremonies in various forms such as:

- Figurines of divinities
- Ceremonial pottery
- Votive offerings

Lord Ganesha is amongst the most popular Gods. Durga at Dussehra or Puja time and Saraswati, the Goddess of learning, are nationally worshipped. Festivals related to these deities give the potter a motivation to work on his fine art; and his creations are in high demand during those days.
5.7 Service Sector Rural Enterprise

The service sector enterprises are generally more successful, no matter whether operating in rural or urban areas. What is more important is the identification of the nature of need-based services related to a particular business activity.

5.7.1 Repair of Phone/Mobile Phone, Electronic and Electrical goods

With industrial growth and revolution in communication industry, especially in the field of electronic media all over, the rural India is also using TV, radio, various FM stations available in local and regional languages, cable network, land line and mobile phones. The various service providers have opened a range of self employment opportunities to rural educated youth who have the competence and/or are willing to work or start their own enterprise in the area of service needs of rural India.

Self-employment oriented training programmes to start an enterprise with small investment are easily available to rural youth through various training institutes which do not require high-level of educational qualifications. It rather requires the necessary skills and basic aptitude to learn and understand the skills. Service in this sector varies from opening of a shop as sales outlet, a service outlet, outlet for accessories or an outlet of the main service provided vendors specially mobile phone companies. This area covers large number of activities in rural India, where youth can undertake the activity of his/her taste. This being a purely service-oriented sector, a person with good interpersonal relations and qualities will win over the business competition to become a successful entrepreneur.

5.8 Rural Tourism

India is one of the oldest, culturally richest and diverse country full of colour and boasts of a civilisation with rich flora and fauna. Our cuisines are mouth-watering, scenic beauty is breathtaking, folk dances are simply enchanting and wide array of places of tourist attraction - from the valleys of Himachal Pradesh, hills of Uttarakanchal, plains of the river Ganga forests of North East, or plateau of South India. In other words, India is simply full of diversity and that is why the latest blitz of the government terms her as “Incredible India”. Nearly two-third Indians live in villages; in fact our roots are located in rural India. Moreover, most of tourist sites are located away from the urban centres towards rural India and the trend is also shifting towards the rural areas. There is a wealth of craft, performing art, vivid lifestyle and cultural diversity in rural India.

5.8.1 Potential of Rural Tourism in India

The fact remains that India needs change from travails of urban life. Rural attraction is one of the main things that a foreign tourist is actually keen on. As the focus is shifting towards rural tourism as a global trend, India should also shift its focus for promotion of rural tourism. Most of our tourist destinations are located away from urban centres and the trend is also showing in increased numbers of tourists visiting places outside well-known urban centres.

Certain state tourism corporations have also started accepting the concept of rural tourism, such as Rajasthan, Kerala, West Bengal, Punjab, Himachal, Uttarakanchal, Madhya Pradesh, Jharkhand and Chattisgarh. In fact, some of these states have already developed or in the process of developing heritage villages which is nothing but a tilt towards rural India and they have identified the potential for tourist attraction. However, this is not enough. We need to create the rural settings as the destination rather than creating just a heritage village. Few examples are Suraj Kund Craft Mela, near Delhi; ‘Chauki Dhani’ in Jaipur; ‘Vishala’ in Ahmedabad; which are excellent steps taken towards the identification of rural tourism in India.

Dilli Haat is one such example, where efforts are made to promote rural tourism and enable the new urban generation who are not aware of rural India to get a feel of the same. The objective of the ‘National Tourism Policy’ also emphasises development of tourism in remote and interior areas where actual India lives. “The objectives of tourism development are to foster understanding between people, to create employment opportunities and bring about social-economic benefits to the community, particularly in the interior and remote areas and to strive towards balanced and sustainable development and preservation and protection of natural resources and environment to achieve sustainable development”, as per the policy.
Given the low cost of employment creation in the tourism sector and the low-level of exploitation of India’s tourism potential, the new tourism policy seeks to expand foreign tourist arrivals and facilitate domestic tourism in a manner that is sustainable by ensuring that possible adverse effects, such as cultural pollution and degradation of environment are minimised. The new tourism policy also aims at making the stay of foreign tourists in India a memorable and pleasant one with reliable services at affordable costs, so that they are encouraged to undertake repeated visits to India and also be our ambassadors to their friends and family. This would be in tune with India’s traditional philosophy of giving highest honour to a guest (Aatithi devo bhava).

The concept of cottage tourism country-wise is other form of village tourism or services provided to tourists in a village kind of environment which can be termed as nonurban life-style. The government of Rajasthan is most actively encouraging developing and promoting the concept of rural tourism in the state. The main aim of such promotional activity of rural tourism is to achieve income creation, employment generation, economic stability and equality and above all infrastructural development of rural India. Besides, such activities help in marketing India to national and international tourists who have a liking towards rural tourism with urban services.

The emergence of rural tourism will help in boosting a range of activities, services and amenities provided by farmers and rural people to attract tourists to their area to generate extra income. The basic concept of rural tourism will benefit the local community through entrepreneurial opportunities, generation of employment opportunities, conservation and development and preservation of the environment and heritage.

The government of India has cleared rural tourism project for certain state governments. Government of Tamil Nadu is planning to develop rural tourism in the state and the destinations are Surun Kundram in Kanchipuram District and Sutharnalli in Tirunalveli District. The package offered to tourists will aim at exposing tourists to the life and traditions of the village, thereby improving socio-economic status of the villages. The Department of Tourism is also ensuring that it will create an outlet to market their indigenous ethnic arts and crafts. The rich cultural heritage of the state of Tamil Nadu will attract not only international tourists but also the domestic tourists from other parts of India.

A study conducted by FICCI on the rural development tourism says that tourism has the highest employment investment ratio. Every additional investment of rupees one million has the potential to generate 47.5 jobs. Every direct job created leads to a creation of 77 more. Multiplier effect of tourism generates a very high revenue-capital ratio in the context. It is estimated that every million additional visitor could translate into revenue worth billions of rupees for the industry. Benefits of the tourism industry must not be to preserve of a few elite destinations, stated FICCI report.

Specific areas and centres were identified as potential areas for rural tourism, such as:
- The heritage of Rajasthan
- The Gir forests in Gujarat
- The backwaters of Kerala
- The Punjabi cuisine
- Uttarakhand
- The Shanti Niketan in West Bengal
- The dances and musical instruments of Orissa
- The Nithyagram of Karnataka
- The tribals of Bihar
- The scenic beauty of Meghalaya
- The folk dances of Andhra Pradesh
5.9 Entertainment

In the absence of leisure time as well as purchasing power, the rural folks are generally devoid of the entertainment which everyone needs for rest and relaxation. With the reach of electronic media, the rural youth has developed a taste towards music, dance, acting, etc. in addition to traditional songs, folk dances, cultural activities, traditional games and sports which can be used as source of revenue generation. This type of service can be provided either by an individual having good financial background or by a small group rendering and promoting such activities and services in rural India on various occasions, such as social functions, VIP visits, etc. Such events not only attract the domestic tourists but international tourists also. They are now keen to observe Indian customs, culture and costumes; thus, becoming a very good source of income for the unemployed rural youth.

5.10 Modern Industry

With the government’s efforts to extend the development initiatives to rural India especially in developing states, the modern industries are being given special packages and relief with tax benefits for setting up the industries at a subsidised cost with the aim to provide job opportunities, infrastructure development in terms of road, power, water supply, etc. This, in consequence, leads to overall increase in the living standards of local people, where the modern industries are being set up by various national and international companies. As a matter of policy, the industries are being asked to shift from large townships like metros especially to decongest and lessen the burden on the urban centres.

These industries offer great opportunities of varied nature of jobs for local youth who are educated and are willing to take up challenging assignments whether wage-employment or self-employment type. The employment opportunities are basically based on qualifications, skills and expertise, while self-employment opportunities or indirect employment opportunities are based on the various types of industry-related trade or service activities which the rural youth can undertake and be gainfully employed. Modern industry is now playing very important role ever since globalisation and liberalisation policy of government came into existence and it has definitely helped the rural youth in finding suitable vocation.
Summary

- There are large number of products and services in rural areas, which can be leveraged by entrepreneurs to set up new, small and micro enterprises.
- One of the main aims of development policy in India is to provide employment to millions of unemployed rural youth.
- Industries in rural areas, which are mostly micro or tiny in structure, are quick yielding.
- Food processing covers variety of products from various sectors comprising agriculture, horticulture, plantation, animal husbandry and fisheries and marine products.
- Diverse climatic conditions and a long coastline have contributed to India’s position as a large food producer with variety.
- The processed food industry, which ranks fifth in size in the country, represents 6.3% of GDP.
- After India started pursuing the path of economic liberalisation, this sector has been attracting Foreign Direct Investment across different parts of the world in almost all the sectors.
- The government has abolished licensing for almost all food and agro-processing industries except for some items like beer, potable alcohol and wines, cane sugar, hydrogenated animal fats and oils, etc.
- Use of foreign brand names is now freely permitted besides free import and export except for items in the negative lists for imports and exports.
- Increased levels of literacy, rapid urbanisation and rising per capita income have all caused rapid growth and changes in demand patterns.
- The national policy aims to increase the level of food processing from the present 2% of the produce to 10% by 2010 and 25% by 2025.
- Foods are dehydrated either to preserve a perishable raw commodity to ensure its availability round the year or to reduce the cost and or difficulty in packaging, handling, transporting and storing, by converting it to a dry solid by reducing its weight and volume.
- Poultry farming is one of the fastest growing industries in India. It is quite profitable and can be managed by people of all ages from all walks of life in all sections of the country.
- Cottage industries are those industries run within the residences of the artisans by family members without any hired labour, with the use of locally available raw materials and by making little capital investment.
- The vegetable oils are essential ingredients of food needed for the growth and maintenance of human body.
- The urban Indians are using the pottery products for plants, very special kitchen items made up of china clay for serving tea, coffee, clay bowels for preparing curds and serving food
- The service sector enterprises are generally more successful, no matter whether operating in rural or urban areas.
- India is one of the oldest, culturally richest and diverse country full of colour and boasts of a civilisation with rich flora and fauna.
- In the absence of leisure time as well as purchasing power, the rural folks are generally devoid of the entertainment which everyone needs for rest and relaxation.
- Modern industry is now playing very important role ever since globalisation and liberalisation policy of government came into existence and it has definitely helped the rural youth in finding suitable vocation.

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**Recommended Reading**


Self Assessment

1. There are large number of products and service in rural areas, which can be leveraged by entrepreneurs to set up new small and ________ enterprises.
   a. micro
   b. medium
   c. large
   d. new

2. One of the main aims of __________ policy in India is to provide employment to millions of unemployed rural youth.
   a. employment
   b. development
   c. improvement
   d. growth

3. Which one of the following statement is false?
   a. India’s rural economy is primarily agricultural-based, but the rapid rise in its population with consequent pressure on land has led the planners to lay greater emphasis on industrial development.
   b. Rural industries generated employment for 47.97 lakhs people in the year 1996-97 as against 37.21 lakhs people in the year 1992-93.
   c. Industries in rural areas, which are mostly micro or tiny in structure, are quick yielding.
   d. Rural industries are labour-intensive and provide small employment opportunities to rural folks of all age groups.

4. The processed food industry, which ranks _________ in size in the country, represents 6.3% of GDP.
   a. fifth
   b. sixth
   c. first
   d. second

5. The government has abolished licensing for almost all food and agro-processing industries except for some items like beer, potable alcohol and wines, ________ sugar, hydrogenated animal fats and oils, etc.
   a. brown
   b. cane
   c. beaten
   d. xylose

6. __________ levels of literacy, rapid urbanisation and rising per capita income have all caused rapid growth and changes in demand patterns.
   a. Increased
   b. Decreased
   c. Low
   d. High
7. Which one of the following statement is true?
   a. With a population of over 1 billion and a 350 million strong rural middle class with changing food habits, the processed food market in the country is expected to grow significantly.
   b. India’s relatively expensive but skilled workforce can be ineffectively utilised to set up large, low-cost production bases for domestic and export markets if it is extended in the rural-belt of the country.
   c. Milk and milk products, meat and poultry, fruits and vegetables, and beer and alcoholic drinks are some of the areas with huge potential.
   d. Foods are dehydrated either to preserve a perishable raw commodity to ensure its availability round the year or to increase the cost and or difficulty in packaging, handling, transporting and storing, by converting it to a dry solid by reducing its weight and volume.

8. Match the following

<table>
<thead>
<tr>
<th>1. Fruit-based beverages</th>
<th>A. serves as a carminative and gastric stimulant in many medicinal preparations</th>
</tr>
</thead>
<tbody>
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<td>2. Mushrooms</td>
<td>B. is prepared from the green underground shoots of rhizomes of the plant Zingier</td>
</tr>
<tr>
<td>3. Garlic</td>
<td>C. grows on decaying tissues of plant material under normal conditions</td>
</tr>
<tr>
<td>4. Dry ginger</td>
<td>D. are relished very much particularly when served chilled especially during summers</td>
</tr>
</tbody>
</table>

a. 1-B, 2-D, 3-C, 4-A  
b. 1-A, 2-B, 3-D, 4-C  
c. 1-C, 2-A, 3-B, 4-D  
d. 1-D, 2-C, 3-A, 4-B

9. __________ farming is one of the fastest growing industries in India.
   a. Dairy  
   b. Poultry  
   c. Dry  
   d. Irrigation

10. Which one of the following is not identified as a potential area for rural tourism?
    a. The heritage of Rajasthan  
    b. The backwaters of Kerala  
    c. Uttaranchal  
    d. Dilli Haat
Chapter VI

Role and Contribution of Cottage and Small-scale Industries in Economic Development

Aim

The aim of this chapter is to:

- introduce cottage and small-scale industries
- explain the differences between cottage and small-scale industries
- explicate registered and unregistered SSI units

Objectives

The objectives of this chapter are to:

- explain the role of small-scale and cottage industries in regional and backward area development
- elucidate the role and contribution of small-scale industries
- explicate the role of small-scale industries in employment generation

Learning outcome

At the end of this chapter, you will be able to:

- identify the role of small-scale and cottage industries in Mizoram
- understand the efficiency of small-scale industries
- describe the contribution of small-scale industries to exports
6.1 Introduction

Cottage and small-scale industries are defined in terms of investment in plant and machinery under section II B of Industries (Development and Regulation) Act 1951. The limit is revised from time-to-time to offset the impact of inflation and to meet the technological needs. Cottage industry is the one which is run by an individual with the help of his family members with very little capital. Most of the cottage industries do not use power. According to the Fiscal Commission (1949-50), “Cottage industry is an industry which is run either as whole-time or part-time occupation with the full or partial help of the members of the family.” These industries are mostly run by the artisans in their own homes. The use of power and machines in these industries are very limited. The products produced in cottage industries are usually to satisfy the local demands. Number of hired-labour in this sector is very limited and the capital investment is also small. They are mostly located in villages and rural areas.

According to the Economic Commission of Asia and the Far East (ECAFE), “Cottage industries are those industries which are run fully or partially with the help of family members.” In the words of Dhar and Lydall, “Cottage industries are mainly traditional industries which produce traditional goods with the traditional techniques.” Examples of cottage industries are khadi industry, handicrafts, handlooms, cane and bamboo-based industries, pottery, black smithy, etc.

In India, the first official criterion for small-scale industry dates back to the second five-year plan, when it was defined in terms of gross investment in land, building, plant and machinery and the strength of the labour force. In 1955, Small Scale Industries Board defined small-scale industry as, “A unit employing less than 50 persons, if using power and less than 100 persons without the use of power and with capital assets not exceeding rupees five lakhs.”

The Ministry of Commerce and Industries modified the above definition in 1960 on the recommendation of the Small Scale Industries Board. According to it, “Small industries will include all industrial units with a capital investment of not more than rupees five lakhs, irrespective of the number of persons employed.” Thus, this revision has enlarged the scope of employment opportunities in small-scale sector, but the investment ceiling remains unchanged.

In 1972, the Government of India constituted a committee for drafting legislation for small-scale industries, which suggested that the small-scale industries might be classified into the following three categories:

- Tiny industry: Tiny units are those in which the investments in fixed assets are less than Rs. 1 lakh or Rs. 4,000 per worker and the annual turnover does not exceed Rs. 5 lakhs.
- Small industry: Small industry is one in which capital investment in fixed assets does not exceed Rs. 7.5 lakhs irrespective of the number of persons employed.
- Ancillary industry: An ancillary unit is the one rendering services and supplying or proposing to render 50% of its production or total services, as the case may be, to other units for production of other articles. Moreover, such a unit should not be owned or controlled by any undertaking. The limit for investment in fixed assets of such an industry is fixed at Rs. 10 lakhs.

The Industrial Policy of 1980 has revised the ceiling limits of investment in plant and machinery for small-scale industries. According to the Industrial Policy Resolution of 1980, the investment limit in small-scale industries has been increased with a view to develop these industries. In case of small ancillary industries, the limit has been revised from Rs. 15 lakhs to Rs. 25 lakhs and for tiny industries it has been raised to Rs. 12 lakhs from Rs. 1 lakh.

In March 1985, the government has again revised the investment limit of small-scale undertakings to Rs. 35 lakhs. As per the Industrial Policy Resolution of 1990, the investment limit in plant and machinery for small-scale industries has been raised to Rs. 60 lakhs and correspondingly for ancillary units from Rs 45 lakhs to Rs. 75 lakhs. In 1997, on the recommendation of Abid Hussain Committee, the government has raised the investment limit in plant and machinery for small units and ancillaries from Rs. 60/75 lakhs to Rs. 3 crores and that for tiny units from Rs.5 lakhs to Rs. 25 lakhs. In 2000, the union government has reduced the investment limit in plant and machinery for small-scale units from Rs. 3 crores to Rs. 1 crore. However, the investment ceilings for tiny industries remain unchanged to Rs. 25 lakhs.
In accordance with the provision of Micro, Small and Medium Enterprise Development (MSMED) Act, 2006, the micro, small and medium enterprises are classified into two classes:

- Manufacturing enterprises: The enterprise engaged in the manufacture or production of goods pertaining to any industry specified in the First Schedule to the Industries (Development and Regulation) Act, 1951. The manufacturing enterprises are defined in terms of investment in plant and machinery.
- Service sector: The enterprises engaged in producing or rendering of services and are defined in terms of investment in plant and machinery.

The limit for investment in plant and machinery for manufacturing and service enterprises are given in Table 6.1 and Table 6.2.

<table>
<thead>
<tr>
<th>Enterprises</th>
<th>Investment in plant and machinery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-enterprises</td>
<td>Does not exceed 25 lakhs rupees.</td>
</tr>
<tr>
<td>Small-enterprises</td>
<td>More than twenty 5 lakhs rupees, but does not exceed 5 crores rupees.</td>
</tr>
<tr>
<td>Medium-enterprises</td>
<td>More than 5 crores rupees, but does not exceed 10 crores rupees</td>
</tr>
</tbody>
</table>

**Table 6.1 Investment limit in manufacturing sector**
(Source: Micro, Small and Medium Enterprises Development (MSMED) Act, 2006)

<table>
<thead>
<tr>
<th>Enterprises</th>
<th>Investment in equipments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro-enterprises</td>
<td>Does not exceed 10 lakhs rupees</td>
</tr>
<tr>
<td>Small-enterprises</td>
<td>More than 10 lakhs rupees, but does not exceed 2 crores rupees</td>
</tr>
<tr>
<td>Medium-enterprises</td>
<td>More than 2 crores rupees, but does not exceed 5 crores rupees</td>
</tr>
</tbody>
</table>

**Table 6.2 Investment limit in service sector**
(Source: Micro, Small and Medium Enterprises Development (MSMED) Act, 2006)

The definition of small-scale industries has undergone changes over the years in terms of investment limits to boost up the development of this sector (Table 6.3)

<table>
<thead>
<tr>
<th>Year</th>
<th>Investment limits in plant and machinery</th>
<th>Additional Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>Up to Rs. 5 lakhs</td>
<td>Less than 50/100 persons with/without power</td>
</tr>
<tr>
<td>1960</td>
<td>Up to Rs. 5 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1966</td>
<td>Up to Rs. 7.5 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1975</td>
<td>Up to Rs. 10 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1980</td>
<td>Up to Rs. 20 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1985</td>
<td>Up to Rs. 35 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1991</td>
<td>Up to Rs. 60 lakhs</td>
<td>No conditions</td>
</tr>
<tr>
<td>1997</td>
<td>Up to Rs. 3 crores</td>
<td>No conditions</td>
</tr>
<tr>
<td>2000</td>
<td>Up to Rs. 1 crore</td>
<td>No conditions</td>
</tr>
<tr>
<td>2006</td>
<td>Up to Rs. 5 crores</td>
<td>No conditions</td>
</tr>
</tbody>
</table>

**Table 6.3 Changes in the definition of small-scale industries in terms of investment limits**
(Source: Compiled from various Acts and Notifications.)
At present, the small-scale industry (micro, small and medium and manufacturing enterprises) is defined as an industrial undertaking which is engaged in manufacturing, preservation, processing, mining and quarrying or assembling and in which the investment in fixed assets in plant and machinery whether held on ownership terms, on lease or on hire purchase does not exceed Rs. 5 crores -subject to the condition that the unit is not owned, controlled or subsidiary of any other industrial undertakings. Small-scale service sector enterprises (micro, small and medium enterprises) is defined as enterprises engaged in producing or rendering of services of which investments in plant and machinery do not exceed Rs. 2 crores.

### 6.2 Cottage and Small-scale Industries-The Underlying Differences.

The Fiscal Commission’s remarks over the distinction of cottage and small-scale industry is that cottage industries are normally associated with agriculture in rural areas and provide part-time employment to the agricultural labourers, while small-scale industries are established in urban and sub-urban areas and provide full time employment to the labourers.

The main difference as mentioned in the first five-year plan (1951-56) between cottage and small-scale industries are:

- Cottage industries are mainly located in villages, although they are scattered all over the country, while small-scale industries are mostly located in urban and suburban areas.
- Cottage industry normally does not employ hired-labour as these units are primarily run by the members of the family at their own premises, while small-scale industries produce goods with partially or wholly mechanised equipment employing outside labourers. Negligible or no capital is invested in cottage industries and production is done by hand with simple tools.
- Small-scale industrial units employ wage earning labour and production is done by the use of modern techniques which involves capital investments.
- Small-scale industrial units use modern sophisticated machines run by power, while in cottage industries the production is done by hand without the use of power.
- The products of cottage industries usually meet local demands and supply ancillary goods to small-scale industries, while the products of small-scale industries meet the demands for a larger area.
- Small-scale industries are located as separated establishments, but cottage industries are located in the homes of the artisans.
- Traditional goods like khadi, mattress, shoes, candles, and cane and bamboo products are produced in cottage industries, while small-scale industries produce many modern goods like radio, television, mixer-grinder, etc.

### 6.3 Registered and Unregistered SSI Units

Registration in the small-scale industrial units voluntary and solely depends on the desire of the proprietor or entrepreneur. The registration is done with the District Industries Centre (DICs) or the Directorate of Industries. Initially, the registration is given on a temporary basis and subsequently, on the request of the concerned entrepreneur, permanent registration is granted. However, as far as the manufacturing units are concerned, their registration is mandatory under section 2m (i), and 2m (ii) of the Factories Act. Besides, some state governments notify certain industrial activities for mandatory registration, although they do not conform to the criteria laid down under Sections 2m (i) and 2m (ii). Such registrations are done under Sections 85 (i) or 85 (ii) by the concerned state governments.

To obtain the knowledge regarding the activities of the small-scale industrial sector and to improve the information-base of this sector, the office of the Development Commissioner (Small-Scale Industries) of the government of India has conducted 31 All India Censuses so far. The first census was conducted in 1973-74 in respect of 2.58 lakhs SSI units registered up to 30.11.1973. The second census was conducted during 1990-91 in respect of 9.87 lakhs SSI units registered up to 31.3.1988. The latest and the most ambitious was the third census conducted during 2002-03 with the reference year being 2001-02. In addition to 13.75 lakhs registered SSI units, this census also covered 91.46 lakhs unregistered units making up a total of 105.21 lakhs SSI units. Collection of data for the unregistered SSI sector along with the registered SSI sector has considerably enhanced the information-base of the total SSI sector.
6.4 Role of Small-scale and Cottage Industries in Regional and Backward Area Development

‘Backward area or backward region’ is a term used to denote the backwardness of a particular region as compared to the other parts of the country. The reason of backwardness may be economic, geographical, political, social or cultural. Among the various causes, economic reason is the most prominent one.

Industrialisation plays a very important role in economic development of a backward region. This is why ‘industrial development’ occupies priority in the policy of regional development. The concept of regional development was originated from the ideas of Stalin. The Burlow Commission in 1937 and the Political and Economic Planning Group in 1939 had mentioned about the need of regional development and thereby stressed the need for dispersal of some relevant industries in backward areas. By the term regional development, we mean the attainment of economic development of a particular region of the country. Thus, it also includes the process and the strategy to be adopted for the economic development of a particular region along with other regions of the country.

Backward area development is necessary for overall development of the country. In the absence of regional development of backward areas, the industrial activities will be confined to a few selected areas of the country. This leads to unequal distribution of income and industrial development. Moreover, the main aim of regional development to secure maximum efficiency in the utilisation and exploitation of available resources would remain unfulfilled.

Regional development contributes and helps in the involvement and empowerment of common people by demolishing the geographical boundaries. It leads to an equitable distribution of employment opportunities and helps in reducing per capita income among different regions. It also helps to check rural-urban migration and the concentration of population and industry in a few big industrial centres of developed region and also reduces the growth of agglomeration.

Industrialisation is the crying need of the hour and rapid development of industries in backward areas can be achieved only through promotion of small-scale industries. Small-scale industries can have a profound influence by raising income-levels of the rural people, creating employment in our economy by diversification of production through ancillarisation, diffusion of ownership through the promotion of local entrepreneurship and geographical dispersal of industrial activities by setting up industries based on local resources.

The main aim of Small Scale Industries Development Programmes in various five-year plans is through equitable dispersal of industries for balanced regional development. The second five-year plan while elaborating on this strategy stated, “Industrial expansion on the periphery of large towns could scarcely be said to reduce the concentration of industry, what needed therefore was a pattern of industrial activity in which a group of villages converging on their natural industrial and urban centres form a unit or to use the Karve Committee’s expression, a pyramid of industry-based on a progressive rural economy.”

The main reason behind SSI Development is to initiate regional industrial balance by counteracting or neutralising as far as possible the polarisation of industrial activities within developed regions. With the development of small-scale industries in backward regions, it is possible to maximise utilisation of local resources, both natural and human and it helps to minimise interregional gaps.

The government of India has provided various incentives and concessions from time-to-time to promote industrialisation in backward areas since independence. The programme of industrial estates, rural industries projects, provision of capital and transport subsidies to those units located in the identified backward districts or regions, fiscal concessions to industries in backward areas and District Industries Centre (DIC) programmes were formulated and designed to promote and foster dispersed and decentralised industrial growth and thereby reduce regional disparities. Moreover, the government has set up various financial institutions for relieving and alleviating backwardness.

Institutions like National Small Industries Corporation (NSIC), Khadi and Village Industries Commission (KVIC), National Bank for Agricultural and Rural Development (NABARD), and Small Industries Development Bank of India (SIDBI) were set up to promote and assist small-scale industries in backward or rural areas of the country. The Government of India has created the Rural Infrastructure Development Fund in NABARD to create infrastructure, such as irrigation, roads, bridges, and market yards in rural areas.
The Khadi and Village Industries Commission is also helping the rural people in the village and cottage industries by providing various incentives and organising various training programmes thereby increasing employment avenues in rural and backward areas. The Regional Rural Banks (RRBs) were also set up in 1975, which increased the scope of village and cottage industries. The RRBs used to provide various types of loans to the artisans and entrepreneurs in rural areas at concessional terms. The SIDBI and Commercial Banks are also playing crucial role in development and promotion of cottage and small-scale sector in backward areas. The SIDBI is also operating various schemes such as Micro-credit, Mahila Vikas Nidhi, Rural Industries Programme, and Adoption of Clusters for Technology Up-gradation etc, to boost up industrial development in backward areas.

In spite of all these efforts, the distribution of small-scale industries in our country is highly uneven. Some areas like Maharashtra, Andhra Pradesh, Haryana, U.P. and Gujarat, etc, are highly industrialised while the North-Eastern States, Bihar, Jammu and Kashmir, Himachal Pradesh, etc, are lagging far behind in industrialisation. More than 50% of the districts in these states do not have significant number of SSI units. In practice, SSI faces a lopsided regional growth due to lack of proper infrastructure for small-scale industries in various states.

We can be proud that, since independence we have achieved a high degree of self reliance and have created a strong industrial base for meeting the domestic requirements of the economy by introducing a wide variety of products. Many new medium and small-scale industries have emerged and entrepreneurial base has also been widened. The greatest achievement of the government policy measure is that, industry has spread in those backward and inaccessible areas, where it did not exist earlier. Now, the government should also play an important role in the liberalised set up in order to grow the industries in a balanced manner and infrastructure development should be initiated on a widespread basis, so that the first generation entrepreneurs find it profitable to invest in areas that still remain un-industrialised.

Finally, we cannot deny that with `obsession over industrial liberalisation’, the crucial matter of employment creation has taken a backseat. This is not at all good for the country. If the small-scale sector is to act as an agent of decentralisation in rural and suburban areas, the government should come forward by strengthening the infrastructure in the rural and semi-urban areas and improving the transport facilities, raw materials facilities, providing more financial help in the form of loans by establishing more co-operative banks and also opening the branches of various other nationalised banks which could meet both the short-term and long-term credit needs of the existing and also the potential industries.

### 6.5 Role and Contribution of Small-scale Industries in Economic Development of India

The role and importance of small-scale, village and cottage industries have equally been felt even in countries which are classic lands of big business and industrial set-ups. Such industries are very common in Japan, U.S.A., Switzerland, Sweden and several other countries.

In an over populated and developing country, like ours, the small-scale and cottage industries have a vital role to play and therefore, it occupies a definite and important place in the upliftment of the rural economy of the region. The government, at the centre has made a clear announcement on the importance attached to this sector of industries in its programmes and plan-outlays, from time-to-time for utilisation of the massive manpower in both the rural and the urban areas.

The Small Scale Industrial (SSI) sector is a vital constituent of India’s industrial sector. It plays a prominent role in overall economic development of the country and contributes significantly to India’s Gross Domestic Products and export earnings besides meeting the social objectives including that of providing employment opportunities to millions of people across the country, income equality, balanced regional development and creation of a strong entrepreneurial base. The SSI sector covers a wide variety of industrial activities categorised as under:
- Village and cottage industries (VCI)
- Small-scale industries (SSI)
- Ancillary industries (ANC)
- Export-oriented units (EOUs)
Project Management and Entrepreneurship Development

- Small-scale service enterprises (SSSEs)
- Small-scale business (industry related) enterprises (SSBEs)
- Women enterprises

The small-scale and cottage industries have an important role in India’s industrial and economic development.

### 6.5.1 Expansion of SSI Sector and its Output

The small-scale industrial sector has recorded a high growth rate since independence in spite of stiff competition from the large sector and not so encouraging support from the government. This is evidenced by the number of registered units which went up from mere 16,000 units in 1950 to 36,000 units in 1961 and to 33.7 lakhs units in 2000-2001. During the last decade alone, the small-scale sector has progressed from production of simple consumer goods to the manufacture of many sophisticated and precision products like electronics control systems, micro-wave components, electro-medical equipments, T.V. sets, etc.

Growth and contribution of small-scale industries during the period 1994-96 to 2004-05 is given in Table 6.4. It is clear from the above table that the number of units in SSI sector was 79.6 lakhs. This number has steadily risen to 118.6 lakhs during the year 2004-05. The annual average growth rate of this sector was 4.1% during this period.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of units (in lakh)</th>
<th>Production (Rs. crore)</th>
<th>Employment (in lakh)</th>
<th>Export (Rs. crore)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-95</td>
<td>79.6 (4.1)</td>
<td>1,22,154 (23.6)</td>
<td>191.4 (4.8)</td>
<td>29.068 (14.9)</td>
</tr>
<tr>
<td>1995-96</td>
<td>82.8 (4.1)</td>
<td>1,47,712 (20.9)</td>
<td>197.9 (3.4)</td>
<td>36,470 (25.5)</td>
</tr>
<tr>
<td>1996-97</td>
<td>86.2 (4.1)</td>
<td>1,67,805 (13.6)</td>
<td>205.9 (4.0)</td>
<td>39,248 (7.6)</td>
</tr>
<tr>
<td>1997-98</td>
<td>89.7 (4.1)</td>
<td>1,87,217 (11.6)</td>
<td>213.2 (3.5)</td>
<td>44,442 (13.2)</td>
</tr>
<tr>
<td>1998-99</td>
<td>93.4 (4.1)</td>
<td>2,10,454 (12.4)</td>
<td>220.6 (3.5)</td>
<td>48,979 (10.2)</td>
</tr>
<tr>
<td>1999-2000</td>
<td>97.2 (4.1)</td>
<td>2,33,760 (11.1)</td>
<td>229.1 (3.9)</td>
<td>54,200 (10.7)</td>
</tr>
<tr>
<td>2000-01</td>
<td>101.1 (4.1)</td>
<td>2,61,297 (11.8)</td>
<td>239.1 (4.4)</td>
<td>69,796 (28.8)</td>
</tr>
<tr>
<td>2001-02</td>
<td>105.2 (4.1)</td>
<td>2,82,270 (8.0)</td>
<td>249.1 (4.2)</td>
<td>71,244 (2.1)</td>
</tr>
<tr>
<td>2002-03</td>
<td>109.5 (4.1)</td>
<td>3,11,993 (10.5)</td>
<td>260.2 (4.4)</td>
<td>86,013 (20.7)</td>
</tr>
<tr>
<td>2003-04</td>
<td>114.0 (4.1)</td>
<td>3,57,733 (14.7)</td>
<td>271.4 (4.3)</td>
<td>97,644 (13.5)</td>
</tr>
<tr>
<td>2004-05</td>
<td>118.6 (4.1)</td>
<td>4,18,263 (16.9)</td>
<td>282.6 (4.1)</td>
<td>1,24,417 (27.4)</td>
</tr>
</tbody>
</table>

**Table 6.4 Growth, production, employment and export in SSI sector (1994-95 to 2004-05)**

As far as the output of the SSI unit is concerned, it was Rs. 1,22,154 crores in 1994-95 and this has considerably risen to Rs. 4,18,263 crores in 2004-2005 (at current prices). Production in SSI sector during the last ten years has recorded an annual average growth rate of 8.6%. The share of small-scale industries in the countries industrial output is around 39%.
6.5.2 Employment Generation

A small-scale or a cottage industry is labour-oriented and labour-intensive with relatively high labour-investment ratio. A given amount of capital invested in this sector of industries is likely to provide more employment, at least in short-run, than the same amount invested in a large industry. It is estimated that an investment of Rs.1.00 lakh, in fixed assets, in a large industry may create, on an average, employment to 2-4 persons, whereas the same amount of investment made in a small-scale industry, for the same purpose, might do so for 10-12 persons. This is one of the main considerations for an overpopulated and developing country, where millions of people are either unemployed or underemployed, to utilise the possible potentiality of this sector for providing employment opportunity not only to the educated and technical manpower, but also to the unlimited labour force which have been increasing, day-by-day, at a relatively low capital cost and very short gestation period.

Further, the encouragement to small-scale and cottage sector would, no doubt, serve to counter the seasonal unemployment of the agricultural labour force and thus utilise it which otherwise would go waste. The small-scale industrial sector has employed a total of 191.4 lakhs people in 1994-95 (Table 6.4) and this number has consistently risen to 282.6 lakhs people in 2004-05. Within the manufacturing sector itself, small and cottage industrial sector contributes about four-fifths of manufacturing employment in India.

Given the acute unemployment, underemployment and disguised unemployment problem in India, creation of employment opportunities will depend crucially on the development of small-scale and cottage industries. This would be clear from the fact that while employment in the industrial sector as a whole including large-scale, medium-scale and small-scale has increased by only 2.21% per annum over the period from 1972 to 1987-88, employment in small-scale sector grew at the rate of 5.45% per annum over the same period. As far as the future prospects of small-scale and cottage industry is concerned, the rural non-farm sector accounting for about 22% of rural employment can play a crucial role in the further expansion of employment opportunities in the rural areas. An important constituent of this sector is the manufacturing activity consisting mainly of textile-based and agro-based products and units producing construction materials. In urban areas, employment potential seems to be the largest in the non-household and tiny units of the manufacturing sector.

Obviously, the growth rate of small-scale industrial sector has been faster both in terms of output and employment. In other words, the output employment ratio for the small-scale sector is 1:1.4. The rapid growth of the small-scale industries has a great relevance in our national economic policies. The growth of small-scale sector improves the production of non-durable consumer goods of mass consumption. As such, it acts as an anti-inflationary force. If a big push is given to the small sector, it can become a stabilising factor in a capital-scarce economy like India by providing a higher capital output ratio as well as a higher capital employment ratio.

6.5.3 Efficiency of Small-scale Industry

Unlike a large industry, which calls for a great deal of technical skill and manpower, viz., engineers, foremen, accountants and so on, a small-scale industry is relatively skill-light and provides the entrepreneurs every opportunity to broaden his technical and managerial capability. Large industries require imported machineries, materials and technical know-how, small-scale industries, generally, are less dependent on foreign machineries, raw-materials and they, being skill-light, are ‘quick-yielding types’, i.e., the time-lag between execution of the project investment and commencement of production is relatively short. Thus, low import intensity in the capital structure of the small-scale sector reduces the need of foreign capital or, foreign exchange earnings and obviates the difficulty in the balance of payment on one hand, and also compromises between the highly inflationary potential on the other. That is, this sector tries to arrest inflation simultaneously gearing up the rapid rise in the standard of living of the people, because of their low capital intensity and lesser gestation period.

There is always a controversy over the issue of efficiency of small-scale industry, vis-à-vis, large-scale industries. While some studies have pointed out that small-scale industries are more efficient, others point out that large-scale industries are more efficient. Dhar and Lydall have under taken a study on the relative efficiency of small-scale industries in India during last fifties. They concluded that modern small-scale industry is fairly capital-intensive; these units do not generate more employment per unit of capital than large-scale industry. Similar conclusions were reached by Sandesara in a study conducted for the period 1953-58. Sandesara found that, for a given volume of
investment, small-scale units neither generate more employment nor produce more output as compared to large-scale units. Goldar found that SSIs generally have low labour productivity, high capital productivity, low capital intensity and low total factor productivity. He inferred that modern small-scale sector is relatively inefficient as compared to large-scale industries in a large number of industries. He also found that the efficiency of SSIs varies directly with capital intensity, so that the SSIs cannot be relied as a source of efficient employment generation.

However, there are some other studies which prove that small-scale units are more efficient as compared to large-scale industries. An important study on the efficiency of small-scale industries was conducted by SIDBI team in 1999 in association with National Council of Applied Economic Research. The study covers the period 1980-94, and reveals that the small-scale industries, by investing only 7% to 15% of the total manufacturing sectors’ capital contribute to nearly one-fifth of the total industrial output and 35 to 40% of total employment in the industrial sector. The estimated relative total factor productivity of small-scale industries during the study period is greater than one; suggesting that at the all India level, the small-scale sector is more efficient than the large-scale sector.

The employment potentiality is a major factor while discussing the efficiency of industries in a labour abundant country like India. Comparison of the SSI sector with large manufacturing sector made for the year 2001-02 by the Census Report shows that small-scale sector is a better employment generating sector. The employment generated by the small-scale sector per Rs. One lakh investment was 1.39, as against only 0.20 in respect of the large manufacturing sector. This means that the organised large-scale sector requires an investment of Rs. 5 lakhs to generate employment to one person, while the unorganised small-scale sector generates employment for seven persons with the same investment.

With regard to investment-output ratio also, the small-scale sector fared almost at par with the large-scale sector— an investment of about Rs. 43,000 was required in the large-scale sector to generate an output worth Rs. one lakh, whereas in the SSI sector, marginally higher investment of Rs. 48,000 is required to generate the same amount of output.

Removal of inequalities in income distribution is one of the main objectives of India’s successive five-year plans. Development of small-scale and cottage industries has contributed a lot to achieve the objective of our five-year plans. Small-scale and cottage industries are instrumental in the equal distribution of wealth and income. The income generated in large number of small-scale and cottage industries are dispersed more widely in the community and also among different geographical regions as compared to the income generated by few large industries. In small-scale industries the industrial capital is not concentrated in a few hands rather it is widely distributed in small quantities among large number of people throughout the country. In other words, the income benefit of small-scale and cottage industry is derived by a large population, while large industries more concentration of economic power. In this way, small enterprises bring about greater equality in income distribution. Most of the small enterprises are either proprietary or partnership concerned, hence the relationship between the workers or the employers are more harmonious in small industry than in large industry.

Dhar and Lydall consider this argument as fallacious. Statistical evidence suggests that there is a common tendency in all countries, for the average wage to be lower in small factories than in large factories. Moreover, the virtual non-existence of trade unions in small factories enables the employers to exploit the workers to the maximum. Thus, it is true that the workers in small factories are neither economically better off than in large industries, nor do they obtain more benefits under social security schemes.

There is no doubt that the argument of Dhar and Lydall does have some force on it. On the contrary, it is also true that in a developing country like India, where unemployment, under employment and disguised unemployment are rampant, the low-paid job is normally accepted. In the absence of small enterprises, the workers have to lose even the small wage which they hope to get. Moreover, by a more effective implementation of the existing factory laws, the exploitation in small industry can be minimised. Thus, there is no denying the fact that small-scale and cottage industries encourage the distribution of national income and wealth more equally among the people of the country.
6.5.4 Contributions to Exports

During the post-independence period and especially after the second five-year plan, large numbers of modern small-scale industries were established in India. As a result, the contribution of small-scale industries in India’s export earnings has achieved significant position. Small-scale industrial sector plays a major role in India’s present export performance. About 45-50% of the Indian exports are being contributed by SSI Sector. Direct exports from the SSI Sector account for nearly 35% of total exports. The number of small-scale units that undertake direct exports would be more than 5,000.

Besides direct export, it is estimated that small-scale industrial units contribute around 15% to exports indirectly. This takes place through merchant exporters, trading houses and export houses. They may also be in the form of export orders from large units or the production of parts and components for use for finished exportable goods. It would surprise many to know that non-traditional products account for more than 95% of the SSI exports. The exports from SSI sector have been clocking excellent growth rates in this decade. It has been mostly fuelled by the performance of garment, leather and gems and jewellery units from this sector. The lucrative product groups, where the SSI sector dominates in exports are sports goods, readymade garments, woolen garments and knitwear, plastic products, processed food and leather products.

The major thrust areas for SSI exports are agriculture, chemicals, plastic items, leather items and textile product groups. The United States and European Union have been identified as the potential markets for textile, whereas export of chemicals product groups holds a potential for Japan. Another interesting feature to note is the consistent increase in the percentage share of SSI Exports in the field of electronics and computer software. The percentage share in the field of electronics and computer export has more than doubled from 5.40% in the year 1999-2000 to 13.12% in 2001-2002.

While bulk of the SSI exports consists of such non-traditional items like readymade garments, sports goods, finished leather, leather products, processed foods, chemical and chemical products and a large number of engineering goods, states like Madhya Pradesh, Uttar Pradesh, Jharkhand, Karnataka, West Bengal and Maharashtra together accounted for 55.41% of the total exporting units in the country. The total exports of small-scale industrial products have increased from Rs. 155 crores to Rs. 1, 24,417 crores in 2004-05 (Table 6.4) which signifies an increase in the total share of small-scale industries in the total export of the country from 9.6% in 1971-72 to 33.1% in 2004-05.

6.5.5 Mobilisation of Capital and Entrepreneurial Skills

In a country like India (where capital and entrepreneurial skill is scarce) the small-scale industrial sector has a distinct advantage as far as the mobilisation of capital and entrepreneurial skill is concerned. A large number of entrepreneurs are spread over small villages and towns throughout the country. Obviously, large industries cannot utilise them as effectively as the cottage and small-scale industry does. This is mainly because cottage and small-scale industries are distributed over the length and breadth of the country. Similarly, large-scale industries cannot mobilise the savings done by the people in rural and remote places far away from the towns and cities. This difficult task can effectively be accomplished by setting up a network of small-scale and cottage industries. In addition, a large number of other resources spread over the country can be put in to an effective use by the cottage and small-scale industries. The rapid development of cottage and small-scale industries in the post independence period is a proof that given the necessary credit power and technical knowledge, a large quantity of latent resources of the economy can be mobilised for purposes of industrial development.

6.6 Specific Role of Small-scale and Cottage Industries in Mizoram

Mizoram economy is still an agriculture dominated one and hence it is categorised as an underdeveloped state. One among many reasons for its underdevelopment is the slow growth rate of industrialisation. Industrialisation plays a pivotal role in development of any region. Development of industries can increase income, output, and employment and can accelerate the rate of growth of a backward area. Further, industry tends to exercise profound influence on other sectors of the economy including agriculture.
In Mizoram, industrialisation is still at an infantile stage. The entire state has been notified as backward and is categorised as ‘No Industry State’ due to the non-existence of any large and medium industries. In the traditional Mizo-villages, agriculture was the sole occupation. Their agriculture is still practiced on traditional jhum (shifting) cultivation. There was no alternative occupation worth mentioning as the village pottery, blacksmith, handicraft, etc. were carried out on a part-time basis.

At present, about 70% of the total population of the state is engaged in agriculture. Around 60.66% (cultivators and agricultural labourers) of the total workforce are engaged in primary sector of the economy, while the state is far away from self-sufficiency in food grain production. Only 1.5% of the work force is engaged in cottage and small-scale industries, the only industrial sector of the state, which reveals the industrial backwardness of the state.

The traditional shifting cultivation, due to decreasing returns over time; no longer remain desirable to the farmers to support their growing needs. Besides, there are hardly any plain area except Champhai, ‘The Rice bowl of Mizoram’ and few other areas where cultivation can be practised with scientific methods, modern tools and on permanent basis. Agro-based products like ginger, chilly, oranges, passion fruits, etc., are grown intensively throughout the state. The farmers are forced to sell their products to outsiders at cheap rates as most of the products are perishable in nature and no sufficient facilities like cold storage and other scientific techniques to preserve these commodities are available in the state.

Due to the above mentioned reasons, there is a discontentment among the farmers; they are very much keen to find an alternative occupation to support the growing needs of their expanding family members. The secondary and tertiary sectors of the economy have not yet fully developed to absorb all willing work-force at once; the shifting of population from primary sector results in unemployment and underemployment in the economy.

Due to poverty and lack of technical knowledge, the unskilled people in rural areas cannot move from the traditional sector to a new sector. This in turn puts heavy pressure on agriculture which gives rise to disguised unemployment. Thus, the fast growing population, together with decreasing job opportunities in the government sector and growing number of educated youths in the state make it a crying need for speeding up the process of industrialisation in the state to absorb the rapidly increasing labour force.

At this juncture, cottage and small-scale industries have a specific role to perform in the context of Mizoram’s economy. As ‘No Industry State’ the contribution of industrial sector in the state economy is negligible. The contribution of industry, both registered and unregistered hardly reaches 1% to the GSDP. The Industrial Policy 2000 was announced during 10th plan period which envisages various fiscal and financial incentives to local entrepreneurs. Further, the Government of India also announced new industrial policy for the north-eastern region “North East Industrial and Investment Promotion Policy” which was enforced with effect from 1st April, 2007. The policy covers the 8 Northeastern states including Sikkim and provides various incentives like exemption of excise duty, exemption of income tax, capital investment subsidy, central transport subsidy, interest subsidy, comprehensive insurance and substantial expansion of industrial units, etc.

Small-scale and cottage industries are best suited in Mizoram as they require less capital, low levels of technical skills and less managerial experience. The vast natural resources and local raw materials can be exploited more efficiently by setting up small industries in the state. Location aspects of the traditional small-scale and cottage industries are mostly rural and semi-urban. Thus, they create employment opportunities mainly to the agricultural labourer and local artisans, which in turn helps in equal distribution of state income. Besides increasing the income of the rural poor, these industries preserve craftsmanship and old age heritage.

Handloom and handicraft industries play a prominent role in the socio-economic development of the state. The beautiful shawls of different designs reflect the weaving skills of the Mizo women. While Mizo women excel in weaving, the Mizo men reveal their talent by transforming mere functional bamboo, cane and wooden pieces in to works of art. These industries safeguard the Mizo customs, tradition and culture which become the pride of the Mizos for its ethnic beauty, distinct characters and identities. Such small-scale industries have high employment potential which enable a large number of people to earn a decent income and thus pave the way for social justice.
Summary

- Cottage and small-scale industries are defined in terms of investment in plant and machinery under section II B of Industries (Development and Regulation) Act 1951.
- Cottage industry is the one which is run by an individual with the help of his family members with very little capital.
- The use of power and machines in these industries are very limited.
- Registration in the small-scale industrial unit is voluntary and solely depends on the desire of the proprietor or entrepreneur.
- ‘Backward area or backward region’ is a term used to denote the backwardness of a particular region as compared to the other parts of the country. The reason of backwardness may be economic, geographical, political, social or cultural.
- Industrialisation plays a very important role in economic development of a backward region.
- Regional development contributes and helps in the involvement and empowerment of common people by demolishing the geographical boundaries.
- The main aim of Small Scale Industries Development Programmes in various five-year plans is through equitable dispersal of industries for balanced regional development.
- The Khadi and Village Industries Commission is also helping the rural people in the village and cottage industries by providing various incentives and organising various training programmes, thereby increasing employment avenues in rural and backward areas.
- The role and importance of small-scale, village and cottage industries have equally been felt even in countries which are classic lands of big business and industrial set-ups.
- A small-scale or a cottage industry is labour-oriented and labour-intensive with relatively high labour-investment ratio
- Mizoram economy is still an agriculture dominated and hence it is categorised as an underdeveloped state.
- The traditional shifting cultivation, due to decreasing returns over time; no longer remain desirable to the farmers to support their growing needs.
- Handloom and handicraft industries play a prominent role in the socio-economic development of the state.
- Such small-scale industries have high employment potential which enable a large number of people to earn a decent income and thus pave the way for social justice.

References

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- Small Scale Industries % Indian Economy. [Video online] Available at: <http://www.youtube.com/watch?v=FMhfpOS5RbM> [Accessed 04 September 2013].
Recommended Reading


Self Assessment

1. Cottage industry is the one which is run by an individual with the help of his family members with very little___________.
   a. resources
   b. capital
   c. profit
   d. revenue

2. ________ units are those in which the investments in fixed assets are less than Rs. 1 lakh or Rs. 4,000/- per worker and the annual turn-over does not exceed Rs. 5 lakhs.
   a. Small
   b. Big
   c. Tiny
   d. Ancillary

3. Match the following

<table>
<thead>
<tr>
<th>1. Small industry</th>
<th>A. The enterprises defined in terms of investment in plant and machinery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Ancillary industry</td>
<td>B. The one in which capital investment in fixed assets does not exceed Rs. 7.5 lakhs.</td>
</tr>
<tr>
<td>3. Manufacturing enterprises</td>
<td>C. The one that renders services and supplies or proposes to render 50% of its production or total services.</td>
</tr>
</tbody>
</table>

a. 1-A, 2-D, 3-C, 4-B
b. 1-B, 2-C, 3-D, 4-A
c. 1-C, 2-B, 3-A, 4-D
d. 1-D, 2-A, 3-B, 4-C

4. In 2000, the union government has reduced the _____________ limit in plant and machinery for small-scale units from Rs. 3 crores to Rs. 1 crores.
   a. financial
   b. resources
   c. investment
   d. saving

5. Which one of the following statement is false?
   a. Cottage industries are mainly located in villages although they are scattered all over the country.
   b. Small-scale industrial units employ wage earning labour and production is done by the use of modern techniques which does not involve capital investments.
   c. Small-scale industrial units use modern sophisticated machines run by power.
   d. Small-scale industries are located as separated establishment but cottage industries are located in the homes of the artisans.
6. Registration in the small-scale industrial unit is __________ and solely depends on the desire of the proprietor or entrepreneur.
   a. mandatory
   b. compulsory
   c. voluntary
   d. professional

7. ‘Backward area or backward __________’ is a term used to denote the backwardness of a particular region as compared to the other parts of the country.
   a. neighborhood
   b. region
   c. part
   d. location

8. Which one of the following statement is true?
   a. Cottage industries are those industries which are run fully without the help of family members.
   b. Cottage industries are mainly traditional industries which does not produce traditional goods with the traditional techniques.
   c. Cottage industry is the one which is run by an individual with the help of his family members with very a lot of capital.
   d. Cottage industries are those industries which are run fully or partially with the help of family members.

9. Removal of __________ in income distribution is one of the main objectives of India’s successive five-year plans.
   a. inequalities
   b. incentives
   c. equalities
   d. expenditure

10. Small-scale industries have __________ employment potential which enables a large number of people to earn a decent income and thus pave the way for social justice.
    a. low
    b. little
    c. high
    d. slight
Chapter VII
Resource Scheduling

Aim
The aim of this chapter is to:

• introduce resource scheduling
• explain types of resource scheduling situations
• explicate resource smoothing

Objectives
The objectives of this chapter are to:

• explain resource levelling
• elucidate project network with critical path
• define NAT

Learning outcome
At the end of this chapter, you will be able to:

• identify variable, fixed and combined resource levelling
• understand RAT
• describe updating a project
7.1 Introduction

During the development of PERT and CPM networks, we have generally assumed that sufficient resources are available to perform various activities. At a certain time, the demand on a particular resource is the cumulative demand of that resource on all the activities being performed at that time. Going according to the developed plan, the demand on a certain type of resource may fluctuate from a very high at one time to a very low at another. If it is a material or unskilled labour which has to be procured from time-to-time, the fluctuation in demand will not affect the cost of the project. If it is some personnel who cannot be hired and fired during the project or machines which are to be hired for the total project duration, the fluctuations in their demand will affect the total project cost due to high idle times. To reduce the idle period, the activities on non-critical paths are shifted by making use of the floats, so as to make the demand of resources as uniform as possible.

In some situations, we may be faced with a demand for some critical resource which may be limited in supply. For example, the only bulldozer available may be needed for two activities at two places at a time. This makes the schedule infeasible and calls for a re-examination with the object of generating an alternate plan with feasible scheduling of the limited resource. Thus, the object of resource scheduling is two-fold: it aims at bringing down the costs and at the same time reduces pressure on the limited resources in conflicting demands.

Depending upon the types of constraints, resource scheduling situation may be of two types:

- The constraint may be the total project duration. In this case, the resource scheduling only smoothens the demand on resources in order that the demand of any resource is as uniform as possible. During the smoothing process, activities on the non-critical paths are shifted, while the project duration remains unchanged. In this case, the resource scheduling is called resource smoothing.

- The second type of constraint may be on the availability of certain resources. Here, the project duration is not treated as an invariant, but the demand on certain specified resources should not go beyond the specified level. This operation of resource scheduling is called ‘resource levelling.

7.2 Resource Smoothing

The first step in resource smoothing is to determine the maximum requirement. One way is to draw the time-scaled version of the network and assign resource requirements to activities. Then, below the time-scaled network, the cumulative resource requirements for each time unit are plotted. The result is a ‘load histogram’. The load histogram which is also known as ‘force-curve’ may be plotted on the basis of early start times or the late start times of the activities. These load histograms establish the framework within which smoothing must occur.

Example 7.1

A network with the following activity durations and manpower requirement is given. Analyse the project from the point of view of resources to bring out the necessary steps involved in the analysis and smoothing of resources.

<table>
<thead>
<tr>
<th>Activity</th>
<th>1-2</th>
<th>2-3</th>
<th>2-4</th>
<th>3-5</th>
<th>4-6</th>
<th>4-7</th>
<th>5-8</th>
<th>6-8</th>
<th>7-9</th>
<th>8-10</th>
<th>9-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (weeks)</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>No. of men required</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>2</td>
<td>9</td>
</tr>
</tbody>
</table>
Solution
The earliest and latest occurrence times of events have been calculated and are indicated along the nodes in Fig. 7.1. The critical path is identified as 1-2-4-6-8-10, with the total project duration of 20 weeks. In the time-scaled version of the network which is also called squared network, first of all, the critical path is drawn along a straight line.

Fig. 7.2 Loading chart

Fig. 7.3 Load histogram
Then, the non-critical paths are added as shown in Fig. 7.1. The resource requirements are indicated along the arrows. Below the squared network are shown the loading chart Fig. 7.2 and the load histogram (Fig. 7.3). This is based on the earliest start times, and is obtained by vertically summing up the manpower requirements for each week. We observe that the maximum demand of 15 men occurs in the 15th and 16th weeks.

![Fig. 7.4 Loading chart](http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

To smoothen the load, the activities will have to be shifted depending upon the floats. Path 4-7-9-10 has a float of two weeks, and the activities 7-9 and 9-10 are shifted to the right, so that the start of each is delayed by two weeks. Similarly, activity 5-8 can be shifted to the right, so that it starts on 11th day instead of starting on 8th day. After making the necessary shifting, the network is drawn as shown in Fig. 7.4. The loading chart for this network drawn in Fig. 7.4 indicates that the maximum manpower required is 11 men. Thus with the new schedule, the same project can be accomplished in the same duration of 20 weeks by 11 men as compared to 15 for the previous schedule.

**Example 7.2**

A network with the following activity durations and manpower requirement is given in Table 7.1. Analyse the project from the point of view of resources to bring out the necessary steps involved in the analysis and smoothing of resources.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration(weeks)</th>
<th>Masons(M)</th>
<th>Labourers(L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2-3</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2-4</td>
<td>4</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2-5</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>3-10</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>4-6</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>4-7</td>
<td>4</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>5-9</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>6-8</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7-9</td>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>8-9</td>
<td>3</td>
<td>–</td>
<td>4</td>
</tr>
<tr>
<td>9-11</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10-11</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>11-12</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 7.1 A network with the activity durations and manpower requirement
(Source: <http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf>)
Solution
The earliest and latest occurrence times for the events are marked along their nodes. Critical path is 1-2-4-7-9-11-12 and the project duration is 19 weeks. Fig. 7.6 represents the time-scaled version of the network, assuming early start times for the activities. The activities along the critical path are arranged along horizontal line. The dotted lines show the total float of each activity. Durations and requirements of masons (M) and labourers (L) for each activity are marked along the activity arrows. The loading chart below the time-scale shows the total numbers of masons as well as labourers required each day. It is seen that the requirement of these resources is not uniform; for masons it is as high as 13 on 7th and 8th day, 10 on 5th and 6th day and as low as 1 from 13th to 19th day.
By inspection, we find that activities 2-5 and 5-9 have a total float of 7 days. The start time of activity 5-9 can be shifted by 7 days, so that it starts on the 12th day instead of 5th day. Fig. 7.7 represents the modified network along with the loading chart. From Fig. 7.7, we find that the demand for masons has decreased from 13 to 8 on the 7th and 8th days. However, the demand of labourers has increased from 9 to 12 on the 12th day.

Fig. 7.7 Modified time-scaled version of the network
(Source: <http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf>)

Next, the start time of activity 8-9 can be shifted from 11th day to 13th day by utilising the float available for 2 days. This is shown in Fig. 7.8, wherein the requirement of labourers has also decreased from 12 to 10. The requirement of resources is thus smoothed without affecting the project duration.

Fig. 7.8 Shifted time-scaled version of the network
(Source: <http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf>)
In the load smoothing operation, the duration of the project was kept constant and the noncritical activities were shifted within the available floats to smoothen the resource requirements. In resource levelling, the constraint is on the availability of resources, while the project duration can be extended. In this method, the activities are so rescheduled that the maximum requirement of resources does not cross their availability. However, the available resources should not be less than the maximum number or quantity required by any activity of the project. Three types of resource levelling procedures are usually followed:

- Fixed resource levelling: Here, the number of workers remains constant throughout the project duration as the requirement is highly fluctuating. There can be both excessive overtime as well as idle work force at different times. The aim, here, is to select the optimum number of workmen, so that both overtime as well as unproductive standby persons are minimised. This is shown in Fig. 7.9 (a)

![Fixed resource levelling](http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

- Variable resource levelling: As already discussed, the requirement of resources (say manpower) over the project duration is usually non-uniform (Fig. 7.9(a)). To make it uniform, the usual procedure is to engage a reasonable number of workers at the beginning and then to increase it gradually, reaching a peak near the end of the project. Once the maximum is reached, there is a gradual reduction of the work force. This is shown in Fig. 7.9 (b)

![Variable resource levelling](http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)
Combined resource levelling: Here, a fixed number of persons are initially engaged and to satisfy the increasing needs, the number is increased in accordance with the pattern of variable resource levelling. This is represented in Fig. 7.9 (c).

Example 7.3
The activities in a project along with their durations are given below. Each activity requires one labourer. Analyse the network from the point of view of levelling of resources, so that the project is completed in the shortest possible time.

<table>
<thead>
<tr>
<th>Activity (i-j)</th>
<th>1-2</th>
<th>1-3</th>
<th>1-5</th>
<th>2-3</th>
<th>2-6</th>
<th>3-4</th>
<th>4-7</th>
<th>5-6</th>
<th>6-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (days)</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

Solution
The problem consists of the following steps:

- Step 1: Draw the project network and identify the critical path. This is shown in Fig. 7.10. The critical path is 1-2-3-4-7.
- Step 2: Construct the network analysis table (Table 7.2). The labourers required for each activity are shown under the M-column. Man-days required by each activity are noted under the M x D-column.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
<th>M</th>
<th>Start time</th>
<th>Finish time</th>
<th>Total float (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2*</td>
<td>10</td>
<td>1</td>
<td>1x10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>1-3*</td>
<td>6</td>
<td>1</td>
<td>1x6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>1-5*</td>
<td>4</td>
<td>1</td>
<td>1x4</td>
<td>4/10</td>
<td>14</td>
</tr>
<tr>
<td>2-3*</td>
<td>0</td>
<td>0</td>
<td>0x0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2-6*</td>
<td>8</td>
<td>1</td>
<td>1x8</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>3-4*</td>
<td>10</td>
<td>1</td>
<td>1x10</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>4-7*</td>
<td>10</td>
<td>1</td>
<td>1x10</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>5-6*</td>
<td>6</td>
<td>1</td>
<td>1x6</td>
<td>24/30</td>
<td>6/0</td>
</tr>
<tr>
<td>6-7*</td>
<td>6</td>
<td>1</td>
<td>1x6</td>
<td>24/30</td>
<td>6/0</td>
</tr>
</tbody>
</table>

Table 7.2 Network Analysis Table (NAT)
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

The total man-days requirement is 60 and since project duration is 30, the no. of men required to complete the project are 60/30 = 2.

- Step 3: Construct resource allocation table and loading chart: Table 7.3 shows the resource allocation table followed by the loading chart. Their explanation is given below:

<table>
<thead>
<tr>
<th>Halting Time</th>
<th>Available resource</th>
<th>Activities in the queue</th>
<th>Allocated to resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>R1,R2</td>
<td>1-2 1x10 0 I R1 R2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>R2</td>
<td>1-5 1x4 8 I R2</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>R1,R2</td>
<td>2-6 1x8 6 II R2 R1</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>R2</td>
<td>5-6 1x6 0 I R2</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>R1</td>
<td>4-7 1x10 0 I R1</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>R2</td>
<td>6-7 1x6 0 I R2</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.3 Resource Allocation Table (RAT)
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)
Halting time 0
Halt at a time, when there are both available resources and queuing activities. At time 0, both the labourers denoted by resources R1 and R2 are available. Activities 1-2, 1-3 and 1-5 each have zero earliest start times. As their floats are 0, 4 and 14, the priorities assigned to them for execution are I, II and III respectively. Resource R1 is, accordingly, allotted activity 1-2, which he will perform in 10 days. This is shown in the loading chart (Fig. 7.11). Activity 1-3 is allocated to resource R2, which he will perform in 6 days; this is shown in the loading chart. Activity 1-5 cannot be taken at time zero and has to be delayed or floated out. The earliest it can possibly be taken is time 6 when resource R2 will become free, as seen from the loading chart. Activities 1-2 and 1-3 have been allotted and are marked (*) in the network analysis table. Activity 1-5 is floated out in that table by changing its earliest start time from 0 to 6, its earliest finish time from 4 to 10 and its float from 14 to 8. Delaying activity 1-5 for start by 6 days may have repercussions on the following activities 5-6 and 6-7 and it has to be seen whether they also need to be floated out. Since activity 1-5 now finishes at time 10, activity 5-6, cannot start at time 4 and, therefore, its earliest start time is changed to 10. Consequently, its earliest finish time is changed to 16 and float decreased to 8 in the NAT. As the earliest start time of the successor activity 6-7 is 18, there are no repercussions on this activity. As seen from the loading chart, next halting time is 6.

Halting time 6
Resource available is R2, activity due to be taken up is 1-5 and is allotted to this resource for 4 days. This is shown in the loading chart. Activity 1-5 is marked (*) in NAT.

Halting time 10
Resources R1 and R2 are available. Activities having earliest start time 10 are 2-3, 2-6, 3-4 and 5-6. However, activity 2-3 is dummy; requires no resources and need not be considered and is marked (*) in NAT. The remaining activities have floats of 6, 0 and 8 respectively and are, therefore, assigned priorities II, I and III in the resource allocation Table 7.3. Accordingly, activity 3-4 having duration 10 days is allocated to resource R1 and activity 2-6 requiring 8 days for completion is allotted to resource R2. This is shown in RAT as well as loading chart (LC). The next halting time is 18. Activities 2-6 and 3-4 are marked (*) in NAT and activity 5-6 is floated out to earliest start time 18. The earliest finish time of this activity is changed to 24 and float to 0. Floating out of activity 5-6 has repercussions on the succeeding activity 6-7. Its earliest start time is increased to 24, its earliest finish time to 30 and float is decreased to zero.

Halting time 18
Resource available is R2, activity due to be taken up this time is 5-6 and is loaded on resource R2 for 6 days. This is shown in RAT as well as LC. Activity 5-6 is marked in NAT.

Halting time 20
Resource available is R1; activity 4-7 can be taken up at this time. Its man-days are 10 and are allocated to resource R1 for 10 days. This is shown in RAT as well as LC. This activity is then marked (*) in the NAT. Next halting time is 24.
Halting time 24
Resource available is R2. Activity due to be started at time 24 is 6-7. Its duration is 6 days. Resource R2 is, therefore, allotted activity 6-7 for 6 days. This completes the resource allocation within 30 days. There is no delay in the project. The project can, thus, be completed in 30 days with limited resources (2 labourers) if the activities are allocated as shown in the LC.

The following points should be considered for developing the algorithm for resource allocation:

- Halt when both resources and activities are available.
- Prior to allocation at a halt, update the E.S., E.F. and float of the activities not allocated at earlier halt time and their succeeding activities. The repercussions may have to be traced right up to the last event.
- Priorities are assigned on the basis of floats, e.g., 1st priority to activity with least float, 2nd to the activity with the next higher float and so on.
  - In case of tie in floats, assign priorities on the basis of man-days of the activities, e.g., 1st priority to the activity with highest $M \times D$.
  - In case of tie in man-days even, assign 1st priority to the activity with highest M (gang size).
  - In case of tie in M’s even, assign 1st priority to the activity with lower i where i is the tail event number of the activity.
- When an activity requires more than one man, it may so happen during allocation that the activity requires more number of persons than that available at the halt time under consideration. In such cases, the resources are allocated to the job with next priority for which they are sufficient.
- During the floating out of activities, the float of an activity may go negative which means that the project duration is going to be extended beyond the critical path. Once the float of an activity becomes negative, there from the float criterion for ascertaining priorities is invalidated. The priorities are then fixed on the basis of $M \times D$, gang size and lower i criteria respectively. These points are made clear in the next examples.

Example 7.4
Activities, their durations and crew sizes required to implement them are given below:

<table>
<thead>
<tr>
<th>Activity (i j)</th>
<th>1-2</th>
<th>1-3</th>
<th>1-5</th>
<th>2-3</th>
<th>2-6</th>
<th>3-4</th>
<th>4-7</th>
<th>5-6</th>
<th>6-7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration (days)</td>
<td>10</td>
<td>6</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>10</td>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Crew size (M)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Schedule the project when only 3 men are available for executing it.

Solution
It consists of the following steps:

- Step 1: Draw the project network and identify the critical path. This is shown in Fig. 7.12. Critical path is 1-2-3-4-7.
- Step 2: Construct the network analysis table. This is done in Table 7.4
### Table 7.4 Network analysis table

(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

Table 7.5 represents the resource allocation table and Fig. 7.13 shows the loading chart. The procedure to draw them is explained in example 7.4.

### Table 7.5 Halting Time and Available Resource

(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

**Table 7.4 Network analysis table**

(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)
Table 7.5 Resource Allocation Table (RAT) with three men
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

As three persons are not required after 35 days, to complete activities 5-6 and 6-7, one crew can be relied from the job. The project is delayed from 30 days to 47 days, if 3 crews only are available. The activities should be allocated to the crew as per the schedule of Fig. 10.13. Shaded portions show the rest of periods of the crew.

Fig. 7.13 Loading chart
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

Example 7.5
For a project consisting of several activities, the durations and required resources for carrying out each of the activities and their availabilities are given below:

- Draw the network, identify critical path and compute the total float for each of the activities.
- Find the project completion time under the given resource constraints.

Resources required:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Equipment</th>
<th>Operators</th>
<th>Duration (days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>X</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>1-3</td>
<td>Y</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>1-4</td>
<td>Z</td>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>2-4</td>
<td>X</td>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>2-5</td>
<td>Z</td>
<td>20</td>
<td>8</td>
</tr>
<tr>
<td>3-4</td>
<td>Y</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>3-5</td>
<td>Y</td>
<td>20</td>
<td>4</td>
</tr>
<tr>
<td>4-5</td>
<td>X</td>
<td>30</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 7.6 Requirement of resources for carrying out various activities

Resources availability:
No. of operators = 50,
Equipment X = 1,
Equipment Y = 1,
Equipment Z = 1.
Solution
It consists of the following steps:

- Step 1: Draw the project network and identify the critical path. Project network is drawn in Fig. 7.14. Critical path is 1-2-4-5.
- Step 2: Construct the network analysis table as shown in the Table 7.6.

### Table 7.6 Network analysis table
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

<table>
<thead>
<tr>
<th>Activity</th>
<th>duration</th>
<th>Men</th>
<th>Man-days</th>
<th>Equip</th>
<th>Start</th>
<th>Finish</th>
<th>Float</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>E</td>
<td>L</td>
<td>E</td>
</tr>
<tr>
<td>1-2</td>
<td>4</td>
<td>30</td>
<td>30 x 4 = 120</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>1-3</td>
<td>3</td>
<td>20</td>
<td>20 x 3 = 60</td>
<td>Y</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1-4</td>
<td>6</td>
<td>20</td>
<td>20 x 6 = 120</td>
<td>Z</td>
<td>0/3</td>
<td>2</td>
<td>6/9</td>
</tr>
<tr>
<td>2-4</td>
<td>4</td>
<td>30</td>
<td>30 x 4 = 120</td>
<td>X</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>2-5</td>
<td>8</td>
<td>20</td>
<td>20 x 8 = 160</td>
<td>Z</td>
<td>4/8/9</td>
<td>6</td>
<td>12/16/17</td>
</tr>
<tr>
<td>3-4</td>
<td>4</td>
<td>20</td>
<td>20 x 4 = 80</td>
<td>Y</td>
<td>3/4/8</td>
<td>4</td>
<td>7/8/12</td>
</tr>
<tr>
<td>3-5</td>
<td>4</td>
<td>20</td>
<td>20 x 4 = 80</td>
<td>Y</td>
<td>3/4/8/9/12/17</td>
<td>10</td>
<td>7/8/12/13/16/21</td>
</tr>
<tr>
<td>4-5</td>
<td>6</td>
<td>30</td>
<td>30 x 6 = 180</td>
<td>X</td>
<td>8/9/12</td>
<td>8</td>
<td>14/15/18</td>
</tr>
</tbody>
</table>

- Step 3: Construct resource allocation table and loading chart.

Table 7.7 represents the resource allocation table and loading chart is drawn in Fig. 7.15. The procedure is explained in example 7.3. Activities 1-2, 1-3 are taken up at time 0 while 1-4 is delayed to start at time 3. Float of activity 1-4 becomes negative and therefore float will not be the criterion for finding priorities henceforth. At time 3, activities 3-4 and 3-5 have the same man-days, gang size and activity sequence. Therefore, activity 3-4 is arbitrarily assigned priority 11 and activity 3-5, priority III.
At time 4, available resources are 30M, X and Y. Activity 2-5 has the highest man-days and is assigned priority 1. However, since it requires equipment Z, it cannot be taken up and, instead, activity 2-4 with priority II is selected for execution. From Fig. 7.15, it can be seen that the project requires 21 days for completion and is, therefore, delayed by 7 days beyond normal completion time. The idle man-days are shown shaded. It may be observed that during 19th, 20th and 21st days, only 20 persons are required. The remaining 30 persons can be relieved/shifted to other projects after 18 days. Day-by-day requirement of operators and equipment is also shown on the loading chart.

**Fig. 7.15 Loading chart**

(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)
**Example 7.6**
A project with the following activities, durations and manpower requirements is given:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1 - 2</th>
<th>1 - 3</th>
<th>1 - 4</th>
<th>2 - 5</th>
<th>2 - 6</th>
<th>3 - 7</th>
<th>4 - 8</th>
<th>5 - 9</th>
<th>6 - 9</th>
<th>7 - 8</th>
<th>8 - 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Manpower requirement</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

- Draw the network diagram of the project indicating the earliest start, earliest finish, latest finish and float of each activity.
- There are 11 persons who can be employed for this project. Carry out the appropriate manpower levelling, so that the fluctuation of work force requirement from day-to-day as small as possible.

![Fig. 7.16 Network diagram of example 7.6](http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

**Solution**
It consists of the following steps:
- Step1: Draw the project network and identify the critical path. Project network is drawn in Fig. 7.16. Critical path is 1-3-7-8-9.
- Step 2 Construct the network analysis table. This is done in table 7.8.
### Table 7.9 Network Analysis Table (NAT)
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

- Step 3 Construct resource allocation table and loading chart. Table 7.9 represents the resource allocation table which shows the loading chart. The procedure to draw them is explained in example 3.

It is apparent from the loading chart that 5 persons remain idle from 8th to 10th day and four persons remain idle from 17th to 19th day. The project cannot be completed in the normal time duration of 16 days and has to be delayed by 3 days if 11 persons only are to be employed.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Duration</th>
<th>M Men</th>
<th>Man-day MxD</th>
<th>Start time</th>
<th>Finish time</th>
<th>Total float (weeks)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Earliest</td>
<td>Latest</td>
<td>Earliest</td>
</tr>
<tr>
<td>1-2*</td>
<td>2</td>
<td>5</td>
<td>5x2=10</td>
<td>0</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>1-3*</td>
<td>2</td>
<td>4</td>
<td>4x2=8</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1-4*</td>
<td>0</td>
<td>0</td>
<td>0x0=0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2-5*</td>
<td>2</td>
<td>2</td>
<td>2x2= 4</td>
<td>2/5</td>
<td>8</td>
<td>4n</td>
</tr>
<tr>
<td>2-6*</td>
<td>5</td>
<td>3</td>
<td>3x5=15</td>
<td>2</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>3-7*</td>
<td>4</td>
<td>6</td>
<td>6x4=24</td>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>4-8*</td>
<td>5</td>
<td>2</td>
<td>2x5=10</td>
<td>0</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>5-9*</td>
<td>6</td>
<td>8</td>
<td>8x6=48</td>
<td>4/7/10</td>
<td>10</td>
<td>10/16</td>
</tr>
<tr>
<td>6-9*</td>
<td>3</td>
<td>7</td>
<td>7x3=21</td>
<td>7/16/10</td>
<td>13</td>
<td>10/13/19</td>
</tr>
<tr>
<td>7-8*</td>
<td>4</td>
<td>4</td>
<td>4x4=16</td>
<td>6</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>8-9*</td>
<td>6</td>
<td>3</td>
<td>3x6=18</td>
<td>10</td>
<td>10</td>
<td>16</td>
</tr>
</tbody>
</table>

### Table 7.10 Resource allocation table
(Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)
7.4 Updating

After the planning and scheduling of a project, when the actual execution starts, a regular review should be made to check the continuous validity of the schedule. In the actual execution, it generally happens that the time-schedule developed for the project is not exactly followed. Some of the jobs take more time than estimated and some others are completed in period lesser than estimated. There may be a number of reasons for this, such as the non-availability of the resources, break-down of machinery, labour-strikes, wrong estimations of the planner and natural calamities, etc. All these will delay the jobs. On the other hand, jobs may be expedited due to the commissioning of a new machine, development of a better process and wrong estimations of the planner, etc. The review of the situation presents a clear picture of the progress and helps in making the necessary changes in the schedule, thus adding dynamism to the nature of the network. This process of making review and adding necessary clarifications to the network is called updating.

How often the updating should be done? There is no special rule to decide about the frequency of updating. This depends upon the nature and the size of the project and upon the attitude of the management. Updating may be done every fortnight or every month or every three months and so on. However, a general observation can be made that; the frequency of updating may be less at the initial stages but should be more frequent near the completion of the project. Some slippages at the beginning can be absorbed, but a slip near completion will delay the project. In small projects, as the time for absorbing the slippages is less, more frequent updating is called for.

Updating can be done in two ways. The first is to use the revised time estimates and compute from the initial starting event. The second method, which is more convenient, is to change the completed work to zero-duration and bunch all the jobs already performed into one arrow called the elapsed time arrow. The nodes in the new network are numbered in a different fashion. The time duration assigned to the activities are the revised times. Both these methods are explained with the help of examples.

Example 7.7

After 15 days of working, the following progress is noted for the network of an erection job:

• Activities 1-2, 1-3 and 1-4 completed as per original schedule.
• Activity 2-4 is in progress and will be completed in 3 more days.
• Activity 3-6 is in progress and will need 18 days more for completion.
• Activity 6-7 appears to present some problem and its new estimated time of completion is 12 days.
• Activity 6-8 can be completed in 5 days instead of originally planned for 7 days.

![Fig. 7.17 Network diagram](Source: http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

Update the above network after 15 days of start of work. Find the critical path and project duration of the updated network.
**Solution**
This problem will be solved by method 1. Activities 1-2, 1-3, 1-4 have already been completed and nothing needs to be done about them. Activities 2-4 and 3-6 are in progress; their revised durations will be calculated. Revised duration of activity 2-4 = (15 + 3) - 9 = 9 days, and revised duration of activity 3-6 = (15 + 18) - 10 = 23 days.

Activities 6-7 and 6-8 have not started on 16th day; they are assigned the new estimated times of 12 days and 5 days respectively in the updated network. The durations of the remaining activities are kept unchanged in the updated network (Fig. 7.17).

![Updated network](http://www.math.mrt.ac.lk/TMJAC/Pdf\%20format\%20OR\%20book/CHAP\%2010\%20Resources.pdf)

The project duration is 51 days. Critical path is 1-3-6-7-8.

**Example 7.8**
The network for a project is shown in Fig. 7.19. A review of the project after 10 days reveals that:
- Activities 0-1, 0-2 and 1-3 are completed
- Activities 2-3 are in progress and will take 6 days more
- Activities 2-4 are in progress and will take 7 days more
- It is estimated that due to the arrival of a new machine, activity 3-5 will take only 6 days

Update the network and find the critical path.

![Network diagram for example 7.8](http://www.math.mrt.ac.lk/TMJAC/Pdf\%20format\%20OR\%20book/CHAP\%2010\%20Resources.pdf)
**Solution**

This problem will be solved by method 2. The information can be put into a tabular form, as shown in table 7.10.

<table>
<thead>
<tr>
<th>Activity</th>
<th>More required time(days)</th>
<th>Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>0</td>
<td>Completed</td>
</tr>
<tr>
<td>0-2</td>
<td>0</td>
<td>Completed</td>
</tr>
<tr>
<td>1-3</td>
<td>0</td>
<td>Completed</td>
</tr>
<tr>
<td>2-3</td>
<td>6</td>
<td>In progress</td>
</tr>
<tr>
<td>2-4</td>
<td>7</td>
<td>In progress</td>
</tr>
<tr>
<td>3-5</td>
<td>6</td>
<td>Not started</td>
</tr>
<tr>
<td>4-5</td>
<td>6</td>
<td>Not started</td>
</tr>
<tr>
<td>4-6</td>
<td>9</td>
<td>Not started</td>
</tr>
<tr>
<td>5-6</td>
<td>8</td>
<td>Not started</td>
</tr>
</tbody>
</table>

**Table 7.11 Review time after 10 days**


This table represents the situation of the project after 10 days. The time durations assigned to the activities are revised times. Activities 20-30 and 20-40 are assigned the times they need for their completion. Along other activities are put their new time estimates.

![Updated network](http://www.math.mrt.ac.lk/TMJAC/Pdf%20format%20OR%20book/CHAP%2010%20Resources.pdf)

**Fig. 7.20 Updated network**


After computing the earliest expected times and the latest allowable times for events, we find that the critical path has changed to 20-40-50-60. The total duration has also come down by one day.
Summary

- During the development of PERT and CPM networks, we have generally assumed that sufficient resources are available to perform various activities.
- At a certain time, the demand on a particular resource is the cumulative demand of that resource on all the activities being performed at that time.
- To reduce the idle period, the activities on non-critical paths are shifted by making use of the floats, so as to make the demand of resources as uniform as possible.
- The first step in resource smoothing is to determine the maximum requirement.
- The load histogram which is also known as ‘force curve’ may be plotted on the basis of early start times or the late start times of the activities.
- In the load smoothing operation, the duration of the project was kept constant and the non-critical activities were shifted within the available floats to smoothen the resource requirements.
- In resource levelling, the constraint is on the availability of resources while the project duration can be extended.
- Prior to allocation at a halt, update the E.S., E.F. and float of the activities not allocated at earlier halt time and their succeeding activities.
- When an activity requires more than one man, it may so happen during allocation that the activity requires more number of persons than that available at the halt time under consideration.
- After the planning and scheduling of a project, when the actual execution starts, a regular review should be made to check the continuous validity of the schedule.
- Some of the jobs take more time than estimated and some others are completed in period lesser than estimated.
- Updating may be done every fortnight or every month or every three months and so on.
- The nodes in the new network are numbered in a different fashion.

References

- Advanced Scheduling & Project Management. [Video online] Available at: <http://www.youtube.com/watch?v=9HZbu69xw8> [Accessed 05 September 2013].

Recommended Reading

- Patrick, C. Construction Project Planning and Scheduling. Pearson Education India, New Delhi.
Self Assessment

1. At a certain time, the ________ on a particular resource is the cumulative demand of that resource on all the activities being performed at that time.
   a. demand
   b. supply
   c. claim
   d. delivery

2. Going according to the __________ plan, the demand on a certain type of resource may fluctuate from a very high at onetime to a very low at another.
   a. new
   b. developed
   c. resource
   d. important

3. Which of the following statement is false?
   a. If it is a material or unskilled labour which has to be procured from time-to-time, the fluctuation in demand will not much affect the cost of the project.
   b. To reduce the idle period, the activities on non-critical paths are shifted by making use of the floats, so as to make the demand of resources as uniform as possible.
   c. The constraint may not be the total project duration.
   d. The second type of constraint may be on the availability of certain resources.

4. During the __________ process, activities on the non-critical paths are shifted, while the project duration remains unchanged.
   a. constraint
   b. smoothing
   c. scheduling
   d. development

5. Match the following

<table>
<thead>
<tr>
<th>1. Resource smoothing</th>
<th>A. Here, a fixed number of persons is initially engaged.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Fixed resource levelling</td>
<td>B. The first step in this is to determine the maximum requirement.</td>
</tr>
<tr>
<td>3. Combined resource levelling</td>
<td>C. The requirement of resources (say manpower) over the project duration is usually non-uniform</td>
</tr>
<tr>
<td>4. Variable resource levelling</td>
<td>D. Here, the number of workers remains constant throughout the project duration.</td>
</tr>
</tbody>
</table>

   a. 1-B, 2-D, 3-A, 4-C
   b. 1-A, 2-B, 3-C, 4-D
   c. 1-C, 2-A, 3-D, 4-B
   d. 1-D, 2-C, 3-B, 4-A
6. The load histogram which is also known as ‘____________’ may be plotted on the basis of early start times or the late start times of the activities.
   a. force-club
   b. force-curve
   c. power-curve
   d. power-arch

7. Once the float of an activity becomes__________, there from the float criterion for ascertaining priorities is invalidated.
   a. less
   b. more
   c. negative
   d. positive

8. Which of the following statement is true?
   a. Updating can be done in three ways.
   b. Updating can be done in five ways.
   c. Updating can be done in four ways.
   d. Updating can be done in two ways.

9. After the __________and scheduling of a project, when the actual execution starts, a regular review should be made to check the continuous validity of the schedule.
   a. developing
   b. planning
   c. execution
   d. implementing

10. The process of making review and adding necessary clarifications to the network is called__________.
    a. resourcing
    b. networking
    c. updating
    d. scheduling
Chapter VIII

Project Management Essentials

Aim

The aim of this chapter is to:

• introduce project management essentials
• explain the characteristics of project mindset
• explicate the process groups

Objectives

The objectives of this chapter are to:

• enlist project monitoring and control
• elucidate project progress control
• explain managing conflicts, quality and information system

Learning outcome

At the end of this chapter, you will be able to:

• identify the perception tools
• understand new horizons in project management
• describe the macro issues
8.1 Introduction
Projects are of great importance to all types of organisations. They are the means by which organisations are able to make major improvements in their performance. Projects are also the means by which new products are conceived, developed and brought to the market. Any organisation working on a project has to adhere to some factors that are related to projects.

8.2 Characteristics of a Project Mindset
Some of the characteristics of a project mindset are as follows:

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>It is possible to improve the pace of the project by reducing the time-frame of the process. The mindset is normally to work a comfort mode by stretching the time-limits.</td>
</tr>
<tr>
<td>Responsiveness</td>
<td>It refers to the quickness of response of an individual. The vibrancy and liveliness of an individual or an organisation are proportional to its capability of evolving processes and the structure for superior responsiveness.</td>
</tr>
<tr>
<td>Information sharing</td>
<td>Information is power. It is the master key to today's business. Information-sharing is the characteristic of today’s project mindset.</td>
</tr>
<tr>
<td>Processes</td>
<td>Project mindset lays emphasis on flexible processes. The major difference in a process and a system is in its capabilities of providing flexibility to different situational encounters. Flexible processes possess greater capabilities of adaptability.</td>
</tr>
<tr>
<td>Structured planning</td>
<td>Structured planning based on project management life cycle enables one to easily and conveniently work according to the plan. It also involves efficient use of project resources and prioritisation of the activities based on resources planning.</td>
</tr>
</tbody>
</table>

Table 8.1 Characteristics of a project mindset

8.3 Process Groups
Process group consists of the following:
- Initiating processes: Recognition to start and establish commitment
- Planning processes: Devising and maintaining a workable scheme to accomplish the business needs
- Executing processes: Coordinating people to carry out the plan
- Controlling processes: Monitoring and measuring progress and taking remedial action
- Closing processes: Formalising acceptance and bringing project to an orderly end

Process interactions
Process interactions are as follows:
- The individual processes are linked with inputs and outputs.
- Inputs: It refers to the client documents converted to action plans to be acted upon.
- Tools and techniques: It refers to the mechanisms applied on to the inputs to create desired outputs.
- Outputs: It refers to the documents that are the results of the process.
Processes interaction initiating processes
Every process is initiated by the management group decision which results in the next phase of the project. They are:

- Planning processes.
- Planning has the foremost importance.
- Planning processes are highly interdependent.
- If the cost is unacceptable, scope and time need to be redefined.

Executing processes
Executing processes are as follows:
- Interaction depends on the nature of the work.
- They are dynamic and dependent on team innovations.

Controlling processes
Controlling processes are as follows:
- Measuring project performance
- Identifying variances from the plan
- Updating project plans
- Taking corrective actions

Closing processes
Closing processes are as follows:
- Review of the project
- Findings
- Analysis of variances from the plan

8.4 Customisation
Customisation of a project is done in the following manner:
- Large project may need details: A detailed project management plan might be necessary to indicate every detail in the initial stages.
- Smaller project may need relatively less details: A detailed plan may not be required in the initial stages.
- Process details might change for other reasons: Resources identification might be required for scope-definition.

8.5 Project Monitoring and Control
Any project aimed at delivering a product or a service has to go through phases in a planned manner in order to meet the requirements. It is possible to work according to the project-plan by carefully monitoring the project-progress. The various steps involved in monitoring and controlling a project from start to end are as follows:
- Preliminary work
  - The team members understand the project-plans, project-stage schedule, progress control, tracking schedule, summary of the stage cost and related worksheets.
  - All the members have to understand the tolerances in any change and maintain a change control log.
  - They must realise the need and importance of quality for which they have to follow strictly a quality review schedule and frequently discuss on the quality agendas.
  - They must understand the stage-status reports, stage-end reports, stage-end approval reports.
- **Project progress**
  - The member must keep a track of the project-progress and communicate the same to other related members of the project.
  - They must monitor and control project-progress, through the use of regular check points, quality charts, and statistical tables and control of the quality factors which are likely to deviate from the expected values as any deviation may result in changes in the stage schedule.
  - The project manager ensures that these changes are made smooth and organises review meeting with the project-management group.

- **Stage control**
  - The manager must establish a project check point cycle.
  - For this, suitable stage version control procedure may be followed.
  - The details are to be documented stage-wise.
  - Project files have to be frequently updated with suitable version control number and revision status should be maintained for each change.
  - Team members are identified as to who will exercise controls at various points of the project.

- **Resources**
  - Plan the resources required for various stages of the project.
  - Brief both the project-team and the key resources about the objectives of every stage, planned activities, products, organisation, metrics and project controls.

- **Quality control**
  - This is very important in any project.
  - Quality control is possible, if the project members follow the quality charts and norms very strictly.

- **Schedule quality review**
  - It is recommended that the quality schedule should be at the beginning of the stage and also at the end of every stage.

- **Agenda for quality review**
  - Create and distribute a quality review agenda specifying the objective, products, logistics, role, responsibilities and time-frame.

- **Conduct quality review**
  - The quality review is to be conducted in a structured and formal manner.
  - Quality review should focus on product development and its quality factors.
  - Focus on whether it meets the prescribed quality standards.

- **Follow-up**
  - Quality review completes product-status revised from ‘In progresses to ‘QR Complete’. Follow-up of the actions planned in the strict manner will ensure conformity to the standards.

- **Review quality control procedures**
  - Verify that the quality objectives for each product is re appropriated and that all participants are satisfied with both the process and its outcome.

## 8.6 Project Progress Control

The following tasks are included in the project progress control procedure:

- **Monitor performance:** The team members log in details of actual start-date, actual finish-date, actual hours worked per task, estimated hours to complete the task, elapsed time in hours to complete the task and any miscellaneous costs incurred during a stage. These inputs become the base to monitor the performance of the project and its stages.
• Updated schedule: Update the schedule for actual start date for tasks started, actual finish date for tasks finished, and actual hours worked per task and latest estimated work in hours to complete the task.
  • Update cost: Update the stage-cost summary worksheet with actual costs incurred this period and estimate remaining costs. Miscellaneous costs will be automatically updated from the schedule, since they are calculated from actual work.
  • Re-plan stage schedule: Review the tracking Gantt and cost workbook and identify any deviations from the baseline. Establish why the deviation has occurred. Determine if the stage has exceeded the progress, cost and quality tolerance levels as agreed up on by the project management team.
  • Conduct team status review: Conduct a status meeting with the project team. Items for discussion are achievement this period, planned activities that are incomplete or overdue, activities for the next period, new issues identified this period, issue closed this period, summary of results of quality review, summary of schedule and cost status and suggested revisions to the plan.
  • Create status report: The status report provides a record of current achievement and immediate expectation of the project. The status has to be effectively communicated to all interested parties.
  • Create flash report: Summarises the accomplishment for the month, schedule status, upcoming tasks for the month and any major issues. This should be distributed to the project team and project management team.
  • Project status report: As discussed earlier, the status report provides a record of current achievement and immediate expectations of the project.

• A weekly status report includes:
  • accomplishments during the period
  • items not completed during the period
  • proposed activities for next period
  • any predicted slippage to the stage schedule, along with cause and corrective actions
  • any predicted cost overrun along with cause and corrective actions

Approvals
Approvals include the following:
• Project-stage reviews and the decisions taken and actions planned need to be approved by the top management.
• The goals of such reviews are to improve quality by finding defects and to improve productivity by finding defects in a cost-effective manner.
• The group review process includes several stages like, planning, preparation and overview of a group review meeting, rework recommendation and follow-up.

Change control
Change control includes the following procedures:
• Controlling the changes in the project is possible through a proper change management process and using necessary tools for controlling the change.
• Change control is necessary to control the increase of work at various stages of project and to manage the disruptions in the stages effectively, if any.
• These factors may affect the progress of the project, resulting in deviation from the stage schedule, project and stage costs and project scope.

Changing project management process
The processes involved in bringing about a change are as follows:
• Request for a change: Identify the need for a change, based on which, a formal request for either a member of a project-team or a client or a coordinator or key stakeholder to make change is to be made.
• Identify alternate solution: Evaluate the change request and identify several solutions. Assess the alternatives with respect to the functional scope, schedule, efforts and cost.
• Decide on the actions for the change: Present the change request, alternative solutions and recommendations to the project management team. The project management team is required to accept recommendation, choose an alternative solution, or request further investigation.

• Implement change: Make appropriate schedule and other project plan adjustments to accommodate the change, communicate these to team members, monitor progress and execute quality control on the changes.

**Tools for changing a process**

There are various tools which can be used to bring about a change in a process. All such tools can be mainly classified into the following two types:

• Change Management System (CMS): It is a methodology which requires collection of all formal documented procedures, defining how a project’s performance will be monitored and evaluated, how project-plans could be updated and how various measures can be implemented to control the change process. These procedures may be unique to an organisation based on their project-needs. It also includes procedures to handle the changes that may be approved without prior review, so that the evolution of the baseline can be documented.

• Configuration Management (CM): Identify the configuration items and define the naming and numbering scheme, structure the changes, define a backup procedure, and follow the member for tracking the status of configuration items. Identify and define the responsibility and authority of the Configuration Management System.

**Project closure**

Any project that is planned properly and executed as per the plan will also close successfully. For successful completion of a project, every aspect of the project should be monitored and controlled.

**Completion of activities and benefits**

Completion of activities and benefits are as follows:

• It implies that on the successful completion of a project, it has not drifted from its intended course and plans. Otherwise, it would have resulted in a change and may also kick start another project affecting the main project.

• The project members are acknowledged for the completion of the project, motivating them to take up more projects, wherein the members would be able to confidently handle and take care of all the problems based upon their learning from the earlier project.

• It results in setting up of processes for continued development and improvement of the final product of any forthcoming project.

• It results in the setting up of improved standard process and estimating models for this type of future projects.

• It enables resources redeployment.

The deliverables at the end of each stage could be:

• A set of specified outputs for each stage of the project.

• New products or modified existing products.

• Items that may be less easy to distinguish like parameter setup, data transfer, staff training and so on.

**8.6.1 Post Implementation Review**

After every stage of a project is implemented, it may so happen that there could be a minor change or modification which has to be reviewed. A review may be in the following forms:

• Final product review: The product obtained after every stage must meet the requirements of that stage. If it completely meets the staged objectives, then focus on the issues of maintenance of the processes and performance of the products. If the final product does not completely meet the objectives, then identify the variations in the products and analyse the variations.

• Outstanding project work review: Many times, it is found that there may be some item of the project which is still not in its stage of finished form. It may be insignificant as it may not be required immediately for the next stage. Then, the items that are open should be resolved and necessary steps should be taken to close such open items.
Project review: Every aspect of a project from start to an end has to be reviewed. The objectives, performance criteria, financial criteria, resource utilisation, slips and gains of time, and adherence to the project-definition and plans have to be reviewed. All such review details and reports have to be well-documented for future use.

Process review: Every process is important in any project. One may review the process to see, if any changes can be made to improve its performance.

**Tools for post-implementation review**

There are various tools for post project implementation review that may be considered for improving and developing processes of the project. Reports are prepared on this basis, which becomes the basis for all future discussions. Some of the tools that may be considered for post-project implementation review are:

- Final-product evaluation: This may be done through regularly organised meeting and quality reviews.
- Outstanding project work evaluation: All outstanding works of a project can be reviewed by checking its output quality and performance by comparing it to the planned figures and then evaluating the same.
- Project review questionnaire: This may become important, if the reviews are to be structured. Group discussion may be initiated depending upon the points to be discussed.
- Project evaluation: Evaluation of any process is one of the key issues of project.

**8.6.2 Final Project Reporting and Documentation**

After the completion of a project-stage and the project as a whole, it is documented. Reports are prepared to indicate the details. The objective of the stage and the project and the corresponding plans should be reviewed and items that are still open should then be closed or resolved. Some of the outcomes that need to be well-documented are:

- Key stages of the project
- Project logic diagram
- Key stage responsibility chart
- Estimates for all key stages
- Optimised project Gantt chart
- Updated and reviewed project risk log
- Risk management forms for new high-risks
- Project operating budget

**8.7 Concept of Managing Conflicts, Quality and the Information System**

It is well known that in any management system, there is always some conflict. It may be resulting out of individuals or groups having different opinions. Sometimes, this affects a project. All the concepts are explained below.

**Conflict management**

It is possible to manage the conflicts in one of the following ways:

- Avoid the issue
- Approach the problem in such a way as to obtain the solution quickly
- Discuss and share the problem
- Any misunderstanding should be resolved by means of a discussion among project members
- Work on a common solution technique that will lead to a win-win situation
- Emphasise on collaboration

**Communication requirement and capabilities**

The communication requirement and capabilities are as follows:

- Communication frequency: Project managers in development projects prefer to communicate on a weekly-basis using all three media. Their sponsor prefers bi-weekly verbal updates and written reports complemented by personal meeting only at milestone achievements.
Response profiles: The respondents show interest mainly on the information available and the preference on mode of communication at various levels.

Barriers to communication: The barriers may be plenty. Suitable plans to avoid the barriers may be prepared.

Behaviour pattern exhibited: Executives often communicate the decisions with little or no knowledge of the implication of their decisions for the company or the people who have to implement decision. They may sometime fail to communicate effectively leading to the communication of a different message.

Quality management
Quality of any product or services is defined as its conformance to the standards. Total quality management represents the entities and their prerequisites for achieving world-class quality. Quality may be realised by:

- Adopting a philosophy in line with the objectives of the organisation.
- Achieving effectiveness in the organisational performance and fulfilling or exceeding the community expectations.

Many others used the Six Sigma concepts to increase the profits by eliminating variability, defects and waste that undermine customer loyalty.

Project management information system
An information system is mainly aimed at providing the management at different levels with information related to the system of the organisation. It helps in decision-making in arriving at optimum allocation of resources. The information system is based on the database of the organisation. The four major aspects of a Project Management Information System are:

- Provide information to the major stakeholder, which is the right information at the right time.
- Assist team members, stakeholders, managers with necessary information and summary of the information shared to the higher-level managers.
- Assist the managers in project staffing, proposed staffing changes and total allocation of resources analyses.
- Help organisation learning by helping the members of the organisation learn about project management.

A good Project Management Information System is possible to be developed from the team members and not from the system administrators of the company. Organisations tend to allocate such responsibility among members with a well-designed and structured data entry and analytical format.

8.8 Modern Trends in Project Management
There are number of ways a manager can implement a project successfully. As it is important to monitor and control the project activities through various stages, it becomes important to resort to effective and powerful tools to coordinate the activities. A number of ways are possible to achieve good results in any projects. Effective outputs are possible through meticulous planning of all the activities, referring to a creatively designed checklist, adopting effective quality control measures and standards and so on.

8.8.1 Perception
The perception of a manager in current trends in project management is to obtain results. There are some tools that are being used currently. These are explained in the following paragraphs.

Continuous business process improvement
Continuous business process improvement is a process through which a project passes on the details of any system as recommendation for the standardisation of future project processes. It acts as a business process element for the company as a whole.
Forces field analysis
Adopt suitable methods to identify external factors which may affect the project progress. The external factors are hurdles in a project. Use of appropriate process would minimise and eliminate the hurdles resulting in a smooth flow of activities and project process. The external forces could be related to customers, technology change, and shift in trends and so on.

Information risk management
There are several methods that can be adopted to reduce the risks in any project. A proper methodology is the one which is based on the quality control aspects which may even be automated and integrated into the project process. The risks arising out of corruption, field-size variation, and format mismatch have to be controlled.

Management assurance measure
It is a task performed by the project leader to balance the efforts to convince management against wavering with efforts to prepare team members to counter any unexpected storms in the project. This is the greatest opportunity for a leader to mature and go up the ladder as well as an equal opportunity for the member to emerge a leader by accepting a challenge.

Quality certification
Quality certification from a leading organisation may be obtained. Certification will enable the management team to realise the importance of a process and how effectively project could be managed smoothly.

Strategic inflection point
A real test for the project leader and the management team is to accurately predict the exact point of the development process, where the team might face a massive problem.

8.9 Project Development Process Cycle
Every company would be interested to improve their performance over their previous performance in project. In order to improve project performance, the company must assure quality and quality control at every stage of the project throughout the project life cycle. Various steps should be considered in the development of the process-cycle in any project. They are listed in the following paragraphs.

Planning for review
In this step, the main focus is on the collection of data. Data is the main input requirement of any successful project. Once the data has been gathered, a suitable plan for its analysis should be prepared. The necessary commitment from management and team members to participate actively and take actions on finding should be obtained. It is necessary that every project member gives his or her commitment to participate and deliver the service/products in the project. Review is necessary for every stage of the project.

Conducting the review
Agenda has to come before review. The agenda should be well-structured in terms of time and content. Necessary arrangements to gather inputs to the review should be made. The review leader is the project manager. Points which are external to the projects should be incorporated. These external points have to be well-structured to be reviewed. A reporter must be designated to document key points of the meeting. An automated checklist must be formulated for the session.

Take action on findings
During the meeting, the points which are critical to the project and its performance should be determined. The members may have brain-storming sessions to discuss critical points. Make a list of all such items discussed and items suggested and group the data into categories and then prioritise, either by group-discussion or voting. Identify action items and assign a project member or a team, the task pertaining to the action planned.
Do continuous improvement
Every organisation wants to improve continuously. It is not possible to achieve improvement unless adopting sufficient measures to measure improvement. The quality managers should highlight trends and de-escalate chronic problem. Reviews are a check process in the ‘Plan-Do-Check-Act’ cycle of a quality cycle.

Critical success factors
It is necessary that a company identifies critical factors in a project. These factors may slacken the project, if not focused. Routine task may be assigned to lower-level team members as this may relieve the project team from wasting their skill set on routine matters. Regarding project management skills, the project office can help the project manager in the project scope definition, project kick-off preparation and planning tasks, through mentoring and coaching services.

Results and benefits of the project quality reviews
The main benefits of the project quality review are the project status is formally visible to the whole organisation. The project quality review helps the project manager and his/her manager to enable the necessary adjustments and taking the action needed to achieve the project goals finishing the project on time, scope and budget.

8.9.1 Macro Issues
There are numerous macro issues that can affect the project-execution. They are discussed in the following paragraphs.

Evolving key successes factors
The various steps while evolving key successes factors upfront are:

• In order to provide complete stability to fulfilment of goals, one needs to constantly evaluate from time-to-time, the consideration of what will constitute the success of completing a project and assessing its success before completion.

• The key success factors should be evolved based on a basic consensus of documents.

• The key success factor will also provide an input to effective exit strategy.

• The term ‘exit’ here does not mean exit from a project, but from any of the drilled down elemental activities which may prove to be a hurdle, rather than contributors.

• Broad-level key success factors should be available at the conceptual-stage and should be firmed up and detailed out during the planning stage.

• The easiest way for the team would be to evaluate each step for chances of success on a scale of ten.

Key success factors available should be approved by the management, such as project manager, before the execution and control stages. Key success factor rides above normal consideration of time and cost at the levels encompassing client expectation and management perception. Time and cost are subservient to these major goals.

Empowerment title
Empowerment title reflects the relative importance of members of the organisation at three levels:

• Team members are empowered to work within the limits of their respective allocated responsibilities. The major change from the routine system is an expectation from these members to innovate and contribute to the time and cost.

• Group leaders are empowered additionally to act independently towards client expectation and are also vested with some limited financial powers.

• Managers are empowered further to act independently, but to maintain a scientific balance among time, cost, expectation and perception, apart from being a virtual advisor to the top management.
Partnering decision-making
Partnering decision making is an alternate to monitor and control the project. The following are its functions:

- It will be better, if a senior person with a better decision-making process will work closely with the project managers as well as with the members to plan what best can be done to manage the project.
- The key resources here are the active participation of all the team members in decision-making process.

The ownership is distributed among all irrespective of the levels. The term equally should be avoided here since ownership is not quantifiable.

- The right feeling of ownership is important.
- This step is most difficult since junior members have to respond and resist to being pushed through sheer innovation and performance.

The partnering decision-making process is made scientific through:

- Earned value management system
- Budgeted cost of work scheduled
- Budgeted cost of work performed
- Actual cost of work performance

Management by exception
Management by exception is includes the following:

- A member should believe that a team leader’s silence is a sign of approval and should not provoke comments through excessive seeking of opinions.
- The bend limit of management by exception can be evolved depending on the sensitivity of the nature and size of the project.
- Management by exception provides and facilitates better implementation of effectiveness of empowerment titles.
- Management by exception is more important since organisations are moving towards multi-skilled functioning even at junior-most level.

8.9.2 Knowledge Factor (K)
Knowledge factor (K) is an important aspect of project management and includes the following:

- Knowledge is considered to be the most powerful wheels of any progress.
- Knowledge factor is an index of the extent to which one can manage today with yesterday’s knowledge content and also the extent to which today’s knowledge will be used. This would render the development process more productive.

The knowledge factor of course undergoes correction through obsolescence, since changes are now phenomenal, but so are the opportunities for junior to access information from new knowledge bases. Seniority is no more an automated scale for knowledge.

- It is important for leaders to recognise the knowledge potential of younger members.
- It is equally important for younger members not to suppress their knowledge potential from its application.
- Further, age and experience advance further wisdom gains, but knowledge is lost until it is updated and utilised.
- It is the task of every team member to maximise the knowledge factor to maximise the knowledge factor in all directions.
8.9.3 The Modern Mantra of Project Management
The modern mantra of project management includes the following five aspects:
- Define
- Measure
- Analyse
- Improve
- Standardise

8.10 New Horizon in Project Management
The nine steps to be followed according to the new horizon in project management are elaborated in the following paragraphs.

Believing in discontinuity and not continuity with incremental improvement
Incremental improvement is possible in an organisation by adopting the following steps:
- Continuity or status quo is a function of quantum of changes. Here, incremental improvements are valid only when the rate of change is not excessive
- Modern domains and development processes are highly dynamic
- Project management today demands discontinuity and greater flexibility, with no hurdles to move into the future. An open mind for unknown is the key
- Members are not expected to be rattled by sweeping changes demanded by the dynamically changing objectives

Owning the problem and sharing the solution
Solutions can be arrived and shared by owning the problems an organisation is facing by adopting the following steps:
- Experience is gained through an open mind to own problems.
- Experience is not judged by the number of years of service, but by the number and complexity of the problems owned and solved.
- The fixed mould mentality of passing the buck and expecting credit for discoveries is not appreciated any more.

Breaking the status quo mentality
The members in an organisation can break the status quo mentality by:
- This implies believing that future is not an extension of the present and therefore the need to tame the future.
- Excessive focusing on the future may not be appreciated.
- A proper balance is a must.
- In most cases, a conflict between a present-centric manager and future-centric project leader can only be solved by innovation and predictive approach of a member. More often, the member is more aware of future bugs and client-centric problems.

Stepping out of the comfort zone
The members in an organisation should:
- Feel more comfortable to come out of the comfort zone and face risks.
- Remember that the team-leader has emerged by stepping out of the comfort zone Thus, if the member decides to step out of the comfort zone and be innovative and contribute, then this would amount to emergence of a future leader. Here, promotions are not time bound.
Human capital by-passing financial capital
A member has to realise that human capital is more important than the financial capital by understanding the following points:

- Human capital has left financial capital far behind.
- A member should therefore appreciate and maintain self realisation of his importance in the organisation.
- However, to sustain credibility, the member should remember that his or her value is not related to the level of the salary, but on the quantum of output, again not on the volume of coding but on the value of the work done to the product.
- Combining these two concepts of human capital and value, the concept of return on the time invested has replaced return on investment, when it comes to valuation.

Transform the work culture
A member has to transform the work culture by:

- Any organisation should add passion and joy, if they aim any substantial progress.
- It is important for a member to decide to do, what the team member wants to do.
- The gap between wish and reality is narrowed and results improve. A project could well become a work of art.

Number of encounters replacing the number of years of experience
A member gains more wisdom through encounters than experience. This is explained as:

- The experience-level is now judged by the number of encounters of major problems solved, rather than the number of years, particularly in a typical situation of comparison between look-alikes.
- Experience is then counted as wisdom.
- The secret formula for a member is to build an inventory of encounters meaningful to their own dreams or passion profile.

Seeking meaning out of change
A member can perceive change as a positive act by understanding that:

- Change could be threat or an opportunity. If a change is resisted, it is essential for the entire team through extraordinary team effort and brain storming to weigh consequences before drafting a plan to match proposals for changes.
- The key lies in extraordinary inter-personal skills and communication.

Detachment from the fruits of results
Finally, a member has work hard irrespective of the rewards. One has to act within ones control and to get reaction or a reward is not within their purview. If an organisation pays too much attention to these factors, it would result in a drop in production and hinder future personal progress. The team members must first analyse and discuss amongst them and later must speak for themselves. It’s their responsibility to build a second-line and move up the ladder by themselves. Most organisations encourage ‘presentation’ by members as well as self-assessment reports. Management tends to watch constantly between retention and attrition.
Summary

- Projects are of great importance to all types of organisations.
- Projects are also the means by which new products are conceived, developed and brought to the market.
- Any project aimed at delivering a product or a service has to go through phases in a planned manner in order to meet the requirements.
- The team members log in details of actual start-date, actual finish-date, actual hours worked per task, estimated hours to complete the task, elapsed time in hours to complete the task and any miscellaneous costs incurred during a stage.
- Controlling the changes in the project is possible through a proper change management process and using necessary tools for controlling the change.
- Change Management System (CMS) is a methodology which requires collection of all formal documented procedure, defining how a project’s performance will be monitored and evaluated, how project-plans could be updated and how various measures can be implemented to control the change process.
- Any project that is planned properly and executed as per the plan will also close successfully.
- After every stage of a project is implemented, it may so happen that there could be a minor change or modification which has to be reviewed.
- There are various tools for post project implementation review that may be considered for improving and developing processes of the project.
- The objective of the stage and the project and the corresponding plans should be reviewed and items that are still open should then be closed or resolved.
- It is well known that in any management system, there is always some conflict.
- Quality of any product or services is defined as its conformance to the standards.
- An information system is mainly aimed at providing the management at different levels with information related to the system of the organisation.
- A good Project Management Information System is possible to be developed from the team members and not from the system administrators of the company.
- As it is important to monitor and control the project activities through various stages, it becomes important to resort to effective and powerful tools to coordinate the activities.
- The perception of a manager in current trends in project management is to obtain result.
- The project quality review helps the project manager and his/her manager to enable the necessary adjustments and taking the action needed to achieve the project goals finishing the project on time, scope and budget.

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Self Assessment

1. Projects are the means by which new products are ____________, developed and brought to market.
   a. valued
   b. conceived
   c. promoted
   d. exhibited

2. Any project aimed at delivering a product or a _________ has to go through phases in a planned manner in order to meet the requirements.
   a. plan
   b. idea
   c. service
   d. scheme

3. Match the following

<table>
<thead>
<tr>
<th>1. Responsiveness</th>
<th>A. Project mindset lays emphasis on flexible processes.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Information sharing</td>
<td>B. It also involves efficient use of project resources and prioritisation of the activities based on resources planning.</td>
</tr>
<tr>
<td>3. Processes</td>
<td>C. It refers to quickness of response of an individual.</td>
</tr>
<tr>
<td>4. Structured planning</td>
<td>D. It is the master key to today’s business.</td>
</tr>
</tbody>
</table>

   a. 1-D, 2-C, 3-B, 4-A
   b. 1-B, 2-A, 3-D, 4-C
   c. 1-A, 2-B, 3-C, 4-D
   d. 1-C, 2-D, 3-A, 4-B

4. Project stage reviews and the decisions taken and actions planned need to be ____________by the top management.
   a. accepted
   b. approved
   c. reviewed
   d. given

5. Which of the following statement is false?
   a. Initiating processes is recognition to start and establishing commitment.
   b. Planning processes is devising and maintaining a workable scheme to accomplish the business need.
   c. Executing processes is coordinating people to make a plan.
   d. Controlling processes is monitoring and measuring progress and taking remedial actions.

6. It is well known that in any management system there is always some ____________.
   a. variations
   b. conflict
   c. innovation
   d. argument
7. Project manager in development projects prefer to communicate on a _________ basis using all three media.
   a. weekly
   b. monthly
   c. daily
   d. yearly

8. __________ of any product or services is defined as its conformance to the standards.
   a. Quantity
   b. Quality
   c. Brand
   d. Amount

9. Which of the following statement is true?
   a. The review leader is the project supervisor.
   b. The review leader is the project leader.
   c. The review leader is the project manager.
   d. The review leader is the project maker.

10. The project quality review helps the project manager and his/her manager to enable the necessary adjustments and taking the action needed to achieve the project goals finishing the project on time, scope and __________.
    a. budget
    b. resources
    c. funds
    d. execution
Case Study I

Product Development

Applications of the YCA Integrated Solution
YCA’s products and services are applicable to the management of virtually any type of project. More specifically, YCA’s techniques have been applied successfully to managing each of the following project types:

- Product development and introduction
- Facility development and start-up or relocation
- Equipment installation and implementation of new process technologies
- Information systems development and implementation
- Business process re-engineering
- Marketing program development and execution
- Architectural and engineering design
- Real estate development, construction and renovation
- Industrial maintenance
- Advertising campaign development and roll-out
- Initial public stock offering
- Merger or acquisition
- Special events
- Human resources benefit program development and internal communication
- Applied research

Background
A product development team for a European equipment manufacturer faced a tremendous challenge. A competitor had just announced a technologically superior product, and to prevent a 25%+ loss in market share, a radically redesigned model had to be introduced at a trade fair in 14 months. The team was only minimally staffed, and the normal development cycle for new products was 39 months. Several component systems requiring major upgrades were traditionally dependent on very long lead-time parts with potentially unreliable suppliers. Additionally, sales suffered due to severe quality problems throughout their product line and the entire organisation was primarily focused on quickly improving the quality. Finally, the company president utilised a centralised method of decision-making and project teams normally were not delegated the authority to make decisions that would impact project performance.

Approach
The core project team including project manager had already completed the Project Success Method training. YCA provided consulting assistance in chartering, schedule development, crashing, resource planning, and periodic schedule updates/revisions. Project Success Method training was conducted for new members after the team was fully staffed. With design help from YCA, the client was able to develop and implement a formal project management system.

Results
The new product was successfully completed and introduced at the trade fair in 14 months. The project manager’s technical knowledge and planning skills were acknowledged and he was promoted. The project team members acquired new individual competencies and confidence that helped to improve company performance. Other significant outcomes included:

- Due to the project charter, company management was fully aware of the potential project risks.
- The project schedule contained specific activities and duration for rigorous product testing preventing potential shortcuts that would negatively impact product quality after development.
• The project manager was able to accurately estimate and obtain the staffing needed to successfully complete the project. He used the project schedule to illustrate how any subsequent reductions in staff would delay completion, thus he was able to maintain the staff throughout the project.

• Parts of the project schedule were used to communicate responsibility and delivery dates to key internal and external suppliers, who were not able to participate in the project planning.

• Contingency plans were made to deal with potential supplier failures for critical long lead-time parts.

• Management was impressed with the team’s knowledge of the project situation due to its detailed plans, and was willing to delegate authority for more decision-making. The project team gained a sense of empowerment that had not previously existed in the company.

• The knowledge discipline acquired in planning and controlling the project development product was used to assist in the resolution of broad quality problems that plagued the company.

• The schedule for the project was utilised as a template for future product development plans.


Questions
1. What was the challenge faced by the company?
   
   **Answer**
   
   The challenge faced by the company was that, a competitor had just announced a technologically superior product, and to prevent a 25%+ loss in market share, a radically redesigned model had to be introduced at a trade fair in 14 months. The team was only minimally staffed, and the normal development cycle for new products was 39 months.

2. What measures were taken for this problem?
   
   **Answer**
   
   The measures were taken for this problem, YCA was approached. YCA provided consulting assistance in chartering, schedule development, crashing, resource planning, and periodic schedule updates/revisions. PSMSM training was conducted for new members after the team was fully staffed. With this help, the client was able to develop and implement a formal project management system.

3. What was the benefit of approaching YCA for their product?
   
   **Answer**
   
   The benefit of this approach was that the new product was successfully completed and introduced at the trade fair in 14 months.
Case Study II

Barriers in Women Entrepreneurship

Swapna General Store is a typical grocery shop in the Kothrud area of Pune city. The second generation of the Mehta family is running the shop. Mr. Anand Mehta was running the shop successfully for 12 years after he took over from his father in the year 1989. The grocery store was booming with smooth flow of customers.

Unfortunately in Jan’2001, Mr. Anand died in an accident, after which, his wife Mrs. Vandana had to take up the responsibility of the family as well as the business. After initial difficulties, she could smoothly run the shop since the customers had close association with the store and also they had workers working with them since 10-15 years. Hence, even after being only a HSC pass, Mrs. Vandana is running the business successfully till date.

But now, contradictorily enough, the business is declining and has come to the verge of closure. The reason is a new up-town supermarket located just 1.5 kms away from the shop. With aggressive marketing, the supermarket is attracting customers in the area. With lack of education, limited experience and resources, Mrs. Vandana is unable to compete with the lower prices being offered by the supermarket.

The supermarket is offering a complete product basket with consumer durables, clothing, cosmetics, snacks, etc. besides grocery items. It also provides a good shopping experience with superior display, convenient parking, self-service, children’s games, longer operating hours and credit card facility. Also, it is open for long hours, provides counter service, telephonic orders and also home delivery. From this, it appears that the only advantage that the small store has is its vicinity or closeness to the customer.

Mrs. Vandana is clueless about how to compete with this threat of upcoming supermarket and feels that she should ask a consultant, who could help her to leverage the strength of the loyal customer base to counter this threat. Could we help her out?

Questions
1. What is the problem faced by the women entrepreneur?
2. How can we solve this problem?
3. What is the role of education in this scenario?
Case Study III

Project Management Methodologies

In July of 1999, senior management at Fems recognised that its future growth could very well be determined by how quickly and how well it implemented project management. For the past several years, line managers had been functioning as project managers, while still managing their line groups. The projects came out with the short end of the stick, most often late and over budget, because managers focused on line activities rather than project work. Everyone recognised that project management needed to be an established career path position and that some structured process had to be implemented for project management. A consultant was brought into Fems to provide initial project management training for 50 out of the 300 employees targeted for eventual project management training. Several of the employees thus trained were then placed on a committee with senior management to design a project management stage-gate model for Fems.

After two months of meetings, the committee identified the need for three different stage-gate models: one for information systems, one for new products per services provided, and one for bringing on board new corporate clients. There were several similarities among the three models. However, personal interests dictated the need for three methodologies, all based upon rigid policies and procedures.

After a year of using three models, the company recognised it had a problem deciding how to assign the right project manager to the right project. Project managers had to be familiar with all three methodologies. The alternative, considered impractical, was to assign only those project managers familiar with that specific methodology. After six months of meetings, the company consolidated the three methodologies into a single methodology, focusing more upon guidelines than on policies and procedures. The entire organisation appeared to support the new singular methodology. A consultant was brought in to conduct the first three days of a four-day training program for employees not yet trained in project management. The fourth day was taught by internal personnel with a focus on how to use the new methodology. The success to failure ratio on projects increased dramatically.


Questions
1. What were the three stage-gate models?
2. Why were all three initial methodologies based on policies and procedures?
3. Why the organisation was willing to accept a singular methodology later?
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Self Assessment Answers

Chapter I
1. b
2. c
3. a
4. a
5. c
6. a
7. b
8. c
9. d
10. a

Chapter II
1. b
2. d
3. a
4. b
5. a
6. c
7. b
8. c
9. a
10. d

Chapter III
1. c
2. c
3. b
4. a
5. c
6. d
7. b
8. c
9. c
10. d

Chapter IV
1. b
2. a
3. c
4. d
5. b
6. d
7. a
8. b
9. c
10. d
Chapter V
1. a
2. b
3. d
4. a
5. b
6. a
7. c
8. d
9. b
10. d

Chapter VI
1. b
2. c
3. b
4. c
5. b
6. c
7. b
8. d
9. a
10. c

Chapter VII
1. a
2. b
3. c
4. b
5. a
6. b
7. c
8. d
9. b
10. c

Chapter VIII
1. b
2. c
3. d
4. b
5. c
6. b
7. a
8. b
9. c
10. a