CHAPTER IV

PRE-INVESTMENT DECISIONS - SPECIFIC

The field work has brought to the light the different types of problems encountered by the industry and business. These problems need proper analysis. Sufficient data needs to be collected under each of the headings. This then will provide the necessary directions for taking the investment decisions.

The majority of the problems faced could be put under either of the following headings:

a) Marketing
b) Technical
c) Financial

These are the issues which require a scientific study and planning before venturing into a project.

4.1 MARKETING ASPECTS

The concept of marketing has seen a tremendous change in last twenty years or so. The shift has been clearly from selling to marketing. Henry Ford I could say in early 20's, 'let the customer
have any colour of car as long as it's black'. It no more holds true. The continuous technological developments, marked changes in customer requirements and competition have necessitated a fresh look in the concept of marketing. Today's marketing is based on three pillars. They are -

1) Customer orientation
2) Integrated marketing
3) Customer satisfaction

Customer orientation means looking outward to the customer requirements to looking inward to the products manufactured. It calls for a study in generic needs of the customers, identification of various market segments, to plan differentiated products and messages, to carry out continuous consumer research to get the above facts and all this with differential advantage strategy.

Integrated marketing means planning all the operations and resources within the organisation so as to obtain the product based on customer orientation.

Customer satisfaction is the ultimate aim in the concept of marketing. To ensure the continuous growth of the company, a satisfied customer with
the help of the earlier pre-planning work is essential.

Thus, it calls for detailed analysis of various marketing aspects in the present environments which will guide the pre-planning work. These decisions properly taken through scientific studies will assure that the products or services planned will be acceptable to the customers.

The different aspects that will require attention will be as follows:

a) The product identification and details
b) Their applications and market segments
c) Present demand for them thereby giving the size of the market
d) Future likely demands for next few years
e) The consumer behaviour, tastes, acceptability etc.
f) The present supply position both from indigenous as well as imported sources, if any.
g) Future supply position
h) The distribution structure for the product
i) Promotional strategies required for marketing
j) The potential for overseas markets

With the help of market research and having collected the data meeting the objectives, the analysis as under could be made to obtain the guidelines.

4.1.1 THE PRODUCT IDENTIFICATION

An example is considered here to make the idea clear.

EXAMPLE 1:

An entrepreneur is interested in the manufacture of electric motors. As soon as this decision is made by him, other questions as below crop up:

i) Whether he wants to manufacture AC or DC types of motors?

ii) If he decides to manufacture AC types of motors, whether he wants to go for fractional horse power motors or induction motors or a.c. synchronous motors?

iii) If he decides to go for fractional horse power motors, what ratings he wants to cater for? The range available will be from 1 horse power to 1/1000 horse power.
iv) What type of insulation he must provide for in the motor?

v) What method of cooling, if any, is employed on these motors?

vi) What specifications the motors will be meeting? Whether it will be to Indian Standards, British Standards etc.

vii) What will be the rated speed?

All these and many other questions will come up before the product is finalized. Considering the above case, it will thus become clear what details are to be considered. The same general rules can be applied for different types of products and services. When talking about the latter, the details on the facilities that could be offered to the clientele will bear the emphasis. For goods to be marketed, it helps in determining the correct product mix.

The above requirements under this heading could be summarised in general as follows:

1) Type
2) Specifications
3) Design details
4.1.2 APPLICATIONS

An example is considered to clarify this point.

EXAMPLE 2:

Continuing with the earlier case on fractional horse power motors, their major applications with different equipments will have to be identified. By this, the main market segments will also be identified.

Table below gives an idea about the same.

**TABLE 1**

Applications of fractional horse power motors

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Product</th>
<th>H.P.</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Table Fans</td>
<td>1/12</td>
<td>1250</td>
</tr>
<tr>
<td>2</td>
<td>Air Conditioners</td>
<td>1/5, 1/8, 1/10, 1/12</td>
<td>920, 930</td>
</tr>
<tr>
<td>3</td>
<td>Water Coolers</td>
<td>1/10</td>
<td>1350</td>
</tr>
<tr>
<td>4</td>
<td>Water Pumps</td>
<td>1/30</td>
<td>2400</td>
</tr>
<tr>
<td>5</td>
<td>General Air Duty</td>
<td>1/90, 1/180, 1/60, 1/500</td>
<td>2400</td>
</tr>
<tr>
<td>6</td>
<td>Record Player</td>
<td>1/625</td>
<td>2400</td>
</tr>
<tr>
<td>7</td>
<td>Heat Convector</td>
<td>1/230</td>
<td>2400</td>
</tr>
<tr>
<td>8</td>
<td>Vibrator</td>
<td>1/250</td>
<td>2400</td>
</tr>
<tr>
<td>9</td>
<td>Hair Dryer</td>
<td>1/250</td>
<td>2400</td>
</tr>
</tbody>
</table>
These are only few of the applications listed above to get an idea. Knowing the production of these end products, the proposed manufacturer of these motors can plan his capacity to cater to any of the market segments meeting the required specifications.

An example for a consumer product is given.

**EXAMPLE 3:**

A large consumer products manufacturer wants to diversify and go into the production of tooth-pastes. It will be essential to consider following marketing aspects before a decision could be made to venture in this project:

1) Which market he should cater for? Should it be only in metropolitan cities, other urban centres or only in rural areas?

2) What age groups are likely to prefer this product? What taste should be given? This will help him in deciding the formulation.

3) Which income groups in the market chosen should be concentrated? This information will help him in making the pricing decisions.

4) Is it necessary to concentrate on any social
or ethnic groups due to their eating habits?

v) What extra efforts will be required to concentrate on a particular market segment?

Hence, it will be seen that knowing the applications of the products, automatically the information on the existing and potential principal consumers is obtained. These market segments then provide the data on the geographic and demographic matters.

This further leads to determining the product mix for the manufacturing unit, whether it should be a mass produced item or custom built. It also indicates whether the product will be purchased by individual buyers, or corporate buyers. By studying the buying pattern and operations, the marketing strategies could be planned.

4.1.3 PRESENT DEMAND

EXAMPLE 4:

An entrepreneur wants to start a sophisticated malleable cast iron foundry. To plan his own capacity, he wants to identify the total demand for the country and the likely share he could hope for. Through market research, it was
observed that sixty per cent of these castings are consumed by the automobile sector. Hence, he will have to obtain the norms of consumption of these castings per vehicle. This when multiplied by the total number of vehicles produced will then give the consumption in the automobile sector.

The field work revealed that these malleable castings are used only on four wheelers. From the Original Equipment Manufacturers (O.E.M.), the following consumption pattern on an average was obtained.

**TABLE 2**

Consumption Pattern of Malleable Castings in Automobile Sector

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type</th>
<th>Weight per unit (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commercial vehicles</td>
<td>175</td>
</tr>
<tr>
<td>2</td>
<td>Cars</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Jeeps</td>
<td>55</td>
</tr>
<tr>
<td>4</td>
<td>Tractors</td>
<td>35</td>
</tr>
</tbody>
</table>

The total production for the year 1976 of these vehicles is given in Table 3 below. Knowing the above consumption pattern, the total consumption
for these castings in automobile sector is obtained as below:

**TABLE 3**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type</th>
<th>Production in 1975-76</th>
<th>Requirement of Malleable Castings (Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commercial Vehicles</td>
<td>42,667</td>
<td>7466</td>
</tr>
<tr>
<td>2</td>
<td>Cars</td>
<td>23,250</td>
<td>1395</td>
</tr>
<tr>
<td>3</td>
<td>Jeeps</td>
<td>8,171</td>
<td>449</td>
</tr>
<tr>
<td>4</td>
<td>Tractors</td>
<td>34,000</td>
<td>1190</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td></td>
<td><strong>10500</strong></td>
</tr>
</tbody>
</table>

The above consumption is only for Original Equipment Manufacturers. In addition, there will be replacement demand. The norms for the same could also be obtained which work out to about 20% of the O.E.M. demand. There will be other sectors using malleable castings besides automobile industries. The share of the latter when cross checked with the foundries works out to approximately 60%. This way we could obtain the total consumption of malleable castings for various applications.

It is quite likely that there is some unsatisfied
demand which could be observed on the basis of delivery position of these castings. From the indications available in the field, some percentage could be added to give the total estimation of the demand. The total demand for the malleable castings works out to 21000 tons per annum.

The above is the case of a product which is known and clearly identified. In case of a completely new product, a different methodology will have to be adopted to estimate the total demand. The proposed product will have to be compared with the existing competing products, their growth pattern, size of the market and the likely share the new product could take will have to be estimated. When this condition is also not fulfilled, the opinions of different experts on the subject will provide indications. It might also become essential at this stage to estimate a break-even volume and then check whether this can be reasonably sold. An example will further clarify:

**EXAMPLE 5**

The petro-chemical complex at Baroda will be giving out a variety of down stream products. These will be available for further development and commercial exploitation to entrepreneurs. One such line will
yield a monomer of Methyl Methacrylate. This will be used mainly to produce acrylic sheets which are not presently manufactured in the country. The consumption of imported materials is quite low.

The question is now to estimate the demand for this new product. Following steps were taken to identify the same:

i) A list of existing competing products was prepared which included mainly glass and styrene.

ii) A comparison was carried out of these three products for strength, quality, size, availability, price etc.

iii) This comparison gave a clear idea regarding the market segments where acrylics can find applications replacing glass and styrene.

iv) Any other possible applications were studied.

v) In these segments, through samples, norms of consumption for glass and styrene were obtained.

vi) The total demand for these products in different user sectors was then estimated.
vii) Comparing the new product with the existing ones, cross checking with experts regarding the potential application etc., an estimate of the share, the new product could obtain from the total market was made.

viii) The restraints like comparative prices, promotion etc. in developing such a demand were clearly listed.

Another example is discussed below to give more clarity:

**EXAMPLE 6:**

A manufacturer of television sets wants to introduce his brand in Hyderabad where T.V. will soon be introduced. He wants to ascertain the demand so as to facilitate his production planning and marketing programme.

A methodology as below could be framed:

1) By studying the buying pattern for T.V. in places like Bombay, Poona etc. where it has been introduced long time back. The basis will be a) Income level b) No. of persons in the family c) Locality d) Car owners e) Telephone owners f) Consumers having
different electrical gadgets already in the house etc.

ii) A model can thus be built of the potential consumers on the basis of these characteristics.

iii) Out of the total population in Hyderabad from the size that will fit the above description, the demand could be estimated.

It will thus be seen that the most difficult task in marketing studies is estimation of demand. Based on it, the future planning regarding production capacity, distribution etc. is done and hence it assumes a prominent role.

4.1.3.1 MARKET DEMAND

Market demand for a product is the total volume that would be bought by a defined customer group in a defined geographical area in a defined time period in a defined marketing environment under a defined marketing programme.

It will be seen that there are eight elements in this definition:
a) **PRODUCT**: As discussed earlier about the exact type, size etc.

b) **TOTAL VOLUME**: This could be in terms of either physical volume or money or both. The market demand can also be expressed in relative terms, for example, the demand for automobiles in Bombay is 10000 cars per year or 30% of national demand.

c) **BOUGHT**: A clear distinction should be made between volume ordered, paid for or consumed.

d) **CUSTOMER GROUP**: As discussed earlier, the market demand could be for the whole market or segments in the same.

e) **GEOGRAPHICAL AREA**: The demand should be clearly defined for region, territory, country etc.

f) **TIME PERIOD**: The demand should be also measured with reference to a stated period of time. This is to observe any seasonality of demand.

g) **MARKETING ENVIRONMENTS**: Such external factors like economy of the country, public
policy, cultural changes etc. will have an indirect influence on the demand.

h) MARKETING PROGRAMME

The demand will be effectively controlled by the marketing policies with respect to price, promotion etc.

The share of market that can be captured by a company will be called the company demand. The market potential is however the limit approached by market demand as industry marketing effort goes to infinity for a given environment.

4.1.3.2 METHODS OF ESTIMATING CURRENT DEMAND

a) MARKET BUILD UP METHOD

This method is usually employed for the industrial products and calls for identifying all the potential buyers for the product in each market and adding up the estimated potential purchase of each. Mathematically, we can put it as follows:

\[ D_j = D_{1j} + D_{2j} + \ldots + D_{ij} + \ldots + D_{nj} \]

Where \( D_j \) = market potential in market \( j \)
\( D_{ij} \) = Potential purchases of buyer \( i \) in market \( j \)
\[ D_{nj} = \text{Potential purchases of buyer } n \text{ in market } j \]

The above is only possible if a list of all potential buyers and a good estimate of what each will buy is available. It thus requires the identification of all the present and potential buyers. Samples will have to be selected in such a way that they are representative of all market segments that are available. The norms of consumption of these segments will then have to be obtained. The properties displayed by these samples will then have to be blown up for the whole population to obtain the total demand.

b) **INDEX OF BUYING POWER METHOD**

This method is mostly employed for consumer products. The final consumers are typically so numerous, it is not possible to list every potential customer and estimate his buying requirements. The method most commonly employed is the 'index method'. For example, take the case of a drug manufacturer. The market potential for drugs is directly related to a single factor such as population. Thus, if the State of Orissa has 3 per cent of India's population, the company might readily assume that Orissa would take 3 per cent of the total market share.
The other method which could be utilised is by studying the consumer behaviour. By obtaining stratified samples with reference to age, sex, religion, income level etc. the consumption pattern is obtained. From census figures, economic indicators etc., this model could be blown up for the entire population.

The demand could be for the inland markets as well as for the Overseas markets. With more and more emphasis on exports to earn the valuable foreign exchange, those markets and the potential they offer, should not be overlooked.

\[4.1.4 \text{ FUTURE DEMAND - FORECASTING}\]

The following example will illustrate this aspect.

EXAMPLE 7:

Continuing with the earlier case on malleable castings, the future demand for next three years is to be projected. Following factors need consideration:

1) The past growth rate of user industries
2) Establishment of additional user capacities
3) The consumption pattern of malleable castings
iv) Any other factors which will affect the demand
v) Considering these aspects, the future requirements of the user industries are obtained.

This exercise is carried out below and requirements of each user industries are discussed separately.

a) Additional licenses have been issued to two units viz: TELCO and Heavy Vehicles Factory, Jabalpore, and the production is likely to be doubled in next five years. Considering a steady growth in production for these vehicles, from 26000 to 38000 in last ten years, it is most likely that these targets will be achieved. Thus, the demand for these castings under this sector will have a steady rise of 20 per cent for next five years.

b) No major new units are likely to come up in next five years for cars and hence the future demand will not be substantial. The past trends indicate the rise of about 70 per cent in last ten years in the production. The number of cars increased from 23326 to 38827 and again
reduced to 23000. With the rise in petrol prices, demand has come down. Hence, for projecting the future demand, an average growth of 5 per cent per year for next five years is estimated.

e) Considering the jeep manufacturing industry, no new units will be coming in next five years. The existing units are also yet to reach the full utilization of the capacity. Considering the past growth of 7597 jeeps in 1962 to 8171 numbers in 1975, the forecast could be for a steady demand on same level. The future demands are thus projected for next five years on this basis.

d) Only one new unit is coming up for tractors which will generate the demand for these castings. The increase in production of tractors in India has been phenomenal in last ten years. From a meagre 880 numbers in 1962, the production in 1975 amounted to 34000. The capacity utilization barring exception has been high.

e) These castings will be mainly required by the
Original Equipment Manufacturers and the replacement demand will be at 20% of original demand.

Considering the above reasoning, the following picture emerges for the future demands of malleable castings in automobile sector.

**TABLE 4**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Type</th>
<th>1978</th>
<th>1979</th>
<th>1980</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Commercial Vehicles</td>
<td>12900</td>
<td>15481</td>
<td>18577</td>
</tr>
<tr>
<td>2</td>
<td>Cars</td>
<td>1615</td>
<td>1700</td>
<td>1800</td>
</tr>
<tr>
<td>3</td>
<td>Jeeps</td>
<td>520</td>
<td>550</td>
<td>600</td>
</tr>
<tr>
<td>4</td>
<td>Tractors</td>
<td>1583</td>
<td>1742</td>
<td>1900</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>16618</td>
<td>19473</td>
<td>22877</td>
</tr>
</tbody>
</table>

It is thus very essential for an entrepreneur to plan for next few years. As the gestation period may take considerable time, the estimate of future demands assumes an important role.

The forecasting is easy only for few products and services. These include products whose absolute
level or trend is fairly constant and where competitive relations are almost stable or non-existent. But, in a majority of markets and products, demands are seldom stable and forecasting becomes a central factor in company success. This is especially true for new enterprises as the basic requisite of good planning. The decision also involves the major capital expenditure for the future.

Forecasting methods used can be very simple as well as highly sophisticated depending on their requirements. Discussed below are some of the methods commonly used.

4.1.4.1 **SURVEY OF BUYER INTENTIONS**

More suitable for industrial products, consumer durables and especially for new products where past data does not exist. The polling technique also obtains the opinion from large number of buyers and by applying law of averages, the forecasting could be made.

4.1.4.2 **MARKET TEST METHOD**

More suitable for consumer products where a new brand before it is introduced in the market could be test marketed in a small consumer group. The
opinions expressed could be used for estimating the future demand.

4.1.4.3 TIME SERIES ANALYSIS

More commonly used method is by analysing the past available data.

Three different pictures may emerge from the time series analysis. They are:

a) Steady growth pattern
b) Highly volatile pattern
c) Pattern of trend, cycle and seasonality

By using the extrapolation method, the forecasting could be done. However, the reasons for variations at maxima and minima should be clearly defined to obtain an average effect.

4.1.4.5 STATISTICAL ANALYSIS

The earlier methods treat the past and future sales as a function of time rather than of any real demand factors. Whenever possible, correlations with variables like income, age, educational level, season etc. could be established. By working out statistical equations, the forecasting could be
achieved.

Some of the problems faced during forecasting are due to inconsistent data available, the changing objectives, error in feedback information and the cost factor making prohibitive the total data to be collected. In practice, however, a combination of these methods has to be employed for obtaining proper cross checks.

4.1.5 SUPPLY POSITION - PRESENT AND FUTURE

EXAMPLE 8:

A case on the supply position of Mopeds is discussed. The D.G.T.D. Annual Report of 1975-76 lists four manufacturers producing Mopeds. The annual capacities covered by additional letters of intent comes to 390000 numbers.

The table below gives data regarding the potential supply and actual production of Mopeds.

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Units</th>
<th>Installed capacity</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1973</td>
<td>4</td>
<td>67500</td>
<td>23312</td>
</tr>
<tr>
<td>1974</td>
<td>4</td>
<td>67500</td>
<td>29298</td>
</tr>
<tr>
<td>1975</td>
<td>4</td>
<td>67500</td>
<td>34172</td>
</tr>
</tbody>
</table>
The supply could be from two sources viz. through indigenous production or through imports, if any. Together, the total supply picture emerges which then could be matched with the potential demand for decision making.

The supply position can be studied by three different methods as under:

4.1.5.1 THROUGH PUBLISHED INFORMATION

When the time and the cost that could be spent in collecting this data are under restraint, a quick indication could be obtained by studying various published sources. These include statistical data published by various Government organisations, trade associations etc. The supply through imports could be obtained by studying the statistics on foreign trade, customs bulletins etc.

Some precautions need to be taken while studying this data from published sources for following reasons:

a) The figures are only available as aggregates. For example, the installed capacity for transformers is 221.7 lakh KVA and the
total production is 132.3 lakh KVA. This does not tell anything about the production of transformers for different types, ratings etc.

b) The data available is incomplete. Only the data quoted by reporting units is given. Also, how much of the licensed capacity has been installed is not known. Thus on paper, enough capacity is observed while in practice there could be a shortage.

c) Very seldom the data is up-to-date in order to analyse the same by time-series method.

d) The data available is only from organised sector. Today, the small scale sector is contributing to the tune of 40% of total engineering production. However, no authentic data is available on the same.

Thus, proper cross checks need to be applied while studying the supply position through these sources.

\[4.1.5.2\] FROM FIELD WORK

It is possible to obtain qualitative details of some quantitative data through this method. The costs and the man-power availability will restrict
a wider coverage. Following methodologies can be employed:

i) The market study will indicate which are the different brands available presently. A comparison chart can be prepared for these different brands listing quality, price, specifications, availability etc. An analysis of this table will give an idea about the leading competitors and the fast moving brands.

ii) The supply position could also be obtained from wholesalers, distributors etc. The data collected from the samples can be projected for the population to obtain the total position.

iii) The non-availability of a particular commodity or longer delivery intervals indicate immediately the short supply position.

4.1.5.3 INPUT - OUTPUT ANALYSIS

Another method to obtain the supply is through the availability of raw materials. This can also be used as a cross check to determine the maximum supply position. For example, if the supply of television sets is to be studied in the country,
it will automatically depend on the components available. The T.V. picture tubes have an installed capacity of 150000 and hence unless the same is increased, T.V. supply cannot increase beyond 150000. If imports are permitted, then that will be the additional supply. Thus, a direct relationship could be obtained.

\subsection*{4.1.5.4 FUTURE SUPPLY POSITION}

The above methodologies bring out only the present supply position. But, when the entrepreneur is at his own planning stage, the unit may commence the production after certain interval of time. By that time, some more competitors might have come up. Hence, it becomes necessary to study, as well, the future supply position.

The Government publications giving details regarding the licenses or letters of intents granted becomes the only source for obtaining such an information. The date of issue of this and the likely period of the commencement of the work will have to be checked. With some idea on the phasing out of the activities and the capacity utilization, the likely future supply position for a period can be projected.
An example is discussed below to illustrate the subject:

**EXAMPLE 9:**

An entrepreneur has developed a car radio which he wants to introduce into the market. He wants to set up a distribution set-up for the same.

Following methodology can be employed:

1) The selling of these car radios can be done at two levels, viz. directly to car manufacturers who will incorporate the same when the cars are assembled or sell directly to customers.

2) The former method is yet to catch up in India. At the same time, if the price of this radio can be lowered by selling in bulk to car manufacturers, the same can be passed on to the ultimate customers of the cars at a lower price as an additional accessory.

3) Other outlets which are available for this product could be by opening the manufacturers own sales offices, appointing sole selling distributors or through retail outlets of auto electric accessories.
iv) Considering the normal discount that is available to distributors/dealers on similar products and adding the various duties, the final price to customer can be worked out. The acceptability of the same can also be studied.

v) It will have to be decided who will do the installation of the set and offer the after-sales services. In such cases, usually the distributor will be responsible for this job.

vi) The advertising will be done by the manufacturer.

The ultimate aim in business is the transfer of goods or services to the users. For this, the medium which is required could be called its distribution structure. Majority of the goods are seldom sold directly. Many marketing intermediaries are involved in the process. The variety of people involved depending on the product are brokers, agents, wholesalers, jobbers, co-operatives and retailers.

The distribution structure providing various outlets has the objective to reach as large number of end users as possible thereby resulting in multiple
profits. The channels chosen have also a direct effect on all other marketing decisions.

The different types of channels available for different commodities could be considered as under:

4.1.6.1 DIRECT SELLING

Here the flow of goods is directly from manufacturer to the user and no middle-man is involved. Examples can be given of milkman, machinery manufacturers and cosmetic manufacturers employing sales-girls for door-to-door selling.

4.1.6.2 ONE SELLING INTERMEDIARY

Here there is only one middle-man involved between the producer and the user. He may be either a broker, manufacturer's sales agent, distributor or a retailer. Most of the consumer products, light engineering products etc. move in this way.

4.1.6.3 TWO SELLING INTERMEDIARIES

This structure is found more suitable for products where there are several producers and large number of final customers who generally buy the product in small quantities. The flow of goods is from the producer to wholesalers to retailer and to customer.
Most of the consumer food products move in this way. An example can be given of coconuts. The wholesaler in a town obtains the stock from a producer say in Kerala and sells it to retailers who sell the same to final consumer through their grocery stores.

4.1.6.4 THREE INTERMEDIARIES

Only in some special cases, a third intermediary in above distribution structure comes in the form of a jobber. The jobber works on the product in a small way and gives it either to Original Equipment Manufacturers or retailers for final distribution to customers. The example can be given of most of the ancillary workshops, meat cutter etc.

More the number of stages in the distribution structure, more will be the problem of control even though the producer typically deals only with the stage below him. The use of middle-man, however, cuts down the amount of work that otherwise will have to be done by the producer.

The marketing studies for a particular product, therefore, should include a study of the distribution structure for similar products. A design of such
an arrangement is then called for. Following information will be required:

1) **THE OBJECTIVES AND THE CONSTRAINTS**
   This should clearly identify the type of markets to be catered, whether it is the urban market, rural market or the Government. The peculiarities of each of these types can be noted down especially as to how the buying is done and who does it, depending on the products.

2) **THE CUSTOMER CHARACTERISTICS**
   This should be able to give the information on the number of customers that will have to be catered, their geographical distribution, purchase frequency, average quantities bought and the susceptibility to different selling methods.

3) **THE PRODUCT CHARACTERISTICS**
   The properties of the products will have to be studied for designing the distribution of the same. It will have to be seen whether they are perishables or not, their size, weight etc. This information will also decide on the physical distribution of the products.
iv) **MIDDLE-MAN CHARACTERISTICS**

Depending upon the product and the likely middle-man in the line, what advantages will be available from him should be noted. His technical expertise, financial strength etc. are the aspects that could be studied.

v) **COMPETITIVE CHARACTERISTICS**

The distribution structure operated by the competitors can be studied. Lacunaes if any, can be identified and improved for ones own distribution network.

vi) **COMPANY'S OWN CHARACTERISTICS**

This should include the details about the product mix, the financial strength of the company and the overall planned marketing strategies.

Another guideline that is provided by studying the distribution structure is on the pricing of the product. The trade discounts to be offered, the credit that could be given and the knowledge about the acceptable price to the customer will help in working out the economical manufacturing, marketing and distribution with the available restraints.
4.7 PROMOTION

In the present day world of dynamic marketing, promotion of products and services has become imperative. The various promo-tools that could be used are:

4.1.7.1 ADVERTISING

Non-personal form of promotion by paying for the media cost by a known sponsor. It is equally suitable for consumer as well as engineering products.

4.1.7.2 PUBLICITY

Non-personal form of promotion without paying for the media but suitably arranging to insert the news item for a known sponsor. More suitable for engineering products and new products.

4.1.7.3 PERSONAL SELLING

When the product characteristics require more personal discussions, promotion by personal selling will be more effective. For complex engineering products or services, it will be more suitable.

4.1.7.4 SALES PROMOTION

All other methods of promotion such as sales
literature, displays in shops, demonstrations etc. will fall under this category. The method is equally applicable to consumer as well as engineering products.

The main purpose of promotion is to make the customer aware about the existence of products and services. The proposed new units will have to resort to either of the methods as given above. The ultimate aim is to increase the turnover and market share.

The question normally arises as to what should be the budget for promotion. Following methods could be used for working out the budget:

1) **AFFORDABLE METHOD**

   Based on past performance or the amount that the company could afford could be set aside. This, however, lacks proper planning.

2) **PERCENTAGE OF SALES METHOD**

   A certain percentage of sales is spent on promotion. As it increases in proportion to turnover, it could be considered as logical.
3) OTHER METHODS

By studying the promotional strategies used by the competitors, the budgets could be prepared. For a company offering wide product mix, an objective and task method could be adopted.

The role of promotion must, however, be given due emphasis.

4.1.8 SERVICE ELEMENT IN MARKETING

The product quality or price advantage could not be held for long by a company. Today, therefore, the customers are more interested in the aspects of 'Service' in marketing.

4.1.8.1 BEFORE SALES SERVICE

This could include such areas as:

a) Market survey for customers
b) Product development for customers
c) Selection advice
d) Application engineering/Training

4.1.8.2 AFTER SALES SERVICE

This could cover following areas:

a) Repairs
b) Maintenance
c) Supply of spares

Thus in order to increase the market share and to get loyal customers, the above non-product advantages are gaining importance.

4.1.9 CONCLUSION - MARKETING FEASIBILITY

The purpose of conducting the marketing studies is mainly to establish the marketing feasibility of a particular product and the project. This becomes necessary to study in advance for the technically and financially a project may be feasible but our markets are not yet ready to absorb the product. Examples could be given of automatic car washing units. The technical know-how is available and the finances can also be raised. But, in a country like ours, where cheap labour is so abundantly available for washing the car, an automatic unit may not develop the demand at all. Hence, the study for marketing feasibility.

Basically, to obtain the feasibility of a particular project, following information from market studies will be useful:

1) The gap between demand and supply being positive, the unsatisfied demand from the
market will clearly indicate towards starting a unit for proposed activities.

ii) When the products are being imported and are required in substantial quantities. In this case, being the import substitution item, the Government also encourages such units. The technical know-how, availability of raw materials, skilled personnel etc. become the restraints which will have to be later studied carefully.

iii) When there is a large export demand even though no indigenous consumption is occurring. The Government is also encouraging such units and the setting up of Electronic Processing Zone at Santacruz is an example of the same.

iv) By studying the consumption pattern in advanced countries and comparing this with the social and economical factors in the country, a judgement can be made regarding the acceptability and the prima-facie feasibility. An example can be given of Urethane - Foam. This item is being largely consumed in U.S.A. and Europe for a variety of uses. By studying their usage pattern, some of the market segments can very easily be identified in our
country like mattresses, pillows, automobile seats etc.

v) If the present users are unsatisfied with the quality or there are delays in getting the supplies, prima-facie marketing feasibility exists.

Once the marketing feasibility of a project is established, the other information collected during the market studies helps the entrepreneur in further planning his efforts and making decisions. Following information provides the necessary guidelines:

i) By defining the market segments, he can plan a strategy to penetrate the ones having maximum demand.

ii) The supply and demand position indicates the share he might be able to get or at which he can aim. This helps him in deciding the production capacity and thereby gives an idea about the relative costs of the project.

iii) A study of the competitors and their products helps him in chalking out a marketing programme, pricing, advertising etc. to counter their efforts.
iv) A study of different markets, consumers etc. can help him in planning the overall selling programme, promotion, distribution structure etc.

Thus, the study on the marketing feasibility plays an important role in the pre-planning stage of a project. These are, therefore, part of the pre-investment decisions which an entrepreneur will have to take to minimise his risks and to ensure smoother marketing operations.

4.2 TECHNICAL ASPECTS

The technical aspects which will have to be considered before an investment decision could be taken will be of broad nature. All the issues which are directly related to facilitate the production or the services will have to be covered. It will include the details about the infra-structure needed, plant and machinery, raw materials, know-how, manpower requirements etc.

All these technical aspects are discussed separately below with the help of simple cases.
4.2.1 AVAILABILITY OF DESIGN OR PROCESS KNOW-HOW

Before venturing into a project, it is imperative that the details are available about the design features of the product and the various processes involved in the manufacturing. Thus, it could be said that the availability or knowledge of the technical know-how is the starting point.

The technical know-how could be available through the following sources:

a) Developed individually through experience in the same line or in one's own laboratories.

b) Available indigenously through other manufacturers or through research laboratories.

c) Import of technical know-how from reputed manufacturers abroad in form of a licensing arrangement.

TECHNICAL KNOW-HOW DEVELOPED INDIVIDUALLY

It is not uncommon to see individuals quitting their jobs in large companies and starting their own operations in same lines after gaining considerable experience. Having obtained the necessary confidence, the know-how is thus no problem. Example could be given of hoteliers. After gaining some experience
in hotel business, many employees quit the job and start on their own, a very common feature in villages or small towns. The recent example of four senior technocrats quitting their jobs from a foreign company in Poona and forming their own company to manufacture Tungsten Carbide tips could also be quoted.

Large scale companies having their own R & D facilities are also in a position to develop their own technical know-how. As a matter of fact, this issue has gained prominence due to faster obsolescence of products and processes. Government is also insisting that all large and medium scale units must have their own R & D facilities which should work towards developing new processes, products etc. so that we do not have to import the technical know-how. Only care that needs to be taken is that the technical know-how developed is commercially viable. This could again be checked through market research as discussed earlier.

**TECHNICAL KNOW-HOW OBTAINED INDIGENOUSLY THROUGH OUTSIDE SOURCES**

It is possible to obtain the necessary details from existing manufacturers in the country or
through various research organizations set up by the Government. These are discussed separately:

a) TECHNICAL KNOW-HOW FROM EXISTING MANUFACTURERS

It happens at times that due to Government regulations, the existing manufacturers are not allowed to expand their production capacities. However, unsatisfied demand may prevail in different parts of the country. In such circumstances, existing manufacturers are willing to offer the necessary technical know-how, training etc. to prospective entrepreneurs against some fees and royalties on sales. Such marketing franchise arrangements are on the rise.

EXAMPLE 10

A unit has been set up in Kerala to manufacture diesel-engines. It was earlier observed that the local users were finding it difficult to procure the necessary supplies. Also, at times, they had to pay exorbitant prices. It was then decided that local supply should be developed for these engines.

The entrepreneurs felt that rather than spending time and efforts on developing a product which may
not reach up to the expected quality, they should obtain the necessary technical know-how from existing reputed manufacturer. As such, they approached M/s. Kirloskar Oil Engines Ltd., the largest producer of diesel engines in the country. The latter agreed to pass on the required know-how, give training to their engineers and also help them in marketing their products in their territory for certain fees and royalty on sales for some years. The entrepreneurs thus could reduce the gestation period for their project and also came up with a quality product that was already accepted in the market.

b) TECHNICAL KNOW-HOW FROM RESEARCH LABORATORIES

Thanks to Government initiative, different research laboratories have been set up across the country to develop new processes and products in various fields. Few such institutions are:

- National Chemical Laboratories, Poona : Chemicals
- Central Electrical & Electronic Research Institute, Pilani (Rajasthan) : Electronic and Electrical Products
- National Buildings Organisation, New Delhi : Housing and related products
The Government has also set up a marketing agency, National Research Development Corporation at New Delhi which offers all the processes developed by different laboratories for commercial exploitation. Every now and then, they release lists on the new processes that are available, a brief outline about the project and the fees payable. Entrepreneurs could thus approach this agency and secure the necessary know-how as per their requirements.

There are, however, some drawbacks in the above scheme which have been experienced lately by entrepreneurs which need to be avoided. Some of them are as follows:

1) Most of the processes that are developed are on a pilot scale. No assurance or help is given for scaling it up and this has posed problems and resulted in failures.

2) The cost estimates which are suggested are many times found to be incorrect as many other expenses are not covered. This leads to taking wrong investment decisions on part of entrepreneur and running into financial difficulties later on when the project commences.
The terms and conditions proposed are generally a lump sum payment and royalty on sales for 11 years. The entrepreneurs feel that as the know-how is offered by a Government agency, to encourage industrialization, the fees should be reasonable. It is a general feeling that they are exorbitantly high. Also, when technology is taking so quick strides, a tie-up for 11 years for royalty payments is not justified. It is most likely that a new process will be developed during this time making the earlier one obsolete.

If the technical know-how is available indigenously, then the import of the same will not be allowed normally by the Government.

**IMPORT OF TECHNICAL KNOW-HOW**

If the know-how is not available indigenously, the Government allows the import of the same as per their guidelines and the prevailing rules. The Government releases from time to time the list of products for whom the import of technical know-how will not be allowed and also separately for whom it will be encouraged. Highly sophisticated technologies which are
viable for Indian conditions and not available indigenously are welcome.

Entrepreneurs can write directly to reputed manufacturers abroad and establish a dialogue about a technical collaboration. The necessary guidelines are available for the foreign collaboration according to which the necessary tie-ups could be worked out. Some of the salient features of such arrangements are as follows:

a) That the foreign manufacturer will transmit all the documentation on the technology as per the latest processes prevailing. Care has to be taken that no obsolete technology is transferred.

b) That foreign manufacturer will offer the necessary help during the installation and the trial run of the plant.

c) That foreign manufacturer will not insist on selling its own machinery but will help in recommending and locating the most competitive sources of supply of machinery.

d) That he will give the necessary training to Indian engineers at his Works.
As per the prevailing norms, Government allows technical collaboration against lump sum fees and royalty over sales for a period of five years. The latest details could be obtained from 'Guidelines to Industries 1976-77', a Government of India publication. At the same time, each case is treated individually on its merit by different committees set up by the Government to evaluate the import of technology.

4.2.2 PLANT LOCATION

Perhaps, the most important decision that needs to be taken considering the long range prospects about a project is about its location. Many failures of industry and business had been due to wrong locations.

The various factors that need consideration are discussed briefly below:

1) NEARNESS TO THE MARKET

The advantages are obvious when the business activity is planned near the market. By market it means, individuals or organizations who are potential buyers for the goods and services offered. Due to the nearness, it will attract customers who could thus deal directly with the producer without any complexities of
intermediaries. In case of manufactured goods, it will reduce the transportation cost thereby giving a price advantage over the competitors. The goods could be made available at a shorter notice.

11) NEARNESS TO THE SOURCES OF RAW MATERIALS AND CONSUMABLES

The best example that could be put forward is of the steel plants. Most of them are located in the eastern part of the country, an area which is full of raw materials required, that is, pig iron and other consumables like coke, coal etc. Due to this nearness, there is a saving in the transport cost and also the timely supply could be assured.

111) ACCESSIBILITY

Easy accessibility to the location is essential. Not only it helps in the supply of raw materials but it also despatches the finished goods to different markets quickly. The accessibility to a location could be by road, rail, air or sea.

An example could be quoted here of Aurangabad,
iv) AVAILABILITY OF UTILITIES

The main utilities that are needed are electrical power and water. Due to the grid system, the power could now be transmitted to any locations. However, as per the Governments planned industrialization, at certain locations the power is not available. While at other locations where Government is encouraging new units to come up, power is given at reduced tariffs.

Water is another essential utility which is required by almost all types of industries. It may be required for cooling purpose or for processes and its availability in sufficient quantity becomes of prime importance.
Example could be given of paper mills where large amount of water is required during the process. Hence, while selecting a location for a paper project, adequate supply of water has to be ensured.

v) **AVAILABILITY OF SKILLED LABOUR**

For majority of the engineering units, depending on the sophistication of the products, it is essential to have the skilled labour available in required quantity. Or else, the location should be such which will encourage the mobility of such skilled labour from nearby regions. It is thus seen that sophisticated engineering units are normally located in highly industrialized centres where such labour is already in existence or the place provides the necessary facilities for the training and recruitment of skilled personnel.

vi) **INFRA-STRUCTURAL FACILITIES**

The location should provide the necessary infra-structural facilities which are normally expected by the staff and workers. This may include the housing facilities, the transport to the site from their housing colonies, provision of water, sanitation, hospitals etc.
Due to lack of such facilities, remote locations find it difficult to attract the required staff.

vii) CLIMATE

Certain types of industries require a particular type of climate or else facilities have to be provided to artificially create the required climate. Most of the textile units which require humid weather are thus located in western part of the country. A unit for manufacturing photographic films which requires a cool climate throughout the year is thus located at Ootakmand, a well known hill station. Same is the case of highly sophisticated electronic products and components, watches etc.

viii) AVAILABILITY OF LAND

If a particular location is found to be ideal for a proposed project, the required amount of land should be easily available at reasonable cost. Further, the type of land should be such that the proposed plant could be built on it.

ix) RULES AND REGULATIONS

The local rules of Municipal Corporation or
State Industries Department will have to be carefully studied before finalizing a location. It will have to be seen that the particular plot is available for setting up industry and is not put under the category of agricultural land or for residential purpose only. Depending on the project, especially chemical units, the problem of effluents, gases etc. needs careful study. In Maharashtra, chemical units now will be allowed to be set up only at Roha where special precaution will be taken for the waste disposal. It will also have to be seen that the location is not near residential quarters and depending on the project, whether it is disturbing the peace and quiet of the neighbourhood. Hence, a 'No Objection Certificate' has to be taken from the local authorities considering all the above aspects before a location could be finalized.

x) AVAILABLE INCENTIVES

Lately, Government is trying to encourage setting up of industries in backward regions so as to give means of employment and earnings to local people. For this, various forms of incentives are available. From
time to time, the Government policy and the types of incentives available are announced. Some of them are as follows:

(a) In selected centres, cash subsidy to the tune of 15% of the project cost is available

(b) **EQUITY PARTICIPATION**

The Government agencies, State Industrial Development Corporations are participating in the equity thereby lessening the burden of the entrepreneur.

(c) **PAY BACK OF SALES TAX FOR TEN OR MORE YEARS IN FORM OF LOAN**

The sales tax which otherwise would be levied on the goods sold for a number of years is given to the entrepreneur in form of loan.

(d) **REDUCED ELECTRICITY TARIFFS**

The advantages to the entrepreneur with all these incentives are definitely attractive. He has to raise a smaller amount of capital to start the project at such places. It is up to these Government agencies to provide the
necessary infra-structure.

The experience of entrepreneurs after selecting these locations are mixed. Some of the units indulging in mass production items with less sophistication required have been immensely benefited. Also, when the finished products are lighter, the transportation costs are comparatively lower. While others which needed skilled labour, testing facilities etc. have suffered.

4.2.3 REQUIREMENTS OF PLANT AND MACHINERY

The requirements of plant and machinery for the proposed project could be decided after considering following aspects:

1) PROCESS DETAILS

The different processes required in the operating cycles will give details about the type of machinery needed. These operations could be separated in different stages and the requirements at each stage could be easily identified. For a typical engineering project, stages could be identified as foundry where
the castings will be made, then machine shop where the castings and other parts will be machined, sub-assembly and assembly area where all the components will be put together to obtain the finished goods, inspection, testing and finally packaging. Then, at each of these stages, we could list out the number and type of machines needed.

11) MAKE OR BUY DECISIONS

A product comprises of assembly of different components. An important decision will have to be made regarding making or buying the various parts that go into the finished product. The relative economies involved will give the necessary answer.

✓ EXAMPLE 11

An entrepreneur was planning to set up a unit to manufacture process pumps. The main components involved in the pump were as follows:

1) Delivery casing
2) Impeller
3) Bearing pedestal
4) Stuffing box
5) Bearings
While working out the list of plant and machinery, it was found by him that except for mechanical seals, for all other components it will be essential to provide production facilities. For the latter, the investment in the form of heat treatment facilities will not justify making the parts and that too for limited quantities. A decision was thus made that it is economical to buy it from an outside manufacturer who is specialized in manufacturing mechanical seals and the bought out component will be much cheaper than if it was made by him.

111) AVAILABILITY OF PLANT AND MACHINERY

Once the list of required machinery is prepared, then their availability has to be ascertained. It could be available either indigenously or will have to be imported.

If available indigenously, then quotations could be invited from the local manufacturers with all other details about the machine and a proper selection based on the policies of the management could be made.
If the machine has to be imported, then, after obtaining the quotations and details, an application as per standard procedures will have to be made to Comptroller of Imports and Exports. Such a clearance is available when the authorities are convinced that the machine under consideration is not available indigenously.

iv) SELECTION OF MACHINERY

This is an important aspect in project planning and one of the most important pre-investment decisions. On this, the success or failure of the unit will largely depend. The selection considerations could be made on following grounds:

a) PRODUCTION CAPACITY

It will have to be seen that the capacity of the machines selected is adequate to give the required quantity or volume of finished goods based on the number of shifts or hours it will be working. A larger capacity of machine selected may result in its under-utilization thereby causing locked up investment in idle
capacity. As against this, a smaller capacity will result in overburdening of the machine and will also result in lower production and thus lower market share.

The selection of the machine for the required capacity could be made on the basis of the operating details furnished by the manufacturer and its output. An example will illustrate.

**EXAMPLE 12**

An entrepreneur is interested in setting up an Alloy Steel Foundry. The capacity sanctioned to him is 100 tons per annum on one shift basis. The process recommends an induction furnace and gives a norm that the yield from raw material to finished castings is 40%. He has received the specifications about induction furnaces from various manufacturers which are as follows:

<table>
<thead>
<tr>
<th>Pot capacity kg.</th>
<th>Melting time in minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kw</td>
<td>100 kw</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>25</td>
<td>19</td>
</tr>
<tr>
<td>45</td>
<td>36</td>
</tr>
</tbody>
</table>
The selection is done as below:

(i) As the yield is 40%, to obtain 100 tons of castings per year on one shift of 8 hours basis, he will have to melt 250 tons of raw material.

(ii) If he selects one pot each of 15 and 25 kg., he is getting $15 + 25 = 40$ kg in 18 mts. from 100 kw melter or 120 kg in an hour or 960 kg in a day. On the basis of 300 working days, the liquid steel amounts to 288 tons. Considering the time lost in transfer etc., it is still much more within the limits of 250 tons needed. And hence, this is found to be the ideal combination.

(iii) In case of repairs or break-down of one pot, the other would be working thereby ensuring continuous production.

b) SOPHISTICATION NEEDED

Depending on the tolerances expected by the user industry, the decision about quality could be made for the various machines. An example could be given of a milling machine manufactured by an unorganized unit from Punjab costing Rs. 30000 which may be ideal.
for a job order workshop. However, an organized engineering unit requiring the necessary sophistication will have to go in for a similar milling machine made by Hindustan Machine Tools costing Rs. 76000.

v) **INSTALLATION / MAINTENANCE / AVAILABILITY OF SPARE PARTS**

While selecting the machinery, these aspects also need consideration. Especially, in case of imported machines, required number of spare parts must be kept in stock lest it hampers the production in case of any break-down.

vi) **TRAINING**

For sophisticated machines, before a decision is made about the selection, it will have to be seen that proper training on the machine is obtained either from the manufacturer or from any other source.

4.2.4 **REQUIREMENTS OF AUXILIARY SERVICES & UTILITIES**

Depending on the nature of the proposed project, various types of auxiliary services are needed. Some of the common ones are discussed below:
1) WATER

Water is required in the process, for cooling purpose and for drinking. The daily requirements will have to be calculated and the necessary capacity of storage will have to be provided.

11) ELECTRICAL POWER

This utility has become a must in all types of projects. The estimated power requirement could be calculated on the basis of total load connected for different machines and lighting. Depending upon the supply position, the design and installation of a power station could also be made.

111) COMPRESSED AIR

Many of the engineering units require compressed air for operating different tools and for many other purposes.

1v) AIR CONDITIONING

Depending upon the process and its requirement, air-conditioning could be provided.
v) **STORAGE FACILITIES**

Adequate storage facilities are needed to keep the various raw materials, goods in processes and finished goods inventories.

vi) **OFFICE, CANTEEN FACILITIES ETC.**

Depending on the philosophy of the management and the size of the operations, the necessary facilities are provided.

vii) **GENERAL**

First-aid equipment, fire-fighting equipment, time office, facilities for drinking water etc. could also be provided.

4.2.5 **REQUIREMENTS OF RAW MATERIALS & CONSUMABLES**

While studying the above requirements, proper classification of different items could be made which will then help in obtaining the details. Following basis would be useful:

a) Goods entering the product completely - materials and parts

   (1) Natural raw materials like iron ore, sand etc.
(11) Manufactured materials and parts like component materials (steel, cement, wire etc.) or component parts (castings, packings etc.)

b) Goods not entering the product - consumables

(i) Operating supplies like grease, coolants, cotton waste etc.

(ii) Maintenance and repair items like nails, paint etc.

The above data will be obtained on the basis of the process employed.

Following factors further need consideration:

(1) **AVAILABILITY**

The most important aspect about adopting a particular technology or process is the availability of required raw materials in adequate quantities, at right time and at right price. This goes true for many of the consumables, the shortage of which affects many industries. The furnace oil shortage sometime back had hit many industries very badly.
111) **QUALITY OF THE PRODUCTS**

It has to be ensured that the right quality and grade of raw materials are used as recommended in the process. If possible, details about substitutes should be kept so that the production is not hampered due to the non-availability of raw materials and supplies.

1v) **LIST OF SUPPLIERS**

A list of suppliers should be prepared for all types of materials. As far as possible, dependence on only one supplier should be avoided.

4.2.6 **MAN-POWER PLANNING**

Depending on different stages of operations in the business, the necessary man-power planning could be done. The requirements could be separated as shown below:

1) **FUNCTIONAL STAFF**

It could be further sub-divided as

(a) Supervisory staff

(b) Labour

The labour could again be skilled, semi-skilled or unskilled type depending on the
type of business. For an engineering industry, all these categories may be needed.

11) **ADMINISTRATIVE STAFF**

An organization chart could be prepared at this stage to show the different types of personnel required for different areas of operation.

For highly technical projects, availability of skilled personnel then becomes an important factor. Not only such personnel should be available, but they must stick with the company for its proper development and growth. Many units have been found to be in doldrums when such skilled personnel quit. An example could be quoted of a Brewery. In this project, the main skill comes from a Brewmaster and it depends a lot on his experience and skill.

An example will illustrate the manner in which man-power planning was done for a unit.

**EXAMPLE 13**

It was decided to set up a sophisticated alloy steel castings foundry. The various operations of
the unit were classified in following sections:

1) Engineering
ii) Research & Development
iii) Materials Management
iv) Marketing
v) Finance
vi) Administration

The personnel requirements were then prepared for each division depending on the number of shifts. The educational levels and experience needed was decided.

The next step in man-power planning is to obtain the wage structure. This could be prepared by studying the wages and salaries prevailing in similar industries. The sources of supply for these personnel could also be studied. It could be from nearby industrial training institutes, educational institutes, nearby industries or foreign-trained specialists and technocrats.

The above man-power planning is generally done with reference to the number of shifts that will be operating. Depending on the capacity sanctioned, demand for the products and availability of
personnel, number and timings of the shifts could be planned.

4.2.7 PLANT LAYOUT AND ARRANGEMENT

Depending on the flow of operations and for easy continuance of the same, a proper plant layout could be prepared. Care will have to be taken that sufficient space is available for personnel movement. The plant layout will help in making the decision about the area of the building required. Provision should be made in advance for any likely expansion.

4.2.8 GESTATION PERIOD

This factor has assumed a very prominent role in project planning lately. All the decisions are taken on the basis of likely gestation period that will be required. Not only does it help in preparing the proper scheduling, but it also takes care of any escalations in prices that are likely to result. The gestation period, therefore, has to be planned realistically.

The above planning could be done on following basis:

a) By preparing simple bar charts and showing different time-bound activities on the same.
b) By utilising such sophisticated techniques like PERT / CPM in working the above planning.

What is needed is to keep the proper track of all the activities in the above exercise and making necessary changes in the project planning stages. Many new projects have suffered due to lack of control on the gestation period. The result being not only the delayed set up of the operations but considerable escalations in the cost resulting in future problems.

**EXAMPLE 14**

It was decided to set up a four-star hotel in Poona by a leading industrial group. A systematic project planning was made and it was estimated that the total cost of the project will be Rs. 1 crore. The gestation period estimated was 1 year. However, when the hotel was completed and was ready for business, it had taken 1 year & 8 months and the cost had gone up to Rs. 1.60 crores. This escalation was not considered during the planning stage for both the time and the cost. The result was that they had to increase the tariff so as to earn more revenue. The tariff earlier proposed was about 30% lower. The lengthened gestation period created problems of low occupancy as customers were not willing to pay such high tariffs in a place like Poona.
The hotel is yet to earn profit after 6 years of its operation.

4.2.9 CAPITAL COSTS

Based on the requirements of various assets that are needed for the project, the details about the capital costs will have to be prepared. This will be based on the prices prevailing at the time of collecting the said data. Provision will have to be made for a contingency fund to cover any changes and escalations that take place during the gestation period. The capital costs comprise of the following:

1) LAND

This will cover the cost of the land and any further expenses that will be needed for site development like levelling, fencing, landscaping etc. sufficient provision must be made for future expansions.

11) CIVIL AND STRUCTURAL WORK

These estimates will be based on the experience of construction of similar plants and the prevailing rates of construction. Two separate estimates could be prepared for R.C.C. work which includes office building and water tank and other for industrial shed.
111) **PLANT AND MACHINERY**

As per the list prepared earlier and the quotations received against each, total estimate could be prepared. To the costs, taxes, transportation and installation costs will have to be added.

A separate estimation could be prepared for electrical installations. Depending on the total power load, a sub-station may have to be built. Cost of electrical installation will cover the costs of sub-station, cable layout, controls and lighting installation for the plant and offices.

iv) **FURNITURE, FIXTURES AND VEHICLES**

Depending upon the type of project and the provisions to be made under these headings, an estimate could be prepared.

v) **CONTINGENCIES**

The present economy with price fluctuations makes this a very important aspect. If imported equipments are involved, the floating nature of currencies and the changes in rates of exchanges will have to be provided. Normally, a provision of 10% is made on the
total costs of fixed assets which includes land, building, plant and machinery, installa-
tions, furniture and fixtures.

vi) PRELIMINARY AND PREPRODUCTION EXPENSES

This is another area in which a close control is needed. Many times, the project costs go up for this reason and if proper provisions are not made, an entrepreneur finds that these expenses eat away a major portion of his financial resources.

The various expenses that could be considered under these headings are:

a) Registration fees and expenses for company formation.

b) Legal fees and cost of raising institutional finance.

c) Travelling costs for the sake of setting up the business.

d) Printing costs and postage

e) Interest payable during preoperative period.

f) Wages and salaries during pre-production.
g) Cost of raw materials etc. during trial production.

vii) KNOW-HOW FEES

If the know-how has been bought from outside, the provision for its fees will have to be made.

viii) WORKING CAPITAL

This will normally consist of raw materials and consumables, semi-finished goods and goods in process, sundry debtors, cash required for wages and salaries, charges for utilities etc.

(a) RAW MATERIALS & CONSUMABLES

Depending on the availability of these items, the cost will cover the stocks that have to be maintained. The normal practice is to maintain the stocks for 2 months.

(b) SEMI-FINISHED GOODS & GOODS IN PROCESS

This will cover the costs of stocks that are normally maintained by different types of business before they are despatched. The normal practice is to make provision for 1 month.
(c) SUNDARY DEBTORS

Depending on the company policy and the credit period granted, this covers the cost of goods sold for that period. Normally, it is provided for 1.1/2 months.

(d) CASH

This covers the cash balances that are to be maintained for a particular period to take care of various expenses. Normally, it is provided for two months.

The total of all these then gives an idea about the total capital costs that are involved for the project. These costs are calculated for the 100% utilization of the rated capacity.

4.2.10 CONCLUSION - TECHNICAL FEASIBILITY

The purpose of obtaining these details on the various technical aspects of the project as discussed is to establish the technical feasibility of the product or project. It is necessary to study the various critical areas in the project. A project may have the marketing feasibility as seen earlier, but, the necessary technical inputs that are needed, are not available, the project may result in a failure.
The example could be given of so many products - chemicals like ethyl silicate which could not be made in India because the right grade of chemicals required are not available or machines like 3-dimensional copy milling machines for which the know-how is not available. These two items are, therefore, imported. Hence, the study for technical feasibility.

To obtain the feasibility of a particular project, following information from technical studies will be useful:

1) Availability of latest technical know-how that could be used for our environments, levels of production and at a competitive price, within the company, indigenously or through foreign collaboration. Also, the Government permission for the latter.

11) Availability of plant and machinery either indigenously or imported for the proposed plant capacity and the process that has to be utilised. If the machinery is to be imported, then the Government permission will be needed. The delivery of the plant is also an important aspect so as to keep the gestation period within limits.
iii) Availability of required raw materials and consumables at regular intervals, in required quantities and at reasonable prices. If the raw materials are imported, then the Government permission will be needed.

iv) Availability of adequate power and water as per the requirements.

v) Availability of skilled personnel to do the required jobs for various operations and within the proposed organisation set up.

vi) Government permission to carry out the above operations at the proposed location.

The study towards establishing the technical feasibility also enables the entrepreneur to form an idea about the total costs involved and he can then further probe into various financial aspects of the pre-investment decisions.

4.3 FINANCIAL ASPECTS

It is needless to mention the importance of finance in any business venture. All ideas, marketing and technical aspects etc. finally boil down to obtaining the various details on the financial aspects of
any project. This is an area which thus needs more thorough probing. Traditionally, this is perhaps the only area which prompts the entrepreneur in taking any decision. All other details may just be supplementary to this overall process of taking pre-investment decisions.

It is very important that before any financial details are collected, a framework should be prepared with the proposed project and prevailing policies in mind. The environmental factors like banks interest rates, rates of income tax, depreciation schedules etc. also need be considered. For a new enterprise, these details on financial aspects are called the financial projections. Various assumptions need to be made before the exercise as discussed below:

1) The cost of production details are usually given for the rated capacity. Prospective entrepreneur gives the impression that profit will be possible right in the first year. Sometimes it may be so, but not often. It is thus imperative that the financial projections be made for more than one year; three, five or eight, on graded capacity increase. This could be 60%, 75% and 90% for the three projected years.
ii) It will have to be decided what will be the nature of the firm. Whether it will be a proprietaryship, partnership, private limited, public limited company or a cooperative.

iii) The financial projections will be in continuation to the various technical details collected and the capital costs of the project. This has already been discussed.

iv) The pre-operative period will have to be determined. The expenses incurred during this period could be written off over the years, normally ten, in equal yearly instalments.

v) The loans that will be available will be against the hypothecation of fixed assets and working capital. Normally, long term loan at the rate of 75% of the original value of fixed assets but excluding furniture, fixtures and vehicles is available from financial institutions. The loan period is normally eight years and it is to be repaid in equal instalments beginning from the first year of the commercial production.

The short term loan at the rate of 70% of the value of stock of raw materials, consumables,
finished goods and book debts is normally available from commercial banks. This loan could be availed of as and when required and repaid accordingly.

vi) The interest rates prevailing on the above term loans at present rates are 13% on long term and 16% on short term loans.

vii) It is assumed that for the purpose of projections, the prices and rates will remain unchanged throughout the projected period at the prevailing prices.

viii) The stocks of raw materials, consumables and finished goods needed will have to be assumed for the required period.

ix) The levels for the credit available for the purchase of raw materials and consumables and that which would be allowed to customers for the receivables will have to be assumed.

x) The wages and salary that will be paid, also necessary provision will have to be made for annual increments, other benefits covering E.S.I., P.F. etc. and their rate of increase for the projections.
xi) Depreciation will have to be calculated as per the rates specified in the latest Income Tax Act for various assets and based on the number of shifts operating.

xii) A provision for repairs and maintenance expenses depending on the type of project, initially, and for coming years will have to be provided.

xiii) The administration and sales promotion expenses that are likely to be incurred. The normal practice is to take it as a fraction of the sales value of production depending upon the project and marginally increase it every year.

xiv) A provision if made for bonus and dividends for the projected years. Both the payments being made in the subsequent years.

xv) The calculation of taxes will be as per the rates applicable to the type of business firm. While calculating the taxes, the tax holiday available to new undertakings for five years under section 80-J could also be considered. The taxes would be paid in the same year to which they pertain.

Once the assumptions as above are made, the details
on various financial aspects as below will have to be collected. All details will be in tabular form giving the various cost figures.

4.3.1 COST OF THE PROJECT & SOURCES OF FINANCE

The table on following lines could be prepared:

<table>
<thead>
<tr>
<th>TABLE 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>COST OF PROJECT</td>
</tr>
</tbody>
</table>

A. **COST OF THE PROJECT**

<table>
<thead>
<tr>
<th>1) Fixed Assets</th>
<th>Original Cost</th>
<th>Contingencies at 10%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Land including development expense</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Civil construction</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Plant &amp; Machinery</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Furniture and fixtures</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Vehicle</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>- Technical know-how fee(if any)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2) Current Assets

<table>
<thead>
<tr>
<th>Original Cost</th>
<th>Contingencies at 10%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Stock of raw materials and consumables
- Cash for expenses

TOTAL

3) Pre-operative Expenses

<table>
<thead>
<tr>
<th>Original Cost</th>
<th>Contingencies at 10%</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total cost of project = Total of 1) + 2) + 3)

B. SOURCES OF FINANCE

- Share capital and unsecured deposits
- Long term loan
- Short term loan

While working the sources of finance, the long term and short term loans could be obtained on the basis of norms considered earlier in the assumptions at the prevailing rules. The balance forms the equity in the total cost of the project. There is a thumb rule prevailing which also guides the raising of finance. Depending on the project, the debt to
equity ratio is permissible within the normal limits of 2:1. Hence, if needed, some unsecured loans (in form of deposits) could also be considered in order to reduce the equity. However, to be on the safer side, it is always better to have this ratio at 1.5:1 by having higher equity so as to cover the risks of delay, lower amount of loan being sanctioned than considered and other unexpected expenses.

The different sources of funds for the new enterprises are discussed below:

1) **ONES OWN SAVINGS**

The entrepreneur could put in the necessary finances from his own savings or through relatives, friends etc. It is obvious that such resources will be comparatively limited and would suffice only for smaller projects.

2) **BY TAKING PARTNERS**

The entrepreneur can offer the partnership rights against the capital brought in.

3) **LOANS FROM FINANCIAL INSTITUTIONS FOR LONG TERM**

There are many financial institutions who provide the necessary funds mainly for the creation of assets based on their prevailing
norms. Such agencies include Industrial Development Bank of India, Industrial Financial Corporation, State Industries and Investment Corporation of Maharashtra etc.

iv) BANKS

The banks mainly offer the funds as short term loan meeting the working capital requirements of the enterprise.

v) PUBLIC ISSUE

Depending on the size of the project and the promoters reputation, the public may be invited to offer the necessary funds. The public issue thus will offer the different types of shares to the common investor.

vi) DEPOSITS

Public may be invited to keep fixed deposits with the company against fixed interest for a particular period.

vii) ISSUE OF DEBENTURES, HUNDIS ETC.

This is another way of raising the necessary funds from other than recognized financial houses.
An entrepreneur will have to decide which is the best source of raising the necessary finance depending upon the cost of the project and its break-down as discussed earlier. For bigger projects, a combination of all these may also have to be resorted.

Another thing which has to be carefully studied is the cost of raising finances from different sources. This will be more applicable to large projects requiring huge investments.

4.3.2 PROFITABILITY STATEMENT

The following details will appear in this table. As discussed earlier, the projections will have to be done for more than one year as per the assumptions on the changes in costs of any items in coming years.

TABLE 7

PROJECTED PROFITABILITY

<table>
<thead>
<tr>
<th>Description</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) REVENUE:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales value of production</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>1st Year</td>
<td>2nd Year</td>
<td>3rd Year</td>
</tr>
<tr>
<td>-------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>b) EXPENSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Consumption of raw materials and consumables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Electricity &amp; water charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii) Wages with benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>iv) Salaries with benefits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v) Depreciation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vi) Repairs &amp; Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vii) Administrative &amp; Sales Promotion Expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>viii) Interest on - Long term loan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ix) Interest on short term loan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(x) Any other contingencies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(xi) Bonus</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(xii) Short term loan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(xiii) Long term loan</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appropriations</th>
<th>Profit after taxes for years</th>
<th>Profit before taxes</th>
<th>Less: Pre-operational expenses</th>
<th>Total Profit/loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less: Taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to General Dividend Appropriate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Appropriations</th>
<th>Profit after taxes for years</th>
<th>Profit before taxes</th>
<th>Less: Pre-operational expenses</th>
<th>Total Profit/loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less: Taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Profit before taxes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Profit/loss</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Any other contingencies
- Bonus
- Short term loan
- Long term loan
- Interest on short term loan
- Interest on long term loan
- Administrative & Sales Promotion Expenses
- Depreciation
- Salaries with benefits
- Wages with benefits
- Repairs & Maintenance
- Electricity & water charges
- Consumption of raw materials and consumables

EXPENSES
This table will then give the profit/loss that has been projected for the years. Depending on the situation, the appropriations towards dividend and transfer to general reserve will be made. This statement will also give the details on expenses and looking at the results of the operations, one may be able to identify the areas where closer controls and economies could be introduced. These actions could then be taken for the coming years.

4.3.3 BALANCE SHEET

This statement will show the company's position at a particular time, normally at the end of the financial year and on that particular day.

The various details that will be required are given in the table below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Pre-operation period</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIABILITIES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reserves &amp; Surplus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Description</td>
<td>Pre-operation period</td>
<td>1st year</td>
<td>2nd year</td>
<td>3rd year</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>----------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>SECURED LOANS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Short term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>CURRENT LIABILITIES AND PROVISIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sundry Creditors</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bonus to employees</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Proposed dividend</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>ASSETS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Assets</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>(For subsequent years at written down value)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Assets</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stocks of i) Raw materials and consumables</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1) Finished Goods</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>DEBTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash &amp; bank balance</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pre-operative expenses to the extent not written off</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
4.3.4 CASH FLOW STATEMENT

This statement could be considered as the most important pointer to the working of any business. The financial institutions, the major money lenders to any business insist on maintaining a proper account of this statement and a close control of the various cash out-flows.

The details coming in the cash-flow statement are as below:

| TABLE 9 |
| PROJECTED CASH-FLOW |

<table>
<thead>
<tr>
<th></th>
<th>Pre-operative period</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASH IN-FLOW</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Opening cash and bank balance</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Share Capital</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Long term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Short term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Receipt from sales</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL CASH IN-FLOW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>CASH OUT-FLOW</td>
<td>Pre-operative period</td>
<td>1st year</td>
<td>2nd year</td>
<td>3rd year</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Acquisition of fixed assets</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment for technical know-how fees</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment to suppliers for the purchase of raw materials and consumables</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pre-operative expenses</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating(cash)expenses</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interest:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Short term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bonus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Taxes</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Dividend</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repayment of:</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long term loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Short term loan</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL CASH OUT-FLOW</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Closing Cash &amp; Bank Balance</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
The cost of the project and sources of finance, the profitability, the balance sheet and the cash flow are the main statements for any project to study the various financial aspects. These statements guide the entrepreneur about the various decisions he needs to take. They also explain the likely working of the unit in terms of Rupees for projected years.

To obtain the above statements, other supporting data is necessary. The various other tables that are needed to obtain all the financial details are discussed below:

4.3.4 SUPPORTING TABLES

The format of various supporting tables has been given below.

4.3.4.1 PRE-OPERATIVE EXPENSES

TABLE 10

DETAILS OF PRE-OPERATIVE EXPENSES

| Cost of company formation | -   |
| Cost of raising institutional finance | -   |
| Interest payable during pre-operative period | -   |
DETAILS OF PRE-OPERATIVE EXPENSES (Contd.)

Salary & wages payable during pre-operative period

Trial production expenses

Other expenses like travelling, printing, initial training etc.

TOTAL

4.3.4.2 DETAILS OF PERSONNEL & THEIR REMUNERATION

A table could be prepared showing the list of personnel at different levels (staff and workers), their number, basic salary per month, the perquisites given per month (to selected staff members) and the total salary per annum.

4.3.4.3 DETAILS OF WAGES & SALARIES BILL PER ANNUM

From 4.3.4.2 as above, the total of wages and salaries bill for the projected years could be prepared.

TABLE 11

WAGES & SALARIES

<table>
<thead>
<tr>
<th>Wages/Salaries</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add: Annual increment @ %</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add: Benefits given annually @ %</td>
<td></td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
4.3.4.4 DEPRECIATION SCHEDULE

All assets have certain life at the end of which they will have to be replaced. This calls for a fund which will be available at the expiry of their life for buying new equipments. This is provided by the depreciation fund set aside every year based on the utilisation of the assets and the reduction in their value every year. The depreciation schedule for the projected years will be as shown below:

TABLE 12
DEPRECIATION SCHEDULE

<table>
<thead>
<tr>
<th></th>
<th>1st YEAR</th>
<th>2nd YEAR</th>
<th>3rd YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depreciation</td>
<td>Written</td>
<td>Depreciation</td>
</tr>
<tr>
<td>Civil construction</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Plant &amp; Machinery</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Furniture and fixtures</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vehicles</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Additions to the assets in any of the above category at any stage could be shown. The rates of depreciation as mentioned earlier will be obtained from the latest Income Tax Guide Book.

4.3.4.5 INTEREST CALCULATIONS AND SCHEDULE OF REPAYMENT

This is particularly important from a banker's viewpoint. At the same time, an entrepreneur should know his liability and the schedule of repayment to continue enjoying his credit rating.

The table giving these details will be as follows:

| TABLE 13 |
|-------------------|-------------------|-------------------|
| INTEREST CALCULATIONS | 1st year | 2nd year | 3rd year |
| a) LONG TERM LOAN | | | |
| Opening balance | - | - | - |
| Add : Additions (if any) | - | - | - |
| TOTAL | - | - | - |
| less : Repayment | - | - | - |
| Closing balance | - | - | - |
| Interest @ % per annum | - | - | - |
b) SHORT TERM LOAN

<table>
<thead>
<tr>
<th></th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening balance</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add : Additions(if any)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less : Repayment</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Closing balance</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Interest @ % per annum</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total interest payable (a + b)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.3.4.6 STOCK OF RAW MATERIALS AND CONSUMABLES, CREDITORS AND PAYMENT TO SUPPLIERS

The details in this table will be as follows:

TABLE 14

RAW MATERIAL PURCHASES & CREDITORS

<table>
<thead>
<tr>
<th></th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add : Closing stock</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less : Opening Stock</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Purchases</td>
<td>1st year</td>
<td>2nd year</td>
<td>3rd year</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Add: Opening balances of creditors</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Closing balance of creditors</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Payment to supplier</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.3.4.7 STOCK OF FINISHED GOODS, SUNDRY DEBTORS AND RECEIPT FROM SALES

**TABLE 15**

<table>
<thead>
<tr>
<th>RECEIPTS FROM SALES &amp; DEBTORS</th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales value of production</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add: Opening stock of finished goods</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Closing stock of finished goods</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SALES</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Add: Opening balance of debtors</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Less: Closing balance of debtors</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Receipt from sales</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
4.3.4.8 **TAXES CALCULATIONS**

This will depend upon the form of business organisation and the taxes as prevailing at the time.

**TABLE 16**  
**INCOME TAX**

<table>
<thead>
<tr>
<th></th>
<th>1st year</th>
<th>2nd year</th>
<th>3rd year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share capital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserves</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less: Pre-operatve expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>to the extent not written off</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax holiday at 7.5% of capital employed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit before taxes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less : Tax holiday</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taxable profit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income tax @ % depending on type of business organization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surcharge @ % of Income Tax (if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surtax(if applicable)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total taxes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

211
4.3.5 **FINANCIAL RESULTS**

There are various financial ratios which could be used for studying the financial position of a running or proposed company at a glance and at a particular time. Based on the projections done earlier, these ratios could be obtained for decision making.

Some of the commonly employed financial ratios are given below:

(1) **PROFIT AFTER TAXES TO SALES VALUE OF PRODUCTION**

This ratio could be obtained from profitability statement and gives the position of the net profit made with reference to total sales. The norms for percentage net profit made and the best one will differ on the philosophy of the entrepreneur but a margin of 5% and over for this will be considered quite good.

(2) **RETURN AFTER TAXES ON NET WORTH**

The net worth includes the share capital and reserves added every year. This ratio, therefore, gives the position whether the net worth is increasing or not. From an investors point of view, this is an important
aspect to see that his investment is growing.

(3) RETURN AFTER TAXES ON CAPITAL EMPLOYED

This is also called return on investment (ROI) and is another important ratio in which an investor is interested. This tells him how much he has earned on his investment and thus he can decide the various ways or businesses in which he should invest which will give him the best returns.

(4) CURRENT RATIO

This is the ratio of current assets to current liabilities. This is also called the liquid test and at any moment gives the liquid position of the company. This ratio at all times is expected to be better than one, meaning that the current assets are more than current liabilities and in case of emergency the company could sell all their current assets to get the necessary cash to meet its liabilities.

(5) DEBT TO EQUITY RATIO

This shows the amount of borrowing against own capital. As said earlier, a ratio of 2:1 is accepted as a norm which should go on reducing
over the year thereby showing that the company has paid back all its debts and becoming self-sufficient due to increase in equity through addition of reserves.

(6) BREAKEVEN ANALYSIS

This analysis of the financial details explain at what capacity utilisation the company starts making a profit. The planning will then have to be made in such a way as to reach this level at the earliest by obtaining control over the process, machines, materials and through adequate marketing efforts.

The breakeven is calculated as below:

The breakeven quantity is defined as that quantity which if produced and sold will give you neither a profit nor a loss.

The formula used to calculate this quantity is:

\[
\text{Breakeven} = \frac{F}{P - V}
\]

Where \( F \) = Annual fixed costs (These account for such costs which are not varying in proportion to volume of production e.g. rent, depreciation,
interest on fixed investments, executives salaries etc.)

\[ P = \text{Price per unit} \]
\[ V = \text{Variable cost per unit (These include the costs which are varying directly with volume of production e.g. direct labour, direct materials etc.)} \]

As this is a linear relationship, normally a graph is plotted with the help of available data as below:

The component \( F \) of the fixed costs is plotted on \( Y \) axis and the variable costs as shown by \( V \) for different production levels are marked. The sales turnover is plotted for 100% production utilization. The point of intersection when projected on \( X \) axis gives the breakeven point.
This exercise could be worked out with different variables available till we get the best combination resulting in as low breakeven point as possible. The various controlling factors that could be considered are:

(a) Make or buy decisions for components

(b) Man-power planning and wages

(c) Investment on fixed assets, their layout and utilisation.

The breakeven analysis is a very versatile tool and can be used for profit maximization through methods like budgetary control, pricing policy, payment of wages based on productivity and many others. Coupled with the marketing data on the demand, breakeven could be considered as an essential investment decision.

4.3.6 CONCLUSION - FINANCIAL FEASIBILITY

The purpose of obtaining these details on the various financial aspects of the project as discussed earlier is to establish the financial feasibility of the project. This study gives the guide-lines and the answers before a decision could be made for the investment. As seen in
earlier cases, a project may be feasible from marketing or technical view points, but, financially it may not come out as a sound proposition.

EXAMPLE 15

Manufacturing of egg powder in India could be quoted as an example. The consumption of eggs is growing in the country. On the basis of various advantages like elimination of breakages, storing problem etc. which the egg powder could have over raw eggs, and a study of consumer habits showed that the marketing feasibility exists for the product. The process for egg powder has been developed by Central Food & Technological Research Institute, Mysore and the plant and machinery could be fabricated indigenously. Thus the technical feasibility was also prevailing. However, when the various financial aspects were studied, it was seen that considering the huge investment (Rs. 60 lakhs) in the project and the breakeven level at 70%, the return on investment on the basis of capacity utilisation was posing a problem. It would have taken more than 5-6 years for the company to earn a reasonable profit. As the financial feasibility was not seen, most of the financial institutes rejected the proposal.
Hence, the study of these financial aspects and establishing the feasibility from that angle is also absolutely essential. For a particular project, following information from financial studies will be required:

1) The project makes profit at an early stage of operation and at reasonable levels.

2) The profitability position of the company should be such that it gives attractive return on the investment made by the entrepreneur or other investors.

3) The cash position of the company is such that it is in a position to repay the instalments of the loans, especially the long term loan. This should be fully paid in the years for which the loan is given. From banker's viewpoint, this may perhaps be the most important criterion for investment in any project.

The effect of the above for the proposed project would also show that as the business grows, the owners stake improves.

4) The liquidity of the project throughout should be good and that it is in a position to meet all its liabilities.
The study of these financial aspects also gives the entrepreneur the idea on the magnitude of the project so that he can plan as per his resources. Other controlling features like type of personnel to be employed and their remuneration, best form of business organization, cost controls for different expenses etc. are also brought in the highlight. Most important guidance, however, this should provide is on the working capital requirements. As observed in various studies, almost 90% of the units are not specific about their working capital requirements.

The shortage of working capital crops up because of two factors:

1) The short-sightedness of the entrepreneur about the sales plan

11) Financial aspects by creditors

The trade terms, more often than not, are not honoured. Normally, the purchasing unit is a comparatively large monopoly unit. The small unit can only wait for payment because it knows no other way. Because of a delay in payment, the unit becomes a defaulter in the bank's ledger thus compelling it to borrow from other sources to
clear its dues or to cut production. In either case, its financial weakness is intensified.

When these units find that they are short of working capital, the purchasing of raw material cannot be planned on a long term basis. At the same time, no trade credit is offered to them by the suppliers. These two factors - small purchase and in cash - put them at a disadvantage. These aspects, therefore, need careful planning and study at each stage so as not to bring the enterprise to a financial wreck.