

Chapter three

Project Preparation and Analysis

After Identifying promising project idea the next step is project preparation or developing the idea into project and analyzing it further.

Project formulation (preparation) involves the analysis of a number of factors like,

- 1. Market and Demand**
- 2. Technical issues**
- 3. Social aspect**
- 4. Financial analysis**
- 5. Environmental analysis**

These and other factors will be discussed in these and in the subsequent chapters

3.1. Market and Demand Analysis

- As it has been said in the introductory part, the first step in project analysis is to estimate the potential size of the market or beneficiaries
- This is done in order to get an idea about **the size of the market** or to get an idea about the **size of the customers** in need of the public service
- The market and demand analysis is concerned with two questions.
 - **What would be the aggregate demand of the proposed product/service in future?**
 - **What would be the expected market share of the project under appraisal?**

Market and Demand Analysis (Cont...)

To address the above two questions we require information about the following issues.

- # Consumption trends in the past and current consumption level**
- # Past and present supply positions**
- # Production possibilities and constraints**
- # Imports and exports (when necessary)**
- # Structure and nature of competition**
- # Cost structure**
- # Elasticity of demand**

Market and Demand Analysis (Cont...)

- # **The nature of the customers, their attitudes, and preferences**
- # **Distribution channels and marketing policies in use**
- # **constraints (Administrative, technical, and legal, etc)**

The analysis of demand and market requires carefully **structuring and planning** of the analysis process.

This helps to obtain relevant information for the purpose within the time and cost limit.

Market and Demand Analysis (Cont...)

- # Planning of the market analysis requires an understanding of the market system,
- # Given the importance of market and demand analysis, the analyst is advised to follow the following steps.
 - Situational analysis
 - Collection of necessary information (both primary and secondary)
 - Characterization of the market
 - Demand forecasting
 - Market planning

3.1.1. Situational analysis and specification of objectives

- This analysis is used in order to get general picture and basic information about the industry and /or the sector in general.
- In this analysis the project analyst may informally talk to
 - **Customers,**
 - **competitors, (in case of business project)**
 - **middlemen,**
 - **and others in the industry (sector)**

Situational analysis (Cont ...)

- It is also advisable to learn from the past experience in the area. That is learn about,
 - **Preferences**
 - **Purchasing power**
 - **Action and strategies of competitors**
- If the situational analysis generates enough data to measure the market and is enough to make a reliable projection of the demand and revenue, a formal study may not be necessary

Situational analysis spec. objectives (Cont ...)

- # **In order to successfully undertake the situational analysis, it is advisable to clearly spell out the operational objective of the project**
- # The best way of spelling out the objective would be to put the operational objectives in the form of questions

Example

- # ***Suppose Yerer Flour Factory is considering to expand its business activity by producing Biscuit. In undertaking the situational analysis there is a need to clearly spell out the specific objective of the project***

Situational analysis (Cont ...)

For the sake of spelling out the objective it could put relevant issues in the form of questions like,

- # **Who are the potential customers of the product?**
- # **What is the total current demand for biscuit in the town/ in the region?**
- # **How is the demand currently distributed?**
- # **What is the current price of the product and what price will the consumers be willing to pay for the product?**

Situational analysis (Cont ...)

- # **Do consumers need the new biscuit product as a substitute for the biscuits in the market?**
- # **What is the nature of distribution and what market channels are most suited for the product?**
- # **What are the possible sales of the product ?**

If the satisfactory answer could be obtained from the above analysis no further study is necessary as a part of demand and market analysis

3.1.2. Collection of necessary Information

In order to address the above questions **formal study** may be needed, if the situational analysis fail to address all of them adequately

Further investigation require collecting necessary information from variety of sources

These sources are,

- **Secondary sources** : Provide secondary information
- **Primary sources**: Provide primary data

Collection of secondary information: Secondary information provide the basis and starting point for the market and demand analysis.

Collection of Information (Cont...)

Some of the sources of secondary information are,

- **Census data**
- **National sample survey**
- **Records of different organization and market agents**
- **Plan report**
- **Newspapers**
- **Etc.**

However, the relevance, accuracy, reliability of the data has to be carefully scrutinize

Collection of Primary Information: Analysis of market and demand also requires collecting primary data from the market.

Collection of Information (Cont...)

Market survey is commonly undertaken to collect primary information needed to analyze the market.

- # **Market survey** can be either **census survey** or **sample survey**

Through the market survey the following information can be obtained

- # **Demand in different segments of the market**
- # **Customer preference, motives for buying**
- # **Customers purchasing plans and interventions**

Collection of Information (Cont...)

- # **Level of satisfaction with existing products**
- # **Existing trade practice**
- # **Attitudes towards various products**
- # **Socio-economic characterization of buyers**

The information obtained from both primary and secondary sources is used to characterize the market and to estimate future demand.

3.1.3. Characterization of the market

On the basis of the collected data and its analysis the market for the product/service may be *described* in terms of the following aspects.

- a) **Effective demand in the past and present:** This is measured by the actual consumption level
- b) **Breakdown of demand :** In order to get a better picture about demand it is better to breakdown the entire market into demand of different segments of the market .

Characterization of the market (Cont...)

The market can be segmented on the basis different characteristics like,

- # Income group
- # Geographic Location
- # Sex
- # Age category
- # Religion, etc

Segment analysis is required because the nature of demand (consumption) vary from one segment to another. (eg. Consumers in high income group tends to be less sensitive to price change)

Characterization of the market (Cont...)

c) Prices: Price analysis is important in order to distinguish different types of prices, like;

- **Manufacturing price**
- **Whole sale price**
- **Retail price**

d) Methods of distribution: method of distribution varies with the nature of the product.

- # This analysis involves examining the **available** method of distribution that can be considered.
- # **That is, the market is characterized in terms of the availability and nature of distribution method.**

Characterization of the market (Cont...)

e) Suppliers: The market need to be characterized in terms of supply of **similar** products.

- # **Sources of supply**
- # **Location of suppliers**
- # **Present capacity**
- # **Planned expansion (if any)**
- # **Problems in production**

f) Government policy: The market is characterized in terms of the established government policy regarding the market.

3.1.4. Demand forecasting

- # After collecting information from verities of sources the next step is to *estimate or forecast future demand*
- # Knowledge about future demand is useful when a firm is planning
 - # Production schedule
 - # Advertisement activity
 - # Investment outlay

Demand forecasting (Cont...)

- # **There are different forecasting techniques which can be broadly divided in to two categories**
- # Qualitative method
- # Statistical methods

a) Qualitative Methods

These methods are more difficult to describe since it does not exist explicit model or method that can serve as a reference point.

Demand forecasting (Cont...)

- # There is no model that can be used to repeat the initial forecast with a given set of data.

In general it has been said that the qualitative methods are a “rule of the thumb” technique.

- # This method relies on the **judgment of experts** to translate qualitative information into quantitative estimates.

The major qualitative methods are,

- **Jury of Executive Methods**
- **Delphi Method**

Demand forecasting (Cont...)

Jury of executive opinion methods: this method involves soliciting the opinion of a group of managers/ experts on expected future sale and combining them into a sales estimate.

Delphi method: This method involves converting the views of a group of experts, (do not interact directly to each other), into a forecast through an iterative process.

That is, there is no direct contact between experts selected for this purpose.

Demand forecasting (Cont...)

Steps commonly used are,

- A group of experts are sent questionnaires by mail or by some convenient means and are asked to express their view about the future demand**
- The responses collected from each of them are summarized and sent back to the experts, along with questionnaire meant to provide further reason for the their view expressed in the first round.**
- The process may continue two or more rounds till a reasonable agreement emerges in the view of experts.**

Demand forecasting (Cont...)

b) Statistical Methods

- # This method employs explicit models or methods that can be replicated by another analyst
 - **That is, the result of statistical method can be replicated by different researchers.**
- # Statistical method is more analytical and uses empirical data in basic statistical models to generate forecast about economic variables.
- # The statistical methods are categorized into,
 - **Time Series**
 - **Econometrics model**

Demand forecasting (Cont...)

- i. **Time Series Model** : Uses only the time-series history of the variable to predict the future value
 - The focus of time series analysis is to identify the components of change in the historical data.
 - Traditionally these components are,

Trend: It is a long term increase or decrease in the variables. **(The time series of human population of Ethiopia exhibited an upward trend)**

Seasonality Component: Represents changes that occur at regular interval. **(A large increase in meat sales in the month of April and fall in the month of march would be an example of seasonality.)**

Demand forecasting (Cont...)

Cyclical Component: refers to sustained periodic of high values followed by low values. (Business cycle is a good example)

- # **Random fluctuation:** Variables that do not follow any pattern
- # Various methods can be used to determine trend, seasonality, and cyclical pattern using time-series data. However, by definition changes in the variable due to random factor are not predictable.
- # To forecast using time-series analysis it is necessary to specify a mathematical model that represents the generation process.

Demand forecasting (Cont...)

**There are a number of forecasting method.
Some of them are,**

- ✦ **Linear Trend projection method:** very popular in practice, the trend projection method involves extrapolating the past trend on the future.
- ✦ **Exponential smoothing:** in this method, forecasts are modified in the light of observed errors.
- ✦ **Moving average method:** in this method, the forecast for the next period represents a simple arithmetic average or a weighted arithmetic average of the last few observations.

Demand forecasting (Cont...)

- ii. Econometrics models :** This is also a statistical method that employs an explicit structural models to explain the underlining economic relations.
- This method seeks to develop forecast on the basis of cause and effect relationship specified in an explicit, qualitative manner
 - This approach enable us to analyze the causal relationship between variables

3.1.5. Market Planning

To enable the product to reach a desired market segment a suitable marketing plan should be develop.

The marketing plan has the following components:

- # Current market situation
- # Opportunity and issue analysis
- # Objective
- # Marketing strategy
- # Action plan (market program)

Market Planning (Cont...)

a) Current market Situation : It explains the different dimension of the current market conditions

It deals with

- The size of the market and customer buying behavior in that market
- Competitive situation : It describes major
 - Competitors,
 - their marketing objectives,
 - and future plan if available , and
 - lists of closely substitute products

Market Planning (Cont...)

- Distribution situation : It examine the nature of the product distribution and available marketing channel and outlet
- Macro environment: This explain the possible effect of social, political, economic, technological and other external variable on the market.

b) Opportunity and issues: In this section a SWOT analysis is conducted in order to identify.

- Market opportunity
- Strength of the firms product
- Its treat to convert it into opportunity

Market Planning (Cont...)

- c) **Objective (market objective):** This has to be clearly stated and it has to be short and measurable as much as possible
- d) **Marketing strategy:** To achieve the above stated objective the plan should specify the appropriate strategy.

The market strategy involves determining

- **Target segment**
- **Product positioning**
- **Product line**
- **Price**
- **Distribution**
- **Promotion activity**

Market Planning (Cont...)

- i. **Target segment:** Select and target a particular segment of customers.
 - That is, divide the market or the community into a distinct group and target one or more particular group to address the issue.
 - The segment need to be explained in terms of different characteristics such as,
 - Income level
 - Size and growth
- ii. **Product positioning:** This refers how the product or service is placed in the minds of the target segment. How it will be different from other similar products in the mind of customers.

Market Planning (Cont...)

iii. Product Line: How the product will be launched. That is,

- # Will it be launched as a single product (variant) or
- # More than one variant

iv. Price (service charge): What will be the pricing strategy?

This involves selection of the appropriate pricing strategy

- # Market penetration price strategy
- # Defensive price strategy
- # Preemptive pricing strategy
- # And other

Market Planning (Cont...)

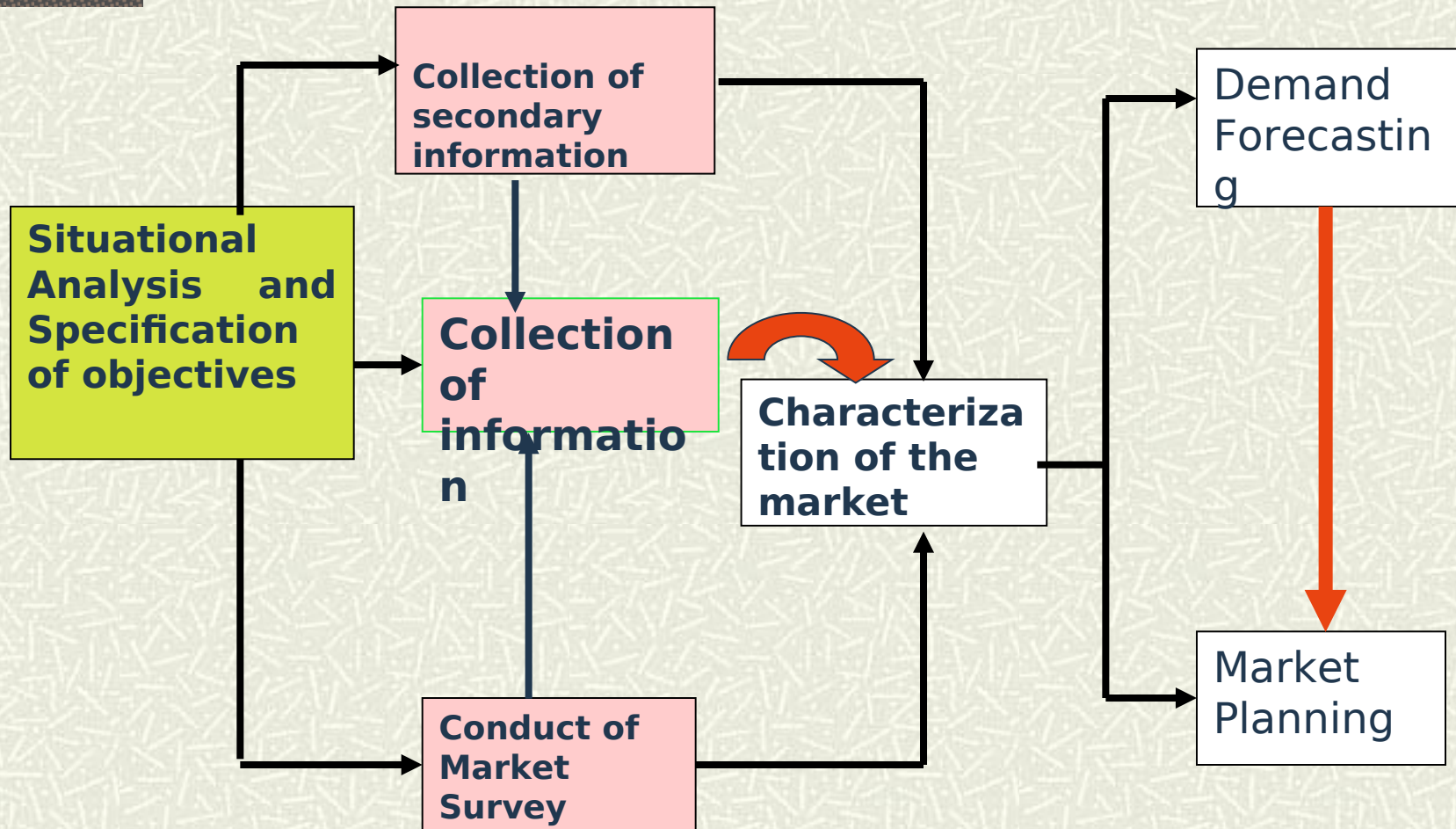
- v. **Distribution:** Planning of how the product will reach the target market segment?
 - # Company outlets
 - # Whole sellers etc. are planned ahead
- vi. **Promotion and advertisement:** How awareness about the planned new product or services is created among potential customers?
 - # Is it direct customers promotion or what method will be used need to be explained

Market Planning (Cont...)

- vii. Action program (action plan):** Time bounded action plan indicating
- what activities,
 - when,
 - by whom will be carried out should include in the market plan.

The steps in demand and market analysis is depicted in the following schema

Market and Demand Analysis



3.2. Technical Analysis

The purpose of technical analysis is

- # To ensure that the project is technically feasible in a sense that all the inputs required to set up the project are available
- # To select the appropriate technology
- # To facilitate the most optimal formulation of the project in terms of technology, size and location

- # The technical analysis is concerned with issues related to
 - Inputs and outputs of real goods or services
 - The technology and technical process of production

Technical Analysis (cont...)

Technical analysis will try to make sure that whether

- # The prerequisites for the commissioning of the project have been considered and**
- # Good choices have been made with respect to location, size, process, etc.**

This is crucial because the rest of the project analysis cannot be conducted without information from the technical study

Technical Analysis (cont...)

Technical aspect also includes the

- # task of engineering to design the **functional** and **physical layout** of the plant in order to produce the needed output and

- # The determination of the corresponding **investment expenditure** and **costs** arising during the operational phase

Technical Analysis (cont...)

- # At the feasibility stage, issues related to
 - the selection of an appropriate technology
 - planning of the acquisition and adoption of this technology
 - the corresponding know – how **are important parts of engineering and technical analysis**
- The project analyst needs to identify the appropriate technologies and its implication in terms of
 - **costs,**
 - **use of local raw materials,**
 - **environmental impact and other factors**

Technical Analysis (cont...)

The effective management of technology transfer requires that

- # the technology and know – how are acquired on suitable terms and conditions,
- # the necessary skills are available or developed.
- # The required machinery and equipments are determined in relation to the technology to be utilized,
- # Skills development needs are planned through training program

Technical Analysis (cont...)

■ and the analysis and survey of spare parts are carried out

A preliminary project layout or the physical features of the plant has to be prepared. These are,

- Infrastructure
- Factory and other buildings and civil works
- Their inter-relationship with utilities, material flows, machinery installations
- Other aspects of plant construction and operations

Technical Analysis (cont...)

- # In the case of agricultural projects, this aspect may include the works of
 - engineers,
 - soil scientists and agronomists.
- # Generally, the selection of technology should be based on
 - **A detailed consideration and evaluation of technological alternatives**
 - **The organization's investment strategy, and**
 - **Suitability to socio - economic and ecological condition.**

Technical Analysis (cont...)

How to evaluate technology?

- # Technology should be evaluated in terms of:
 - Whether the technology utilizes **local raw materials**
 - Whether the technology utilized **local man power**
 - Whether the goods and services produced **cater the basic needs**
 - Whether the technology **protects ecological balance**
 - Whether the technology is **harmonious with social and cultural conditions**

Technical Analysis (cont...)

- # Technology which is most appropriate in industrialized economies may not necessarily be appropriate in the developing countries.
- # Thus, the project planner needs to have a good knowledge of the present trends in technology development and local conditions to evaluate all possible technological alternatives

When selecting a particular technology we have to considered issues like,

Technical Analysis (cont...)

- # *The **trade - off*** between the capital and labor intensive technologies
- # countries which have more capital resources than labor, capital - intensive technologies may be appropriate and economically justified
- # On the other hand, countries with excess labor resources, labor saving techniques may prove unnecessarily expensive and erroneous

Technical Analysis (cont...)

In addition the technology should also be evaluated with regard to its environmental impacts.

Critical elements such as;

- # Economic use of raw materials
- # Low emission technologies, and
- # Low – waste production processes must be considered for the selection of suitable technologies

Technical Analysis (cont...)

Generally, the technical analysis is primarily concerned with

- # Material inputs and utilities
- # Manufacturing process and technology
- # Product mix
- # Plant capacity
- # Location and site
- # Machines and equipment
- # Structure and civil works
- # Project charts and layouts
- # Work schedule

4.3. Institutional and Social aspects

This involves considering and evaluating the formal and informal institutional organization of the society in which the project is expected to be implemented.

- # Institutional aspects incorporate the socio-cultural patterns and institutions or
- # the population that the project is believed to serve.
- # Does the project takes into account the cultural setup and customs of the beneficiaries? Or
- # Will it disturb the accepted pattern norm and believe?
- # If so how should this be included as part of the project design

Institutional and Social aspects (Cont...)

Thus, a project analyst should properly observe the institutional structure of the **country, region or area where the project is to be carried out.**

- # The land tenure system,
- # customs of the society, and
- # use of local institutions such as
 - *Idir or*
 - *Debbo*

When a project is under implementation it may brings either positive or negative social impacts on the societies

Institutional and Social aspects (Cont...)

Thus, a Project analyst needs to examine the broader social implications of the proposed project.

This is particularly related to,

- # the income distribution implications of the project in relation to employment creation,
- # The balanced regional development,
- # The displacement impact of the project,
- # The gender implication of the adopted technology;
- # Environmental impacts