

Production Operations management

Chapter 9

Plant Location

Plant Location

- ❖ **Plant Location** may be understood as the function of determining where the plant should be located for maximum operating economy and effectiveness.
- ❖ An ideal **Location** may not, by itself, guarantee success but it certainly contributes to the smooth and efficient working of the organization.
- ❖ The need of selection of the location may arise under following conditions
 - 1) When the business is newly started.
 - 2) Existing business has outgrown its original facilities.
 - 3) A lease expires.
 - 4) Other social economic reasons

Plant Location

❖ LOCATION THEORIES FOR INDUSTRIAL SET UP

Weber an expert consultant, classified location factors into two broad categories—primary and secondary. Materials and labor constitute primary factors that contribute to dispersal of industries over different regions. Industrial units are material oriented, if their cost of transportation to units is higher. Industrial plants are market-oriented when the cost of transportation finished goods to markets is higher. Another primary factor is labor. Weber assumes that centers flush with cheap and skilled labor pull industries towards themselves.

Plant Location

- ❖ Banking credit, insurance, communication and rent and rates constitute the secondary factors of location .Some of these attract industries to certain areas from different places and some other4s contribute to their dispersal from original places.
- ❖ The latter are called the degglomerating factors and the former the agglomerating factors.
- ❖ Though Weber told his theory in 1909, its relevance has not diminished over the years We do have companies today with market or materials orientation.
- ❖ Andreas Predohl another expert also told something on location He only told that a plant will be relocated because the new location offers added advantages ..

Plant Location

FREEDOM OF LOCATION

- ❖ An entrepreneur seeking location for his enterprise has greater freedom than in the past .How difficult the task of selecting the location in the past was is better explained by narrating the ordeal that was gone through by the founders of the great Tata Iron & Steel Company (TISCO) .
- ❖ The site (present Jamshedpur) was selected after extensive geological survey which established the existence of coal, iron, ore and other minerals.
- ❖ The site selected was at the confluence of small rivers amidst thick jungle. Between the two rivers, a city had to be planned As the jungles were cleared , in place of towering trees ,steel chimneys arose.

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- ❖ Though the Maharaja of Mayurbhanj had given highly favorable terms to Tatas , the local kings of the jungle were less hospitable .
- ❖ Tigers killed two tribal laborers .An elephant driven frantic by the din of dam construction stampeded over a number of huts and flattened them.(One night a she-bear crawled into the hut of the Railways Superintendent and delivered a cub under his table)
- ❖ Erecting a plant of this nature in the wilderness was called by contemporaries a titanic enterprise. Communication were slow , machinery was hauled over vast distances from homes or abroad ; labor had to be trained.

Plant Location

- ❖ That was at the beginning of the present century. Now we are at the end of the century. The passage of time has made site selection easier for contemporary businessmen, thanks to certain specific developments that have taken place over a period of nine decades. Following are the developments
1. Improvements in transportation and communication facilities and speed of services.
 2. Reduction of wages differentials between regions.
 3. Mobility of workers and management.
 4. Improvements in construction methods and designs for plant buildings which make less expensive to build.

Plant Location

5. Vigorous policy pursued by the Government to remove regional imbalances in Industrial development, thus making all regions almost equal in attraction.
6. Improvements in processing and machine designs that reduce the relative number of employees required for a given output.
7. Availability of air-conditioning equipment to counteract adverse climatic conditions for employees and processes.
8. Expansion of markets for almost all goods and services so that more enterprises are needed to meet the demands.

Plant Location

5. ERRORS IN SELECTION

Though location selection is relatively easy, businessmen commit errors and wrong locations are selected. Interestingly, errors in site selection seem to fall into a pattern. Some of the most common errors are:

1. Lack of thorough investigation and consideration of factors involved.
2. Personal likes and prejudices of Key executives or owners overriding impartially established facts.
3. Reluctance of key executives to move from traditional established home ground to new and better locations.
4. Moving to congested areas already or about to be over industrialized.

Plant Location

5. Preference for acquiring an existing structure (usually at an imagined bargain) that is improperly located or not designed for the most efficient production.
 6. Choice of community with low cultural and educational standards, so they key administration and technical personnel eventually accept employment elsewhere.
- In order to avoid the errors occurring and to ensure selection of a good location, a selection committee comprising people knowledgeable on facts and factors, as well as those responsible for operating the factors should be constituted. The committee should then tour places, select two or three locations, study their plus and minus points, and finally select one among them.

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Deciding on domestic or international locations

❖ It is advisable that the selection committee first selects a country, a region out of the country, locality out of the region and the exact site out of the chosen locality. Selection of the site out of locality and locality out of region and a particular region out of the country should be based on a thorough investigation into relevant factors.

❖ **Selection of region:**

Selection depends upon following factors

- 1) Availability of raw materials.
- 2) Nearness to the market.
- 3) Availability of Power.

Plant Location

Deciding on domestic or international locations

Selection of Community

Selection depends upon following factors

- 1) Availability of workers.
- 2) Civic amenities for workers.
- 3) Existence of complementary and competing industries
- 4) Fiancé & Research Facilities
- 5) Availability of Water & firefighting
- 6) Local taxes & restrictions

Plant Location

Deciding on domestic or international locations

Selection of site location: The selection of site is influenced by following consideration.

A) National decision

- ❖ Political Stability
- ❖ Currency & exchange rate
- ❖ Culture
- ❖ Natural environment

B) Selection of Region

- ❖ Availability of Raw material
- ❖ Nearness to market
- ❖ Availability of power
- ❖ Transport facilities
- ❖ Government policy

Deciding on domestic or international locations

State Government Incentives

- ❖ Priority Sector, Financial Support, Interest Subsidy
- ❖ Quality Certification, Sales Tax, Land, Stamp duty
- ❖ Water , General Provision, Patent Registration
- ❖ Power **PRIORITY SECTORS** :
- ❖ In addition to financial concessions provided in this policy, efforts will be made to prepare competitive profiles of priority industries in the State, so as to identify opportunities and constraints in detail. These will be addressed in sector-specific policies, if needed.
- ❖ Some sectors already have separate policies, which will be updated taking into account new information and realities.

Deciding on domestic or international locations

State Government Incentives

❖ **FINANCIAL AND OTHER SUPPORT MEASURES :**

❖ **ELIGIBILITY :**

- ❖ 13.1 New and existing industrial units shall be eligible for incentives provided in this policy, subject to the general conditions and specific conditions stipulated.
- ❖ 13.2 Industrial units, hotels, cinema halls etc. covered under earlier Industrial Policy Resolutions shall continue to enjoy the incentives admissible under the said policy except to the extent abridged or modified or enlarged in this policy.
- ❖ Existing industrial units, which take up modernization will be eligible for specific incentives as mentioned.

Deciding on domestic or international locations

State Government Incentives

❖ GENERAL PROVISIONS :

- ❖ Implementation of various provisions covering the incentives, concessions, etc. will be subject to the issue of detailed guidelines/ statutory notifications, wherever necessary, in respect of each item by the concerned administrative Department.
- ❖ An industrial unit, which considers itself eligible for any incentives shall apply in accordance with the operational guidelines and instructions set out in the Manual to be brought out and the same shall be considered and disposed of on merit.

Location Models

Factor Rating Method

❖ Factors in Heavy Manufacturing Location

- ⑩ Construction costs
- ⑩ Land costs
- ⑩ Raw material and finished goods shipment modes
- ⑩ Proximity to raw materials
- ⑩ Utilities, Labor availability

❖ Factors in Light Industry Location

- ⑩ Transportation costs, Proximity to markets
- ⑩ Frequency of delivery required by customer
- ⑩ Land costs
- ⑩ Easily accessible geographic region
- ⑩ Education and training capabilities



Location Models

Factor Rating Method

❖ Factors in Retail **Location**

⑩ Proximity to customers

⑩ **Location** is everything

❖ **Regional Location Factors**

⑩ Labor (availability, education, cost, and unions)

⑩ Proximity of customers

⑩ Number of customers, Construction/leasing costs

⑩ Land cost

⑩ Modes and quality of transportation

⑩ Transportation costs

⑩ Community government Local business regulations

⑩ Government services (e.g., Chamber of Commerce)

⑩

Location Models

Point rating method

- ❖ In selecting a site or location companies have several objectives, but not all are equally important.
- ❖ The relative importance to each objective is represented by a number of points a perfect site would receive in each category.
- ❖ Each potential factor is evaluated with every factor a company is looking for
- ❖ What is important in point rating methods is tangible cost factors compared to intangible cost factors.

Location Models

Break even Analysis

The economic Comparison of location can be made by identifying the fixed cost and variable cost & plotting break even analysis on a graph for each location

The steps involved in this method are:

- ❖ Determine all relevant cost that vary with each location
- ❖ Categorize the cost for each location
- ❖ Plot the total cost associated with each location
- ❖ Select the location with lowest total annual cost at the expected production volume per annum

Location Models

Qualitative factor Analysis Method

The economic Comparison of location are not sufficient in deciding site location Qualitative factor Analysis Method is used

The steps involved in this method are:

- ❖ Develop a list of relevant factors
- ❖ Assign weight to each factors to indicate relative importance
- ❖ Assign common Scale to each factor
- ❖ Score each potential location
- ❖ To desired scale
- ❖ Total the points for each location

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End Of

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