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**Chapter-I**

# MANUFACTURING INDUSTRIES : A GEOGRAPHICAL PROFILE

## 1.1 The Concept of Industry and Manufacturing

Manufacturing is an essential activity of the modern age. A large percentage of population of the world, in the advanced countries, depends upon manufacturing for living. In the past, manufacturing was carried on at a subsistence, household or primitive level. Now, millions of people depends upon it, for food, shelter, clothing, tools, machines, comforts and luxuries. These are influenced on impressive growth of manufacturing industry, especially, in the present century. It has resulted finally in industrialization. The definition adopted by the United Nations Committee for Industrial Development is that, "Industrialization is a process of economic development, where an increasing proportion of home resources are mobilized to establish a technically up-to-date and diversified economic structure. This economy is characterized by dynamical processing industry producing means production of consumer goods, suitable for making the fast development of the total (whole) national economy and the economic and social pressure." Thus the progress of industrialization is reflected as the dynamic changes in the economy.

An endeavour is made in the present chapter to understand the meaning of industrialization, industrial revolution, industrial reasons, scope, objectives and other phenomena and their effects to Indian industries in general and study area in particular.

The two synonymous terms 'industry' and 'manufacturing' are used very often to denote economic activity. These two terms are expressed differently by various geographers. Some definitions are explained as below:

According to "New Standard Encyclopedia", the term 'industry' in its broad sense i.e. all productive enterprises of a country or region. There are such words as manufacturing, agriculture, trade and commerce, transportation, communication, mining, lumbering, fishing, construction and they are termed as industries.

According to "Encyclopedia Dictionary of Geography" Vol. 2, 'industry' means the economic activity that is concerned with the production of goods, extraction of minerals or the provision of services.

In a narrow sense, the term 'industry' is used for production of goods, including manufacturing industries, such as tourism, banking and transport, coal mining, oil drilling, building and contracting.

The term 'manufacturing', according to "new standard Encyclopedia", is the processes or a set of operations that change raw materials or other goods into various products. Originally manufacturing (from the latin for 'made by hand') meant production by hand labour. Today hand made goods are called 'handicrafts', and they are of little importance in industrialized nations. The word 'manufacture' in Webester's (New 20$^{th}$ century) Dictionary, has its French and Latin roots, that is, manufacture (Manu = hand and facture = a making form) which means a making by hand.

Manufacturing means (1) employed in making goods, as a manufacturing company, (2) relating to manufacture and industry is any branch of trade, business, production or manufacture such as the paper industry, the motion picture industry, etc.

As sub committee report (1947) of manufacturing industries, puts a simple definition of manufacturing industry as "A manufacturing industry should, (a) come under the-Factories Act, (b) use at least 10 BHP motor or engine, in the aggregate, (c) employ labour to whom a fixed return in cash or kind is made or show any one or more of these characteristics."

Alexander (1963), conversation of commodities into a more useful form, is called manufacturing and commercial manufacturing includes, all activities whereby man: (1) Assembles raw materials in an establishment (whether cottage workshop or factory building), (2) Upgrades their usefulness by changing their forms, and (3) ships out these, more valuable commodities to other places. The focal point of this process is the factory, it serves as a link between the source regions in which the raw materials originate and the market regions in which products are consumed.

Eliot Hurst (1972), the transformation of commodities from one form into another form, which we have called 'form utility' is the essence of manufacturing or secondary group of activities. Each type of secondary activity varies in its particular inputs of materials, labour and capital.

Singh (1983), 'manufacturing' is concerned with changing shape of different raw materials by pre-requisite processes of physical and mechanical operations which makes them more purposeful, valuable and qualitative for human use.

Thus manufacturing which plays a crucial role in the national economy is a main contributor towards increasing national value. It is a source of government revenue, through direct and indirect tax receipts. It is also a major exporter. In total, it is not only true in the country as a whole, but it is also true in the study area.

## 1.2 The Process of Industrialization

The word "Industrialization" is derived from the latin 'industria' which simply means, the steady (uniform) application to business of labour. The English language still uses the word 'industrious' in the sense, of hard working. In French, the meaning has silently changed the term 'industrie' refers to all operations by which, raw materials are processed and goods are produced. In German 'industrie' is reserved for processing on a large scale, with use of machinery and modern methods of working. By all these references, industrialization means, a development in economic history, through which man's activities were directed on new paths and his productivity multiplied by leaps and bounds. This development is called by historians as the industrial revolution, first took place in certain European countries, during the later part of the 18$^{th}$ century.

The modern society was an outcome of the industrial revolution in England during the late 18$^{th}$ and early 19$^{th}$ centuries. Chaudari

M.R. (1966) states that, 'industrialization' means the growth of manufacturing industry, it is a part of the much broader forces of economic development, which involves the raising of standard of living, through a steady increase in the efficiency of factors of production. United Nations (1969) Bulletin, bring out the importance of standardization and more precisely, points out that, a great loss of scarce resources in developing countries, can be avoided by early adoption of standardization policies for their industrial activities and their industrial manufactures. According to Boesch (1971), industrialization is a process, which defies precise and quantitative measurement, involving a large number of fundamental changes in the economic structure of an area or a country, and its manifold aspects are expressed in the economic geography of that region.

In most of the developing countries, industrialization process has been the characteristic feature of concentration. So also in India the aim of industrialization policy should always be to try and generate a coherent structure with strong vertical and horizontal linkages. Industrialization can not be measured solely by counting the numbers of manufacturing establishments of workers. According to Law (1974), 'industrialization' promotes the economic status of a region. It provides incentives for the origin and growth of various social agencies. It directly influences commerce and trade, communication, population and urbanization, service centres and employment, social and cultural amenities and the general economy of a region as a whole.

Sundaram (1980) is of the opinion that, rural industrialization is the only answer to the growing income inequalities, poverty and unemployment in rural India. The percentage of the labour force, engaged in the manufacturing sector, is an important indicator of industrialization. Rural Industrialization means to end rural poverty.

Industrialization also depends to some extent on the performance of commercial and development banks to which they can provide the information on specific industrial and other developmental projects in their localities. According Singh B. N. (1983), the term industrialization incorporates many phases to explain socio-economic phenomena, which have been experienced or being experienced and will be experienced.

Some scholars use the term industrialization for interpretation of the growth of industrial activities like an increase in output and employment. Choudhari M. R. (1985) mentions that, industrialization is the key to the acceleration of economic growth in a country like India, where resources are yet to be fully and properly used. Malik et al. (1985) opines that, the industrialization of an economy, be it open or closed, is always geographically imbalances and Haveri district is no exception to this hypothesis. Unido (1989) in its report on the industrial technology, indicates that, industrialization is largely depends upon the efficient functioning of supporting institutions, concerned with the creation, operation and expansion of industry. No individual enterprise can be completely self-sufficient. Banerjee (1990) says that, industrialization in India draws support from its vast

natural wealth, developing technology and other infrastructure that vary from region to region. It can eliminate regional economical disparities to a large extent, ensuring extended production and can eradicate unemployment by raising the levels of general productivity.

### 1.3 Industrial Revolution and Its Impact

One of the most powerful reasons of the decay of indigenous industries was the Industrial Revolution in England, which started during the second half of the 18th century and was almost in full swing by the first quarter of the 19th until 1850, Britain dominated the international economy. “Britain sowed the seeds of industrialization by diffusing knowledge, engineers, entrepreneurs and above all capital.” In Europe, Belgium was first to embark on industrialization in 1820’s as it had enough iron and coal. In 1830, French Industrial Revolution began. Germany too was a powerful industrial nation. Most of the industrialized nations were having rail network.

In the late 18 century Samual Sloter, a textile worker from England copied Arkright’s machine, and opened a cotton mill in Rhode Island. The boom period in American industrialization came in the second half of the 19th century, particularly after the development of the transportation network. United States had overtaken in the output of iron and coal and consumption of raw cotton. Britain, with its order plants and equipment, faced an increasing competition from other countries and lagged behind. In the 20th century, United States also dominated the new automobile industry.

By 1914, other countries of Europe, such as Italy and The Netherlands had begun to industrialize and the process has also spread to Japan. The Industrial Revolution in Russia had started well before 1914, and from 1950's, communist China also embarked on a planned Industrial Revolution.

**Impact of Industrial Revolution in India**

The invention of the spinning, Jennings and the steam engine in England brought in its wake increased application of mechanical power to the manufacturing industries. The cotton industry was the first to be revolutionized by the new process. Though the products of machinery did not at first compare favourably with the artistic products of handicrafts, still by a succession of inventions they improved in quality. Their cheapness helped them to displace Indian goods in the foreign markets and later on even in the home market. The finer branches of textile craft were the first to suffer. The Indian weavers could produce finest goods, but in the matter of price, the imported products sadly beat them. The same story was repeated in other industries, especially, iron melting, glass, paper and shipbuilding. The competition was made more severe due to the revolution in transport brought in India by the rapid development of railways and roads, opening of the Suez Canal, and reduction in steamer freights, which enabled the English manufacturers to reach the interior parts of the country at a cheaper cost.

The harnessing of steam power and the perfection of machinery made the processes of manufacture cheaper and more efficient, while

the simultaneous expansion of transport facilities rendered it possible to take the products to the most distant markets cheaply and expeditiously. India with her primitive technique and organization could not possibly compete with the formidable industrial organization, which the Industrial Revolution had called into being. In England also, the period of transition caused by the new inventions was one of serious economic disorganization and stress. But, the adaptability of the people and their superior organizing capacity appreciably abridged the gulf between the old economic system and the new. The Industrial Revolution of England, being the result of indigenous forces established a new equilibrium on a more stable footing. The capitalists, who were deprived of the old forms of investment found new ones more remunerative and with the disappearance of old occupations the labourers moved to more attractive work offered to them. In India adjustment was rendered impossible since the artisans driven out of work by the inflow of foreign goods, were unable to turn to any other occupation except to fall back on land.

### 1.4 Major Industrial Regions of the World and India

The regions which have a large concentration of one or more different types of industries are termed as Industrial Regions. In this sense, certain industries have concentrated more in certain regions, while other regions have a virtual absence of such enterprises in them.

It would be of immense interest to note that Maharashtra, West Bengal, Tamil Nadu, Gujarat, Uttar Pradesh, Bihar and Karnataka

accounts for over two-third (about 68%) of the total number of factories: about 70 percent of the productive capital employed; above 75 percent of the total employment; 76 percent of the total value of output and 80 percent of the value added by manufacture in the entire country. Andhra Pradesh, Himachal Pradesh and Kerala which account for only about 10 percent of the total value added by manufacture, have 17 percent of the total number of factories contributing to 15 percent of the total employment and about 14 percent of the total output of industries in the country. Rajasthan, Assam, Haryana, Punjab, Jammu & Kashmir and other developing states.

**India**

On the basis of workers employed, Dr. B. N. Sinha has classified industrial regions into three categories in India, and they are: (I) those employing a minimum daily number of 0.15 million workers, as a major industrial regions; (II) those employing 0.025 million workers, as minor industrial regions, and (III) those employing up to 25,000 workers, as industrial districts.

**Major Industrial Regions**

Five major industrial regions can be clearly demarcated and they are as mentioned below:

(I) **The Hooghly Belt:** Stretching both along the left bank of Hooghly form Naihati through Jagatdal, Shamnagar, Barrackpore, Titgrah, Belgharia, Kidderpore, Batanagar to Budge Bregde: and along the right bank from Tribweni through Hooghly,

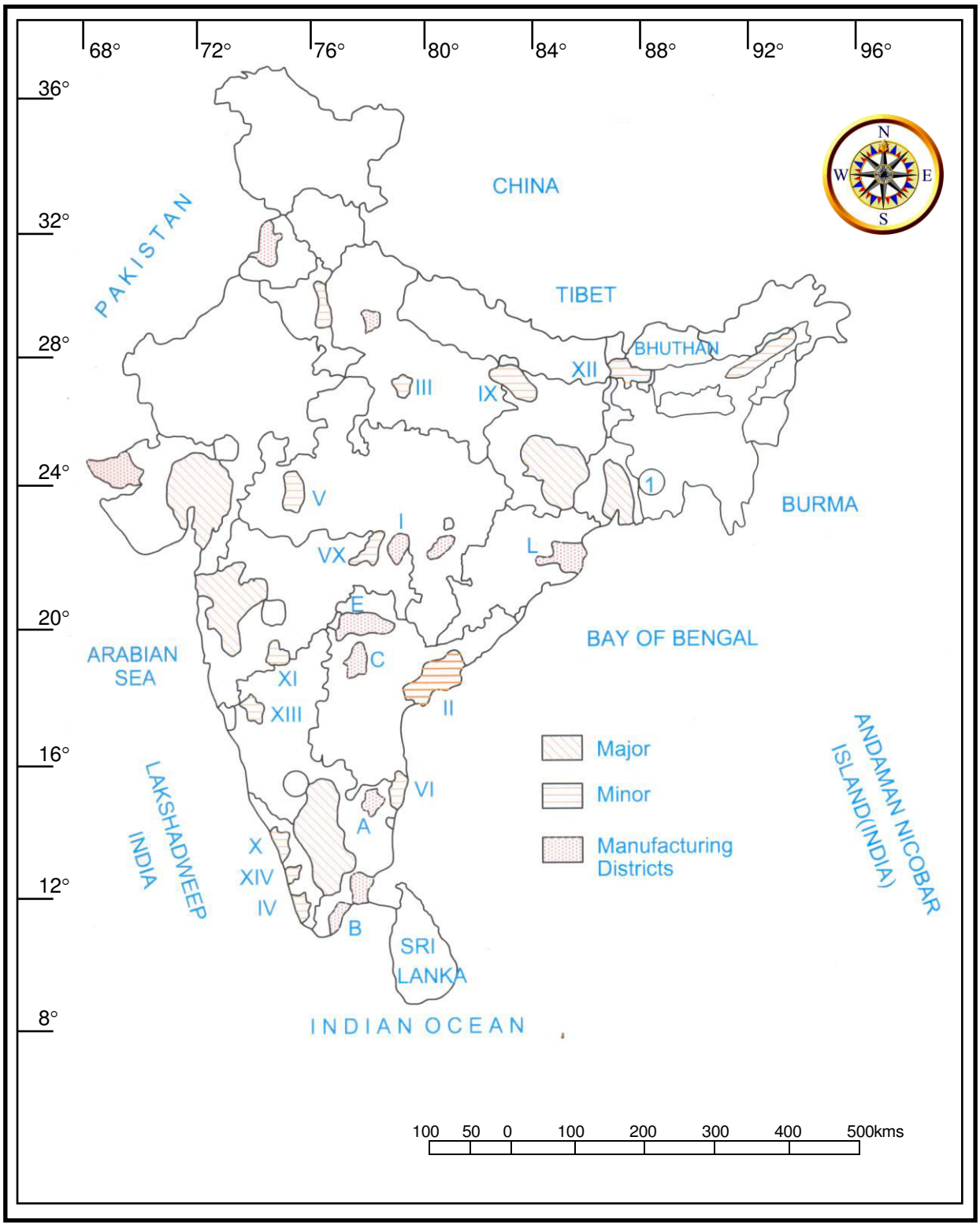
Serampore, Konnagar, Uttarpara, Belur, Lilloah, Howrah, Adnul to Nalpur. This Belt the most predominant industrial region of the country, in the fold of which are found a host of industries ranging form cotton, jute, silk, textiles, engineering and electrical, chemicals and pharmaceutical, leather footwear and other goods to paper, match and allied industries, the heaviest concentration here being at the jute industry, (fig. 1.1)

(II) **The Bombay–Pune Belt:** This is the second important industrial region engulfing in its fold the industrial centres of Bombay proper, Kurle, Qhatkopar, Vileparle, Jogeshwari, Andheri, Thane, Bhandup, Kalyan, Primpris, Kirka, Chinehwad, Ambarnath, Pune and Hadapsar. This Belt has a heavy concentration of cotton textile industry on the main island, besides engineering, leather, synthetic and plastic goods, chemical drugs, electrical, transport and food industries.

(III) **The Ahamadabad-Vadodar-Bharuch-Surat Belt:** It is the third largest industrial region, comprising within its fold the centres of Kolol, Ahmadabad, Nadiad, Vadodra, Bharuch, Surat, Navsari, and Anbteshwar, Here as been developed the cotton textile industries, followed by the Rayon, Petro-Chemicals, Potteries and Glassware, leather goods and a wide variety of engineering units.

(IV) **The Madurai-Coimbatore-Bangalore Belt:** This is other important region comprising the industrial complex of Madurai, Coimbatore and Bangalore areas. A large number of cotton textile

## Fig. 1.1 : INDUSTRIAL REGIONS OF INDIA



mills, silk manufacturing units, sugar plants, leather goods, chemicals, wagon units and the public sector units like Hindustan Machine Tools, Indian telephone, Bharat Electronics, Hindustan Aeronautics, Visveswraya Iron and Steel Workers etc., have assisted for the development of this region.

(V) **The Chota Nagpur Plateau Region:** This region is noted for its mining and metal industries, because of the presence in large quantity of coal in the Domodar Valley region, Iron ore in Bihar - Orissa Belt; bauxite, mica, limestone and copper in the Chota Nagapur Plateau. This region is the richest one from the point of view of mineral resources. All these have given rise to heavy industries, like Iron and Steel at Jamshedpur, Bokoro, Kulti, Burnpur, Durgapur, and Dhanbad, Ranchi, are other important centres.

**Minor Industrial Region**

There are 14 minor regions a large variety of industries have concentrated.

Automobiles and ancillary industries are located at Delhi, Bombay, Calcutta, Jamshedpur and Madras. The aircraft industry is established at Bangalore, Kanpur, Hyderabad, Nasik and Korput. Shipbuilding is as Visakhapatnam and Cochin; whereas locomotives have their home in Chitlaranjan and diesel locomotives in Varanasi.

Silk industry is quite widespread and is located at Srinagar, Amritsar, Jullundhur, Ahmedabad, Gwalior, Indore, Nagpur, Sholapur, Salem and Coimbatore, while rayon has its home in

Calcutta, Bombay, Ahmadabad and Amritsar; Cotton textiles are concentrated in western India, and cotton industry has its home mainly in Bombay, Ahmedabad, Indore, Ujjain, Surat, Kanpur and Delhi. The South has its textile mills at Trivendrum, Salem, Coimbatore, Madurai and Madras. Hosiery has its home in Ludhiana and Delhi and textile machinery at Gwalior and Indore.

Woolen industry is flourishing mainly at Bombay, Jamnagar, Gwalior, Kanpur, Agra, Ludhiana, Amritsar, Srinagar and Bangalore. Chemical industry is widely spread from Delhi, Kota and Nagda to Bangalore and Alwaye in the South, to Rourkela, Jamshedpur and Sindri in the East.

Iron and steel industry is located at Rourkala, Jamshedpur, Bakaro, Durgapur, Bhilai and Bhadravati, while the engineering goods industry is housing at Durgapur, Chittaranjan, Ranchi, Delhi, Faridabad, Haridwar, Lucknow, Pinjore, Ludhiana, Rajkot, Hyderabad, Haveri and Bangalore. Heavy electrical are confined to Bhopal, Haridware and Hyderabad, oil mill industry is thriving at Jalgaon, Nagpur, Pune, Rajkot, Jamnagar, Bombay and Vadodra. Sugar industry is widely distributed between Amritsar, Lucknow, Kanpur, Calcutta, Delhi and Madras. Potteries are made at Delhi, Vadore, Bangalore, Madras, Calcutta, Kundara and Alwaye. Fertilizers are manufactured at Sindri, Nagal, Neyveli, Alwaye, Gorakhpur, Namrup, Rourkela, Kanpur and Barung.

Cement industry is thriving at Allahabad, Katni, Jabalpur, Keymere, Hyderabad, Bhadravati, Bangalore, Coimbatore and Sindri,

while paper mills are located at Sahoranpur, Calcutta, Lucknow, Bombay, Pune, Nasik and Nepanager, and Match industry is located at Gwalior, Indore, Vadodra, Hyderabad, Trivendrum and Calcutta.

Tea making industry is located in Brahmaputra Valley, Darjeeling Terai area, and cashew nut processing, coir making, etc. at Cochin, Quilon, etc. in Kerala.

**Industrial Districts**

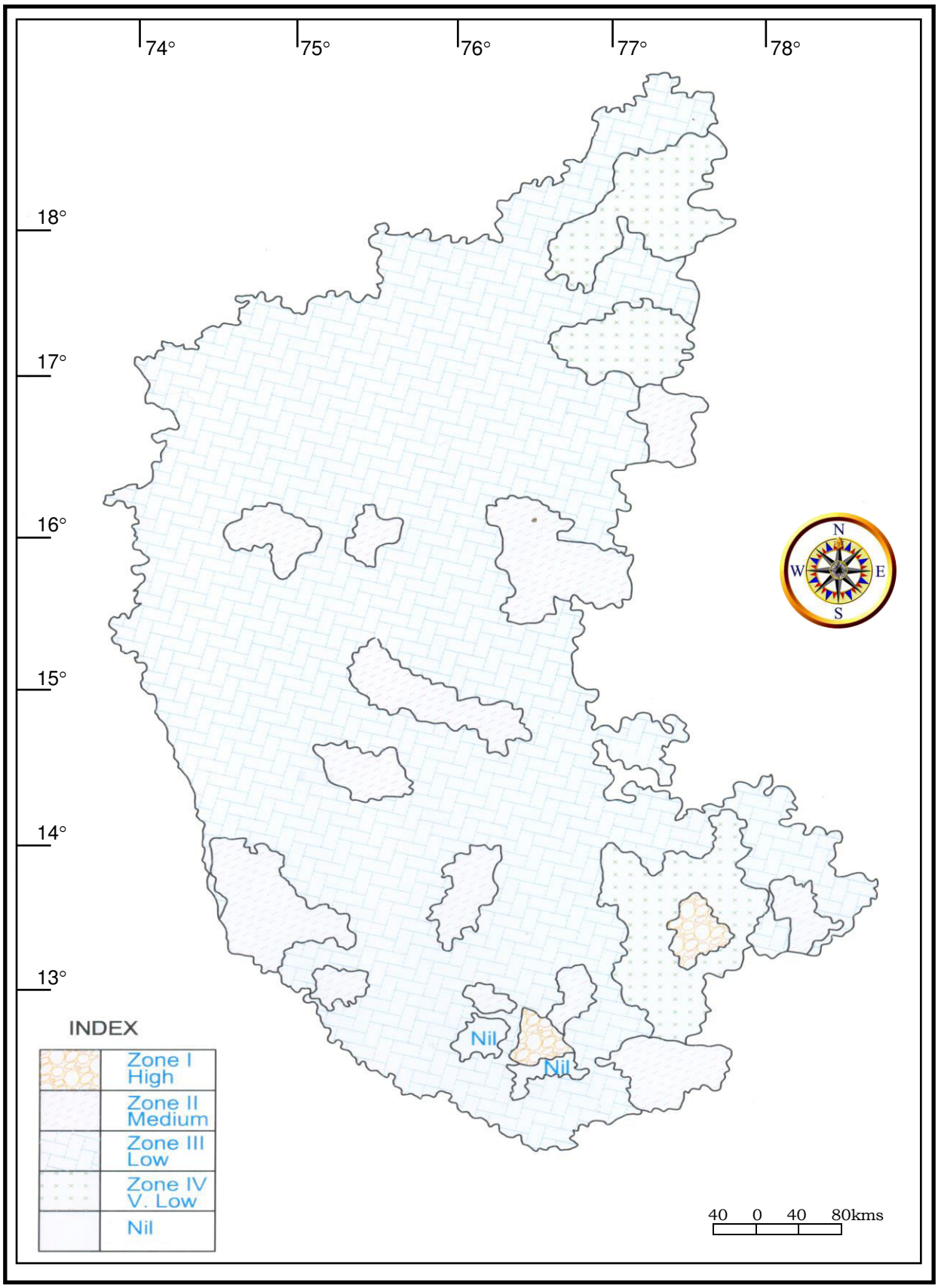
The important industrial centres and districts are scattered all over the country. The availability of required raw materials, the nearness to easy development of sources of power, cheap labour supply and site of location of units, availability of other infrastructure facilities, light, water and transport lines, finance, etc. and the policy of the government to attract industries hitherto backward areas of balanced development and the existence of financial institutions have all led to the dispersal of industries to many new areas.

The government has identified 87 districts as industrially backward districts in India. The criterion for identification of industrially backward district is that should be no large or medium scale industry existing in the district.

**Karnataka**

Government of Karnataka is committed to a policy of rapid industrialization in all parts of the state. With a view to attract new industrial investments in the state, especially to the backward areas on the basis of investment, Karnataka Government has classified industrial zones into four categories. They are as follows: (fig. 1.2)

## Fig. 1.2 : INDUSTRIAL REGIONS OF KARNATAKA



**(I) Zone-I:**

Two talukas can be clearly demarcated in the first zone. They are (Bangalore urban), Bangalore South (excluding electronics city at Konnapona Agrahara), Bangalore North and Mysore City Corporation limits. This zone is the most predominant industrial zone of the state, in the told of which are found a host of industries, ranging form engineering, automobiles, electrical / electronics, chemicals, pharmaceuticals and allied industries. The heaviest concentration may be noticed here.

**(II) Zone-II:**

It is the second important industrial zone, comprising the industrial centres of electronics city at Kannappane, Agrahare and Anckola of Bangalore (urban) district; Hoskote, Nelamangala, Devanahalli, Kanakapur, Magadi, Channpatna, Ramanaguram and Doddabellapur of Davangere and Harihara talukas of Chitradurga district: Mangalore, Udupi, Karkala, Beltangoli and Sullia talukas of Dakshina Kannada district; in Dharwad district - Dharwad, Gadag, Ranebennur and Hubli talukas; Arasikere and Hasan talukas of Hasan district; Kolar, Bangarpat and Chikkaballapur talukas of Kolar district; Mandya and Srirangapattana of Mandya district; Mysore, Krishnarajanagar and Kollegal talukas of Mysore district; Raichur and Gangavati talukas of Raichur district; Badravati and Shimoga talukas of Shimoga district; and only Tumkur taluk of Tumkur district come under zone-II. This zone has a heavy concentration of cotton textile,

engineering, iron and steel works, leather, synthetic and plastic goods and also chemicals, drugs, electrical transport and food industries.

**(III) Zone-III:**

This is the third largest industrial zone and has 129 talukas of the state. They are Belgaum district (in all talukas); Kudligi, Siruguppa, Hadagali and Hagaribommnahalli talukas of Haveri district; all talukas of Bijapur district; Aurad Basavakalyana and Bhalki talukas of Bidar district; all talukas of Chikmagalur district; Hiriur, Hosadurga, Molkalmur, Holalkere, Chalkere and Jagalur talukas of Chitradurga district; Bantwal, Kundapur and Puttur talukas of Dakshina Kannada district; all-most-all talukas of Dharwad district (except Dharwad, Gadag and Hubli); in Haveri District except Haveri and Ranebennur. Sedam, Chittapur, Afzalpur, Aland, Shorapur and Jewargi of Gulburga district; Arkalgudu, Belur, Sakleshpur Alur, Holenarasipur and Chennarayapattana of Hasan district; all talukas of Kodagu district; in Kolar district; Bagepalli, Chintamani, Gudibanda, Mulbagal, Sidlaghatta, Srinivasapura, Malur and Gowribidounr talukas; in Mandya district all-most-all talukas (except Mandya and Srirangapattana talukas) come under this zone. Also T.Narashipur, Yelondur, Gundlupet, Periyapatna, Heggadadevankote, and Chamarajnagar of Mysore district; except Raichur and Gangavati talukas, all-most-all talukas in Raichur district; all talukas in Shimoga district, except Bhadravati and Shimoga talukas; all talukas in Tumkur district (except Tumkur talukas) and all talukas of Uttar Kannada district come under this zone.

This zone has developed the automobile and ancillary industries, cotton textiles, woolen industries, iron and steel works, engineering works, oil mills, potteries, cement production, paper mills and other industries.

**(IV) Zone-IV:**

This zone covers 6 talukas and three growth centres to be set up at Dharwad, Hassan, and Raichur except growth centres. Remaining six talukas are not having large number of industries, those six talukas like Bidar and Humnabad of Bidar district; Gulbarga, Chinchali, Yadgiri and Shahapur of Gulburga district.

## 1.5 Significance of Manufacturing Industries in Regional Economy

Haveri district has been consistently presenting a considerable industrial growth during the past two decades. The district is with abundant resources like quartz, moulding sand, corundum, building stone, etc.

It is the industrial sector, which takes the pride of place in shaping the economy of the district. Men have started realizing quality of life in today's world.

Men and nature cannot be torn apart from each other, and degradation or destruction of any one of them is not advisable. So far no attempt has been made to study the industrialization of Haveri district and industrial growth aspects geographically. Hence, the present study is a pioneering attempt in this direction.

This study is based on the resources that are available in the district, and is confined to the post first five year plan (1951) of the

industrial progress. The present work is broadly divided into three parts as per the title of the thesis;

(i) In its 'spatial' aspects, the area distribution

(ii) In its 'structural dimension' aspects, the categorization of industries and

(iii) In its 'Industrialization' aspects, industries are discussed at length.

The efficient utilization of material and human resources is of great importance for the development of any district, and it is the task of the researcher to investigate ways and means of efficient utilization of resources. The two methods employed in the present study are: (i) The Descriptive Method: different types of resources that are available in the district are described reference to their location, quality and quantity and (ii) The functional Method: the analysis and appraisal of resources, utilization are discussed.

The study area is geographically small and with different revolutionary history, witnesses a faster pace of verities of industrial growth. It is simply not possible to bring all the sub-sectors within the purview of research work of this nature and size. Thus certain limitations are put on the scope of the study.

The scope of the study is extended so as to cover only manufacturing industries sectors from vast ocean of industrial activities i.e. the study does not comprise such activities which are extractive like mining and service activities, like tourism, etc.

Though the work is exhaustive to cover the spatio-structural, economic and industrial growth aspects of manufacturing industries, yet it is rudimentary in the mighty field of research.

The topic of study geographically looked at and so it displays the spatial analysis and industrial growth of manufacturing industries, rather than purely economic and commercial aspects.

## 1.6 Problems of Manufacturing Industries

Industries and their development is necessary for several reasons. The industrial and commercial development in Haveri district appears to be fairly good, although regional imbalance in development is in existing in the study region. Haveri and Ranebennur talukas are more developed than the other talukas of the district. Over all development, various programmes are under implementation and new schemes have been introduced to overcome the imbalance in the other talukas.

There is substantial growth in the manufacturing sector in the last one decade. Some of the units are under risk due to various reasons mainly non-availability of good marketing for the product in the study areas, competitive market price of goods in India, dispute among partners, change in the demand pattern, delays in granting and disbursement of loans, change in the taxation policy, subsidies and delay in clearness from state to state and central government, shortage of raw materials, delay in the payments by the purchasing units, change of business by the owner and etc. are important.

**Problems**

All types of industries generally face problems everywhere. Large, medium and small industries in Haveri district also have one or other problems, only the nature and intensity of the problems varied from region to region. The study reveals that, there are more problems with small scale sector than large and medium scale sectors. Some of the problems and solutions of various resources have been already discussed in other chapter. However, some of the important problems faced by the industries in study region are as mentioned below.

1. At present, power problems are minimized, but voltage fluctuations, irregular supply, long hours for repairs, breakdowns, etc. still persists in the study region, which all leads to under utilization of installed capacity and raise in the cost of production.
2. Industries located beyond the industrial complexes, are facing problems like transportation cost, quality of roads not upto the mark and electricity transmission problem, scarcity of power, all these problems naturally affect industrial production goods particularly small scale industrial products.
3. In view of the rising tempo of industrial activity, the shortage of right type of raw materials at standard prices has affected the entire industrial sector in the study region. The irregular supply of certain raw materials has already affected the production programmes of several small and big industrial sectors. Though the study area is endowed with resources, but it is not sufficient

for the industries. The raw materials required for the industries are like sugar, rice mills, plastic products, non-ferrous metals, etc. are provided from outside the districts or states. Most of the units face not only shortage, but also the irregular supply of raw materials, which are brought from outside the state. This has lead to the units to be law capacity of utilization.

4. Lack or scarcity of skilled labour and industrial enterprise, there are few workers in the study region with industrial and managerial skills. Most of the workers and managers, in most of the units are from outside the region. Another peculiar problem is labour absenteeism. The absenteeism from work is a frequent problem faced by large number of units, which disputes the production, non-availability of skilled labours in leather, plastics, pharmaceuticals, machine building, electronic industries and low level salaries have aggregated the existing problems in the study region.
5. Due to scarcity of funds to purchase modern machineries and tools, the entire premises are forced to use old and outdated machineries which affect both the quantity and quality of their production. Many sectors such as food products, wood based industries, etc. have low level of technology due to which they suffer from substandard quality or products.
6. Non-availability and poor reliability of communication facilities have affected the working of many units in the study region. As telephone and fax facilities do not exist in the industrial estate to

establish the business link with many large and medium scale, even small scale units have established a small office nearby town or cities which is additional expenditure.

7. The successful industry needs good market for their products, the production quality depends on the market demand in this context in Haveri district, market demand is not very large for small scale organizations as compared to large units, absence of standardization in products, inability to meet the requirements of government and other bulk purchasers and largest need to dispose their products immediately at available price are the problems of the small producers in the study region. Another important problem of some entrepreneurs is insufficient knowledge about the markets.
8. Problems of transportation are experienced by all the industries. Nearly 80 percent of the raw materials and finished products are transported by means of road transportation. Many times there is considerable delay in either reaching of raw materials to factory sites or finished products to the market center. Accidents, heavy traffic, traffic congestion, over boarding of the passenger carriers, narrow roads, lack of safety, etc. are the other problems of transport system which can be viewed from the industries developmental point of view.
9. Management expertise scarcity especially the key areas of finance, marketing, production control, lack of experience in similar product line, lack of business background, unawareness

of management control, sound management practices and business opportunities, etc. are some of the problem of the management, persisting specially in small scale units in the study region.

10. Many of the people engage in small scale industries due to little/lack of education or familiar with modern production technique, management and marketing. Some of the old units do not show any initiative for introducing new designs to attract business and unusually stick to traditional patterns. So many units of small scale industries are in closing stage.

    Dispute among partners, change in business by the owner, inadequate studies, lack of perspective plans and programmes, etc. are the other problems of industries particularly of small scale and above all, growing of slum areas around the industrial centres or zones is another grave concern.

## 1.7 Locational Theories of Industries

The approach of Losch's is best illustrated by considering the ideal supply area of a firm (which Weber ignored). By 'ideal' we mean the area which will provide the maximum profit. Let us assume that farms are regularly spaced over a uniform surface. One farmer decides to manufacture beer. The basic question posed by Losch is 'how large will his trade area eventually be?' In fig. 1.3A presents the point of production (i.e. the farm) and PQ is the price which the farmer will obtain for his product at P. As we move further away from P (i.e. along the axis PF) the price of beer will increase because of the costs of

moving the beer away from the farm or because of the costs of traveling to the farm to collect. Either way, buyers will be paying more for it than if they lived at P. At F no beer will be sold because the price has become prohibitively high. Thus, QF represents the spatial demand curve for beer-sloping downward to the right showing that demand (but not price) declines with distance. PF is therefore the distance supplied from P. If we now rotate the demand curve through 360° we have what is known as a demand cone, enclosing the market area served from P.

Now if other farmers in the area start producing beer, they would be most profitably to serve buyers outside the circular trade area centered on P (see fig. 1.3B) and thus a series of circular trade areas would grow up around the evenly distributed farms.

Over time the trade areas shown in fig. 1.3B grow in size since some parts of the diagram are clearly unserved by any of the distributors of beer. Thus, the stage might be reached as in fig. 1.3C where circular trade areas touch each other with unserved areas in between.

Because circles either leave spaces unserved or overlap each other, the most efficient shape of trade area for the situation shown in fig. 1.3C is that of the hexagon. In the case of fig. 1.3D each brewer has a monopoly over his hexagonal trade area.

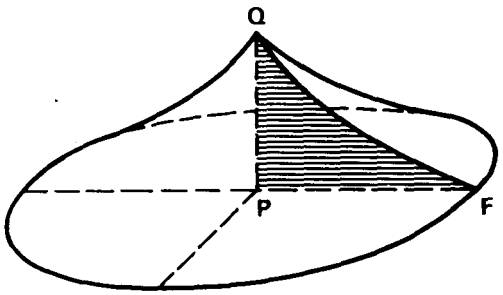



Fig. 1.3A : A Loschian Demand One

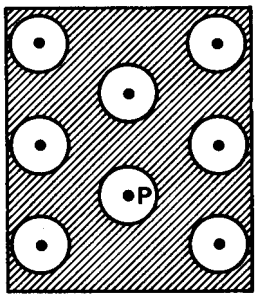



Fig. 1.3B : Series of Trade Areas Centered on Points of Production

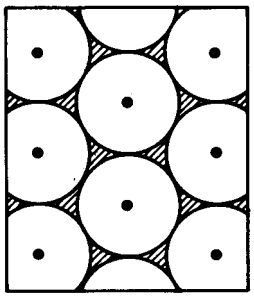


Fig. 1.3C : Series of Circular Trade Areas with Unserved Areas Shaded

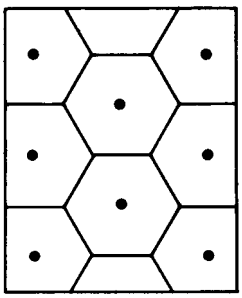


Fig. 1.3D : Hexagons Represent the Most Efficient Shape of Trade Area

While urban geographers have been hexagon-hunting for years, there have been relatively few attempts to identify hexagonal or any other, competition with other firms will exist within the trade area of any given plant, and so spatial monopoly tends not to occur. This does

not mean that trade area maps for firms cannot be drawn, as fig. 5.19 shows, but it is most unlikely that they would be hexagonal in shape.

The trade area concept of Losch has been included here partly because of its intrinsic interest and partly because it highlights one of the emissions of the Weber model.

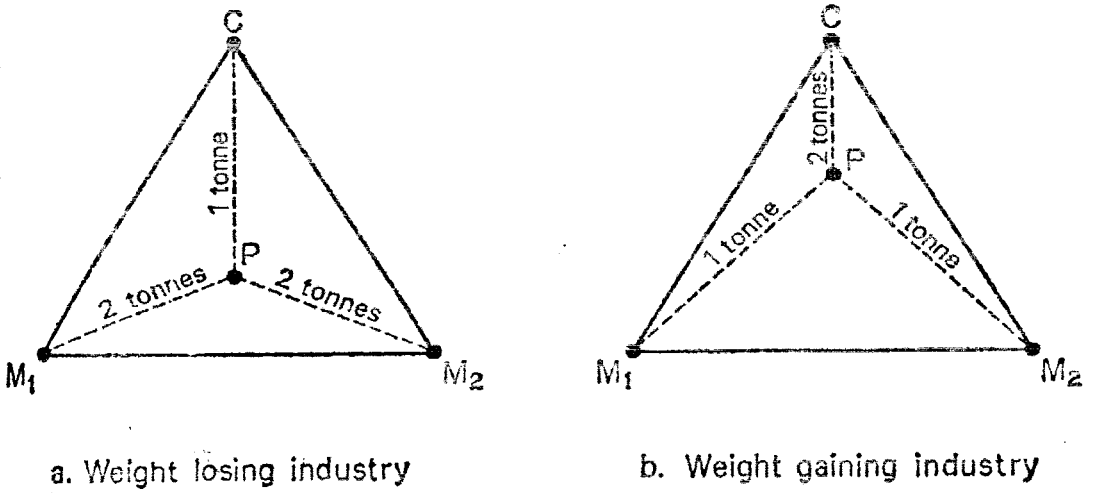
**Least Cost Theory**

There are two general classes of costs that are usually considered in manufacturing: transport costs, involved in the collection of raw materials and the distribution of finished products: and processing costs, such as labour power, capital and services. The least cost school assumes that the manufacturer would best locate where the sum total of these costs is least.

To find the least cost location it is necessary to examine spatial variations in these costs, and also examine the cost structures of different industries', since a location with low labour costs will not be very attractive to an industry with a small labour cost component such as oil refining, while an area with high labour costs and cheap power will not attract industries with a high labour, low power component such as textiles.

The most important attempt to develop a theory based on costs came from A. Weber in 1909. To reduce the complexity of reality, Weber, in common with all other theories, had to simplify. His theory assumed that there was a uniform demand or a product at all locations, resulting in a uniform price, and therefore the plant located at the point of least costs would get the highest profits.

To find this point, Weber first sought the least transport cost location, which he considered the most important influence, using a locational triangle (fig 1.4A). Reality is simplified to two raw materials, M1 and M2 and one consumption point, C. The least transport cost point, P, is the point at which the total cost of moving raw materials and finished products is least. These transport costs are calculated by multiplying the weight of material or product by the distance carried, resulting in a 'Pull' being exerted on the production point by each of the corners of the triangle. In (fig 1.4B) two tones of material M1 and two tones of material M2 are needed to produce one ton of finished product. In a weight-losing manufacturing process such as iron smelting, the least transport cost location is near to the sources of the raw material, but in (fig 1.4C) one ton of material M1 and one tone of material M2 are needed to produce two tones of finished product, and in a weight gaining industry such as baking, a market-orientated location is attractive. It must be noted that only materials that are localized will have a locational effect and that materials found everywhere will be little significance.




a. Weight losing industry

b. Weight gaining industry

Fig. 1.4A : Weber's Locational Triangle

Weber next examined the effects of labour costs on location since he considered that industries would be located away from the point of least transport costs to the point of least labour costs if savings in labour costs were greater than any additional transport costs involved in such a move.

In fig 1.4B, 'P' is the least transport cost point, and around this point have been drawn a series of isodapanes (cost contours), or lines of equal transport cost per unit of production from 'P'. There is cheap labour at L1 and L2 which would reduce costs by 15 'P' per unit of production, and the question is whether or not it would be worthwhile for a manufacturer to relocate from 'P' in order to take advantage of it. Clearly, any location within the 15 'P' transport isodapane would save more on labour than would be spent on extra transport and therefore L1 would be a more profitable location than 'P', Locating at L2 would increase transport costs more than any saving in labour costs and would

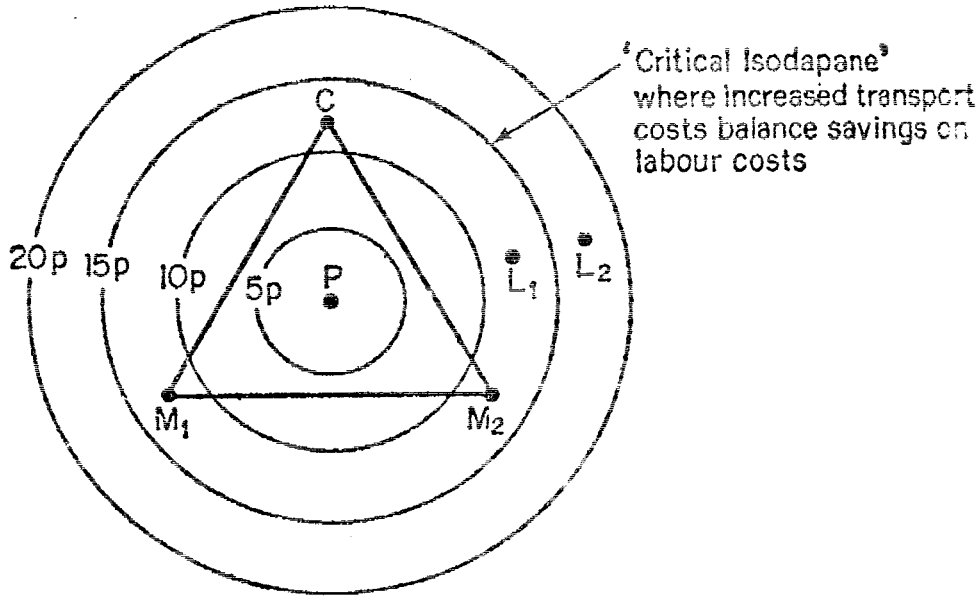



Fig. 1.4B : The Effect of Labour and Transport Costs

not be attempted. Weber saw labour costs increasing in importance in location because technological developments were increasing in importance in location because technological developments were increasing the efficiency of transport, thus increasing the distance between the transport isodapanes, while labour costs were rising relative to other costs.

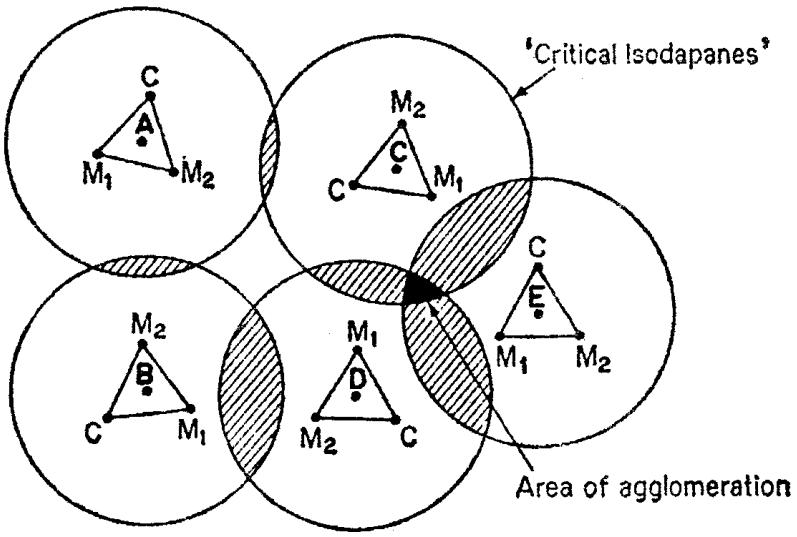



Fig. 1.4C : The Effect of Agglomeration on Location

Having combined the effects of transport and labour costs, Weber thirdly examined the effect of industry's tendency to agglomerate. In fig. 1.4C A, B, C, D and E are least cost locations, but the firms located there could cut their production costs by L1 per unit of production if at least three of them operated in the same location. However, they must not incur increased transport costs of over L1 per unit of production. In fig. 1.4C, the critical isodapane of L1 has been drawn round each producer and it is clear that firms C, D and E could reduce their total costs by locating in the shaded area.

Weber's attempt of find the least transport cost location and then to examine how this would be modified by other considerations has obvious limitations and has been criticized for being too abstract. His assumptions about transport rates and the effects of agglomeration have been questioned, but the theory is important because of its pioneering nature and its effects on later writers. The real test of a theory is that it should accord with reality, and empirical studies such as W. Isard's work on the US steel industry and W. Smith's work on weight-losing industries in Britain have shown the validity of many of Weber's conclusions.