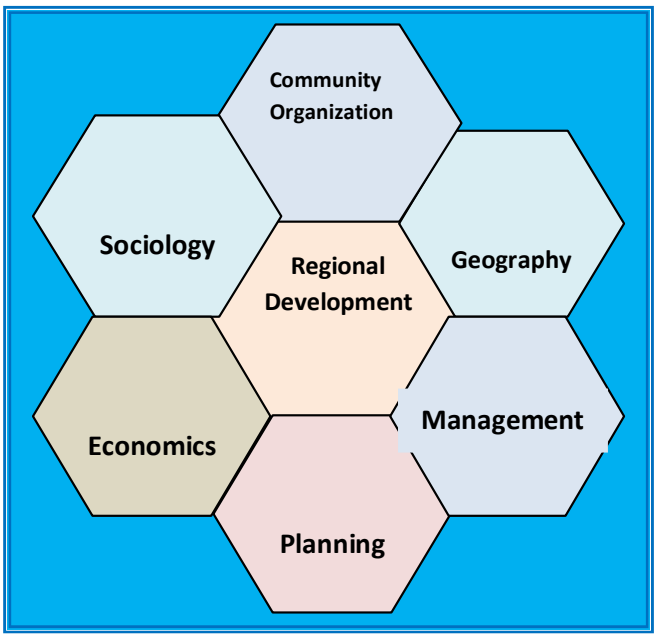
Regional Planning & Development

Part III of VI Parts

Part III.

Regional Imbalances & Strategies for Balanced Regional Development in India



Regional Planning & Development—MSW Community Development Syllabus

1.Concept of Region - Functional and Formal Regions -Techniques of Regional Delimitation.
2.Classification and hierarchy of regions - Regionalization in India - Concept of Rural- Urban Continuum.
3.Definition. Scope and Content of Regional Planning - **Regional imbalances and inequalities in India – Backward Area Development – Industrial Estates and Clusters – Sub plan approach**
4.Methods and techniques of regional analysis and development- Export Base Model - Neo-classical Model - Input –Output Analysis.
5.Central Place Theory. Growth Pole Hypothesis - Myrdal's Theory of Cumulative Causation,
6.Directions in Regional Planning. Town and Country Planning - River Valley Planning- Resource Planning - Multi –level Planning - Need and Methods of Micro-level Planning. Relevance of micro-level planning in community development.
Tamilnadu - Planning Regions in Tamilnadu - Regional Planning in Tamilnadu. Resources of Tamilnadu - Rural and urban development with reference to Tamilnadu.

Strategies for Balanced Regional Development

Regional Imbalance

Most of the countries of the world are faced with the problem of regional imbalances and regional inequalities. But it assumes a more acute and explosive form in the developing countries. The problem is assumed such a magnitude that their very political and economic stability is threatened. Rivalry and the search for maximal profits (including political advantage) engender the unevenness (disproportionately).
The primary causes of regional imbalance can be located in the region making process itself. i.e. geographic and physiographic characteristics, history and cultural experience. But there are much deeper causes as Lenin discovered, **"The law of unequal economic and political development under capitalism as a universal law characteristic of all stages of capitalist development and embracing all parts of the world capitalist economy".**

1) Whatever may be the causes, if marked differences in economic prosperity of different regions persists overtime, political discontent is bound to emerge sooner or later.
2) The problem becomes further complicated when economic disparities among regions overlap with differences in race, religion, language or culture of the people living in different regions.
3) Regional inequalities exist not only in the form of income or output levels among regions, but also in other forms such as unequal access of the people of different regions to economic and social services, employment opportunities or political power.
   1) eg. **Jharkand, Darjeeling, Rayalaseena, Telangana issues**.
   2) eg. North Eastern Part of our country, Cauvery issue.
   3) eg. Intra regional disparities existing in several states regarding industrial establishment, health services some regions are more represented in the cabinet.

Theoretical explanations

1. Classical Economist's view
2. Marxist view
3. Perrouxian view
4. Myrdal's view
5. Hirschman's view
6. Miscellaneous theories

1. Classical Economist's View:
The Classical economists hardly evince any interest in the spatial dimension of economic development. They believed that factor flows/ market forces would bring equilibrium automatically. They argued that wage and income levels among regions would not last long. They further argued that labor would flow from (migration) low wage region to high wage region, While capital will flow in the reverse direction (i.e., from high wage region to low wage regions). Classicalists view failed, and many economists started questioning the "Self Equilibrating Model" of the classical economists.

Regional disparities Social Service Indicators

Regional disparities Social Service Indicators					
States	**Per capita expenditure on health**	**Per capita expenditure on education**	**Infant mortality per 1000 live births 1971**	**Life expectancy at birth 1971**	**Physical quality of life index**
Andhra Pradesh	21.2	36.5	113.69	53.89	20.6
Assam	17.0	38.1	112.22	53.53	22.7
Bihar	12.2	27.7	103.62	54.70	23.4
Gujarat	22.9	47.9	152.20	55.33	24.0
Haryana	28.0	46.4	100	60.00.	52.1
Karnataka	19.9	43.1	100	50.52	37.6
Kerala	28.7	76.5	55.65	61.00	100
Madhya Pradesh	17.2	29.9	151.69	53.89	14.8
Maharashtra	24.2	51.6	97.32	58.72	57.6
Orissa	17.2	37.6	103.30	56.30	35.2
Punjab	30.6	58.8	103.29	61.23	61.6
Rajasthan	25.3	39.1	147.80	60.23	31.4
Tamil Nadu	20.9	45.9	117.20	55.00	36.4
Uttar Pradesh	11.7	27.7	159.26	54.29	5.3
West Bengal	22.0	43.2	100.25	57.26	45.8
All India	20.2	40.1	-------	--------	-------

Regional Disparities Infrastructure Indicators

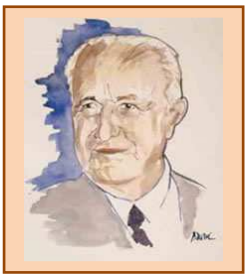
States	**Power in kwh**	**Electrified % in 1980**	**Road length km**	**Railway length in km**	**No. of post offices**	**Literacy % in 1981**	**No of hospitals 1000 sq.km**
Andhra Pradesh	95	63.4	38	17	31.3	29.9	2.1
Assam	34	20.8	73	28	16.1	------	0.7
Bihar	79	30.5	46	31	15.2	26	1.2
Gujarat	240	64.1	27	29	25.9	43.8	1.0
Haryana	250	100	67	33	19.7	35.8	1.9
Karnataka	153	64.4	55	15	26.6	38.4	1.8
Kerala	104	100	232	23	17.8	69.2	19.5
Madhya Pradesh	99	33.3	23	13	19.0	27.8	0.6
Maharashtra	223	73.8	53	17	18.6	47.4	2.5
Orissa	116	37.3	74	12	27.0	34.1	1.6
Punjab	328	100	90	43	23.6	40.7	2.9
Rajasthan	104	43.3	18	16	28.5	24.1	20.8
Tamil Nadu	181	99.0	130	29	24.9	45.8	2.9
Uttar Pradesh	96	35.7	63	30	16.8	27.4	2.4
West Bengal	113	35.4	158	42	14.2	40.9	3.9
All India	134	45.1	49	18	21.0	36.2	1.6

2. Marxist View:

Regional disparity is the characteristic feature of capitalism and is aggravated by rivalry and competition and the search of maximal profits is the very nature of capitalist relations of production any by the private ownership of the means of production.

3. Perrouxian View:

French Economist Perroux in his attempt to understand the modern process of economic development, discovered that,

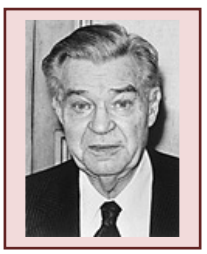


a. Growth does not appear everywhere at the same time.
b. It manifests itself in points or poles of growth with variable intensities.
c. It spreads by different channels and with varying terminal effects for the economy as a whole.

[Perroux heavily relied on Schumpeter's theory of economic development to explain why growth appears in a particular place. A/C to Schumpeter "development occurs as a result of discontinuous spurts in a dynamic world"]

According to Perroux once growth emerges in a particular place, it becomes centre of growing economic activities and in their turn induces growth in the dependent regions. A/C to Perroux the process of economic development is essentially unbalanced, and the centers of growth may give birth to other centers or it may become a centre of stagnation.

Myrdal's View:



The outstanding Swedish Economist Gunnar Myrdal was one of the first among western scholars to pay attention to the grave consequences, not only economic but political as well, which may result from the aggravation of disparities in economic development. In his book, "Economic Theory and Underdeveloped Regions" he presented the "**Cumulative Causation Model".**

According to this model, economic development having started in some advantageous place, continues to develop in that place and the play of market forces normally tends to increase rather than decrease inequalities between regions. Myrdal goes on to argue that once growth starts through historical accident in a locality, "**the ever increasing internal and external economies–(lower average costs of production from and increased rate of output, availability of trained workers, communication facilities, access to larger markets) tends to sustain the continuous growth at the expense of other localities and regions where instead relative stagnation or regression became the pattern".**

To read Gunnar Myrdal's Noble Lecture on 'The Equality Issue in World Development'
http://nobelprize.org/nobel_prizes/economics/laureates/1974/myrdal-lecture.html

Myrdal explains the impact of the growing region (nucleus) on rest of the economy with the help of two opposite kinds of forces, which he calls the **"Spread effect"** and **"Back wash effect".**

"The Spread effect"

"The Spread effect" – refers to all growth inducing effects i.e., inflow of raw materials, new technologies, demand for the agricultural products, If strong enough, these forces may start a cumulative expansionary process in the lagging regions.

"The Backwash effect"

"The Backwash effect" – refers to all adverse effects i.e., withdrawal of skilled labour from underdeveloped regions, capital and goods–all of which rush to the dynamic centre of development.

Due to the accumulation of concentration advantages, the backwash effect predominates. This of course, increases the relve backwardness of underdeveloped regions. Thus Myrdal made a synthesis of various elements involved in the process of regional growth including agglomeration economies, factor flows, social environment, and role of public policy.

Hirschman's View:

Albert Hirschman, an American Economic Professor, explained economic growth process in terms strikingly similar those of Myrdal. Hirschman felt that **" Inter regional inequality of growth is an inevitable concomitant and condition of growth itself"**. Hirschman explained his concept with the help of two terms i.e**.," Trickling–down effect**" and **Polarization effect"**. Trickling down effect (analogous to Myrdal's Spread effect) Polarization effect (analogous to backwash effect).

(Some economists criticized Hirschman's theory of **"economic transmission"** – for having created terminological confusion for the terms already accepted in the scientific language)

The extent of regional imbalances in India.

Problems associated with understanding regional Imbalances.

1) It is a misnomer to use the term **"regional imbalance**" in our country. It is advisable to use the term **'inter-state imbalances'** (states are analogous to regions but they are not regions in the strict academic sense) because information required to understand the spatial imbalances is available collected either at the state level or district level.
2) Even the data collected / information available are not comparable. Data / Information available in our country at their best can indicate the 'broad trends' only.
3) Absence of comparable data / information for all the aerial units (districts).
4) The problem of selecting indicators to highlight the imbalances, for example 'percapita' income is widely used to highlight the disparities in our country. But this indicator suffers from many weaknesses. What are they?

Regional Plan

1.Concept of Region -

2.Classification and hier

The problem of Comparison

1. Incomparability:

a. Price levels are different in different states.
b. The commodities included in the compilation of price level by different states are different.
c. Weights assigned to different commodities are different in different states.

Because of these reasons per capita income is incomparable

2. At times underdeveloped regions may possess better infrastructure and other preconditions for development compared with developed regions. Using percapita income may conceal other positive aspects.

3. Some parts of our country is still depending on barter exchange (exchange in kind). Economy

Economy is not fully

is still not fully monetized. So it is unwise to use percapita income which is calculated based on money exchange.

So on account of all these considerations, percapita income alone cannot be a sufficient indicator of development.

If 'Per Capita Income' is not sufficient, what are the other Indicators?

1) Differences in Industrial Growth
2) Disparities in Agricultural Growth
3) Level of Literacy in different states
4) Percentage of Urban population to total population
5) Percentage of workers in manufacturing industries to total workers
6) Total Road length
7) Infant Mortality rate.

Which indicator to choose { Some value judgement about what is important & unimportant indicator. It depends upon availability of data } Indicator may be important, but data may not be available

Indicator may not be important, but data may be available

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Disparities in Industrial Growth:

Before Independence:

Our Country inherited a lopsided pattern of Industrial development with most of the industries concentrated at a few centers, and in some cases this concentration was not the result of natural advantages but was imposed by historical forces. This disparity is still continuing.

- Cotton industry showed a tendency to disperse that too in a limited sense. The centers of concentration shifted from Bombay to Ahmadabad and to Coimbatore.
- As far as soap industry is concerned Bengal & Bombay shared 86.3% of the workers.
- As far as woolen industry is concerned United Province, Punjab, Bombay shared 80.0% of the total workers employed.

Basis for identification of disparities

1. Productive capital employed, 2.Total no. of workers, 3.Value addition and
4. Gross output.

As per 1950 Information:

- The total share of capital employed was concentrated in West Bengal (24.65 %) and Western Region (34.60%). Western Regions include Bombay State, Kutch, Sourasthra, Goa, Daman, Diu their combined share was 59.25%.
- Both the regions (Western & West Bengal) accounted for 63.03% of the total persons employed.
- Both the regions accounted for 60.41% of the gross ex-factory value of output.
- They accounted for 63.95% of value added by manufacture
- The rest of India (excluding Bengal & Western region) accounted for

40.75% of the productive capital
36.97% of the total persons employed
39.59% of the gross ex factory value of output
36.05% of the value added by manufacture

As per 1960 Information:
(After 15 years of planned development no decline of concentration was noticed.), Maharashtra, West Bengal, Gujarat (combined population was 22.0% of the national population.

These three states accounted for 42.2% of the productive capital
50.1% of the total number of persons employed
53.1% of gross output

If we include Tamilnadu with these three states, the 4 states accounted for (29.3% of the national population) 58.8% of the total persons employed
61.6% of Gross output

Bihar, U.P. and Orissa accounted for 31.1% of the total population
21.3% of the productive capital
14.5% of the persons employed
17.6% of the gross output

As per 1975 information (after 25 years of planning)
Maharashtra, West Bengal, Gujarat and Tamil Nadu accounted for

- 29.81% of the total population
- 47.5% of the total factories
- 42.2% of the total fixed capital
- 53.1% of the total employment
- 57.0% of the total output
- 58.6% of the total value added.

The remaining 17 states (70.19% of the population) shared only 40% of the total output & value added.

Consumption of Electricity:

➢ Disparities in per capita industrial consumption of electricity. (KWh)

	1969 –70	1976-77
National average	57.5	68.4
Gujarat	88.6	119.8
Karnataka	64.1	107.8
Kerala	57.3	68.1
Maharashtra	114.0	120.4
Orissa	57.6	71.2
Punjab	138.5	143.5
Tamilnadu	74.5	76.8
West Bengal	86.3	78.8

Industrial Licensing Policy and Regional Imbalances:
A policy and a legislation was passed (Industries Regulation & Development Act 1951) with the objectives of

- To regulate industrial investment and production
- Protecting the small entrepreneurs
- To prevent the monopoly and concentration
- To reduce the disparities among regions

The purpose of this policy is to grant more licensees for establishment of industries in the lagging regions and controlling the establishment of more industries in the leading regions by denying licensees to them.

Regional Disparity Based on number of licenses issued.
Out of the 2293 licenses issued during the period 1953 – 1961

- **Bombay, Calcutta, Madras, got 1778 licenses (35.77%)**
- Maharasthra , West Bengal , Gujarat & Tamilnadu (1956-1966) accounted for } 59.31% of the applications, 62.42% of the licenses approved
- **Bihar and Orissa - 6.34% of the licenses approved**
- **Uttar Pradesh & Madhya Pradesh - 9.17% of the licenses approved**
- Out of the total licenses for issued for
  - Maharashtra → 51% gone to 3 districts Bombay, Thana Poona
  - West Bengal → 71% gone to Calcutta, Howrah & Hoogly
  - Tamil Nadu → 59% gone to Madras & Coimbatore.

In 1968 **Pande Working Committee** identified the backward areas of our country. Everyday expected that these areas would get more licenses based on that. What happened?

- The backward areas of relatively more developed states received more licenses.
- Out of the total 486 licenses issued during the period 1970 – 1974, 227 licenses were given to the backward districts located in Maharashtra, West Bengal, Gujarat and Tamilnadu.

The above facts demonstrate that industrial licensing policy has all along favored the already developed states while the claims of the backward states were ignored. Even when recommendations were made to grant more licenses to backward areas, the backward areas of the developed states received a preferential treatment. Even the licenses given to backward areas were not appropriate, since they did not possess sufficient spread effects and significant linkages.

Financial Institution and Regional Imbalances.
The Central financial institutions also favored the backward area of the development states in granting direct assistance on concessional terms.

Average per capita assistance extended by Financial Institutions	Rs. 126.12
Average per capita assistance extended to Tamilnadu	Rs. 188.26

Average per capita assistance extended to Punjab	Rs. 168.40
Average per capita assistance extended to Maharashtra	Rs. 255.54
Average per capita assistance extended to Karnataka	Rs. 163.43
Average per capita assistance extended to Haryana	Rs. 268.39
Average per capita assistance extended to Gujarat	Rs. 316.79
Average per capita assistance extended to Bihar	Rs. 56.41
Average per capita assistance extended to Uttar Pradesh	Rs. 75.22
Average per capita assistance extended to West Bengal	Rs. 98.93
Average per capita assistance extended to Madhya Pradesh	Rs. 65.45

Commercial Banks and Regional Imbalances:

Commercial banks gave a large proportion of their advances to the developed industrial states. A more serious allegation leveled against them is that they worked as channels through which funds from backward states kept flowing to the developed states. This situation has not changed even after the nationalization of banks in 1969.

Other Indicators of Disparities:

The choice of indicators should depend upon the value judgement and the availability of data. The chosen indicators should be relevant, objective and measurable and reflect the multidimensional character of development. Several attempts were made by persons like,

- Ashok Mitra V. Nath Hemalatha Rao Ganguli & Gupta.

Indicators to measure Development & under developemnt

- **Development Index for Agricultural Sector**

Agricultural output per lakh of population / per capita production of food grains.
Agricultural output per worker. Gross area irrigated as percentage of grass area sown.
Yield per hectare. Consumption of fertilizers per 1000 hectares of gross cropped area
Area under commercial crops / Mechanization index.

- **Index for Industrial Development**

Number of factories per lakh of population / 1000 km^2
Percentage of Industrial workers to total workers
High Voltage Industrial power consumption
Percapita gross output / Value addition

- **Index for Banking Development**

Number of banks per lakh of population
Deposits in banks per lakh of population
Percentage of bank offices to bank offices in the country
Percentage of deposits in the total deposits
Percentage of credits in the total deposits

- **Index for Educational Development**

Literacy rate
Percentage of school going children to total population
Percentage of college / university students to total population
Number of schools /Number of colleges per 1000 sq.km
Number of colleges /Number of teachers per lakh of population
Female Literacy rate

- **Index for Infra Structure Development**

Road length in Kms per 100 Sq.Km of area
Number of post, telegraph and telephones per 1000 sq.km
Number of post, telegraph and telephones per lakh population
Percentage of electrified villages to total villages inhabited
Per capita consumption of electricity.

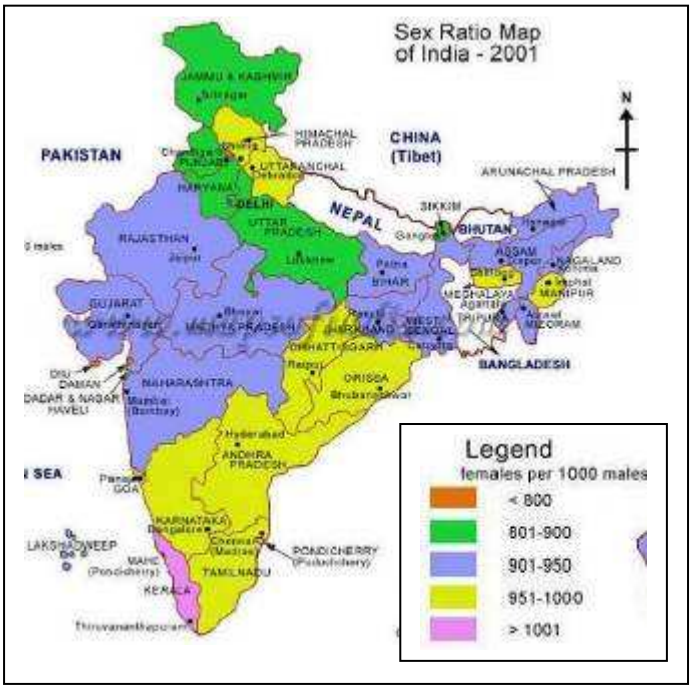
- **Index for Medical Services**

Number of Government / Private medical centers per lakh population
Number of hospitals beds per lakh of population
Number of professionals (Doctors/ Nurses) per lakh population.

New perspective in the regional disparities in development The Indian view

The problem of regional disparities in development is not taken seriously and inconsistently dealt in the concept of development. **Regional disparities are the manifestation of spatial injustice and should be reduced for attaining the goal of just and egalitarian society**. But, in reality the regional disparities in development are more acute and quite persistent at global, national and international level. Therefore it would be a quite fruitful exercise to explore into the theoretical expositions and actual position in regard to regional disparities at the various scale of spatial units. The findings may be helpful in the plan formulation for the removal of regional disparities,

which is a main plank of contemporary development planning of all the developing countries.



Disparities in the development has been a theme of great academic interest and practical significance during the post world war 2nd period when a large number of colonies attained political independence and became conscious of the distressing disparity that existed between those colonies and their erstwhile colonial master. **The contemporary world consisted of two-different realms; one that of the west, immensely rich, industrialized, urbanized and with a history of steady development since the industrial revolution, the other of newly independent countries, abysmally poor, agricultural, rural and with an equally long history of exploitation and stagnation**. This dualism could not escape the concern of academicians, politicians and administrators.

Several studies were undertaken and numerous theories were postulated to explain the global duality of development and underdevelopment. **Hinderink and Sterkenburg (1978)** classified the studies dealing with regional disparities into three types:

- those which use space as a mere framework to describe regional differences in development;
- those which employ space, particularly in terms of physical space and built environment, as an explanatory variable to analyze spatial inequality; and
- those which adopt space with reference to the level and nature of its development, as a variable to be explained through historically developed politico-economic social structure.

Spatial theories of unequal development were also grouped by **Nash (1963)** into three categories of **spatial differentiation, spatial diffusion and spatial integration**. This classification was based on the mode of analysis adopted. An improvement upon it was suggested by **Browlet (1980)** who again offered a three-fold classification of various theories into those which deal with comparative analysis of development pattern, which make inductive study of development stages in a specific region, and which examine the

process of spatial diffusion of development. This grouping was done essentially in the context of diffusionist development paradigm which highlights the role of spatial interaction.

For a convenient understanding, theories, explaining development in spatial context may be divided into two categories;

- those which emphasized the play of intra-regional factors leading to development or underdevelopment, and
- those which stressed the role of spatial interaction between developed and underdeveloped regions, largely detrimental to the interest of the latter.

What explains development and underdevelopment spatially from the basis of this grouping?

Theory emphasizing intra-regional factors

Theories in this group assign importance to factors relating to natural resources, technical advancement, and social institutions that hindered or accelerated the process of development in any areas.

Nurkse's (1958) 'vicious circle theory'

Nurkse's (1958) 'vicious circle theory' presented an attractive idea that underdeveloped countries were trapped in a series of interlocking problems of poverty and stagnation. The starting point was poverty, which was an insurmountable obstacle to development. If this thesis was valid then it would be difficult to understand as to how the presently developed countries, which were not so always could make advancement.

Boeke

Boeke (1953) attributed underdevelopment in the oriental world to limited needs, backward sloping supply curves of effort and risk taking, and an absence of profit seeking attitude. He stressed that the eastern society was moulded by fatalism and resignation. His gloomy analysis was rightly questioned by a number of scholars including Lewis, Baner, and Yarney

McClelland

McClelland (1961) found a high association between a country's level of achievement motivation and rate of its economic development.

Hagen

Hagen (1962) postulated 'authoritarian theory' holding feudal bringing up of the children responsible for the economic development of a country, In his **'theory of social deviance', Hoselitz (1960)** assigned key role to 'deviants' in development. He defined deviants as the one who break traditions, adopt innovations and thereby accelerate the process of transformation from underdevelopment to development.

George

George (1981) accused the local elites of the third world countries as the real cause of underdevelopment in postcolonial situation. According to her these elites remained the natural friends of western developed countries and exploited the native poor for their own vested interest and retarded the process of development.

Berry

Berry (1969) underlined the development role of integrated urban hierarchy in which innovations filtered down from cities to towns and from both to their surrounding countryside.

Llyod and Dicken

Llyod and Dicken (1972) observed that definable hierarchy of central places was a characteristic feature of an economically developed region.

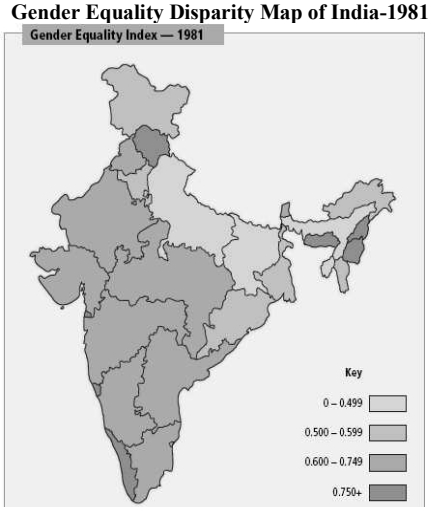
Johnson (1965) associated development inequality with varying access to urban market.

Some other theories described the sequence of development phases, and viewed the existing gap between developed and developing countries as a matter of time lag. The chief exponents of this historical thesis were German scholars namely list, **Brune, Hilderbrand, Bucher, Schmoller and Sombart.**

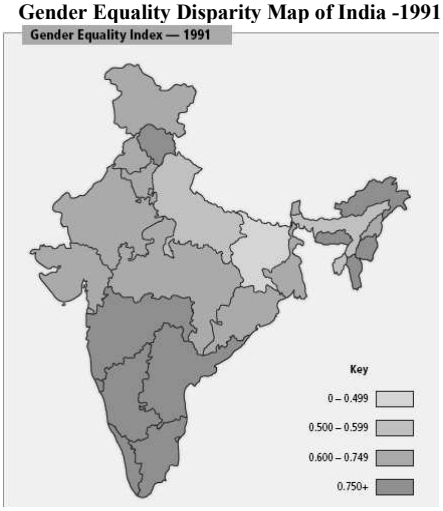
Rostow (1960) borrowing an analogy from the flight of an airplane noted five stages in economic transformation of a capitalist society: **traditional society precondition for take-off, drive to maturity and age of High Mass consumption.** The different countries of the world could be assigned to a particular stage a given point in time.

Theories reviewed above explained development and underdevelopment in an area and regional disparities accruing out of them through the intrinsic conditions. Role of social, psychological and spatial factors were emphasized. The historical perspective was strong in most of them.

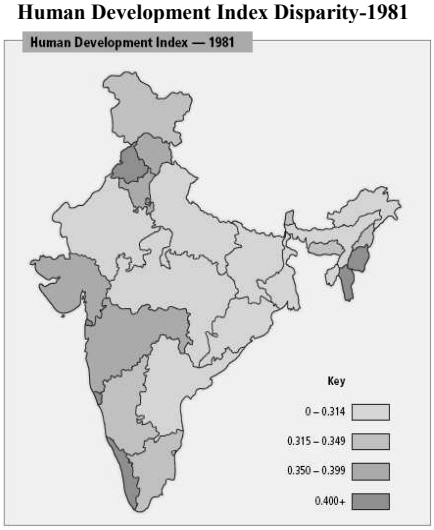
Gender Equality Disparity Map of India-1981



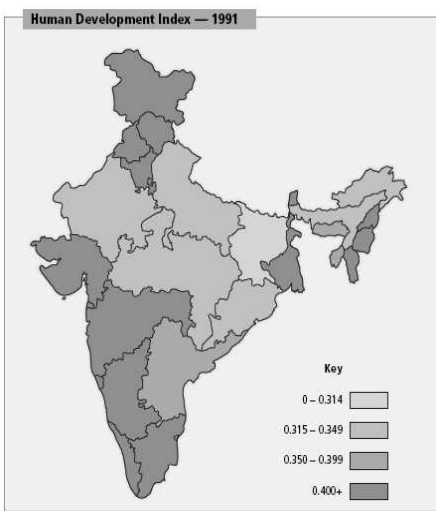
Gender Equality Disparity Map of India -1991



Human Development Index Disparity-1981



Human Development Index Disparity-1991



Theory emphasizing spatial interaction

The second group of theories, with spatial interaction as the main analytical framework, viewed development and underdevelopment as the two facets of the same coin. Development in one region was at the cost of underdevelopment in some other due to operation of **'backwash effect.'** Western colonial power exploited the third world through direct control during the colonial period and through tied trade and by extension of their aid and model of development in postcolonial period. The developed world created third world and third world created fourth world in their own countries by the greed of elites, arrogance of bureaucrats, hypocrisy of politicians and of western trained pseudo planners and academicians

In just contrast some theories, such as **'Growth Pole'** of **Perroux, Boudville and Richardson**, **'Spatial Diffusion'** of Haggerstrand (1967): and **'Growth Foci'** of **Misra** et al. (1976) gave due recognition to spread effects of development. These theories envisaged that if metropolitan development is sustained at high level, differences between center and periphery may be eliminated, as the economic dynamism of the major cities trickle down to smaller places and ultimately into most tradition bound peripheral areas.

The spatial interaction theories derived their meaning from three different context of space economy; **free market mechanism, colonial setting and neocolonial situation**. Free market mechanism was always biased in favor of development areas. **'Core-Periphery Theory'** by **Friedmann (1966), 'Circular and Cumulative Causation Theory'** by **Myrdal** (1957) represented this context. These theories are well known and need no elaboration.

The second was **colonial setting** in which the imperial powers flourished at the cost of the their colonies siphoning off the latter resources. This was well illustrated by **colonial dependency theory** of **Kundu and Raza (1982)** and in the writing of Marxist scholars such as Davey (1975) and Pavlov et all, (1975).

The third context was **postcolonial situation** in which the newly independent developing countries remained dependent on developed countries and found it difficult to extricate themselves from the network of exploitation. **Amin (1974)** called this process **'Peripheral Capitalism'** and Santos used the term '**dependent capitalism'** (1978). The other exponents of this idea were Baram (1970), Frank (1972), Fanon (1963) and Potekin (1962).

Most of the scholars referred to above tried to explain multifaceted and multicausal phenomenon of development and regional disparities in development by a one-dimensional theory. This amounted to some distortion of the fact. Therefore to reach on a conclusive result an indepth analysis of ground realities in regard to development disparities in different regions and various countries of the world is needed.

Hypothesis on regional disparities

On the basis of study of trend and pattern of regional disparities in development in different regions and various countries of the world the four hypotheses were extended:

1. Spatial convergence

The first hypothesis was **spatial convergence** based on development experiences of the western developed countries. It was stated that regional disparities tend to lessen with the process of development. The hypothesis found its support in the '**Spread and Backwash Theory'** of **Myrdal (1957), 'Trickle Down and Polarization Effect Theory'** of **Hirschman** (1958), **Urban Hierarchy Thesis for Development Innovation** of **Berry (1969)**, **Growth Pole Theory** of **Perraux, Baudville and Richardson**, **Spatial Diffusion** of **Haggerstrand** (1967) and **Growth Foci** of **Misra** et al., (1976).

2. Spatial convergence hypothesis

The **spatial convergence hypothesis** was falsified in case of third world developing countries where regional disparities increased with the process of development. In these countries the self-perpetuation hypothesis was based on the findings of Latin American and African situation and found its support in colonial and neocolonial dependency theory of Frank (1972), Amin (1974) and Kundu and Raza (1982). Additional point that favoured this hypothesis was development planning based on the principle of techno-economic efficiency and demonstration effort. In the capital scarce third world countries the meager development resources were invested in economically efficient regions that accelerated the regional disparities.

3.Concentration cycle hypothesis

The third hypothesis, which was **concentration cycle hypothesis**, is a synthesis of convergence and divergence hypothesis. It is well known as inverted 'u' shape hypothesis of Williamson (1965). It denotes that regional disparities increases in the beginning of development process, remain constant for some time and ultimately decrease with the process of development. It may be true in case of very long duration of time. However, the experience of developing countries showed that there was no visible sign for the decrease of regional disparities in these countries.

Recently some novel facts in regard to regional disparities in development were disclosed:

- At the global level fourth world countries namely Afghanistan, Nepal and Ethiopia which were poorest pocket of the world (Dubey, 1984).
- The degree of regional disparities varied from one area to another within the same country (Tewari, 1985).
- The regional disparities in various components of development do no move with same intensity and some time moved in opposite direction (Singh and Dubey, 1985; Dubey, 1988).

All these facts lead to fourth hypothesis that there is no association between development and regional disparities. In short it may be stated as 'no trade-off hypothesis.' Now it would be better to investigate the position of regional disparities in India in the light of above discussed hypothesis.

REGIONAL PLANNING

Synopsis
Region
Planning
Regional Planning Definitions
Need for Regional Planning / objectives
Features of Regional Planning
Unit of Planning – meaning
Characteristics of planning region
Role of regional planning
Regional planning and five year plans
Regional planning / development policies (Three conceptualizations)

Region:
It means 'a tract of land; an area homogeneous with respect to announced criteria' "**larger than any single urban area i.e. 'supra urban' space'**.

Regional development is the provision of aid and other assistance to regions which are less economically developed. Regional development may be domestic or international in nature. The implications and scope of regional development may therefore vary in accordance with the definition of a region, and how the region and its boundaries are perceived internally and externally.

The word 'region' is also used to stand for a tract of land, which is smaller than the individual state but larger than its basic territorial unit, namely the district. This meaning has been recognized in governmental pronouncements as well. The planning commission, for instance, employs this term to convey such a meaning, but in none of the five-year plans, it has made this explicit.

Planning:
Planning means making decisions in advance Planning may be viewed as highly disciplined and formalized activity through which a society induces change in itself. It involves the application of scientific knowledge in order to solve the problems and achieve the goals of a social system. **Any social system, therefore, which has adopted planning, whether it is a firm, family, town or region may hope to determine its own future**. Further, in evaluating the steps taken to reach this future, it may learn and through learning it may engage in a continual process of self-realization.

Regional Planning
Regional Planning is essentially a process of orderly and systematic anticipation of the future of a region, involving recommendations of the necessary remedial and constructive actions by public and private agencies to achieve the objectives of the plan/regional community.

Regional planning may involve extensive areas that include one or more regions or more limited areas such as drainage basins or metropolitan areas.
eg :
Southern Regions (Tamilnadu, Andhra Pradesh, Karnataka, Kerala) European Economic Market, Colombo Plan, SAARC Damodar Valley, TVA, Vaigai Periyar Command Area Madurai Metropolitan Planning Area.

Regional planning on one hand is an extension of local planning at the municipal or country level and on the other hand is a part of national and international planning.

Why Regional planning: (Objectives)
Basically the purpose of Regional Planning is to correct the distortions in the planning process.
General objectives of Regional Planning are as follows:
1. The clash between **economic goals** (formulated in terms of outputs only) and the **social development objectives** and needs.
2. The concentration of industry and infrastructure in a few areas thus creating enclaves of modernization in the midst of growing economic stagnation.
3. Undue emphasis on heavy industry to the neglect of agriculture
4. Promoting a pattern of education unsuited to the needs of general masses
5. Problems of inadequate employment opportunities.
6. Problems of adequately exploiting resources in a particular area.
7. Overcoming limitations on agriculture through the use of most advanced technology.
8. The problem of improving access to and the distribution of the higher order type of social facilities.
9. The problem of insecurity in some newly acquired territorial addition to the state.
10. The problem of groups experiencing social economic or political disadvantages in some area of the 'nation state'.
11. The problem of experiencing physical discomfort through overcrowding and congestion.

Features of Regional Planning:
- Regional Planning is a bridge between national economic planning and local physical planning.
- Opportunity for the regional governments to order its own affairs.
- Regional Planning is holistic – i.e. economic, social and physical.

Unit of Planning:
The important question in regional planning is
"What should be the unit of planning"?
Planning Region (Unit)
(1) should be large enough to take investment decisions of economic size,
(2) should be able to supply its own industry with necessary raw materials and labour,
(3) should have a homogeneous economic structure,
(4) contain at least one growth point and
(5) **Have a common approach to and awareness of its problems**". – Klaussen

Planning region to be an area that is large enough to enable substantial changes in the distribution of population and employment to take place within its boundaries, yet which is small enough for its planning problems to be viewed as a whole – Keeble.

In demarcating planning regions, administrative convenience assumes paramount importance, but for the sake of administrative convenience one should not forget about the homogeneity and nodality. So, homogeneity, nodality and administrative convenience should given equal importance.

Characteristics of a Planning Region:

1) Contiguity

Geographically it should be a contiguous unit, though could be sub divided into plain, hilly tract, coastal

2) Social cultural homogeneity

The people of the region should have social and cultural cohesiveness.

3) Separate data collection unit

The region should have a separate unit for data collection and analysis.

4) The region should have an economic existence, which can be assessed from statistical records.

5) People's participation

It should be small enough to ensure local people's participation in its development.

6) Span of control

It should be under one administrative agency.

7) Optimum size

It should not be too small. Its geographical size should be big enough to exploit resources and avoid duplication (by way of partially used capacity in neighbouring regions). This is as much relevant for new investments in capital for production as for technical training, medical facilities colleges etc. It should be big enough to permit the major part of labour requirements in any employing center to be met from within the region.

8) Minimum (or) narrow disparity

It should have fairly homogeneous economic structure, i.e. the variation in local proportions of employment and output in agriculture; industry and services should be within a narrow range. To this we may also add a minimum topographical homogeneity which ensures absence of seasonal or permanent breaks in road links.

9) Presence of growth point

It should have one or more growth points.

10) Consensus in defining problems and solving it

There should be common aspirations and approaches to their solution; it should permit and encourage competition but not rivalry or apathy between one area and the other.

Role of Regional Planning

The main purpose of regional planning is to ensure optimal utilization of space and optimal distribution pattern of human activities over the space. To achieve this, it plays either.

1) Passive or indicative role is to point out how the sectoral investments decision can be integrated at the regional level and the advantages there of.

2) Active or imperative role is formulating and then implementing measures to assist the growth of certain regions, while restraining the growth of others

Regional Planning and Five Year Plans

I FYP: A research committee was set up to study about the problem.

II FYP: The plan emphasized

a) Less developed areas should receive due attention

b) Keep the claims of underdeveloped regions in mind while deciding the location of new enterprises.

III FYP: There was a separate chapter on **"balanced regional development"**. The plan emphasized

a) Balanced development of different parts of the country,

b) Extension of benefits of economic progress to the less developed regions

c) Wide spread diffusion of industry

IV FYP: Attempts were made to identify the backward regions **(Pande Committee)** for the purpose of granting concessions and financial assistance to industries **(Wanchoo Committee)** was initiated and weight age given to backward states in allocation of central assistance.

V FYP: Emphasis was laid on as follows:

a) Resource / Problem based Area Programs: DPAP, CADP, HADP

b) Target Group Programs: SFDA, MFDA

c) Area Specific Incentive Programs: Sub Plan Approach for Hill / Tribal areas.

Other Five Year Plans …. Regional development policy-conceptualization

Considering the period of planning as a whole the policies adopted by the govt can be classified into either of the following categories.

CONCEPTUALIZATION OF REGIONAL DEVELOPMENT POLICIES IN INDIA

Conceptualization of regional development policies in India

1) Policies aimed at industrialization of lagging regions

eg. a) Location of public sector projects in backward regions

b) Use of industrial licensing policy to direct private investment in backward in backward areas.

c) Encouragement to prospective entrepreneurs to set-up industries in backward areas.

2) Policies for development of irrigation, agriculture & allied activities

eg. a) Command area, Drought prone Area, Hill Area development

3) **Policies aimed at providing infrastructural etc in facilities regions transport, communication, banking etc in backward regions**

4) **Transfer of resources from centre to state in the form of plan assistance, non plan assistance and discretionary grants in such a way so as to reduce regional disparities.**

5**) Special Programs for the development of backward and less developed regions**

II Dr.K.V. Sundaram's Conceptualization of Regional Development Policies

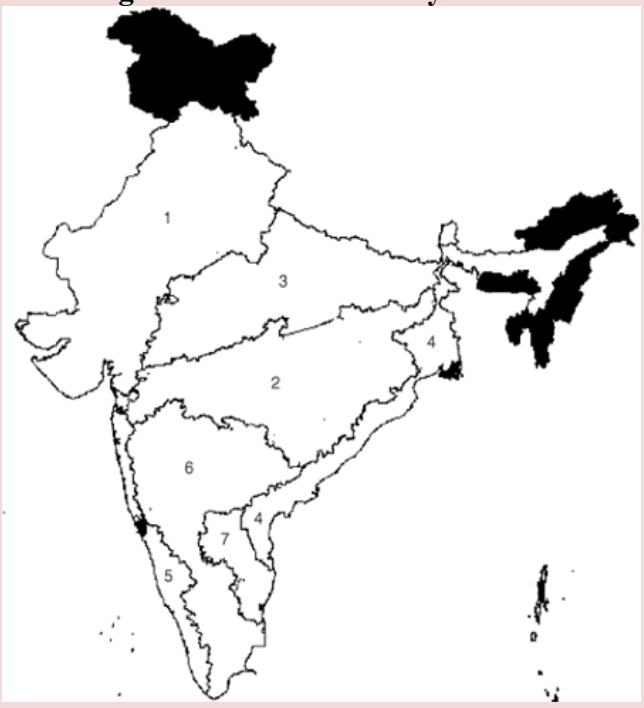
1. An inter-regional allocation policy for the distribution if central assistance / funds to State Governments governed by a formula tilted in favor of backward areas.
2. Incentive Policies designed to direct investments in the industrially backward districts.
3. Action planning based on area / regional development approach to tackle identified problem areas – tribal areas, hill areas, drought prone areas, desert and flood prone areas, problem region like north-east.
4. Integrated approach to local level planning focused on the district and the block.
5. A basic needs strategy oriented towards the provision of minimum needs, so that disadvantaged areas and groups may achieve parity with others in terms of social consumption.

III Policy measures to abolish regional in balance in India

1. Capital and Technology transfers.
2. Incentive policies for agricultural and industrial growth
3. Land development and resettlement with a package of incentives
4. Rationalization Strategy.
5. Integrated development focused on delimited small areas
6. Target group approaches
7. Bottom-up strategies and decentralized development
8. Comprehensive regional planning approach.

Regionalization of Poverty

Regionalization of Poverty in India



Region 1 is the most clearly demarcated – not only did it have the lowest incidence of poverty in 1999 (less than 6 percent) but also the steepest decline over the period considered. It stretches from the Western Plain, Kutch and part of Kathiwaar peninsular into the Northern Plain and central highlands, and further into the fertile irrigated areas of Punjab and Haryana.
Region 2 is the 'heart' of the poverty belt, which had been identified as early as the early 1970s accounting for substantial part of the rural poor in 1999. It covers the area of the Eastern (Chattisgarh) plateau and Eastern Ghats and extending into the central highlands and part of the Deccan plateau. This is a hot semi-arid region with limited scope for irrigation.
Region 3 is the medium-poverty region extending over Eastern UP, Bihar and into the Central Highlands. It had more potential for irrigation than Region 2 though the soil is less favorable for staple agriculture.
Region 4 is a more heterogeneous one stretching along the east coast of India. It includes the hot sub-humid to humid plains of Bengal and Assam and stretches north-east to include the area of the Eastern Himalayas, and further south into the semi-arid per humid area of the Eastern coastal plain.
Region 5 is the Western Gnats and Coastal Plain with red laterite and alluvium derived soils and humid to per humid ecological conditions.
Region 6 is the arid region of the Deccan, including parts of Telengana and the Eastern Ghats with red and black soil.
Region 7 is the Eastern Ghats and Tamil Nadu uplands the Karnataka Deccan plateau with red loamy soil.

Backward Area Development

Criteria to identify backwardness

Attempts to identify the poorest or most backward districts in the country have been made since 1960. A committee of the Government of India's Ministry of Rural Areas and Employment the previous name for the Ministry of Rural Development conducted one of the most elaborate exercises for the identification of backward districts in 1997. Headed by EAS Sharma, who was then Principal Advisor to the Planning Commission, the committee used a composite method with differing weights for parameters such as:

List of Backward Districts in India

Uttar Pradesh	**68**	**Madhya Pradesh**	**40**
Bihar	**37**	**Rajasthan**	**32**
Orissa	**18**	**Assam**	**17**
Jharkhand	**17**	**Arunachal Pradesh**	**13**
Chattisgarh	**12**	**Haryana**	**11**
J & K	**8**	**Karnataka**	**7**
Nagaland	**7**	**West Bengal**	**7**
Gujarat	**5**	**Maharashtra**	**5**
Manipur	**5**	**Meghalaya**	**5**
Uttaranchal	**5**	**Mizoram**	**2**
Punjab	**2**	**Andhra Pradesh**	**1**
Dadra & Nagar Haveli	**1**	**Sikkim**	**1**
Tripura	**1**	**Total**	**327**

- Incidence of poverty
- Education
- Health
- Water supply
- Transport and communications, and
- Degree of industrialization.

Sharma Committee List of backward districts

The Sharma Committee's list of 100 most backward districts included:

- 38 districts from undivided Bihar
- 19 from undivided Madhya Pradesh
- 17 from undivided Uttar Pradesh
- 10 from Maharashtra, and
- A smaller number of districts from other states

There were no districts from Gujarat, Goa, Kerala, Punjab, Andhra Pradesh and Tamilnadu. The committee did not consider the northeastern states and Jammu and Kashmir as it felt "they had problems which were specific and peculiar to them".

The desert, drought prone and backward areas (integrated development) Bill, 2006

''Backward areas'' include the desert and drought prone areas with very low or scanty rainfall and the areas which are economically, industrially, educationally and socially lagging behind from the rest of the country and so declared by Central Government by notification in the Official Gazette;

Criteria recommended by various committees for identification of backwardness can be summarized as follows:

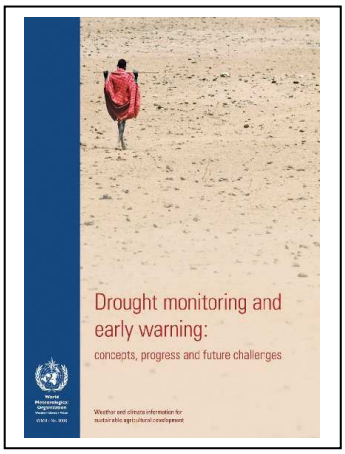
1. Density of population per sq.km. of area.
2. Percentage of agricultural workers to total workers.
3. Percentage of literate population.
4. Percentage of school going children.
5. Total per-capita income.
6. Per capita income from agriculture.
7. Sex ratio, industry and mining.
8. Availability of infrastructural facilities.
9. Per capita consumption of electricity
10. Chronically drought prone areas.

11. Chronically flood prone areas.
12. Length of surfaced roads per 100 sq. km. Of area.
13. Public health care system.
14. Safe drinking water facility.
15. Poverty rates.

List of Backward Blocks in Tamilnadu

Name of the District	Name of the Backward Blocks
1 KANCHIPURAM	1. Wallajnabad 2.Kancheepuram (Urban) 3.Lathur 4.Chitahamur
2 THIRUVALLUR	1. Poondi 2.Kadambathur
3 CUDDALORE	1. Portonovo 2.Melbhuvanagiri
4 VILLUPURAM	1. Melmalayanur 2.Vallam 3.Thirunavalkur 4.Kanai 5.Kandamangalam 6.Thagadurgam 7.Rishivandiyam 8.Kalrayan Hills
5 VELLORE	1. Arcot 2.Jolarpet 3.Kandhili 4.Nemili
6 THIRUVANNAMALAI	1. Cheyyar 2.Vembakkam 3.Polur 4.Chetput 5.Jawadhu Hils 6.Pudupalayam 7.Thandayampet
7 DHARMAPURI	1. Mathur 2.Veppanapalli
8 KARUR	Kadavur 2.Thogaimalai 3.Perambalur District 4.Uppiliyapuram 5.Andimadam 6.T. Palur 7.Alathur 8.Veppanthattai 9.Veppur 10.Sendurai 11.Thirumanur
9 TIRUCHIRAPALLI	1. Marungapuri 2.Vaiyampatti 3.Karur District
10 THANJAVUR	1.Thiruvonam 2.Sethubavachatram 3.Ammapettai 4.Thiruppanandal
11 THIRUVARUR	1.Madukkur 2.Kodavasal 3.Koradachery 4.Thiruthuraipoondi 5.Muthupettai 6.Kottur 7.Koothanallur (Urba)
12 NAGAPATTINAM	1. Sirkali 2.Kollidam 3.Keelaiyur
13 MADURAI	1. Sedapatti 2.Kottampatti
14 THENI	1. Chinnamanur 2.Cumbam 3.Kadamalaikundu 4.Myladumparai
15 DINDIGUL	1. Natham
16 RAMANATHAPURAM	1.Nainarkoil 2.Bogalur 3.Thirupullani 4.R.S. Mangalam 5.Kadaladi
17 SIVAGANGAI	1. S. Pudur 2.Kannangudi
18 THIRUNELVELI	1.Courtallam (Urban) 2.Kadayanallur (Urban) 3.Melaneelithanallur

Drought & Backwardness
What is Drought?
Understanding and Defining Drought

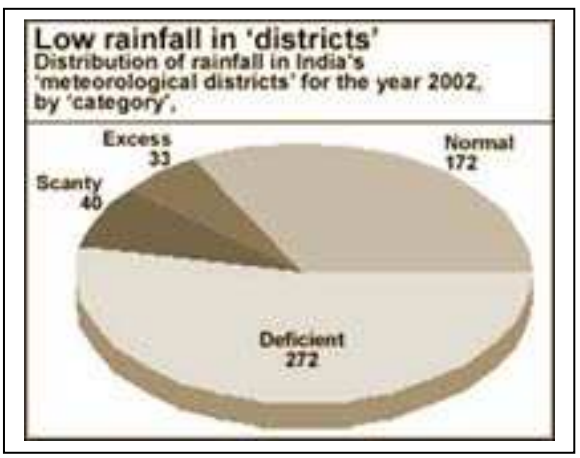


The Concept of Drought
Conceptual Definitions of Drought
Operational Definitions of Drought
Disciplinary Perspectives on Drought

The Concept of Drought

Drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. Drought is a temporary aberration; it differs from aridity, which is restricted to low rainfall regions and is a permanent feature of climate.

To know more about drought visit http://indiagovernance.gov.in/droughtmanagement.php



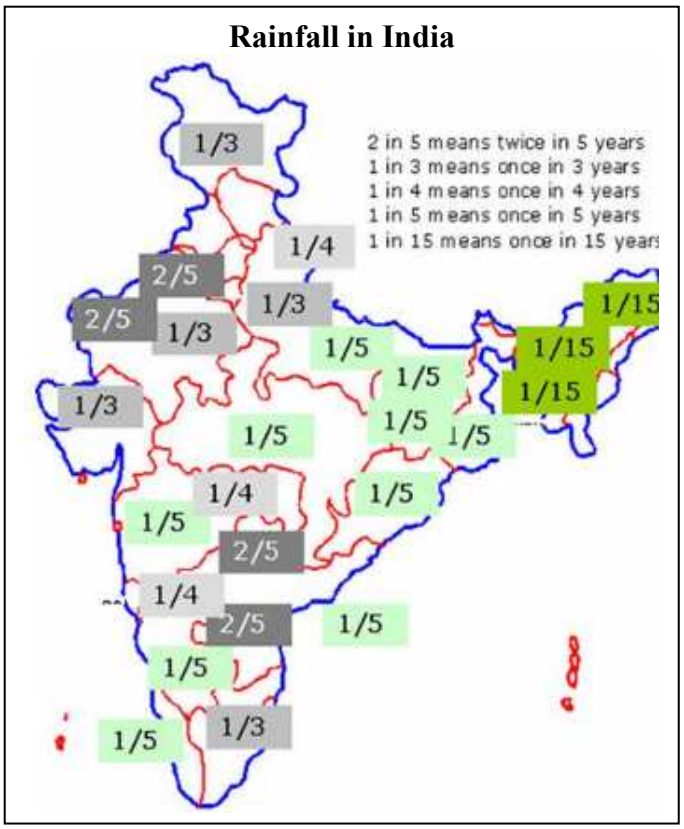
Drought is an insidious hazard of nature. it originates from a deficiency of precipitation over an extended period of time, usually a season or more. This deficiency results in a water shortage for some activity, group, or environmental sector. Drought should be considered relative to some long-term average condition of balance between precipitation and evapo transpiration (i.e., evaporation + transpiration) in a particular area, a condition often perceived as "normal". It is also related to the timing (i.e., principal season of occurrence, delays in the start of the rainy season, occurrence of rains in relation to principal crop growth stages) and the effectiveness (i.e., rainfall intensity, number of rainfall events) of the rains. Other climatic factors such as high temperature, high wind, and low relative humidity are often associated with it in many regions of the world and can significantly aggravate its severity.

Drought should not be viewed as merely a physical phenomenon or natural event. Its impacts on society result from the interplay between a natural event (less precipitation than expected resulting from natural climatic variability) and the demand people place on water supply. Human beings often exacerbate the impact of drought. Recent droughts in both developing and developed countries and the resulting economic and environmental impacts and personal hardships have underscored the vulnerability of all societies to this "natural" hazard.

There are two main kinds of drought definitions: conceptual and operational.

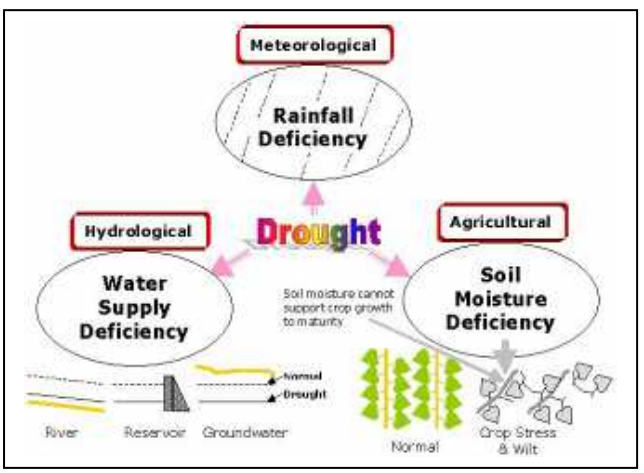
Conceptual Definitions of Drought

Conceptual definitions, formulated in general terms, help people understand the concept of drought. For example: Drought is a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield.



Conceptual definitions may also be important in establishing drought policy. For example, Australian drought policy incorporates an understanding of normal climate variability into its definition of drought. The country provides financial assistance to farmers only under "exceptional drought circumstances," when drought conditions are beyond those that could be considered part of normal risk management. Declarations of exceptional drought are based on science-driven assessments. Previously, when drought was less well defined from a policy standpoint and less well understood by farmers, some farmers in the semiarid Australian climate claimed drought assistance every few years.

Operational Definitions of Drought

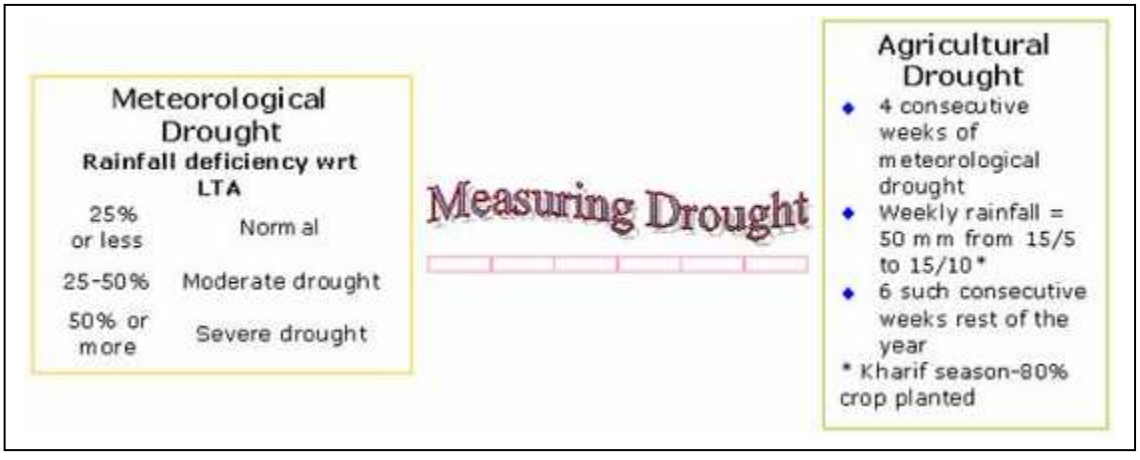


Operational definitions help people identify the beginning, end, and degree of severity of a drought. To determine the beginning of drought, operational definitions specify the degree of departure from the average of precipitation or some other climatic variable over some time period. This is usually done by comparing the current situation to the historical average, often based on a 30-year period of record. The threshold identified as the beginning of a drought (e.g., 75% of average precipitation over a specified time period) is usually established somewhat arbitrarily, rather than on the basis of its precise relationship to specific impacts.

An operational definition for agriculture might compare daily precipitation values to evapotranspiration rates to determine the rate of soil moisture depletion, then express these relationships in terms of drought effects on plant behavior (i.e., growth and yield) at various stages of crop development. A definition such as this one could be used in an operational assessment of drought severity and impacts by tracking meteorological variables, soil moisture, and crop conditions during the growing season, continually reevaluating the potential impact of these conditions on final yield. Operational definitions can also be used to analyze drought frequency, severity, and duration for a given historical period. Such definitions, however, require weather data on hourly, daily, monthly, or other time scales and, possibly, impact data (e.g., crop yield), depending on the nature of the definition being applied. Developing a climatology of drought for a region provides a greater understanding of its characteristics and the probability of recurrence at various levels of severity. Information of this type is extremely beneficial in the development of response and mitigation strategies and preparedness plans.

Disciplinary Perspectives on Drought

Meteorological, Hydrological, Agricultural and Socioeconomic



Meteorological Drought

Meteorological drought is defined usually on the basis of the degree of dryness (in comparison to some "normal" or average amount) and the duration of the dry period. Definitions of meteorological drought must be considered as region specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region. For example, some definitions of meteorological drought identify periods of drought on the basis of the number of days with precipitation less than some specified threshold. This measure is only appropriate for regions characterized by a year-round precipitation regime such as a tropical rainforest, humid subtropical climate, or humid mid-latitude climate

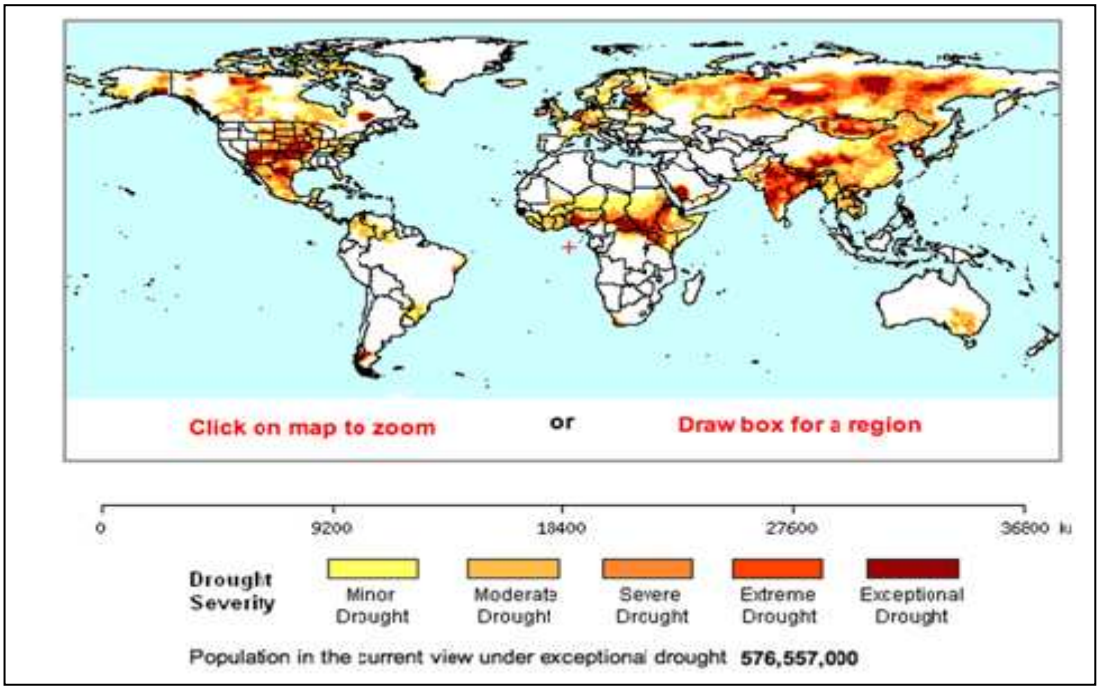
Agricultural Drought

Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced ground water or reservoir levels, and so forth. Plant water demand depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil. A good definition of agricultural drought

should be able to account for the variable susceptibility of crops during different stages of crop development, from emergence to maturity. Deficient topsoil moisture at planting may hinder germination, leading to low plant populations per hectare and a reduction of final yield. However, if topsoil moisture is sufficient for early growth requirements, deficiencies in subsoil moisture at this early stage may not affect final yield if subsoil moisture is replenished as the growing season progresses or if rainfall meets plant water needs.

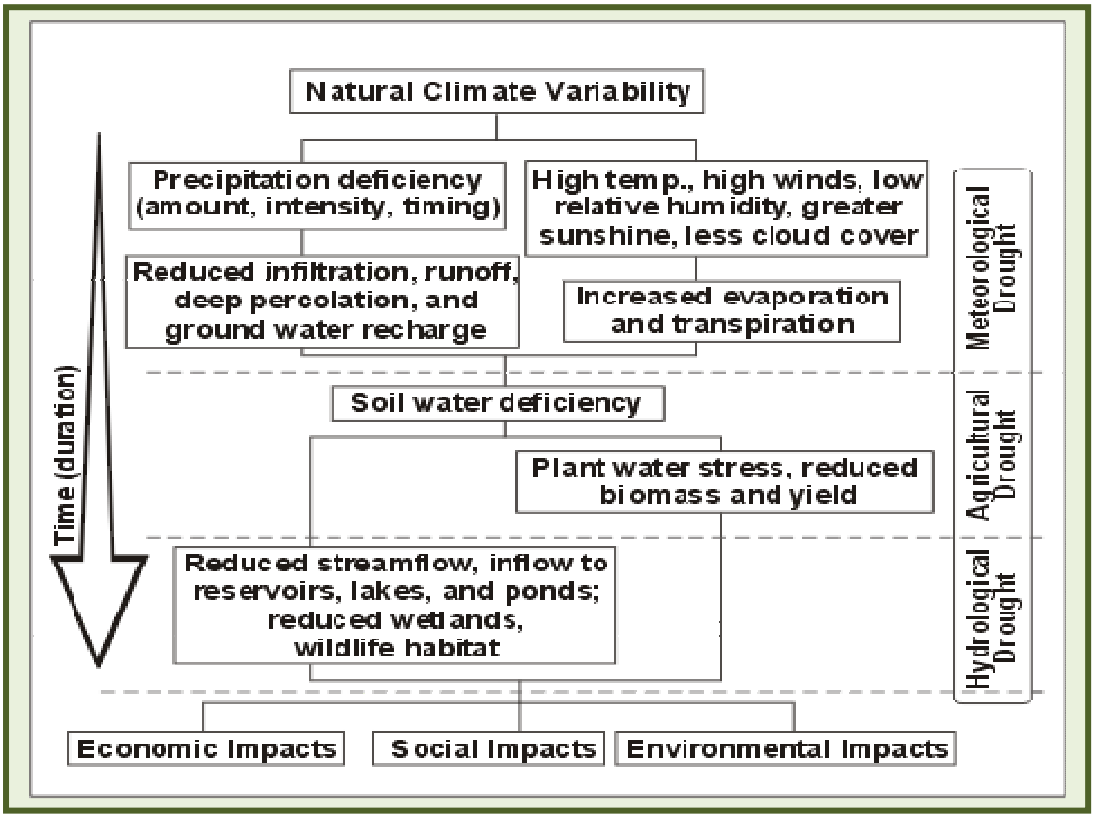
Hydrological Drought

Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (i.e., stream flow, reservoir and lake levels, ground water). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate with a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, stream flow, and ground water and reservoir levels. As a result, these impacts are out of phase with impacts in other economic sectors. For example, a precipitation deficiency may result in a rapid depletion of soil moisture that is almost immediately discernible to agriculturalists, but the impact of this deficiency on reservoir levels may not affect hydroelectric power production or recreational uses for many months. Also, water in hydrologic storage systems (e.g., reservoirs, rivers) is often used for multiple and competing purposes (e.g., flood control, irrigation, recreation, navigation, hydropower, wildlife habitat), further complicating the sequence and quantification of impacts. Competition for water in these storage systems escalates during drought and conflicts between water users increase significantly.



Hydrological Drought and Land Use

Although climate is a primary contributor to hydrological drought, other factors such as changes in land use (e.g., deforestation), land degradation, and the construction of dams all affect the hydrological characteristics of the basin. Because regions are interconnected by hydrologic systems, the impact of meteorological drought may extend well beyond the borders of the precipitation-deficient area. For example, meteorological drought may severely affect portions of the northern Rocky Mountains and northern Great Plains region of the United States. However, since the Missouri River and its tributaries drain this region to the south, there may be significant hydrologic impacts downstream. Similarly, changes in land use upstream may alter hydrologic characteristics such as infiltration and runoff rates, resulting in more variable stream flow and a higher incidence of hydrologic drought downstream. Bangladesh, for example, has shown an increased frequency of water shortages in recent years because land use changes have occurred within the country and in neighboring countries. Land use change is one of the ways human actions alter the frequency of water shortage even when no change in the frequency of meteorological drought has been observed.



Sequence of Drought Impacts

The sequence of impacts associated with meteorological, agricultural, and hydrological drought further emphasizes their differences. When drought begins, the agricultural sector is usually the first to be affected because of its heavy dependence on stored soil water. Soil water can be rapidly depleted during extended dry periods. If precipitation deficiencies continue, then people dependent on other sources of water will begin to feel the effects of the shortage. Those who rely on surface water (i.e., reservoirs and lakes) and subsurface water (i.e., ground water), for example, are usually the last to be affected. A short-term drought that persists for 3 to 6 months may have little impact on these sectors, depending on the characteristics of the hydrologic system and water use requirements.

When precipitation returns to normal and meteorological drought conditions have abated, the sequence is repeated for the recovery of surface and subsurface water supplies. Soil water reserves are replenished first, followed by stream flow, reservoirs and lakes, and ground water. Drought impacts may diminish rapidly in the agricultural sector because of its reliance on soil water, but linger for months or even years in other sectors dependent on stored surface or subsurface supplies. Ground water users, often the last to be affected by drought during its onset, may be last to experience a return to normal water levels. The length of the recovery period is a function of the intensity of the drought, its duration, and the quantity of precipitation received as the episode terminates.

Socioeconomic Drought

Socioeconomic definitions of drought associate the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought. It differs from the aforementioned types of drought because its occurrence depends on the time and space processes of supply and demand to identify or classify droughts. The supply of many economic goods, such as water, forage, food grains, fish, and hydroelectric power, depends on weather. Because of the natural variability of climate, water supply is ample in some years but unable to meet human and environmental needs in other years. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply. For example, in Uruguay in 1988–89, drought resulted in significantly reduced hydroelectric power production because power plants were dependent on stream flow rather than storage for power generation. Reducing hydroelectric power production required the government to convert to more expensive (imported) petroleum and stringent energy conservation measures to meet the nation's power needs.

In most instances, the demand for economic goods is increasing as a result of increasing population and per capita consumption. Supply may also increase because of improved production efficiency, technology, or the construction of reservoirs that increase surface water storage capacity. If both supply and demand are increasing, the critical factor is the relative rate of change. Is demand increasing more rapidly than supply? If so, vulnerability and the incidence of drought may increase in the future as supply and demand trends converge.

Drought-II

Meaning & Explanation

A drought is defined as an extended period of abnormally dry weather that causes water shortages and crop damage. A drought starts when total rainfall is well below average for several months. Other signs of drought include: unusually low river flows, low ground water and reservoir levels, very dry soil, reduced crop yields or even crop failure, and algae blooms in reservoirs and lakes. Groundwater is not replenished because not enough rain is falling to wet the soil's entire surface area and to be absorbed properly.

A **drought** is a period of time when there is not enough water to support agricultural, urban, human, or environmental water needs. A drought usually refers to an extended period of below-normal rainfall, but can also be caused by drying bores or lakes, or anything that reduces the amount of liquid water available. Although what is considered "normal" varies from one region to another, drought is a recurring feature of nearly all the world's climatic regions. The effects of drought vary greatly, depending on agricultural, urban and environmental water needs. Water companies, farmers, and ranchers are those that suffer the worst as a result of drought.
Conceptually, there are three main types of drought:

- **Meteorological drought** is brought about when there is a prolonged period with less than average precipitation. Meteorological drought usually precedes the other kinds of drought.

- **Agricultural drought** is brought about when there is insufficient moisture for crop or range production. This condition can arise, even in times of average precipitation, owing to soil conditions or agricultural techniques.
- **Hydrological drought** is brought about when the water reserves available in sources such as aquifers, lakes, and reservoirs falls below the statistical average. This condition can arise, even in times of average (or above average) precipitation, when increased usage of water diminishes the reserves.

Drought conditions lead to increased growth of algae in lakes, ponds and other slow-moving bodies of water. The water is no longer a safe place for fish and other aquatic life. Animals that drink from the rivers or streams can become sick and die; swimmers in affected waters may become ill. The ecology of an area may be affected by the drying of wetlands, with wading birds dying out. Crop production will be lower than usual; trees may die. Wildfires spring up; lack of irrigation can lead to famine and disease.

Sociological consequences of drought range from social unrest to relocation of populations to war.

Consequences

Periods of drought can have significant environmental, economic and social consequences.

The most common consequences are:
- Wildfires (called Bushfires)
- Ground drag and Desertification.
- Loss of agricultural production
- Disease
- Thirst
- Famine due to lack of water for irrigation
- Social unrest
- Migration or relocation of those impacted
- War for water and foods.

The effect varies according to vulnerability. For example, subsistence farmers are more likely to migrate during drought because they do not have alternative food sources. Areas with populations that depend on subsistence farming as a major food source are more vulnerable to drought-triggered famine. Drought is rarely if ever the sole cause of famine; socio-political factors such as extreme widespread poverty play a major role.

Drought can also reduce water quality, because lower water flows reduce dilution of pollutants and increase contamination of remaining water sources in that

Main mitigation strategies

The main mitigation strategies are as follows-
- **Drought monitoring--** It is a continuous observation of rainfall situation and comparison with the existing water needs of a particular sector of a society.
- **Water supply conservation--** We can conserve water through Rain Water Harvesting which can be used for agricultural purposes.
- **Land use--** Crops which needs less water should be grown in a drought prone area.
- **Livelihood planning-** A section of a society which is least affected by the droughts should be advised to live there.

1900, India
250,000 to 3.25 million people died from drought, starvation and disease.
1928-30, Northwest China
Famine resulted in over 3 million deaths.
1936, Sichuan Province, China

This was the worst drought in the modern history of the area. 34 million farmers were displaced and 25 million people starved

Planning Commission's list of 100 backward districts for RSVY program

Name of state	Name of district
Andhra Pradesh	Adilabad Warangal Chittor Mahbubnagar Vizianagaram
Chhattisgarh	Bastar Dantewada Kankar Bilaspur
Gujarat	Dangs Dohad Panchmahals
Haryana	Sirsa
Jharkhand	Lohardagga* Gumla* Simdega Saraikela West Singhbhum* Goddha
Karnataka	Gulburga Bidar Chitradurga Davangere
Kerala	Palakkad Waynad
Madhya Pradesh	Mandla* Barwani West Nimar Seoni* Shahdol Umaria Balaghat* Satna Siddhi
Maharashtra	Gadchiroli* Bhandara Gondia Chandrapur Hingoli Nanded* Dhule Nandurbar Ahmednagar
Punjab	Hoshiarpur
Rajasthan	Banswara Dungarpur Jhalawar
Tamil Nadu	Tiruvannamalai Dindigul Cuddalore Naggapattinam Sivgangai
Uttar Pradesh	Sonbhadra Rae Bareli* Unnao* Sitapur* Hardoi* Banda Chitrakoot Fatehpur* Barabanki* Mirzapur Gorakhpur Kushinagar Lalitpur*Jaunpur Hamirpur* Jalaun* Mahoba Kaushambi Azamgarh Pratapgarh*
West Bengal	Purulia 24 South Parganas Jalpaiguri West Midnapur South Dinajpur Bankura North Dinajpur Birbhum
Assam	Kokrajhar North Lakhimpur Karbi Anglong Dhemaji North Cachar Hills
Arunachal Pradesh	Upper Subansiri
Himachal Pradesh	Chamba Sirmaur
Jammu and Kashmir	Doda Kupwara Poonch
Manipur	Tamenlong
Meghalaya	West Garo Hills
Mizoram	Lawngtlai
Nagaland	Mon
Sikkim	North Sikkim
Tripura	Dhalai
Uttaranchal	Champavat Tehri Garhwal Chamoli

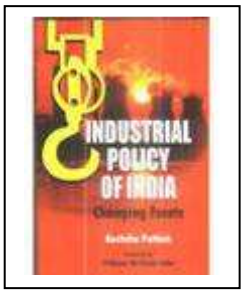
Industrial Policy for Balanced Regional Development

Government of India - Ministry of Industry

Statement on Industrial Policy

Policy objectives

Policy Objectives
Industrial policy should address the vision of our nation i.e.
Rapid agricultural and industrial development of our country,
Rapid expansion of opportunities for gainful employment,
Progressive reduction of social and economic disparities,
Removal of poverty and attainment of self-reliance



In 1954, immediately after Independence, Government introduced the Industrial Policy Resolution. This outlined the approach to industrial growth and development. After the adoption of the Constitution increase in production and ensuring its equitable distribution. After the adoption of the Constitution and the socio-economic goals, the Industrial Policy was comprehensively revised and adopted in 1956. To meet new challenges, from time, it was modified through statements in 1973, 1977 and 1980.

The Industrial Policy Resolution of 1948 was followed by the Industrial Policy Resolution of 1956 which had as its objective the acceleration of the rate of economic growth and the speeding up of industrialization as a means of achieving a socialist pattern of society. In 1956, capital was scarce and the base of entrepreneurship not strong enough. Hence, the *1956* Industrial policy Resolution gave primacy to the role of the State to assume a predominant and direct responsibility for industrial development.

The Industrial Policy Statement of 1973, inter alia, identified high priority industries where investment from large industrial houses and foreign companies would be permitted.
The Industrial Policy Statement of 1977 laid emphasis on decentralization and on the role of small scale, tiny and cottage industries.

A number of policy and procedural changes were introduced in 1985 and 1986 under the leadership of Shri Rajiv Gandhi aimed at increasing productivity, reducing costs and improving quality. The accent was on opening the domestic market to increased competition and readying our industry to stand on its own in the face of international competition. The public sector was freed from a number of constraints and given a larger measure of autonomy.

Government has decided to take a series of initiatives in respect of the policies relating to the following areas.
A. Industrial Licensing.
B. Foreign Investment.
C. Foreign Technology Agreements.
D. Public Sector Policy.

E. MRTP Act.

A package for the Small and Tiny Sectors of industry is being announced separately.

A. Industrial Licensing Policy

Industrial Licensing is governed by the Industries (Development & Regulation) Act, 1951. The Industrial Policy Resolution of 1956 identified the following three categories of industries: those that would be reserved for development in the public sector, those that would be permitted for development through private enterprise with or without State participation, and those in which investment initiatives would ordinarily emanate from private entrepreneurs. Over the years, keeping in view the changing industrial scene in the country, the policy has undergone modifications. Industrial licensing policy and procedures have also been liberalized from time to time. A full realization of the industrial potential of the country calls for a continuation of this process of change.

B. Foreign Investment

While freeing Indian industry from official controls, opportunities for promoting foreign investment in India should also be fully exploited. In view of the significant development of India's industrial economy in the last 40 years, the general resilience, size and level of sophistication achieved, and the significant changes that have also taken place in the world industrial economy, the relationship between domestic and foreign industry needs to be much more dynamic than it has been in terms of both technology and investment. Foreign investment would bring attendant advantages of technology transfer, marketing expertise, introduction of modern managerial techniques and new possibilities for promotion of exports. This is particularly necessary in the changing global scenario of industrial and economic co-operation marked by mobility of capital. The Government will, therefore, welcome foreign investment which is in the interest of the country's industrial development.

C. Foreign Technology Agreements

There is a great need for promoting an industrial environment where the acquisition of technological capability receives priority. In the fast changing world of technology the relationship between the suppliers and users of technology must be a continuous one. Such a relationship becomes difficult to achieve when the approval process includes unnecessary governmental interference on a case to case basis involving endemic delays and fostering uncertainty. The Indian entrepreneur has now come of age so that he no longer needs such bureaucratic clearance of his commercial technology relationships with foreign technology suppliers. Indian industry can scarcely be competitive with the rest of the world if it is to operate within such a regulatory environment.

D. Public Sector Policy

The public sector has been central to philosophy of development. In the pursuit of our development objectives, public ownership and control in critical sectors of the economy has played an important role in preventing the concentration of economic power, reducing regional disparities and ensuring that planned development serves the common goods.

It is time therefore that the Government adopt a new approach to public enterprises. There must be a great commitment to the support of public enterprises which are essential for the operation of the industrial economy. Measures must be taken to make

these enterprises more growth oriented and technically dynamic. Units which may be faltering at present but are potentially viable must be structured and given a new lease of life. The priority areas for growth of public enterprises in the future will be the followings:

- Essential infrastructure goods and services.
- Exploration and exploitation of oil and mineral resources.
- Technology development and building of manufacturing capabilities in areas which are crucial in the long term development of the economy and where private sector investment is inadequate
- Manufacture of products where strategic considerations predominate such as defense equipment

At the same time the public sector will not be barred from entering areas not specifically reserved for it.

E. Monopolies and Restrictive Trade Practices Act (MRTP Act)

The principal objectives sought to be achieved through the MRTP Act are as follows:-

i. Prevention of concentration of economic power to the common detriment, control of monopolies.
ii. Prohibition of monopolies and restrictive and unfair trade practices.

F. Decisions of Government
A. Industrial Licensing Policy
Procedural Consequences
B. Foreign Investment
C. Foreign Technology Agreements
D. Public Sector
E. MRTP Act

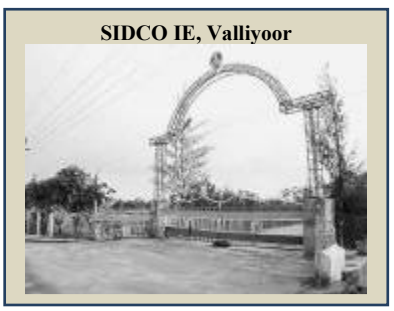
List of industries reserved for the public sector

1. Arms and ammunition and allied items of defense equipment, Defense aircraft and warships.
2. Atomic energy.
3. Coal and lignite.
4. Mineral oils.
5. Mining of iron ore, manganese ore, chrome ore, gypsum sulphur, gold and diamond.
6. Mining of copper, lead, zinc, tin, molybdenum and wolfram.
7. Minerals specified in the Schedule to the Atomic Energy (Control of Production and Use) Order, 1953.
8. Railway transport.

Industrial Estates - The Concept

The Concept

The term "industrial estate" is often used interchangeably with industrial district, industrial park, industrial zone, special economic zone, eco-zone etc. An Industrial Estate (IE) is a self contained geographical area with high quality infrastructure facilities, which house businesses of an industrial nature. An industrial estate is administered or managed by a single authority that has a defined jurisdiction with respect to tenant companies. The authority makes provisions for operation and management; enforcing restrictions on tenants and planning with respect to lot sizes, access and utilities. The IEs offer industrial, residential and commercial areas with developed plots/ pre-built factories, power, telecom, water, sanitation and other civic amenities such as hospital, sewerage and drainage facilities, security etc.The main targets of Industrial Estates are the high value adding small and medium scale industries, which do not have the wherewithal to invest in developing their own basic infrastructure facilities, but have the capacity to pay for the services provided to them. Hence, Industrial Estates are regions where infrastructure facilities are provided for and thus a conducive environment is created to attract small and medium scale industries. Advantages of Industrial Estates Industrial Estates can positively influence the socio-economic development and industrialization of the region by:


SIDCO IE, Valliyoor

• Attracting investments
• Generating employment
• Leveraging on raw material sources, skilled manpower resources, proximity to end-use markets, etc.
• Adding to and improving social infrastructure in terms of healthcare and educational facilities Industrial Estates have led to the development of large urban regions especially in the States wherein large-scale city/ town development has taken place. Bharuch, Vapi and Valsad in Gujarat and Nashik and Nagpur in Maharashtra are examples of such developments.

Industrial Estates can be developed either as a:

• General Industrial Park (GIP) which caters to all types of industries, an example of the GIP being the Industrial Model Township at Manesar (Haryana) which has facilities to house different types of industries like auto and auto components, high precision industries, textiles, pharmaceuticals, software etc. or
• Special Industrial Park (SIP) which focuses on a specific industry like software, textiles, plastics, etc. The Software Technology Park at Whitefield in Bangalore is one such example

Industrial Estates – The Issues Involved

Location

One of the most important factors contributing to the success of an industrial estate is its location. The main criteria that should be considered while deciding the location of an Industrial Estate are as follows:

Natural competitive advantage of the region
Potential for forming industrial clusters in the region to ensure the economic viability of Industrial Estates
Presence of transportation nodes in the region in the form of airports, railway terminals and road networks both from raw material sources and to end-use markets
Presence of technological research institutions and training facilities such as universities, colleges, etc., which would add value to the growth of these Estates
Fiscal incentives applicable for setting up the Industrial Estate in a particular region
Proximity of the region to important markets
Proximity of the region to important raw material sources
Connectivity of the region to other regions
The formation of industrial clusters would in turn, make the Industrial Estates commercially viable. As is evident, determination of potential location of an industrial estate requires a comprehensive and scientific analysis.

Configuration and Design
Usually, an industrial estate is configured around three zones- the industrial, the residential and the commercial zones.
The industrial zone encompasses industrial units catering to both domestic and export markets
The residential zone provides for housing facilities, and
The commercial zone comprises of support facilities like banks, post office, hospital, shopping centres, clubs etc. While designing an Industrial Estate, a mix of industrial, residential and commercial zones must be kept in mind.

Government's Role and Policies
Promotion of industrial parks was given a boost by the Government of India towards the end of the first five-year plan (1952-57) when the 'Industrial Estates Development Program' was initiated. The role of the Central Government in the establishment and upkeep of Industrial Estates in India has been mainly that of laying down the guidelines for the State Governments. The responsibility for the selection of sites, development of areas, construction of infrastructure facilities etc., has been the mandate of the State Governments.

Private Sector Participation
Private sector participation is being encouraged by all the States to ensure a more commercial approach to the entire exercise of setting up and managing Industrial Estates. Private sector participation would lead to:

IT Park Chennai

A better choice of location, design and infrastructure facilities
Better collection of revenues
Professional and innovative management
Greater accountability and responsibility
Fund mobilization to bridge the infrastructure investment gaps

Institutional Arrangements with Private Participation
So far the Government has been the sole promoting, investing, implementing and operating agency in this sector. Participation of the private sector requires changes in institutional arrangements. This would lead to increase in the number of players and

would encompass:
• The State Government
• A promotional agency set up by the State like the State Industrial Development Corporation (SIDC) or a State Industrial Estate Promotional Authority (SIEPA)
• The Private Sector
• Financial Institutions

Land Acquisition
Land acquisition is considered to be a major hindrance in setting up any industrial estate on account of two main reasons:
• Inability to acquire contiguous land due to reluctance of some owners to sell the land
• Problems in fixing the compensation price of the land

Sustainability
The quality of Infrastructure of the Industrial Estates is India is deteriorating, thereby defeating the purpose of their creation. Sustainability of the Industrial Estates is therefore becoming an important issue, with the State Government finding it difficult to maintain the infrastructure facilities in these estates. Deterioration of infrastructure facilities affects the performance of the industrial units, which in turn affects the revenue source for the estates. Hence, a vicious cycle is created, leading to the failure of the industrial park.

Fiscal Concessions
Tamilnadu --Industrial Development

TOTAL POPULATION

	Total population in Million	
YEAR	TAMILNADU	INDIA
1941	26.27	318.66
1951	30.12	361.09
1961	33.69	439.23
1971	41.20	548.23
1981	48.41	683.33
1991	55.86	846.30
2001*	62.11	1027.02

* Provisional

DENSITY OF POPULATION (Per Sq. Km)

YEAR	TAMILNADU	INDIA
1941	202	103
1951	232	117
1961	259	142
1971	317	177
1981	372	216
1991	429	267
2001*	478	324

* Provisional

State Industries Promotion Corporation of Tamilnadu Limited

The key areas of **TANSIDCO**'s activities are as follows:
Development of industrial estates with infrastructure facilities and provision of work sheds & developed plots.
Raw Materials Supply Scheme Marketing Assistance Scheme
Export Assistance Scheme Guidance to Entrepreneurs

Industrial Parks & Complexes

INDUSTRIAL PARKS & COMPLEXES

Govt. of Tamilnadu has promoted more than 120 Industrial Parks/Estates all over Tamilnadu. Developed Industrial plots endowed with sound infrastructure support like, water supply, electricity, road link, communication facilities etc. besides social amenities are available to investors. Further, Govt. of Tamilnadu provides an attractive package of incentives to investors locating their projects in these industrial estates/parks.

Industrial Parks - Supply analysis

Integrated Industrial Parks (IIPs) concept originated with "Guindy Industrial Estate" in 1956.

Tamilnadu has at present:

SIDCO Industrial estates
SIPCOT Industrial complexes
TACID growth centres & parks
Chennai Export Processing Zone (MEPZ)
Co-operative Industrial estates
Dte. of Industries industrial estates
Many private Industrial estates.

Total area developed so far: about 15,000 acres.

State Industries Promotion Corporation of Tamil Nadu Limited (SIPCOT) was established in the year 1971, under the Companies Act. The main objective of the Corporation is to promote medium and large scale Industries in Tamil Nadu. SIPCOT is striving to achieve the objective through the following activities:

(a) Developing, Marketing and Maintaining Industrial Complexes / Parks and Growth Centers;

(b) Implementing Infrastructure Development Schemes.

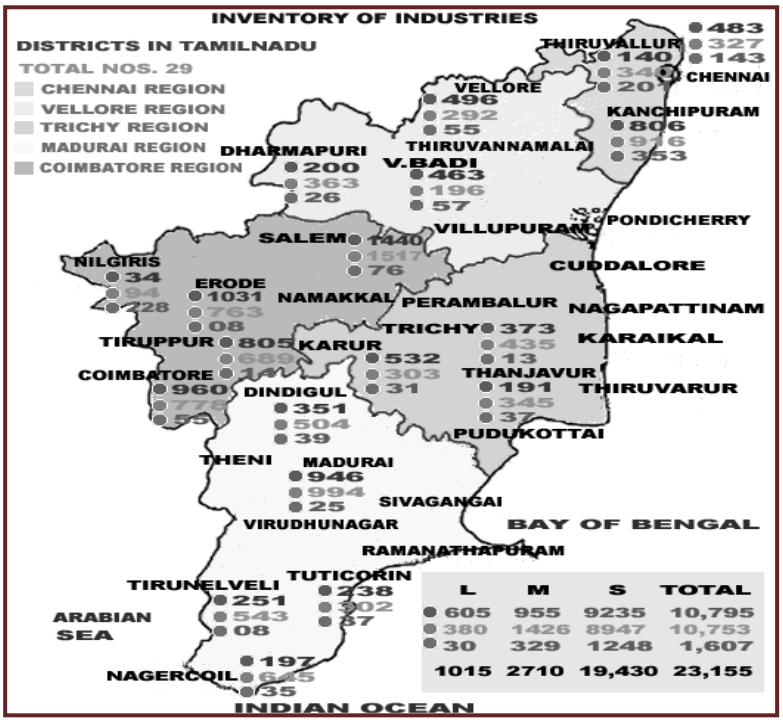
The details of area acquired, developed and sold upto 31.3.04 are given below -

	In acres
Total area acquired	21,343.73
Total allottable area	15957.29
Total area allotted	6,764.26
Number of units allotted	1,131
Area Development expenditure incurred so far	Rs.31645 lakhs.

I. SIPCOT Industrial Complex / Parks/Growth Centres:

The Corporation has developed 17 Complexes/Parks/Growth Centres in 12 districts in Tamil nadu. The locations and area of the complexes are given below:

S.N	Location of complex/park/growth centre	Name of District	Area in acres
1.	Ranipet	Vellore	1663.97
2.	Hosur	Krishnagiri	2410.71
3.	Pudukottai	Pudukottai	421.10
4.	Manamadurai	Sivagangai	492.07
5.	Gummidipoondi	Tiruvellore	1257.08
6.	Thoothukudi	Thoothukudi	2707.86
7	Cuddalore Cuddalore Industrial Park	Cuddalore	712.27 1266.00
8	Irungattukottai	Kanchipuram	1843.68
9	Sriperumbudur	Kanchipuram	2469.00
10	Siruseri (Information Technology Park)	Kanchipuram	980.00
11	Nilakottai	Dindigul	386.21
12	Bargur	Krishnagiri	1348.00
13	Export Promotion Industrial Park, Gummidipoondi.	Tiruvellore	224.11
14	Perundurai	Erode	2751.98
15	Gangaikondan	Tirunelveli	2038.33
16	Oragadam	Kanchipuram	2043.00
17	Cheyyar	Thiruvannamalai	631.00



II. Infrastructure Development Activities in industrial estates:

Infrastructure Rank of Tamilnadu in India.

* Social Infrastructure	Second
* Physical Infrastructure	Third
* Proximity to Port	Second
* Airport Facilities (Network)	Second
* Labour Availability	Second
* Cost of Labour	Second
* Labour Relations	Second
* Proximity to Market	Third
* Availability of Raw Material	Third
* Power availability & Cost	Third
* Road Transport Infrastructure	Second

SIPCOT is implementing the following special infrastructure development schemes:

(A)Govt.of India Schemes:
Food Park, Nilakottai, Dindigul district:

SIPCOT is promoting a Food Park in the SIPCOT Industrial Complex at Nilakottai over an extent of 100 acres at a cost of Rs.13.00 crores.

Apparel Park-Irungattukottai, Kanchipuram district:
SIPCOT is developing an Apparel Park in association with Apparel and Handlooms Exporters Association (AHEA). The cost of the project is Rs.24.00 crores.

Development of Coir Cluster and Leather Cluster:
SIPCOT will facilitate development of critical infrastructure for leather and coir industries by combining the funds of the Government of India and the beneficiary bodies under Public-Private partnership. The project proposals for development of the Leather Cluster at Ambur and Coir cluster covering Salem and Dharmapuri districts have been forwarded to Govt.of India for approval.

(b)Govt.of Tamilnadu Schems:
Eco-Entreprises Park, Nilakottai, Dindigul district.
SIPCOT has set apart 50 acres in the SIPCOT Industrial Complex at Nilakottai to establish an Eco Enterprises Park at a cost of Rs.5.00 crores. The Eco Enterprises Park is conceived to promote industries in the field of herbal, horticulture, bio - technology and renewable sources of energy.

Integrated Knowledge Industry Township at Siruseri Information Technology Park
In line with announcement made in the budget 2003-04, SIPCOT had identified M/s Lee Kim Tah Holdings Ltd, a consortium of Singapore Companies to develop an Integrated Knowledge Town Ship with in the Information Technology Park (ITP) Siruseri near Chennai.

Hazarduous Industrial Waste Disposal Project at Melakottaiyur in Kancheepuram District.
A suitable site of 68.92.0 hectares has been identified in Melakottiyur, Kanchipuram district.

Existing Industrial Estate Upgradation:
SIPCOT will improve the infrastructure in the select industrial estates which have high potential for investors, involving the Industries Association in the management of the estates on a participatory basis.

Economic Reforms - Tamilnadu
- ✓ Abolition of industrial licensing, except in few 'strategic sectors'
- ✓ Foreign Direct Investment up to 100% allowed in most sectors under the 'Automatic Route'
- ✓ Rationalization of both indirect and direct tax structure
- ✓ Portfolio investments by foreign institutional investors
- ✓ allowed in both equity and debt markets
- ✓ Rupee made fully convertible on trade account
- ✓ Removal of quantitative restrictions on imports
- ✓ Financial sector reforms and decontrol of interest rates
- ✓ The Fiscal Responsibility and Budget Management (FRBM) Act enacted in 2003

Regional Planning -Part IV
Regional Growth Theories

Sector Theory/ Stage Theory/Export Base Model
Central Place Theory/Growth Pole Hypothesis/Cumulative Causation Theory

REGIONAL PLANNING - PART III - REGIONAL GROWTH THEORIES

Sector Theory - Stage Theory – Export Base Model – Central Place Theory – Growth Pole Hypothesis –Cumulative Causation Theory

What makes a region to grow?
Economic theories talk about growth in terms of
1. **increase of income (total income) and / or**
2. **increase of per capita income**

Therefore regional growth implies an increase in the total income and/or per capita income of a region. Since the growth of income is always the result of the growth of the use of factors (e.g. land, labour, capital, raw material) of production, **regional growth should imply a better use of the factors of production such as land, labour, capital etc. of the region.**

In addition to these factors, **a region can also grow due to an increase in the level of demand for its commodities from the other regions within the country or outside the country.**

Thus in regional analysis, growth of a region can result either from **endogenous** (within) factors or from **exogenous** (outside) factors **or both**. Sometimes growth may result from a right location of industries/services. Consequently there are theories of regional growth which attempt to explain the growth of a region in terms of
1. **Endogenously induced process**. e.g. Sector theory, stage theory
2. **Exogenously induced process** e.g. Export base model
3. **Spatially induced process** e.g. Growth pole, Central place

Endogenously Induced Process

Sector Theory
The sector theory has its origin in the empirical observations made by **Colin Clark, Simon Kuznets** and others. It is based on the contribution of different sectors of economy at different levels of development. The sector theory places attention on structural changes taking place within an economy in contrast to the export base theory, which emphasizes the role of external relationships. **According to sector theory, the process of economic development is accompanied by a shift in the employment pattern first from primary to secondary sector and later on to the tertiary sector.** The explanation is based upon the different income elasticity for the products of these sectors and the relative differences in the

> Demand for a product is proportionate to its price. A small change in the price may lead to a greater change in demand. In such cases the demand is called elastic. On the other hand, even a big change in price may not cause any change in demand. Such demand is called inelastic e.g. salt.
> When income increases, demand for secondary & tertiary products and services increase.

average earnings per worker in different sectors. The theory is empirically verifiable in terms of cross section and historical trends in different countries or major regions within them.

The sector theory with its emphasis on structural changes, differences in elasticity of demand and productivity differences among sectors throws light on some important

Sector Theory

The three-sector hypothesis is an economic theory which divides economies into three sectors of activity: extraction of raw materials (primary), manufacturing (secondary), and services (tertiary).

Primary sector: Involves the extraction and production of raw materials, such as corn, coal, wood and iron. (A coal miner and a fisherman would be workers in the primary sector.)

Secondary sector: Involves the transformation of raw or intermediate materials into goods e.g. manufacturing steel into cars, or textiles into clothing. (A builder and a dressmaker would be workers in the secondary sector.)

Tertiary sector: Involves the provision of services to consumers and businesses, such as baby-sitting, cinema and banking. (A shopkeeper and an accountant would be workers in the tertiary sector.)

Based on ownership the economy may be subdivided into:
1.Public sector 2.Private sector 3.Voluntary sector
Based on the type of product produced, the economy may be subdivided into:
Industrial sector & Service Sector

According to the three sector economic theory the main focus of an economy's activity shifts from the primary, through the secondary and finally to the tertiary sector. The process as essentially positive, and results in increase in quality of life, social security, blossoming of education and culture, higher level of qualifications, humanization of work, and avoidance of unemployment.

Countries with a low per capita income are in an early stage of development; the main part of their national income is achieved through production in the primary sector. Countries in a more advanced state of development, with a medium national income, generate their income mostly in the secondary sector. In highly developed countries with a high income, the tertiary sector dominates the total output of the economy.

The distribution of the workforce among the three sectors progresses through different stages

First phase: Traditional civilizations

Workforce quotas:

*** Primary sector: 70% * Secondary sector: 20% * Tertiary sector: 10%**

This phase represents a society which is scientifically not yet very developed, with a negligible use of machinery. The state of development corresponds to that of European countries in the early middle ages, or that of a modern-day developing country.

Second phase: Transitional period

Workforce quotas:

*** Primary sector: 20% * Secondary sector: 50% * Tertiary sector: 30%**

More machinery is deployed in the primary sector, which reduces the number of workers needed. As a result the demand for machinery production in the second sector increases. The transitional phase begins with an event which can be identified with industrialization: far-reaching mechanization (and therefore automation) of manufacture, such as the use of conveyor belts.

The tertiary sector begins to develop, as do the financial sector and the power of the state.

Third phase: Tertiary civilization

Workforce quotas:

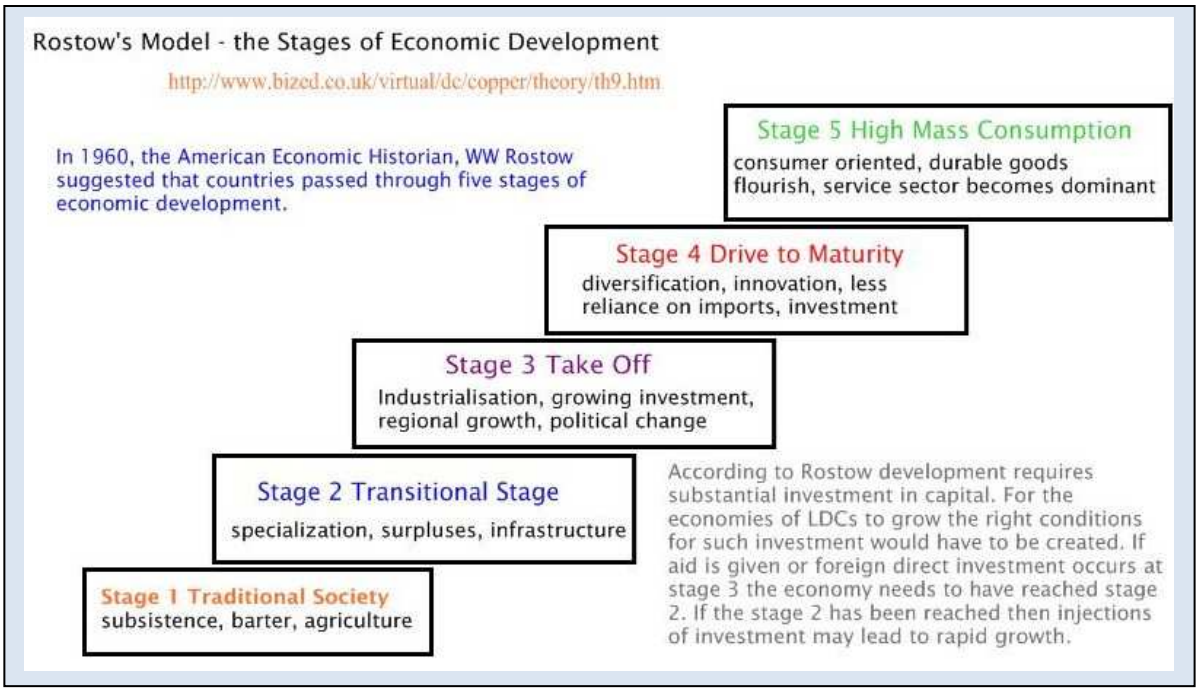
*** Primary sector: 10% * Secondary sector: 20% * Tertiary sector: 70%**

The primary and secondary sectors are increasingly dominated by automation, and the demand for workforce numbers falls in these sectors. It is replaced by the growing demands of the tertiary sector. The situation now corresponds to modern-day industrial societies and the society of the future, the service or post-industrial society. Today the tertiary sector has grown to such an enormous size that it is sometimes further divided into an information-based quaternary sector, and even a quinary sector based on non-profit services.

elements in the growth of an economy. It provides a useful frame of reference for aggregating data for comparative studies. However, the theory is criticized. The main weakness of the sector theory is its neglect / ignorance of the role of external factors in regional development. Reliance on aggregation of data at a very broad level also has its limitations.

Stage Theory

Another approach to understand regional development is provided by the stage theory, which visualizes economic development as a process of transformation through



successive stages. Proponents of this theory believe in a regular or normal sequence of stages of growth. Most famous of the stage theory is that of **Rostow,** who has distinguished five stages of growth on the basis of development experience of a number of countries i.e., **the traditional society, the pre-conditions of take-off, the take-off, the derive to maturity and the age of high mass consumption.**

1. **Traditional Society**
Pre-Newtonian science & technology
Political power – landed aristocracy
2. **Pre conditions for take off**
New learning or Renaissance
New Monarchy
New Religion or Reformation
Building up to social over head capital
Technological revolution in agriculture
Reactive nationalism (against foreign domination)
3. **Take off stage**
Rise in the rate of productive investment
Development of one or two manufacturing sector
Emergence of institutional frame work
4. **Drive to maturity**
Change in the working force-skilled urbanization
Change in the qualities of entrepreneurs
5. **Age of High Mass consumption**
Movement to suburbs
Use of automobiles
Use of household goods & gadgets

Hoover and Fisher have applied the stage theory in the regional setting. They have visualized the transformation of a region from an agricultural to an industrial economy through the following successive stages of development: **subsistence agriculture; local specialization based on trade; cash-crop farming; mining & manufacturing; diversified manufacturing; and specialization in tertiary industries for export**. They observe that a

non-industrialized region may reach a limit to its growth and start decaying, suggesting that if a region is to continue to increase its per capita income it must eventually industrialize.

Exogenously Induced Process

Export Base Model

Export: to carry or send out of a country, as goods in commerce;
a commodity which is or may be sent from one country to another in traffic.
Invisible export: money spend by the tourists from abroad
Visible export: goods sold by the traders abroad.

Export Base Model (EBM) emphasis the exogenous factors in regional growth. It points out that regions are not closed areas but are open to the flows of trade.
Export Base Model (EBM) indicates that growth of a region depends upon the growth of the regional export base; Regional export depends on the expansion in demand external to the region. As a consequence of export sales, income in the region increases leading to an expansion of residentiary activities, development of external economics and further regional growth.

The export base theory, initially developed in the context of the growth of urban areas was used to explain the process of regional economic development by **D.C North**. He looks at the **region as a territory developing around a common export base**. He thinks that the growth of a region **"is closely tied to the success of its exports and it may take place either as result of the improved position of existing exports relative to competing areas or as a result of the development of new exports."** Understanding the comparative advantage in producing goods and services in demand to the existing markets outside the region, which in turn attracts productive factors in a region facilitates the growth of a region.

The distinction between **basic and non-basic activities** is crucial to the theory of export base. **The basic activities are those the product of which is intended for the export market, while the non-basic or residentiary activities are those which cater to the local market.** The non-basic activities are regarded as depending upon the basic activities and the ratio of income or employment generated in the two types of activities is taken as a multiplier. The expansion of the export base in response to increasing outside demand is seen as the principal factor determining the growth of income in a region through the multiplier effect on the residentiary activities.

Calculating Multiplier

Calculating Multiplier

$$m = \frac{\text{Increase in total income in basic activities 10000 + non basic activities 20000}}{\text{Increase in total income of basic activities 10000}}$$

In a region, if the income in basic activities is increased by 10,000 units and this results in increase in income in non-basic activities by 20,000 units we have 10,000 + 20,000=30,000/10,000 = 3 **Income multiplier = 3**

The chief merit of the export base theory lies in the fact that it links the growth of a region with changes in demand in the other regions of the nation and the world.

Benefits:

1. When a region specializes in the production of a few goods due to inter-regional trade and division of labor, it exports those commodities, which it produces cheaper, in exchange for what others can produce at a lower cost. It leads to increase in regional income, raises the level of out put in the export sector and raises growth.
2. Higher the level of income and output breaks the vicious cycle of poverty.
3. When the export base is increasing, many entrepreneurs will enter into it; competition arises; it leads to lower the cost of production either by technological improvement or better use of the factors of production.
4. As a consequence of the expansion of income received from outside, increased investment in residentiary activity will take place.
5. Exports provide the basis for the importation of capital from outside.

However, in spite of its wide appeal the export base theory has been severely criticized on a number of accounts.

Firstly, as Tiebout points out **"there is no reason to assume that exports are the sole or even the most important autonomous variable determining regional income.** Such other items as business investment, government expenditure and the volume of residential construction may be just as autonomous with respect to regional income as are exports.

Secondly, the theory errs in ignoring the role of internal growth sequences and in treating the residentiary activities as purely passive. The development of the residentiary activities is itself an important determinant of a growth of a region.

Thirdly, the volume of exports from a region is also the result of the income elasticity of demand. Although the export base theory may be able to explain the process of growth of small regions depending upon exports, the growth of large regions like Eastern U.P. cannot be explained without reference to endogenous factors operating in the region.

In addition to the above three criticisms, another important criticism against EBM is, at times export base won't lead to the growth of the regional economy.
E.g.

- Additional income acquired through export may be frittered away on imported luxury goods.
- The businessmen who acquire such income may not invest in the same region.
- Some times export trade may lead to backwash effect in the underdeveloped regions.

E.g. Bihar & Orissa they have a wide export base but not experienced growth

- When the exports are made to developed regions, it will lead to negative demonstration effect; and will affect the capital formation in the region.

Conclusion:

Inter-regional trade opens new opportunities of specialization and development for the regions engaged in it. Export base model bring into use hither to unexploited natural resources and may free the regions from the limitations of their own domestic markets.

Input-Output Analysis

Leontief (1951) developed input-output model**.** It helps to understand and determine the interdependence of various sectors of the economy. It assumes that economy consists of a number of interacting industries i.e. the output of one industry may used as an input for other industry

Input	Output
- Something which is brought for the enterprise	- Something which is sold by it.
- Input-that which is procured	- Output-that which is produced
- Represents the expenditure of the firm	- Receipt part of the firm
- Sum of the money values of inputs is the total cost	- Sum of the money values of the output is the total revenue

Friedmann's Synthesis of Theories of Regional Development

In spite of the vast literature that has come out in the last twenty-five years, our knowledge of the spatial incidence of economic growth remains limited. We are as yet nowhere near a complete theory of regional development. However, the existing literature has led to certain important generalizations, which have met with wide acceptance**. Friedmann** has presented a synthesis of the generalizations concerning regional economic development in terms of the following eight propositions:

1. Regional economy is open to the outside world and subject to external influence.
2. Regional economic growth is externally induced.
3. Successful translation of export sector growth into growth of the residentiary sector depends of the socio-political structure of the region and the local distribution of income and patterns of expenditure.
4. Local leadership is decisive for successful adaptation to external change. Yet the quality of leadership depends on the region's past development experience.
5. Regional economic growth may be regarded, in part, as a problem in the location of firms.
6. Economic growth tends to occur in the matrix of urban regions. It is through this matrix that the evolving space economy is organized.
7. Flows of labour tend to exert an equilibrating force on the welfare effects of economic growth. But contradictory results may be obtained.
8. Where economic growth is sustained over long periods, its incidence works towards a progressive integration of the space economy.

THEORIES OF INDUSTRIAL LOCATION & SPATIAL DEVELOPMENT

Theories of industrial location attempts to explain
1) Why the industries are located in a particular place?
2) Why the locations are shifted?
3) What can be the best location for a particular industry?

Answers to these questions provide guidelines for spatial development.
Theories of industrial location can be classified into three categories.
1. Those which emphasis cost factors
2. Those which emphasis demand
3. Those which are concerned with locational interdependence

Least Cost Approach (Van Thunen & Alfred Weber)

Van Thunen, (1826) a German Scholar, made the first attempt to develop a theory of location emphasizing cost factors. In his book '**The Isolated State',** Thunen considered the problem of location of various forms of agricultural production in relation to markets. He concluded that location depends upon the value of the commodity in the market and cost of its transportation.

Assumptions of Van Thunen

He explained how the space is organized through a workable model of the land use pattern. To explain his hypothesis

- **He imagined an isolated state.**
- **A large town existed in the centre of the agricultural field, which had no counter magnets in its vicinity. The town drew its production from the plain, to which it supplied the manufactured products.**
- **The transport network in the region, roads & navigational canals was poor i.e. extremely poor transportation linkages.**
- **At a considerable distance, the plain ended in an uncultivated wilderness.**

The question that Van Thunen asked was: **"How will the agriculture of the plain be arranged in such circumstances?"**

Thunen's answer was, **"cultivation would be arranged in a series of concentric circles round the town, according to the cost of transportation of the commodity and the ratio in which its value stood to its bulk and weight. A series of concentric rings would tend to grow up around the city and a specific pattern of land-use would dominate within each ring.**

1) In the ring closest to the city, those items that could bear transportation least of all, or on which transportation charges would be out of proportion to the market price, would be produced.

E.g. items perishable in nature, items less in weight, dairy farming, horticulture crops, vegetables etc.

2) More distant belts would specialize in products, which were more in weight and volume, but fetched higher prices in the market.

Alfred Weber

The first comprehensive effort at developing a theory of location was made by **Alfred Weber** (1909). Weber also emphasized the cost factors (least cost approach) to the theory of industrial location.

A/c to Weber, location depends upon

a) **Raw materials**
b) **Cost of transporting raw materials**
c) **Cost of labour**
d) **Agglomeration & deglomeration tendencies**

b,c,d are considered as a primary regional factors which influence the location of industries. Weber emphasis that **the best location is the place where the production costs would be lowest.**

Demand Approach:

August Losch was the proponent of this approach. He criticized the least cost approach for omitting the demand can serve an important role in determining the location of industry. He further argued that the best location would be that which would command, the largest market area, since this would bring in the highest sales revenue. **Point of largest sales should be**

WEBER	AUGUST LOSCH
Least cost approach	Profit maximization
Ignoring market	Ignoring the raw material

the correct location; place of greatest profit is the right place.

Even though both the theories are one sided, August Losch approach helps us to understand the **formation of hexagons,** which in turn helps us to understand the C**entral Place Theory.**

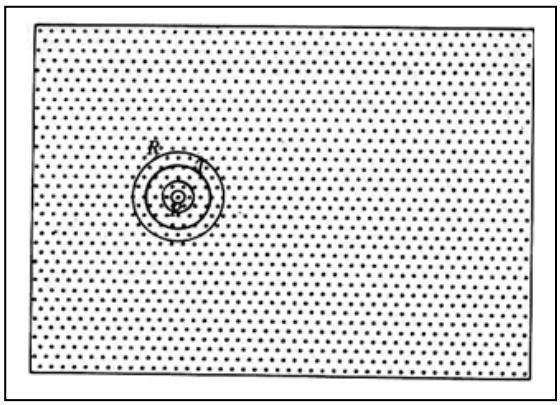
To explain his theory August Losch made the following assumptions.

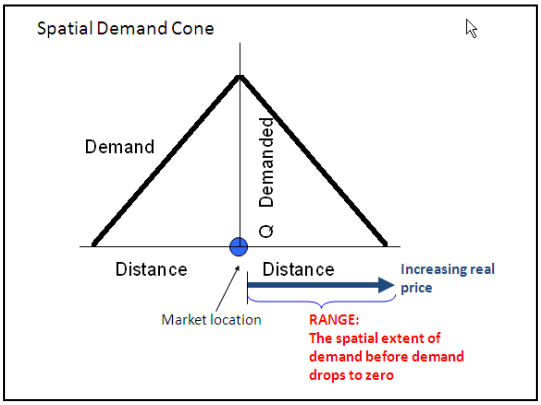
1) An isotropic plane – a homogeneous land surface with respect to population distribution, standard of living, demand and production.
2) In that plane, transportation costs are proportional to the distance.
3) In that situation, the shape and size of the market area will depend upon the price of the product and the rate of transportation costs.

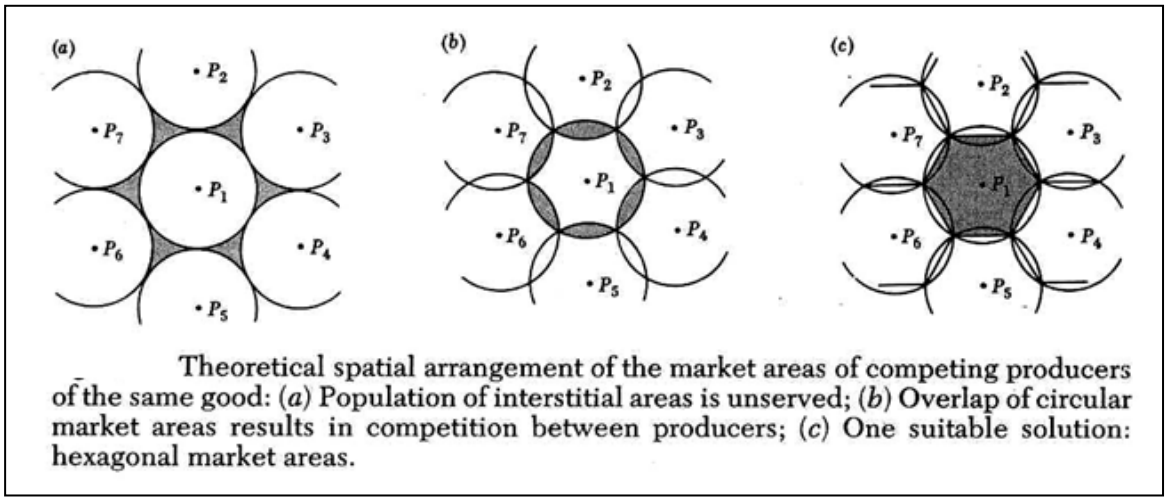
To take an illustration let us consider the example given by Losch.

Formation of Hexagons

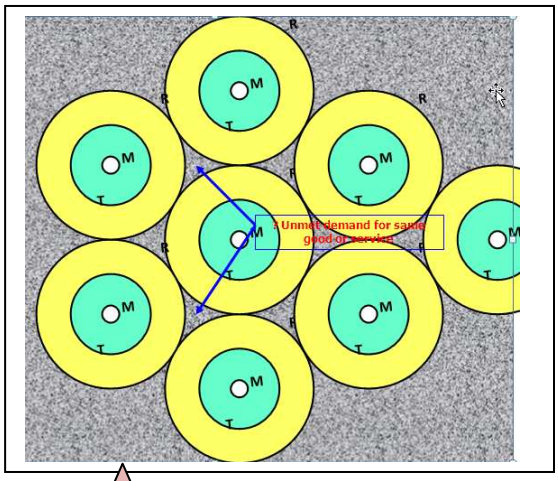
Suppose there is a farmer who produces bear over and above his requirements. If OP is the price at the brewery, which is at P, those living there will buy PQ bottles of bear. Further away, the price is higher by the amount of the freight, and the demand consequently shrinks. When the price costs are PF, the total price rises to OF and the demand shrinks to Zero. Thus PF will be the extreme sales radius for bear. By rotating the triangle PQF on PQ as an axis we obtain the demand cone, whose volume gives the total sales of the brewery at point P and thus denote the market area of the brewery.

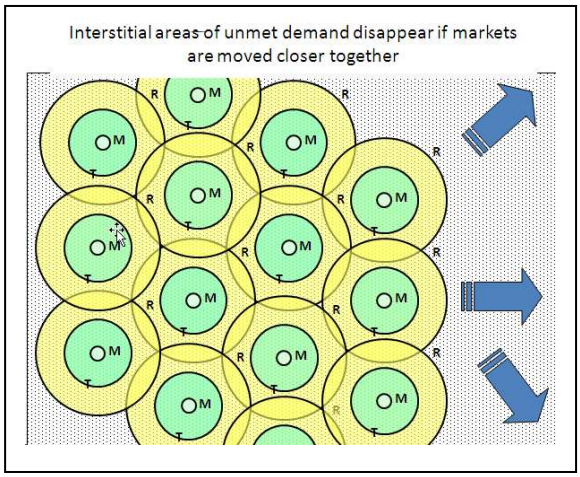




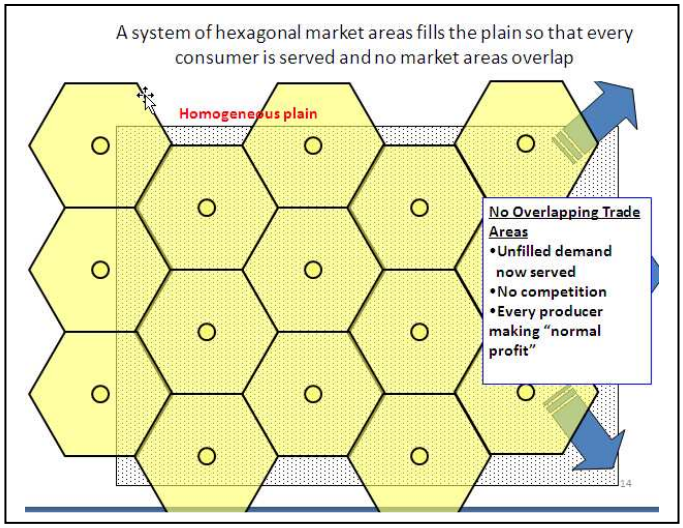


Theoretical spatial arrangement of the market areas of competing producers of the same good: (*a*) Population of interstitial areas is unserved; (*b*) Overlap of circular market areas results in competition between producers; (*c*) One suitable solution: hexagonal market areas.





These diagrams illustrates how circular shaped markets get transformed into hexagon shaped markets



It is possible that other farms may also produce surplus beer, which they would like to sell in the market. As long as profits are made, new breweries will continue to be established, each brewery having a circular market area.

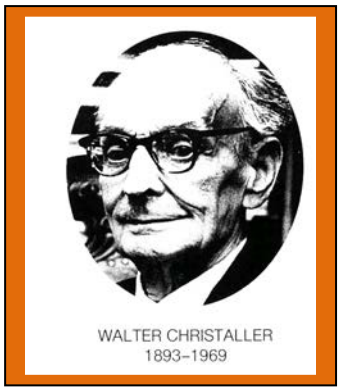
As the number of breweries increases, the circular areas touch each other, but even now, the whole space is not covered and some area will remain unserved.

The only possibility by which the total area can be served is through overlapping circles.

Ultimately hexagons are formed. The hexagonal form is the most efficient one since among all the possibilities of utilizing the corners, the hexagon retains most of the advantages of the circle.
Hexagonal arrangement ensures efficient division of space between a numbers of central places.

CENTRAL PLACE THEORY
Essential Features

Walter Christaller (1933) has discovered that there is some ordering principle governing the distribution of towns and cities, that is, settlements concerned with the provision of goods and services.



His theory is designated as the **'theory of location of urban trades and institutions'** to be placed beside Van Thunen's theory of the '**location of the agricultural production'** and Alfred Weber's **'theory of location of industries'**

In the original formulation of the theory by **Walter Christaller,** he explained **central place is the source of goods and services to the surroundings – beyond its own area.** Implicit in the theory is the complementary relation of the two areas and the conditions governing the spatial distribution of central places and their hierarchical arrangement.

> In the Central Place Theory (CPT) of Christaller, **centrality means importance. It is manifested by the quantity and quality of different services and functions provided by the settlement.** It is defined as the functional importance of settlement of the central place. Functions determine the centrality of the centre and not the location.
> One of the most important characteristics of a central function is that it generates spatial interactions, through the movement of men, materials and ideas between the center place and the complimentary region surrounding it. Rare the function, the higher the range of the interaction.
> Each center has its complimentary area and from the center emanates the **centrifugal or distributive functions and from the complimentary areas to the center gravitate centripetal activities or activities of collection.**

The theory was formulated to provide answers to the questions why cities, towns, and villages are distributed as they are, and why there are the degrees of size. The theory foreshadowed by several previous German writers, especially **Robert Gradmann,** and by few others, but **Christaller** was the first to fortify the theory with extensive and detailed analysis.

Christaller claims that the theory is organically based on the **" The crystallization of mass around a nucleus is, in inorganic as well as organic nature, an elementary form of the order of things, which belong together – a centralistic order.** This order is not only a human mode of thinking, existing in the human world of imagination and developed because people demand order; it in fact exists out of the inherent pattern of matter."

According to **Walter Christaller ' a central place is defined as a settlement providing services for the population of its hinter land (known as complementary region), supplying it with central goods and services (educational, leisure and cultural facilities) as well as those of retail and wholesale trade.**

Central places vary in importance. Depending upon the central functions performed by them and the population served, they can be classified as higher order centers and lower order centers. Higher order centers stock a wide array of goods and services and serve a large population, lower order centers stock a smaller range goods and services and serve a smaller population.

Besides population, a settlement's importance as a central place depends upon numerous factors.
(1) The supply of goods to the population at surrounding areas,
(2) Provision of resort amenities,
(3) Nodes on transportation networks,
(4) The provision of banking and commercial facilities,
(5) The provision of educational and cultural facilities, and
(6) Governmental and other administrative functions.

Assumptions of Central Place Theory

CPT is not based upon the actual pattern of settlements, but it a geographers dream about the ideal hierarchy as they would like to see and present it on a map.

The Central place theory assumes certain situations related to settlements – hamlets, villages, homesteads and cities. These assumptions are:

(1) The Landscape is even with an even distribution of natural resources and an even spread of population – invariably assumed to be farmers. "People do the marketing in a circular area".

(2) The radius of the circle of the marketing i.e. 'the extent of the market' is the function of transport cost. The circles so overlap that the common areas of overlap provide hexagonal shapes, and all consumers and area are served by various centers.

(3) Population is evenly distributed in all the directions and the movement of people in all the directions is unimpeded and involves equal unit transport cost.

(4) All people are rational: they want to minimize cost (transport cost and the time cost of traveling in particular) and maximize gains.

(5) All the consumers have the same purchasing power

(6) Lower order functions are available at lower order places and higher order functions at higher order places, though higher order settlements have many lower order functions also.

(7) The relationship between settlement nodes is orderly and not disorderly. There is a hierarchy of functions related to the hierarchy of settlements. In a small village there will be a rural post box and a delivery postman while in a big city most developed modern electronic facilities are available.

In every field there are facilities ranging from the lowest to the highest order. (Primary school to institutes to specialize learning and research; village dispensary to specialized institutes of surgery / medical treatment; one counter bank to big banks using computers and exchanging of currency in the world).

(8) Each lower or higher order service requires threshold population. A cinema hall will require a minimum film–viewing public to (say) 500 members per show. A threshold population and efficiency of transport system (Low transport cost) will sustain a facility.

The growth of a central place is also dependant on numerous factors such as (1) the amount of support that is required for a particular function called threshold population, (2) Spatial competition, and (3) the chance of a particular central place for the location of new functions.

Central place theory is usually explained by using three concepts associated with it.

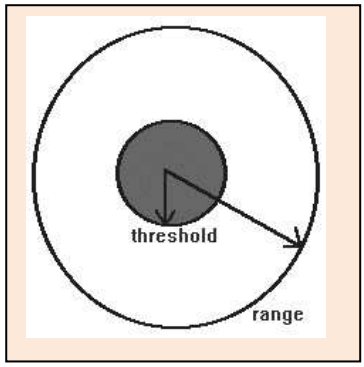
1. Centrality
2. Threshold
3.Range of central good.

1. Centrality.

The centrality of a settlement (urban centre) is defined as the ratio between the services provided and the local needs of its inhabitants. The increasing or decreasing centrality of a place depends on the extent to which it functions for the surrounding region. Christaller give a simple mathematical explanation. If the town has an aggregate importance of **B,** of which **Bz** represents the town's population, then **B – Bz** = the surplus of importance for the surrounding region, and it is this, the magnitude of the surplus, that shows the degree to which the town is a central place.

How is it possible to measure the centrally of a place and its importance as such?

Other indicators
business turnovers of the shops
number of central functions such as whole sale and retail stores
professional services located in a settlement



Christaller stated that centrality **"is equal to the relative importance of the place in regard to a region belonging to it".** He suggested that the best method of determining the importance of a place as a centre is, not by the size of the population, but by the number of telephone connections. Professor Edward Ullman suggested some, such as **"the average number of customers required to support certain specialized functions in various regions,"** and, "the excess of these functions over the normal requirement of the urban population.' Another suggestion is the number of automobiles entering a town excluding those from the suburbs.

2. Threshold

Threshold is the minimum sales volume needed to support a business or service; below this level it will not be profitable to supply a good or a service

3. Range of a central good/service

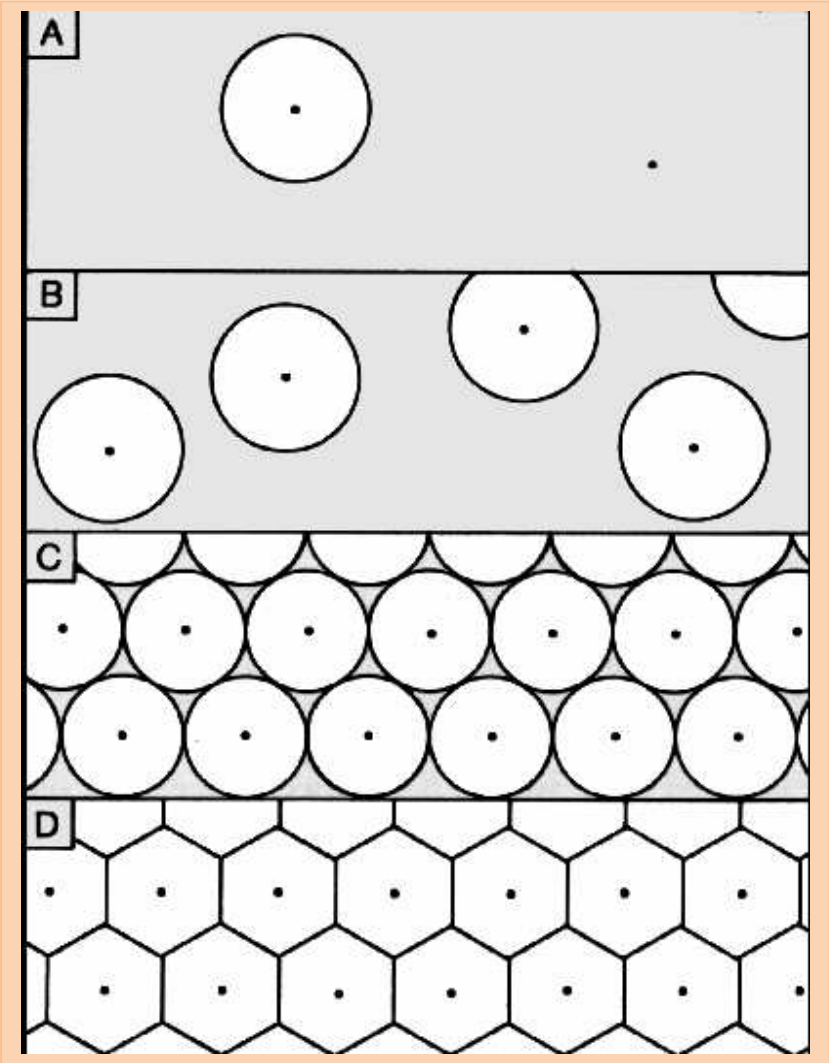
Range of a central good/service delineates the market area of a central good/service. It is the maximum distance that consumers are willing to travel (Keeping in view the price of the good) to purchase the good. It we assume that travel is equally easy in all directions, the range of a central good will be a perfect circle round the central place.

As far as the spatial development plans / programs are concerned, central place theory is more understandable and more viable, if it is formulated in a series of simple concepts, such as the range of a good / service and of threshold. By using these concepts, the planners can visualize a hierarchical structure of central places to provide goods and services.

The assumptions adopted by Christaller to explain his theory are:

- the landscape is an even plain with an even distribution of natural resources and an even spread of population, producers and consumers, and
- the movement in every direction is unimpeded and involves equal unit cost.

Now let us assume a farmer selling his produce at point A as in the diagram. Other farmers are willing to travel distance 'a' to purchase from this farmer. Since we have assumed that travel is equally easy in all directions, the market area for the farmer at A is given by the circle with radius 'a'. In time more producers may develop their own separate market areas as shown in the diagram. With the development of transportation and communications the market areas will expand and there will be an attempt to cover the maximum possible space. With circular market areas we can have a situation as in the diagram. While in the diagram there are several unserved areas (the shaded region in the figure), in the diagram there is considerable overlapping. Neither of these instances gives a stable result. While in the former case the unserved areas will have to be split equally between neighboring areas, in the latter consumers in the shaded region will tend to choose the nearest centre. Ultimately hexagonal market areas will emerge as given in the diagram. It is only this hexagonal arrangement that ensures an efficient division of space between a number of central places.

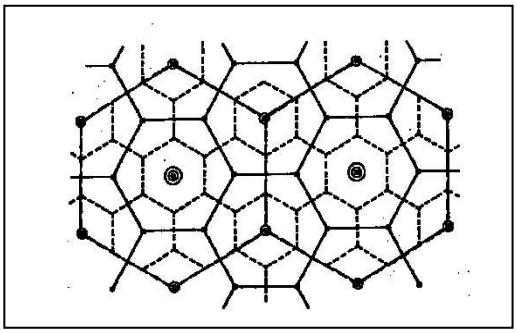


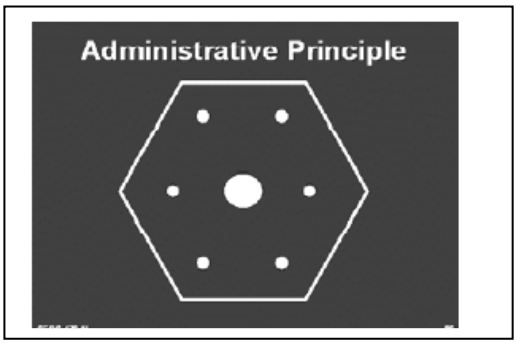
Hierarchy of Central Places

Christaller's basic model is organized on the basis of what he calls the marketing principle. The hierarchy and nesting pattern in this case results in the maximum number of central places-a necessary condition if the supply of goods from the central places is to be as near as possible to the consumers (according to the requirement of movement minimization). Such a system, is known as a K=3 network and is shown by filled circles; the next the lower order places (e.g., villages are shown by open circles; and the high order places (e.g., towns) are shown by double circle. Trade area boundaries of these three order settlements are indicated in the figure by solid lines, dashed lines, and double lines, respectively.

The k-value is the total number of settlements of a certain order served by a central place of the next higher order. As would be clear from Fig.5, each hamlet is shared between three

villages as shown by the arrows. Since a village has six hamlets at the corners of the hexagon surrounding it, each village serves **[(1/3)*6] = 2 hamlets**. Adding to this the hamlet part of the functional structure of the village itself (which is obviously served by the





village itself), each village serves the equivalent of **3 hamlets, i.e. K= 3.**
In a similar way it can be shown that a town serves three villages (and therefore nine hamlets) the central place of the next higher order (say, city) will serve three towns, i.e. nine (3*3) villages or 27 hamlets (9*3). Thus, the number of centers and successfully lower order levels in the hierarchy follows a geometric progression (i.e., 1, 3,9,27, etc.).

The 'K' value is the total no of settlements of a certain orders served by a central place of the next higher order. It is the total no of settlements served by the center place.
There are three types of 'K' values assigned by Christaller
1. The Marketing Principle 'K' value which is equal to 3.
1. The Transporting Principle 'K' value is equal to 4.
3. The Administrative Principle 'K' value which is equal to 7.

In addition to the **principle of marketing,** Christaller proposes other principle too – the **principle of transportation or principle of traffic** and **principle of administration**. The principle of transportation assumes importance in those cases where cost of transportation is significant. According to this principle, the distribution of central places is at an optimum when as many important places as possible lie on one traffic route between larger towns, the route being established in the cheapest possible manner. Thus sub-centers lie along the routes between the main centers and we have an arrangement as given in fig .6. A hamlet is shared by two villages as represented by the arrows and since a village is surrounded by 6 hamlets (each hamlet being situated midway between two corners of a hexagon and lying on the straight line connecting to villages), each village serves (½ * 6) = 3 hamlets. Adding to this, the hamlet part of the functional structure of the village itself, each village serves the equivalent of (3 +1) = 4 hamlets therefore K = 4.

Marketing Principles and 'K' value.

Christaller conceived that there are six hamlets at the corner of the hexagons surrounding the village. Since the hexagon is divided into three parts (see hexagon diagrams), each villages serves 1/3rd of the six hamlets i.e., two hamlets.

Adding to them will be the village itself and the 'K' value becomes 3.

A town serves 3 villages and hence 6 hamlets. The central place of the next higher order (city) will serve three towns or 9 villages or 27 hamlets.

In the scheme of Christaller, each center place is surrounded by six lower order places which are situated at the vertices of the hexagon. When the original center place is surrounded by six other center places of the same order, the first order trade area of each of the lower order places is competed for by three of the first order places. Therefore, each first order place can be depend upon the full first order trade area from itself and one-third of the first order trade area from each of the six lower order places.

This market principle is called the 'K =3' pattern, because it has the trade of one (itself) and 6 times the one – third (6* 1/3 = 2) of the trade of the other areas. Thus, the frequency of occurrence of different levels of market area follows the geometric progression of 1: 3: 9: 27: 81: 243 & so on, at successively lower levels of the hierarchy.

Transportation Principle and 'K value'

This is also known as the 'Principle of traffic'. If several habitations lie on a route, then the route will be more efficient and cheap. Sub- centers should lie on the route to center. (See diagram of the transportation principle). Two villages share a hamlet.

Since a village is surrounded by a six hamlets (each hamlet being situated between two corners of a hexagon and lying on the straight line connecting two villages), Each village serves (1/2 x 6) 3 hamlets. Adding the village itself, we get 'K' value as 4.

The sub- centers in the Christallers scheme of things have "dual loyalty". The traffic leads to a hierarchy which minimizes the distance between the sub-centers and the main center.

The administrative principle and 'K' value.

This principle emphasis that each center should have complete control of the 6 surrounding areas and no divided allegiance exists. No power sharing between lower and higher order centers is permitted. The center governs itself also and hence the 'K' value is

The administrative principle is based upon the idea that each centre should have complete control of the six surrounding areas with no divided allegiance. Thus, in this case, sharing of the lower order centers between the higher order centers is not permitted. Therefore, it is K = 7.

Central place theory remains even today unsurpassed as a coherent model of spatial organization of the service activities of man. Central place theory indicates that the region can be served by goods of various types, if the central places producing different ranges of goods / services are evenly distributed. The distances separating the settlements will be greater in case of higher centers and proportionally less in the case of lower order centers.

All the central places constitute a hierarchy from the smallest villages to the largest towns of national importance.

Criticism

1. Applicable only to service sector which is only a part of the total economy.
2. The hierarchy system would be distorted by the location of primary or manufacturing industry.
3. The assumption that the consumer will act rationally and patronize the nearest center is not correct.
4. Most criticized for its static and descriptive nature, as it deals with its relationship between centers and their hinterlands only at one point of time, but fails to take into account the evolutionary process of spatial structure i.e. how the structure has evolved and might change in future.

However with certain modifications central place theory can be used as a starting point for the spatial development of tertiary activities and social services in any situation. Not with standing its limitations one has to admit that it is a marked improvement over Van Thunen's theory even today, it provides the most rational approach to the arrangement of human activities, apart from manufacturing.

Modifications in the Central Place Theory.

August Losch, refined the central place theory by incorporating non-service activities in its functions, August Losch model postulated that there is one superior centre where all goods are produced. The size of the centers increases with distance form the central place and those small centers tend to be located about half way in between larger ones. Losch considered that the size of the hexagon not only in relation to a geographical centre, but also, in relation to the goods produced. Thus a particular centre may have several hexagonal markets for its different products as transport cost is a function of distance, a particular industry X with lower cost transportation will have a bigger hexagonal market area than Y, given the same economics of scale.

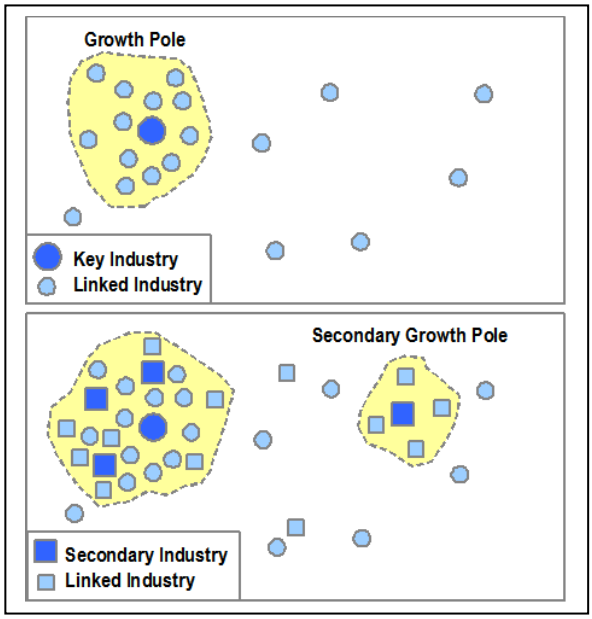
GROWTH POLE HYPOTHESIS

A French regional economist Francis Perroux (François Perroux -1955) introduced the concept of 'Growth Pole'. According to this concept public investment programs will have maximum effects on a regional growth if concentrated in a small number of favorable locations in regional development policy.

Assumptions

Assumptions:
The concept of growth poles and growth centers is based on certain assumption about the real world.
1. Human activities must cluster together to generate internal and external economics of scale.
2. If clustering is allowed, it may entail heavy social costs in terms of congestion, diseconomies of scale and spatial imbalances in social and economic development.
3. The autonomous process, which generate clustering of human activities and there by create spatial imbalances in economic development, can be directed through policy interventions to generate growth foci in areas where they do not exist.

Perroux Hypothesis:
One of the basic objectives of Perroux's hypothesis is to advance a dynamic theory economic growth, taking the concept of **innovative firms** as the starting point. To him large economic units are innovative. It exerts its influence on the economy through inter-industrial linkages. Without explaining how the leading industry with strong inter-industry linkages finds a location at which to form a nucleus around which other industries cluster, he concluded that such clusters will become growth poles if several leading and propulsive industries come together to form a complex large enough to exert a determining influence over its industrial environment.



The core idea of the growth poles theory is that economic development, or growth, is not uniform over an entire region, but instead takes place around a specific pole. This pole is often characterized by a key industry around which linked industries develop, mainly through direct and indirect effects. The expansion of this key industry implies the expansion of output, employment, related investments, as well as new technologies and new industrial sectors. Because of scale and agglomeration economies near the growth pole, regional development is unbalanced. Transportation, especially transport terminals, can play a significant role in such a process. The more dependant or related an activity is to transportation, the more likely and strong this relationship. At a later stage, the emergence of a **secondary growth pole** is possible, mainly if a secondary industrial sector emerges with its own linked industries.

Perroux based his theory on **Schumpeter's** analysis of economic development. According to Schumpeter "**Economic Development occurs as a result of discontinuous spurts in a dynamic world".** The innovative entrepreneur whose activities generally take place in large-scale firms causes such discontinuous spurts. These large scale firms are able to dominate

their environment in the sense of exercising reversible and partially reversible influences on other economic units by reason of their dimension, negotiations.

The close relationship between scale of operations, dominance and impulses to innovate became the most important features of Perroux's theory and lead to the concepts of **dynamic propulsive firm and leading propulsive industry.**

Characteristics –Dynamic & leading propulsive firm

The characteristics of a dynamic propulsive firm are

- it is relatively large
- has a high ability to innovate
- belongs to a relatively fast growing sector and
- the quantity and intensity of its interrelations with other sectors of the economy are important enough for the induced effects to be transmitted to them.

The characteristics of a leading propulsive industry are also similar. Such an industry has

- highly advanced level of technology and managerial expertise
- high income elasticity of demand for its products
- marked local multiplier effects and
- strong inter-industry linkages with other sectors

The linkages created by these industries are of two types.

- **Backward linkage:**

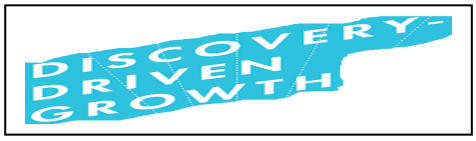
An industry encourages investments in the earlier stages of production by expanding its demand for inputs (which are the outputs of industries in the earlier stages of production (e.g. Sugar Industry)

- **Forward linkage:**

An industry encourages subsequent stages of production either by transmitting innovations or effects of innovations forward.

Transmission of forward linkages:

As a result of innovations, costs of production in the industry declined. This could lead to a fall in the price of its output. If this happens, the demand for this industry's will increase. In addition to this possibility, there are many other ways in which innovations or effects of innovations can be transmitted forward.



Basis of Perroux Hypothesis

Thus Perroux based his theory on two cornerstones

1. Schumpeterian theory of development

(i.e. Growth does not appear everywhere and all at once; it appears in points or development poles with variable intensities; it spread along diverse channels and with varying terminal effects to the whole of the economy)

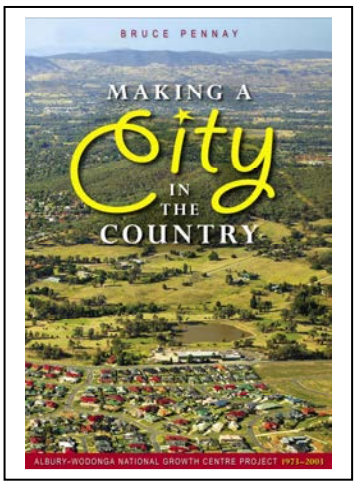
2. Theory of inter-industry linkages and industrial interdependence.

Based on this Perroux developed his idea of economic space as a field of forces consisting of centers (or poles or foci) from which centrifugal forces emanate and to which centripetal forces are attracted.

It was **Boudeville** who gave geographic content to **Perroux's** economic space. He defined a **'growth pole' as a set of expanding industries located in an urban area and it includes further development of economic activity throughout its zone of influence. The place where these 'expanding' or 'propulsive' or 'dominant industries' are located in the region becomes the poles of the region and agglomeration tendencies are promoted.**

Such tendencies arise because of external economies and result in polarization of economic activities around that pole. The external economies that become available in the area constituting the growth pole of a region are basically of the following three types.

External Economies



1. Economies internal to the firm:

These are the lower average costs of production resulting from an increased rate of output. These are the economies, which any single firm by its organization and effort can enjoy.

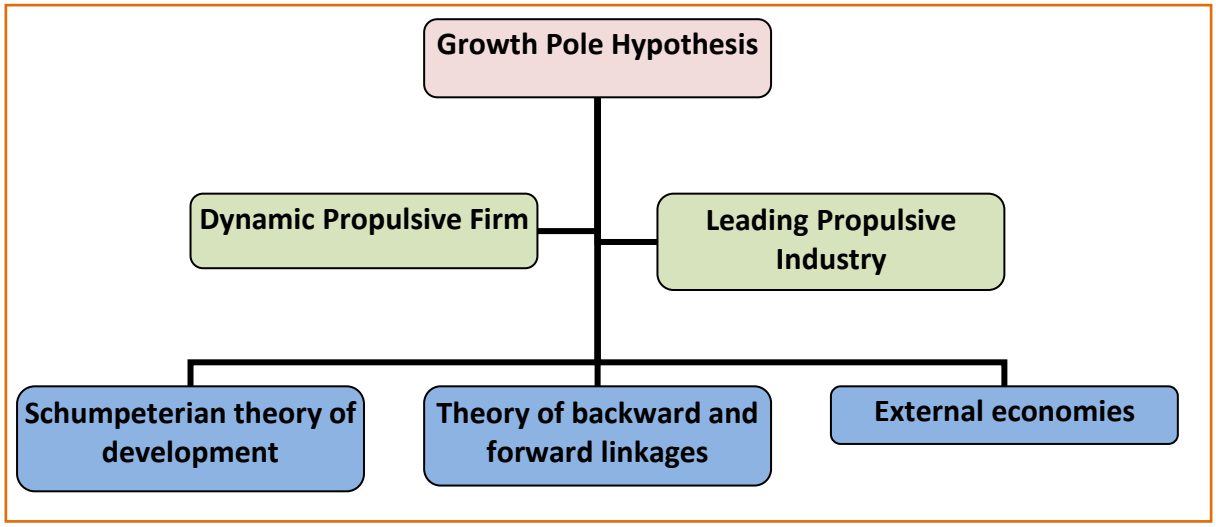
e.g. organizational efficiency and effectiveness

2. Economies external to the firm but internal to the industry.

These are associated with localization of industry on account of close locational proximity of linked firms, as industry expands at a particular location, cost per unit of output to a firm declines e.g., textile units at Coimbatore, match factories at Sivakasi

3. Economic external to the industry but internal to the urban area.

These can be termed urbanization economies. They include development of urban labour market, access to a larger market, and provision of a wide range of services.



Thus Schumpeterian theory of development, Theory of backward and forward linkages and External economies acts as a fulcrum to establish activities, industries & services in an urban area, from there emanates centrifugal forces and to which centripetal forces are attracted.

Applicability of Growth Pole theory in Regional Planning

Growth Pole concept has become popular because of its orientation towards 'dynamic industry' (i.e. dynamic propulsive firm & leading propulsive industry) 'polarization and agglomeration' (inter-industry linkages of external economies) and the promise of ensuring "spread effects"

Thus the growth pole theory postulates that if we carefully plan the public investment programs to be concentrated or located in a small number of favorable locations then it will have maximum spread effects on a regional growth.

Because of this, the underdeveloped countries today regard it as the most promising hope for regenerating the economy of backward areas.
To develop backward regions, one has to implant potential propulsive industries there and concentrate investments in the selected poles rather than spread them thinly over the whole region.
Even though it promotes structural imbalance over the whole region, it is justified that concentration of expansionary momentum at the poles will result in higher per capita income level in the region as a whole.

Concentration of investments and public expenditure in a few selected points will enable more effective use of resources and there would be better chance of generating enough external economies.

Inadequacies of the Growth Pole hypothesis
Critics of growth pole hypothesis point out four main weaknesses.

1. Inapplicability
Growth Pole theory is inapplicable to varied regional problems. In resource rich, well populated but socially and economically backward regions, the growth policy has not been a success.
e.g. Visakapatnam Port – Shipyard as a core
Rourkela & Bhilai – modern steel plant as core

The impact of these projects on the regional economy has, however, not been spectacular and the so called leading industry in each case failed to generate development impulses in the hinter land. Except for the physical development that happened in the area, people lead the same traditional lives as they always have. The leading industries are closely linked with distant manufacturing centers. In their immediate regional environment, there is hardly any spread effect.

Industrial centers like Durgapur, Jamshedpur etc stand as monuments of national achievement but regional failure. The 'backwash' process has started operating and the regions linkages with Calcutta Industrial region are closer than those with other towns in the area.

2. Urban and Industrial Bias:
Important weakness inherent in the growth pole hypothesis is its over dependence on propulsive industries in selected urban areas. It disregards other aspects of development. To expect that any large-scale industry will be able to create the socio–economic imperatives for its own growth is unrealistic.

3. Functional Rigidity:
Growth pole hypothesis is functionally rigid by emphasizing productive activities and economic opportunities created through dynamic propulsive industries. In third world countries this is not enough. Addition to this (i,e, productive activities), growth pole must function as (1) Central places (2) Innovative and growth promoting centers, (3) Social interaction points. It is therefore to get rid of functional rigidities, attached with the growth pole concept.

4. Lock of Spill Over Mechanism:

Growth Pole Hypothesis and Central Place Theory:
The Growth pole theory explains the impact of propulsive industries and leading firms on regional economic development. But it is not in itself a theory of location, which explains where the functional poles are or where the most likely locations of the new poles may be. To explain this, it has to relay on the central place theory. On the other hand, the central place theory does not explain the growth phenomena; It is a static theory which only explains the existence of certain patterns of centers. It does not say how these patterns come into being and how they may undergo changes in the future. To explain these dynamic phenomena, it needs the help of the growth pole theory.

R.P. Misra's Modified Growth Foci Approach:
Recognizing the importance of the growth pole theory in the process of regional planning and taking account of the above considerations, Misra extends the concept of growth pole to the concept of growth foci. This new concept of growth foci seeks to integrate the main elements of the central place theory, the growth pole theory and the spatial diffusion theory. The earlier version of the theory advocated the following four–tier hierarchy of growth foci.

1. **Service centers at the local level.**
2. **Growth points at the sub – regional level**
3. **Growth centers at the regional level**
4. **Growth poles at the national level.**

The later formulation envisages a five–tier hierarchy with the central village at the local level, the service centers at the micro regional level, the growth points at the sub–regional level, the growth centers at the regional level and the growth poles at the national level.

R.P. Misra notes the following three important weaknesses in the conventional growth pole theory when it is applied to conditions prevailing in underdeveloped countries.
1) The hypothesis has its roots in western economic thought where its role has been defined in terms of accelerating development through industrialization. Undue emphasis on industrialization programs introduces "functional rigidity" in the growth pole theory.
2) In undeveloped countries like India, the growth foci should not be concerned with industrial development alone. They have to perform two other basic functions: (a) they must function as service centers and meet the day-to-day needs of the area they serve (i.e. they must function as central places in the form postulated by Christaller); and (b) they must act as innovative and growth promoting centers. They must have processing and manufacturing activities of both basic and non-basic types and should be able to provide employment to the drop–outs of the agricultural system. Thus the role of growth foci is not limited to manufacturing of goods, it includes the creation of conditions under which industrial development can occur and;
3. In under developed countries, the growth foci have to function as social interaction points also. They have to act as the centers of diffusion of information. Provision of extension services, educational services and meeting places is necessary to accomplish this task".

Hierarchy of Growth Foci	Population & coverage	Nature	Facilities expected
1. Central Village	Population 6000 covering 6 villages.	Revenue village or village panchayat.	Offering marketing, recreational and social services; will have primary school, sub post office, health sub centre, primary co-operative
2. Service Centre	Population 30,000 covering 5 central villages + 5,000 population in the service centre itself; Town Panchayat	Head quarters of the extension officers, minor govt. functionaries; focal points for social intercourse	Will have grocery store general merchant shops, minor repair facilities, tailor, larger shops, restaurants, primary and middle school, sub-post office, co-operative bank, rice mill, flour mill, cinema theatre
3. Growth Points	Coverage 1.5 lakh population i.e. serving 5 service centers plus 10,000 to 25,000 population of the growth point itself municipal town or taluk head quarters.	Sub-regional innovative and propulsive urban centers; contribute to the social, economic and emotional integration of the respective sub region; linked with sister growth points by state highways and with the service centers by district/local road net works.	Will contain all the facilities located in the service centers. Over and above it will have agro industries, dairy processing units, junior college, primary level specialized medical facilities etc.
4. Growth Poles	Coverage – 10 to 12 lakhs of population; plus 50, 000 to 5,00,000 population of the growth centre it self.	There will be 500 growth centers in the country as a whole. District headquarters; acts as counter magnets to large urban centers like Bombay, Madras, Calcutta, Delhi etc.	Predominance of secondary activities; will have collecting, storage and processing facilities for agricultural products; will produce agricultural inputs such as fertilizers, pesticides, and machines; will have radio/television station, banking facilities, degree college, university, technical institutions; operation of external economies; will function as industrial hubs of the area they serve.
5. Growth Poles	Population of a growth pole ranges from 5 lakhs to 25 lakhs – It will serve a population of 20 – 30 million	Designed to serve as the 'heart' of one macro region of the country; state headquarters	Will send out financial technological, research and industrial impulses to all centers and points within the area of their command; will perform highly specialized secondary and tertiary activities.

The growth centre strategy was followed by erstwhile socialist countries and also by many developing countries. Even countries like France, Italy and India had their own version of growth centers. **Under the Community Development Program, the block headquarter was intended to be growth centre for rural development. Under the new industrial policy of India, the district industrial centre was to facilitate emergence of the industrial growth centers in each district**. Urban centers already exist can be converted into growth centers if better linkages are developed with the hinterland. Complementary economic activities can be made to converge at a centre. Growth centers can be developed through planning for the locational convergence of activities in their compatible combination. **However, any geographical agglomeration of activities is not automatically developmental.** There has to be appropriate mix of activities with strong linkages with the economy of the hinterland.

If some large villages and towns can serve the hinterlands with services and become nodal points of transportation network and have various types of local-resources-based industries, they can become growth centers. A growth centre should provide basic infrastructure, functions and facilities for the commercial agriculture. Growth centers should create such conditions that distress migration from rural areas is arrested.
A growth centre must have good-sized industries and/or many small-scale industrial units thriving to become growth centre. In India the structure of industries did not conform to the needs of the rural people. The vertical hierarchy of (a) growth foci/central village, (b) service centers, (c) growth points, (d) growth centers and (e) growth poles did not develop diversified industries needed for the development of the primary sector, the rural areas and the people of the hinterland. Instead of supplementing the traditional occupational skills and crafts, the industries of the growth centers often supplanted them.

"The growth pole theory has proved to be inapplicable to developing countries marked with dual economies. The growth poles transplanted in such economies have remained poles without a deeply rooted broad base. The propulsive industries located in the poles have failed to diffuse development in the hinterland. To suit the socio-economic conditions of the developing countries, the growth pole theory has been modified and the concept of system of growth foci has been evolved. In a very limited way the concept has been accepted in several developing countries as a tool to develop backward areas and regions while at the same time integrate the traditional and modern sectors of the economy into a single whole". R.P.Misra

Such an extension of the growth pole theory opens up immense possibilities for the application of this theory in promoting the process of regional and national economic growth. By ensuring a linked pattern of hierarchy of human settlements, it also successfully avoids the damages of over urbanization and of depressed areas co-existing with developed areas. The problem of providing an adequate institutional infrastructure in the rural areas is also properly looked after. Adoption of this strategy leads to what Misra calls "**decentralized concentration".**

THE CUMULATIVE CAUSATION THEORY
Backwash effects versus spread effects

Gunnar Myrdal's Theory

Noble Prizewinner in economics, **Prof. Gunnar Myrdal** has written a lot on the problems of less developed countries. His monumental book "**Asian Drama"** in three volumes and thousands of pages analyses the development process of Asian countries. Prof. Myrdal is well known for some of his theses, the main of which are

- **the Theory of Backwash Effects of International Trade,**
- **the Cumulative Causation Theory of Economic Development** and the
- **Institutional Reform Theory of Development.**

In the first two theories the causes of vicious circle of backwardness have been analyzed, while in the third we find some explicit suggestions for the development of less developed countries.

Part-I
Backwash effects of international and inter regional economic relations: spread-effects theory.

Myrdal believes that international and inter-regional economic relations in practice involve unequal exchanges in the sense that the weak are always exploited by the strong. **Belief in the competitive market benefiting all is misplaced.**

Less developed countries face three types of problems (as analyzed in the 'backwash effects theory').
First, the developed countries exploit them in international economic relations.
Second the rich regions are also in the semi-colonial position with regard to the backward regions.
Third, the rich people milk the poor persons of these countries.

International trade resulted in the immiserisation process in less developed countries. When foreigners invested in less developed countries they usually invested in plantation, mining and a few selected industries. These investments created lop-sided development in the countries because the nature of development was dualistic. These investments did not trigger off growth impulses in the hinterland.

The precious resources of the nations were drained off. The people by and large remained as backward as ever in the vicinity of big projects. The skilled personnel who worked there developed feudal and colonial approach to the development problems. These were the backwash effects of the development. Capital, skills and people moved out of backward regions to the developed regions, leaving the latter poor and dry.

The spread effects of development were just a few and disjointed or discontinuous. These spread effects were those which gave expansionary momentum from the centers of economic

expansion to other regions, and were centrifugal in nature. The main cause of economic backwardness and regional disparities has been the strong backwash effects and the weak spread effects.

Everything clustered in certain regions from art, literature, education and culture to medical facilities, science, commerce, banking, insurance, power development etc. Big cities developed in port areas. Banking system so developed that the credit-deposit ratios went against the poor regions and while deposits were collected from poor regions, credit facilities for investment was given to developed regions.

Another distressing effect of the past development pattern was that the big industries and urban centers, not only not helped the small industries or cottage industries and rural sectors but positively made them further backward. Handicraft industries died a miserable and lingering death without government support due to unhealthy competition from the developed sector. Even agriculture could not develop in these regions.

There were some spread effects from the nodal regions to the hinterland. The hinterland did supply raw materials etc, to the centers of development and in turn received consumer goods. However, these spread effects never helped in the self-expansion process in the rural areas.

The two types of effects were never in equilibrium. The position was that SPE (spread effects) > BWE (backwash effects) in developed regions while in the less developed countries or regions the BWE > SPE. Spread effects continued to become stronger in developed countries while backwash effects continued to become even more widespread in backward countries and regions. This was the type of "dynamism" in the past, and to a large extends even now between the developed and backward regions.

In the developed regions and countries "development becomes automatic process and nothing succeeds like success". In the backward regions and countries "poverty becomes its own cause and nothing fails like failure".

Another aspect of these effects is that while the income elasticity of demand for agricultural products is not high, it is pretty high for industrial products. The terms of trade, therefore, change in favour of the sector, which is already developed. When the terms of trade go against the backward sectors, they have to supply more in real terms to get the same amount of real supplies from the other sector/region/countries. This dampens the supply responses further. They cannot increase the prices and they cannot get the advantage of reducing the prices also, because of the low-income elasticity of demand.

Money earned in these sector/regions/countries is not reinvested in these very sectors but is repatriated to the developed sector, regions and countries. Increased exports from the backward sectors in the past led to inflationary pressure, increasing poverty, balance of payment difficulties, conspicuous consumption and absence of favorable multiplier effects.

There were barriers galore to the spread effects, which included the unhelpful attitude of the rich countries and regions, sectors and people and also of the governments.

Part II

The cumulative causation theory of development and backwardness

The theory of cumulative causation has been built upon the above two effects viz, the backwash effects and the spread effects. The cumulative causation theory emphasized that poverty is further perpetuated by poverty (where backwash effects overwhelm the spread effects), and affluence is further promoted by affluence, (where spread effects overwhelm the backwash effects).

Core-Periphery Model

Core-Periphery Model

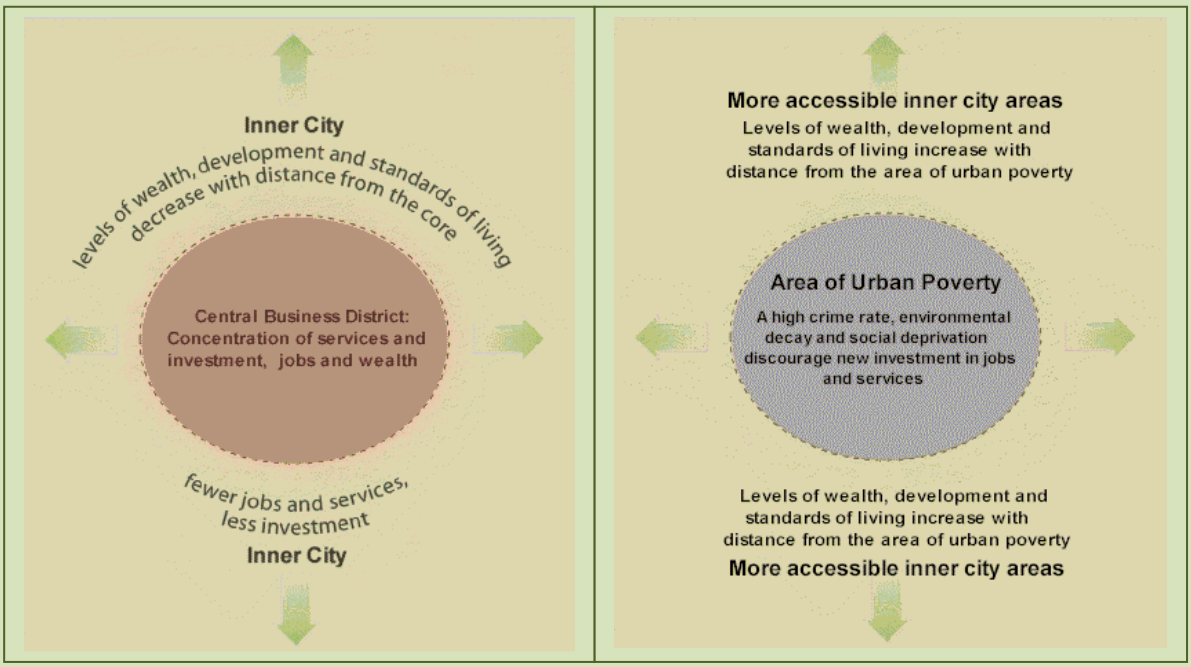
Core-periphery theory is based on the notion that as one region or state expands in economic prosperity, it must engulf regions nearby to ensure ongoing economic and political success. The area of high growth becomes known as the core, and the neighboring area is the periphery. Cores and peripheries may be towns, cities, states, or nations.

The Core-Periphery model (see below) helps explain why some inner city areas enjoy considerable prosperity, whilst others display all the signs of urban deprivation and poverty.

Services, investment and jobs are concentrated in the **core** Central Business District (CBD), but accessible inner city areas may benefit from a **trickle down** of wealth from the core. For example, in some areas there may be a through-flow of office workers to the inner city seeking low-price lunchtime meals. The core also provides work for inner city residents.

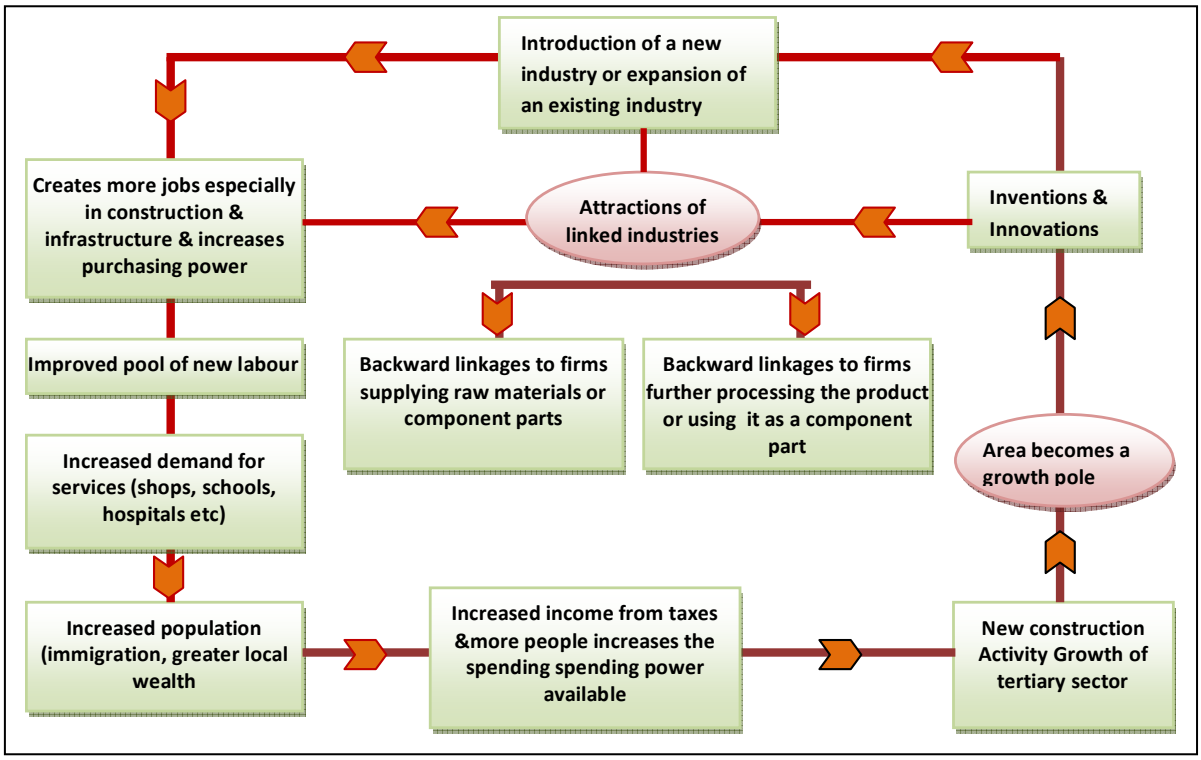
Core-Periphery Model Spread Effects

The development of new industry in parts of the inner city encourage the concentration of further industrial activity via 'cumulative causation' or multiplier effect as shown in the model below:



Less accessible inner city areas may experience a **backwash** effect, with the little investment that does occur in the inner city becoming concentrated close to the CBD, widening the poverty-wealth gap. This is illustrated in the diagram below, a reversal of the core-periphery model.

Myrdal wrote: "If the spread effects are sustained or accelerated further and backwash effects are resisted or rebounded back to their origin, the pace of economic development of



backward regions or class will be improved in terms of time distances. These two effects originate at the centre of economic expansion i.e. growth centers for lower order support functions and at the growth poles for higher functions. Since the two effects are counter-balanced on tangent areas of the two influence circles, it would be imperative to pressurize a positive force of changes leading to upward movement. The role of "big push" becomes obvious to break through the stagnating situation. Economic incentive to producers, in terms of differential rates of capital subsidy, market subsidy, support price, fiscal support should be granted. These would generate rebound effects on the backwash effects."

Myrdral writes that if the rebound effects are well directed, the spread effects can develop a region. Since the spread effects gradually decline at constant rate with increase in spatial distance from the growth centre, it would be in the fitness of things to locate sub-growth centre, in such future growth potential areas. It would be of much avail to raise intensity of spread effects at point of equilibrium (rather than at existing growth centre), and thereby to extend existing zone of influence to that of other growth centers.

The 'vicious circle' type theory of cumulative causation emphasizes that excessive backwash effects keep a less developed country poor. Inequalities do not get reduced on their own but get accentuated. Disequilibrium causes further disequilibrium.

He writes: "The idea I want to expound is that, in the normal case, there is no tendency towards automatic self-stabilization in the social system. The system is not by itself moving towards any sort of balance between forces, but is constantly moving away from such a situation. In the normal case a change does not call forth-countervailing changes, but instead, supporting changes, which move the system in the same direction as the first change but

much further. Because of such circular causation a social process tends to become cumulative and often to gather speed at an accelerating rate."

Thus (as we have seen if the BWE >SPE there will be cumulative causation towards poverty and vice versa), if it is intended that spread effects should overwhelm backwash effects, then state intervention (SI) effect should exceed adverse cumulative causation effects.

Myrdal contention is that **"the play of the forces in market normally tends to increase, rather than decrease, the inequality between regions".** Once a particular region starts growing faster than the average, the "efficiency wage" in that region tends to fall. (It means that as the efficiency and productivity increase, the per unit wages–burden on the cost of production of commodities falls). This region gains comparative advantage over other regions and it becomes cumulative. This has reinforcing effects in terms of industrial development giving rise to widening regional inequality.

Myrdal's theory is **counter-periphery model**. The favorable effects flow from the centre to the periphery. Periphery supplies raw materials and raw human power to the centre. The centre supplies the technical know-how and finished output for consumption and inputs also. Core activities are at the centre. Subsidiary activities are in the periphery area. After some time the activities in the periphery may give rise to new core regions. This new core region will become the new centre after some time. Then it will from this place that new peripheral regions will develop.

When periphery becomes the net loser the effects are backwash effects. When the centre becomes the net gainer, the effects are spread effects for the core activity region.

When the spread effects dominate, the core region develops further. In such a case there will be economic integration between the centre and the periphery, which will give rise to a more homogeneous spatial system.

When backwash effects dominate, there will be lack of complementarity and divergences will develop. Periphery will remain weak; only centre will develop and dualism in growth is promoted.

Under such circumstances, the core will continue to experience a circular upward reinforcing trend of favorable effects and the periphery will have a reverse experience.

Cumulative causation theory proves (i) that market mechanism will not bring equality between regions but will increase inequalities, and (ii) nothing short of government intervention will check the backwash effects from getting cumulative.

The process of cumulative causation starts accidentally due to "momentum of an early start" and it be just by chance. Once the growth starts, the external and internal economies bring continuous growth at the expense of other localities and regions where relative stagnation or regression becomes the opposite pattern. In backward regions there is outflow of resources, human power, and capital.

Development of infrastructure and directly productive investment brings spread effects, and they induce technical advance and all types of industries grow. "In reality, the expanding,

stagnating and regressing localities are arranged in a fairly continuous series on different levels, with all possible gradations between the extremes.

Part III

Getting out of the trap of cumulative causation of backwardness

If the remedial measures are to be conceived, than naturally they will consist of removing following causes.

Regulating international trade:

If free international trade has more backwash effects, protection is called for. If market mechanism further accentuates backwardness, the government sponsored and regulated economy becomes desirable. If regional inequalities are promoted through circular causation, then the doctrine of balanced regional growth is to be advocated.

If the centre and the core are in the semi-colonial relationship with the periphery, then such development programs which provide for greater complementarity, integration and linkages are called for, all efforts are to be geared towards ending the socio-economic dualism in development in less developed countries. Myrdal goes so far as to suggest that the developed countries should now transfer funds and technical knowledge to less developed countries on mass scale so that the latter get the spread effects as compensation for the past backwash effects.

Myrdal has made many other recommendations also. He recommends promotion of capital goods and import substitution industries and also of those industries which permit simultaneous development outside the sphere of modern large-scale industry. He wants employment creation to be the main plank for poverty removal.

Overcoming corruption in less developed economies.

Lack of order, discipline, accuracy and punctuality can be witnessed as national character or at least as chronic national habit. Widespread superstitions, corruption, lack of collective leadership, inaction, lethargy and traditionalism-abound.

Avoid model building approach for less developed countries.

Models are rigorous but unrealistic. Exercises in model building are fascinating but inappropriate. They ignore social accounting. Myrdal prefers theory to a model. He rejects the one-sector model or even two-sector model for the multi-structural society.

Reforms in agricultural sector:

Myrdal rightly contends that "it is in the agricultural sector that the battle for long-term economic development in South Asia will be won or lost. He is against too much radicalism in agriculture. He wants moderate land reforms because radical land reforms take the initiative away and reduces the rise of the holdings to less than optimum limit.

The need for planning:

A new socio-economic order is to be superimposed, which should be alternative to Marxism. Myrdal's sympathies apparently lie with planning. He does not approve subsidizing the 'big business' by low rates of interest, cheap rates of foreign exchange, protection from foreign competition, and low prices for services and goods from the public sector.

Institutional Reforms:
Myrdal laments the collusion among politicians, officials and business people in appropriating the gains of planning to themselves. Myrdal wants far reaching institutional reforms that should bring the benefits the planning to the masses that will annihilate the vested interest groups.

Critical Evaluation
Appreciation
Myrdal is internationally respected for his views. A western economist, yet he exposed the backwash effects of international trade on the poor countries and regions. Though not a communist, yet he proved that the so-called competitive markets instead of solving the problems of backward regions, sector and people accentuate them.

Myrdal theses have made important contributions to the theories of convergence and divergence, and agglomeration and locational economics and the theory of "vicious circles". He is for balanced growth and wanted it to be initiated, directed and sustained by the government. He becomes an important supporter of the theory of sponsored growth.

The analysis part of the Myrdal's writings is found to be much more satisfactory than the recommendatory part. He could not develop a complete theory of development, in which he could have written in details about the growth process from the start to the pinnacle.