SPATIAL INEQUALITIES IN REGIONAL DEVELOPMENT AND STRATEGIES FOR DEVELOPMENT PLANNING

A DISSERTATION

Submitted in partial fulfilment of the requirements for the award of the degree

of

MASTER OF URBAN AND RURAL PLANNING

By

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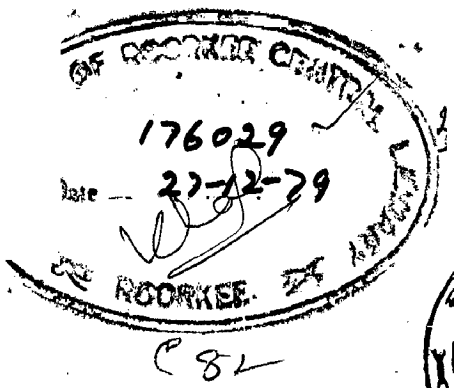

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C E R T I F I C A T E

THIS IS TO CERTIFY THAT THE DISSERTATION ENTITLED "SPATIAL INEQUALITIES IN REGIONAL DEVELOPMENT AND STRATEGIES FOR DEVELOPM ENT PLANNING," BEING SUBMITTED BY MILLIND L. NULKAR, IN PARTIAL FULFILMENT OF THE AWARD OF THE DEGREE OF MASTER OF URBAN AND RURAL PLANNING OF THE UNIVERSITY OF ROORKEE, ROORKEE, IS A RECORD OF STUDENT'S OWN WORK CARRIED OUT BY HIM UNDER MY SUPERVISION AND GUIDANCE. THE MATTER EMBODIED IN THIS DISSERTATION HAS NOT BEEN SUBMITTED FOR THE AWARD OF ANY OTHER DEGREE OR DIPLOMA.

THIS IS FURTHER TO CERTIFY THAT HE HAS WORKED FOR A PERIOD OF SIX MONTHS AND SIXTEEN DAYS FOR PREPARING THE DISSERTATION FOR MASTER OF URBAN AND RURAB PLANNING AT THIS UNIVERSITY.

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I KNOW I LACK THE CAPACITY .....

YET,

IF IT IS TO EXPRESS A FEELING OF GRATITUDE TO ANY ELEMENT

FOR ITS ROLE IN THE FORMATION OF THIS COMPOSITION

THEN,

IT IS TO ALL BUT NONE WHO HAVE CONSCIOUSLY OR OTHERWISE

CONTRIBUTED IN THE PROCESS OF THE COMPOSITION OF THAT

ENVIRONMENT SHAPING THE END PRODUCT,

MORE THAN ANY DETERMINED EFFORTS CONDITIONING THIS FORMATION

C O N T E N T S

chapter one

1. INTRODUCTION

After nearly three decades of planned development, today, we stand at cross-roads. At this stage, the Indian Planners have to induldge in a bit of soul searching and self-analysis regarding our planning performances so far.

No doubt, our planning efforts have yielded immense fruits in terms of increased G.N.P., high industrial output, food surplus, more foreign exchange than we need, reaching a state of near self reliance on techno-economic front and so on. These and other achievements of Indian planning are indeed what we could be proud of.

All the same, it is also a fact, that after five, Five Year Plans, we have more unemployment, more people living in poverty and dying of starvation, marked polarisation of the benefits of growth with an ever-increasing gap between the rich minority and the poor majority, alarming growth of cities, agonising stagnation of certain regions,... the list goes on.

This, when compared with the list of achievements, presents a paradoxial situation, where growth and decay, development and neglect co-exist.

What it means for planners is that there is gross imbalance or disparities in the growth of the regions and the distribution of benefits of growth between/within regions. One important reason for this undesirable state is that there has not been any significant effort in fusing rational spatial planning with national/regional planning.

Therefore, the present situations demand a dynamic approach in regional planning with rational dispersion of economic activity spatially, within the broader national frame work, together with social mobilisation enhancing the growth and development of different order settlements.

In recent years, concern about the spatial structure most suited to national development is wide spread among planners in the Third World.[1] "Regional or spatial considerations are fundamental to the problems of under-development, planning for development and the actual planning processes in the developing countries."[2]

In specific terms :

- Developing countries are not 'homogenous' societies, they are in the midst of nation building processes for social cohesion and stability, the essential prerequisites for sustained economic growth.[3]

- Despite sincere and deliberate efforts towards justifiable decentralisation, the economic development has been controlled by market mechanism and the play of forces in the market normally tend to increase rather than to decrease, the inequalities between the regions.[4]

so that, once a particular region has by virtue of its initial advantage moved ahead of others, then the same region will, at the expense of the remaining regions of the country benefit from cumulative concentrations of new economic activity.

Thus, a system of persisting spatial inequalities represents only an inefficient system of growth and development, questioning location of activities and the resultant interregional relations.

The study intends to have a probe into this aspect in particular, while delebrating on issues in reference to study area supporting the argument.

1.1 TYPOLOGY OF SPATIAL INEQUALITIES

Before identifying the forms of spatial inequalities, it is necessary to define spatial inequalities. It may be expressed as 'Imbalance pertaining to Space' or as

a result of 'unequal distribution of activities' is primarily idenfified in the economic context where unequal distribution pertains to per capita income, poverty line and economic output and a comparison is drawn through theories established in the fields of economic science.

In the context of this study, it may be identified as inequitable,

(i) access to productive activities and

(ii) access to social services over an area

They may be perceived in the context of production, types of economic activity, division of labour and level of infrastructure together with differences in the quality of life, resulting in imbalances.

The following types could be distinguished :

1.1.1 INTER-REGIONAL OR REGIONAL INEQUALITIES :

These may be identified between administrative regions or group of administrative regions depending on the scale of the problem in focus. Example - inequalities within the states or group of states identified within a planning region.

1.1.2 INTRAREGIONAL INEQUALITIES :

Ineqalities identified within a set region. With state as a scale the disparities within districts may

be categorised under this typology. In the strict sense of terms "The space needs to be identified as a surface rather than compartmentalisation of the same into arbitrary administrative units of varying size and homogenuity"[5].

1.1.3 URBAN RURAL INEQUALITIES :

Within a unit of study, the inequalities caused due to unprecendent growth of the few urban centres sapping the potentialities of growth from the peripheral rural settlements. The degree of these inequalities is more marked in case of larger and heterogenous areas.

1.1.4 INTER-URBAN INEQUALITIES :

Inequalities identified in the context of the growing gap between the different order urban settlement with a higher degree of concentration in the larger cities leaving limited potentialities for small and new urban centres. These inequalities express the need to design measures to restrict the growth of the larger centres and to enhance the development of the intermediate size centres through added stimuli.

1.1.5 a INTER-RURAL INEQUALITIES :

In the context of rural planning the inequalities identified in terms of percentage of people living below poverty line, per capita income, health facilities, education and other amenities catering to a settlement. - Relatively developed pockets in the underdeveloped tract of land -.

1.1.6 INTRA-URBAN INEQUALITIES :

Within an urban area the spatial inequalities are reflection of socio-economic inequalities; The growth of squatter settlements and the paradoxical situation of the juxtaposition of wealth and poverty - Pockets of deteriorating quality of life.

1.1.7 INTRA-RURAL INEQUALITIES :

Within rural settlements/units in focus, we could identify the sharp variation inliving conditions. - The Zamindars and the landless labourers -

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1.2 POTENTIAL SCALE*

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*Through this the possibility of the outlook and the range of the study is expressed.

The need to identify spatial inequalities in the regional context expresses the possibilities of studying the subject at a national level.

While Indian planning model has become fairly sophisticated in relation to intertemporal phasing and perspective planning, there has been no comparable extension of analysis to questions of spatial planning.[6]

This study expresses the need to identify spatial dimension in the national planning as an integrated part of the economic planning thereby establishing essential pre-requisites for effective policy decision in the perspective of development planning, guiding the type and scale of activity over an area both long term and short term. Without it, various possibilities for helping the poorer majority may be missed and the whole development processes may be less equitable and humane.

The need today, is to perceive the problems of development in the 'TOTAL' context with nation as the scale and while dispersing the economic activity at that scale, proliferate the effects of planned development to its ultimate lower order within the established regional frame work through definite rationale in the perspective of developing nation identified in the following context :

1. distribution of services and facilities stimulating social equity and improving quality of life.

2. Spatio-economic dispersion of activities with equitable access in the hierarchy of national setting.

All the same, within the scope of this project, the 'region' is considered as a limiting parameter with the present administrative boundaries and the availability of data confined to these areas. The study focuses at a state level in particular while identifying the levels of spatial inequalities within the districts and subsequent dispersal of economic activities spatially.

Here it may be conceptually accepted that the study can be carried out both at a higher level - the Nation - and the lower level the District - with individual blocks in focus. This possibility was over ruled due to time limitations of handling the project at a national level and the necessary data gap at Block level, respectively. Thus, the work in this document is restricted to the study of a state/region and its selected district to evolve strategies for development planning.

1.3 OBJECTIVE

To develop a methodology to identify the levels of spatial inequalities as a comparative statement in the context of a region.

To establish the hierarchy of economic activity based on the intensity and potentiality of the activity to generate economy.

To identify need for social mobilisation as an integrated part of the spatio-economic development.

To suggest an integrated matrix for intensity distribution of economic activity and subsequently evolve strategies for development planning.

To establish parameters for stabilising the matrix at inter-state and intra-state level.

1.4 RATIONALE

In the absence of sound theoretical frame work for development planning in the spatial context at a national level together with lack of clear understanding of the spatial processes which govern the movement of people from rural to urban areas, the relations between town and country, and the ways in which certain regions grow and others stagnate, little can be done to help the poor. The effects of the planning exercises, under these circumstances carried out in a peacemeal fashion focussing on particular problem in isolation, "has led into a 'sharp' polarisation between a few developed pockets and vast

neglected areas without any significant socio-economic change".[7]

This establishes a need for research and development technique as a coordinated programme of economic social and spatial planning, establishing definite rationales for evaluating, processing, formulating and guiding action in the field of development planning.

The limitations of this effort are primarily pivoted around the administrative constrains and such other externalities shaping the decision in the absence of an integrated frame work for spatial dispersion of economic activity at national level.

1.5 IDENTIFYING THE STUDY AREA

Since the main objective of this project is to evolve a methodology to identify the levels of spatial inequalities in the context of a region - earlier identified as a state - the choice of the region or state is based on no analytical selection. As such for the purpose of this study the chosen region is Maharashtra State. The factors behind the selection of Maharashtra State for the purpose of study are, (1) individual resources, (2) personal limitations and (3) familiarity with the region.

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chapter two

2. RELATED HAPPENINGS IN THE FIELD

At this stage it is necessary to take stock of some parallel examples in the field of spatial planning with a view to identify the present theories and their applications. This task of reviewing the existing situation could stimulate wider possibilities regarding the scope of this project work, while basing it on a comparatively closer understanding of the present happenings. Development planning is conceived primarily in the perspective of the developing nations and as such the focus centres around the less developed nations, while picturising India as one among them with similar problems, adequate references have been drawn from these areas in the context of this study.

2.1 HAPPENINGS ELSEWHERE

Until recently, one major planning lacuna was in the field of urban, regional and spatial planning. Before 1960, the number of institutions and agencies concerned with spatial planning in the third world countries was negligible.[1] However, there were adhoc arrangements and these were not motivated by any wish to introduce a general programme of regional development and still less by any desire to plan fully the national space economy.[2]

While several Third World Countries suffered from spatial inequalities in the form of poor regions, growing cities and large regional disparities they paled into insignificance with important issues like unemployment, poor health, mal nutrition and inadequate services that demanded greater attention of planners and decision makers

> *Gradually, however, the realisation grew that regional development and spatial planning were appropriate concerns for the Third World Governments. This trend was assisted by the work of planners such as Friedmann (1966)[3] Alonso(1969)4, Rodwin (1970)[5] and Berry (1969)[6] which argued that spatial planning is essential at an early period of economic development. Friedman further argued that 'many less developed countries need spatial planning more than developed countries' and that 'transitional societies are clearly most directly concerned with regional organisation', partly because of the spatial shifts involved in moving from organisational to industrial economy, and partly because, a large portion of their potential resources are still unutilised.

By contrast, developed economics should normally be more concerned with overcoming chiefly urban and metropolitan problems.

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*Alan Gilbert ed. 'Development Planning and Spatial Structure', 1976, p. 11.

The examples of certain major 'spatial' projects within less developed countries are :

1. The establishment and early 'success' of Brasilia and of SUDENE, agency created to assist Brazil's major problem area, the Northeast, had a significant impact on achieving national, economic and/or political goals together with a strong affirmation of assistance in the process of Regional Development[7]

2. Tanzania has adopted a growth-centre policy and is considering the establishment of new national capital[8]

The development of small service centres in eastern Africa are important nodes in an otherwise dispersed population pattern resultant of administrative structure. They provide important social commercial and administrative functions for only limited proportion of the rural population. All the same great stress has been placed on the need to consider the role of service centres in the light of the overall orientation of development policy.

3. Kenya has incorporated a growth-centre strategy into its rural development programme. Here the

> planners recognised that adhoc dispersion, and duplication of services contribute little to an orderly pattern of development and scattered investment, resulting in a loss of the 'MULTIPLIER EFFECT'.[9]

To remedy the situation they began focusing investment primarily on small urban places and designated rural areas, where most of the population was located.[10] The methodology adopted here, is based on central place theory. A salient point of this theory is that a hierarchy of central places, with individual regional service areas form a hexagonal lattice over the land. The methodology was used as a basis for the study in order to determine the size, spacing and the functional structure of the service centres in the chosen area.

These practical demonstrations of interest in the spatial concept have been accompanied by a rapid expansion in the literature on urban and regional development in Third World countries.[11] Also interest in regional development becomes manifest in the writing of development plans as seen in India where goal of balanced regional development was stressed as early as the Second Five Year Plan (1956-1960).

2.2 PRESENT PLANNING PRACTICES IN INDIA

To summarise the present planning practices or trends in Indian planning it is necessary to take previ ew of the five year plans which conceptualizes the process of development while channelising the financial resources at different levels.

Indian development plans since their beginning have emphasized the necessity for'regional balance' in all development endeavours. The second five year plan (1956-61) stated that one of the objectives of national planning is to even out regional disparities in economic development.[12] While the Third Five year plan (1961-66) dealt with this objective by incorp rating one full chapter on balanced regional development[13], the fourth five year plan (1969-70) noted the phenomenon of widening regional 'imbalance', but considered it largely a problem of improving the infrastructural facilities in the backward regions.14 Within state development planning had to satisfy the primary need of infrastructure and resources for growth and diversification of economic activities in underdeveloped regions or areas. Where infrastructure is to consist essentially of a series of public utilities and services, where widespread provisions are meant for

activisation and development of economy of all areas in the State[15]. It specifically avoided any commitment to national policy on regional development with an argument that the special problems of backward areas were mainly the responsibility of the State Government. For the strategies of the fifth five year plan (1974-79) the development of backward regions assumed a critical importance, in view of the importance laid on increasing the living standards of the lowest 30 per cent of the population, a significant proportion of which is found in these areas[16]. Under the minimum needs programme, requirement of the backward regions is accounted.

All the same "Indian Planning Model has yet to integrate regional development model, together with comprehensive regional policy frame for spatial planning at the national level"[17]

In the absence of an effective framework of regional planning in the form of coherent approach to human settlement policy in the spatial terms as the basis for channelising investment, the objectives of balanced regional planning and development may not be achieved.

2.3 THEORIES IN PRACTICE

In the field of regional planning there are different theories formulated primarily in the context of economic development and disparities. The theories which measure the regional inequalities to-day are 'economy based'. Development measures in terms of quality of life indicators and Other parallel indicators reflecting aspirations of the people while basing it on the minimum wants of human being are not very common in practice.

The theories in practice are :

1. WILLIAMSONS THEORY OF REGIONAL INEQUALITIES[18]

Here inequalities are defined as weighted income variance co-efficient (V_w) which means the dispersion of regional income per capita levels relative to the National average. While each regional deviation is weighted by its share in the national population; the higher the (V_w) the greater the size of geographic income differential thus

$$V_w = \frac{\sum_{u=1}^{n} (y_i - \bar{y})^2 \frac{P_i}{P}}{\bar{y}}$$

where,

n = number of regions/state

P_i = population of the i^{th} region

P = national population

y_i = "income per capita" of the i^{th} region, and

$\bar{y}$ = national (all regions/states) income per capita

It is argued that the level of per capita income is too narrow an indicator of the regional development inequalities. Particularly since the regional income data happens to be inadequate.

Therefore, it seems necessary to consider non-economic indicators of economic growth and development in order to assess realistically the dimensions of the regional development problem.

2. S.K. RAO has attempted in a study "A NOTE ON MEASURING ECONOMIC DISTANCES BETWEEN REGIONS IN INDIA,"[19] on the basis of the following six factors :

(i) Crop output per head

(ii) Male workers in manufacturing other than household industries.

(iii) Per capita consumption of industrial power

(iv) Per capita output from organised industry

(v) Infant death rate

(vi) Literacy rate

but this also may not be totally accepted as it is biased in favour of industry as he himself admits.

Nevertheless for development ranking of Indian State Rao's analysis provides a reasonable basis. Applying the above two theories it is proved that the level of regional disparitiés in India has not narrowed down and there is a strong tendency of polarization of the benefits of planned development between the rich and the lagging regions (Refer Appèndix T2-1)

3. In case of intra-regional dimension disparities in the level of consumption can be considered as an indicator in the form of extent of poveety and its spatial distribution as presented in a study by V. N. DANDEKAR & NILKANTHAN RATH.[20] (Refer Appendix T2-2)

Comparative study of the findings of inter-regional disparity and poverty line, some significant difference exists. The level of per capita income or general development in a region seems to possess little relation with the relative size of the population below 'poverty line'.

The foregoing analysis goes on to stress the complexity of regional development problem in India, in particular it highlights the necessity of new research to cover both the inter-regional and intra-regional disparities..

2.4 DETERMINING FACTORS AND RESULTANT IMPACT

For over two decades, India has been engaged in transformation of its economy by planned development Our successive five year plans appear to have recognised the complexity o f this problem as revealed in various pronouncements made in the plan documents.[21] But judging from the measures adopted and the results achieved there appears to have been a strong contradiction on the validity of the basic hypothesis of plan policy on regional development. The 'welfare gap' between different regions in India is in fact widening (See Appendix T2-3). On strategy of regional development, the Indian plan seems to reject "growth -centre' or 'development poles' concept, which emphasizes the role of large projects in the development of regions,[22] calling for creation of basis for equilibrium growth throughout the country as well as the means to bring about balanced division of economic activity among the regions. Accordingly there is a need for expansion of economic and social overhead capital in the backward regions on the ground that the handicap of these regions is due, primarily because of the inadequacy of such capital, so that the removal of this handicap would make the regions attractive for industrial location. But the development of infrastructure has in fact

continued to favour the richer regions of the country. For instance :

> The railways and the trunk roads have tended to polarize rather than diffuse economic development. Their linear extension has cheapened the long distance movement of goods and people encouraging the growth of cities and industrial complexes at the extremities.[23]

This can be attributed to the historical development of the network reflecting the needs of the British India days concentrated at few centres of commercial interest radiating the trunk roots, syphoning out the potentials of the country. Later these acted as pre-requisites for development action with a play of market forces as seen in the unprecedent growth of the limited metropolitan centres. (See App. T2-4).

The Governmental licensing policy for new manufacturing units in the private sector as well as the location of public sector industries both have continued to favour bigger towns in the industrially advanced states, while the new industrial growth centres like the steel towns of Rourkela, Bhillai and Durgapur have demonstrated only very weak 'linkages' for regional development,[24] as these towns have lost the 'multiplier effect' due to lack of sustained

industrial pulses within the states together with under conception of the capacity of the activity to support a level of development over the area. The incentives for ancillaries in the regional set up with strengthened net work reducing the distance scale ., would have been able to carry the effect of'regional resonance' in development acting as key nodes in the national setting. But this is profoundly missing in this case.

There is yet another aspect of the regional growth policy which deserves a close look. The overall size of plan-resources and even its sectoral distribution may be the same (over different regions) in terms of per capita allocation and relative sectoral ratios, but the objective of 'balanced regional development' can still be persued if the sectoral strategies are oriented towards the specific requirement of regional growth. But very little progress has been made in the formulating and testing a general explanation for inequality in the spatial distribution of national income and evaluating the efficiency of the different policies persued at the various levels of national development.[25]

In the context of the Indian situation, the economic welfare of lagging regions and poorer sections of the population is directly linked with the strategy of

agricultural development and rural change, since agriculture, is still the mainstay of the economy and a 'way of life' for over 70% of the people.

2.5 SHORT-COMINGS IN THE PRESENT PRACTICES

The current plan-thinking though aimed at 'balanced regional development' in the policy guidelines laid down at national level, still falls short of the requirements of national framework for spatial dispersal of economic activity and integrated policy for regional development planning as a means of sustained long term growth seems to be a pereferial concern with persistant regional inequalities.

In the context of regional allocation of sectoral resources, it is not only the size of such allocation but also its pattern or sectoral distribution that assumes critical importance, since it is the pattern of allocation that reveals the regional strategy for long term growth. As such in addition to regional allocation of resources a regional policy has to consider the methods and techniques of planning at the regional or local levels. This would be essential to ensure 'optimal' returns or greater development from a given investment, apart from promoting

the social goals of planning like people's participation, mobilisation of local resources, etc. Indian plans greatly emphasize the need for what is called "decentralised planning," i.e., planning not only at a state level but also at a district and even village level.[26] But in reality, the Indian system is one of "planning from above" and was described by the late D. R. Gadgil, former Deputy Chairman of India's Planning Commission, thus :

> "Indian planning is highly centralized. Planning in the sense of attempting formulation of an integrated plan of development is undertaken only by the Planning Commission at the centre. Planning thought and information, to the extent these are in evidence, exist only with the Planning Commission, and this body alone is concerned with planning techniques. The central plan is influenced to some extent by a respective plan and there is some discussion at the Planning Commission of desirable strategy ... However, even the central plan is not built up in an integrated fashion."[27]

Further, since the states do not possess any adequate set-up and personnel for "autonomous" regional planning, "the present plan exercises have all the hall marks of being fitted into a financial framework with project details being worked out in the aftermath of the financial allocations, sometimes even after a plan has been formulated."[28]

This can be attributed to

(i) theoretical ignorance[29] or appropriate theory of regional growth in this context.

(ii) regional development policy does not adequately integrate such theoretical knowledge as is available.

(iii) Absence of well laid feedback set up realised through comprehensive information and control system - a frame work which envisages a national policy on regional development,[30]

Thus, the gap in the present trend could be expressed in the need for spatial orientation and analysis of the present and prospective spatial structure with a definite rational guiding the decisions of development. Unless development effort is supported by complementary action in related fields it would tend to enlarge existing disparities.

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ECONOMIST such as AIONSO (1968, 1969), LAUSEN (1969, 1971, 1974), Johnson (1970) and BERGSMANN (1970) are extending the work of Regional and Urban economics into a Third World Context.

The geographical field has seen the emergence of an extensive literature concerned with the spatial distribution and planning for development. This work includes : systematic Studies of Selected Third World Problems and Regions.
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21. It has been recognised in the Five Year Plan that regional equalization is a long term goal and the advance towards it involves primarily building up in the poorer states, an infrastructure which will enable them in the course of time to realise their full development potential.

22. Francois Perrous, Note on the Concept of "Growth Poles" , in David L Mckee Ed. Regional Economics, pp 93-103. The growth inducing effects of the projects are delieved to flow from the employment and income provided by them directly, and by the enterprises attracted to the regions, because of backward and forward "linkages" (Indirect effect).

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TABLE T2 - 1

Inter-State disparities in Levels of DEVELOPMENT

State	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
1. West Bengal	8.13	20.0	536	34.05	14.82	20.43	21.21	11.29	16.47
2. Maharashtra	9.10	19.7	670	46.27	3.41	18.73	23.73	17.07	27.37
3. Gujarat	4.81	16.1	529	36.75	2.86	8.72	7.97	12.91	8.89
4. Tamil Nadu	7.29	10.8	551	36.35	8.67	9.05	8.41	10.81	9.69
5. Kerala	3.87	10.1	505	34.70	2.54	4.19	2.10	2.70	3.62
6. Mysore	5.34	8.8	464	30.13	2.60	4.22	3.58	3.44	3.26
7. Haryana	1.81	8.1	678	35.88	2.61	4.19	3.89	9.54	3.32
8. Punjab	2.66	7.5	818	44.06	1.19				
9. Andhra Pradesh	7.93	6.8	514	26.56	2.83	6.48	3.88	8.63	3.32
10. Madhya Pradesh	7.41	5.8	508	23.67	19.05	3.57	3.63	4.41	2.46
11. Assam	2.89	5.4	556	24.69	1.97	1.93	1.78	2.36	0.94
12. Bihar	10.52	4.7	399	17.72	17.30	5.04	6.87	2.32	5.16
13. Uttar Pradesh	6.59	4.4	498	21.33	4.62	7.45	7.21	6.74	6.71
14. Rajasthan	4.75	3.3	497	26.01	0.62	1.77	1.32	1.45	1.75
15. Orissa	3.95	3.2	N.A.	19.66	14.39	1.70	2.22	3.65	1.18
16. Other States	2.95	--	--	--	0.52	2.62	2.20	2.65	2.86
India	100.00	9.0	543	--	100.00	100.00	100.00	100.00	100.00

(a) Percentage of total population (1968).

(b) Average daily employment of factory workers per 1000 population (1968)

(c) Per capita income[1] at current prices (1967-68) (Rs.)

(d) Per capita total tax revenue (1967-68) (Rs.)

(e) Percentage of investment in public enterprises.
(f) Percentage of persons employed in factory sector (1965)
(g) Percentage of gross value of factory output[2] in Census sector (1965)
(h) Percentage of gross value of output in factory sample sector (1965
(i) Percentage of industrial output[3] in licences approved (1956-1966)

1. Provisional, 2. Registered factories employing 50 or more workers
workers without using power.

Table T2-2 Population below Poverty Line

Rank	State	In Million	As per cent of total population (1971)
		1	2
1	Assam	2.74	18.73
2	Haryana	2.19	21.81
3	Punjab	3.43	25.31
4	Jammu & Kashmir	1.22	26.41
5	Rajasthan	8.05	31.24
6	Bihar	22.14	39.29
7	Maharashtra	19.97	39.62
8	Uttar Pradesh	35.39	40.06
9	Madhya Pradesh	16.81	40.36
10	Gujarat	10.96	41.05
11	West Bengal	18.32	41.35
12	Mysore/Karnatak	12.71	43.38
13	Andhra Pradesh	19.31	44.39
14	Tamilnadu	18.62	45.19
15	Kerala	11.38	53.30
16	Orissa	11.71	53.38
	All India*	218.19	39.81

*Including Union Territories
Source : (Col. 1) : The Indian Express, August 16, 1974, p.6.

Table T2-3 Regional Income Differentials, 1961-70

States	Income "per capita"*						Population (in million)	
	1961-63**			1968-70**			1961	1971
	In Rupees	As % of all-India	Rank	In Rs.	As % of all-India	Rank		
	1	2	3	4	5	6	7	8
1. Andhra Pradesh	331	105.07	8	528	95.82	11	36.0	43.5
2. Assam	350	111.11	7	543	98.54	9	11.9	14.6
3. Bihar	223	70.79	16	389	70.59	16	46.5	56.4
4. Gujarat	402	127.67	2	671	121.77	4	20.6	26.7
5. Haryana	371	117.77	5	836	151.72	2	7.6	10.0
6. Jammu & Kashmir	266	84.44	13	453	82.21	15	3.6	4.6
7. Kerala	292	92.69	10	583	105:80	7	16.9	21.4
8. Madhya Pradesh	279	88.57	12	457	82.94	14	32.4	41.7
9. Maharashtra	418	132.69	1	677	122.68	3	39.6	50.4
10. Mysore	312	99.04	9	541	98.18	10	23.6	29.3
11. Orissa	240	76.19	15	550	99.81	8	17.5	21.9
12. Punjab	401	127.30	3	953	172.95	1	11.1	13.6
13. Rajasthan	285	90.47	11	472	85.66	13	20.2	25.8
14. Tamilnadu	357	113.33	6	591	107.25	6	33.7	41.2
15. Uttar Pradesh	252	80.00	14	482	87.47	12	73.7	88.3
16. West Bengal	399	126.66	4	630	114.33	5	34.9	44.3
All States	315	100.00		551	100.00		429.8	533.7
Weighted Variance Coefficient (V_w)			0.2096			0.2086		

*At current prices

** Fiscal Year : April-March

Source : (A) C.S.O. data on "per capita" State incomes as given in
I Report of the Fifth Finance Commission, (1969), Table 5, Appendix V; and
II Report of the Sixth Finance Commission, (1973), Table 3, Appendix VII.
(B) Population data from : Census of India 1961 & 1971 (Series 1 - India; Paper 1 of 1972)

TABLE T2- 4

Percentage (Decade) Variation of Urban Population by size classes of Towns, 1901-1961

Urban Class	1901-1911	1911-1921	1921-1931	1931-1941	1941-1951	1951-1961
I above 100 thousand	4.0	17.3	25.1	68.1	65.1	44.5
II 50-100 thousand	- 2.2	8.9	28.6	24.6	31.6	39.3
III 20-50 thousand	4.9	5.1	29.5	29.0	34.8	40.1
IV 10-20 thousand	- 5.8	0.5	18.5	12.5	22.8	18.2
V 5-10 thousand	- 2.8	4.5	7.7	17.8	21.5	- 30.0
VI below 5 thousand	10.9	15.8	- 10.2	- 19.6	33.8	- 62.4
Total urban population growth	0.35	8.27	19.12	31.97	41.43	26.41

Source : Ashish Bose, Studies in India's Urbanisation, Delhi, 1966, p. 149.

chapter three

3. CHANGING DYNAMISM

The growing complexities of the problems can be attributed to the ever increasing population, unequal concentration of economic activity, improper dispersal of social needs, mechanization so on and so forth. Thus the multiplicity of the problem demands a change in approach to planning problems requiring a critical or analytical approach developed through concentrated management efforts together with research and development techniques in the field of spatial planning while basing the decision on a definite rational. The changing social values, the increased mobility in the limited urban pockets have actuated newer problems and hence there is a need to evolve a simulated directive to tackle the planning problem. This system of spoting spatial inequalities may prove to establish a guideline for pin-pointing the deficient areas and thereby channelise effective action, programmed to negate the deficiencies both at fiscal and administrative level.

3.1 DIAGNOSING THE COMPONENTS OF SPATIAL INEQUALITIES

As it is already discussed in Chapter 2, regional inequalities are primarily identified in the context of growth

rate of the region, its per capita income, per capita consumption, per capita output and the likewise measures that predominently express the level of economic development of a region. All the same the levels of spatial disparities and the subsequent quality of life, the gap between the rich and the poor, the levels of concentration are few such aspects which are not truely depicted through these economic indicators alone. As such there is a strong need to diagnose the exact components of inequalities and subsequently measure the level of spatial inequalities as a composite index based on the (diagnosed indicators) same with relevant weightages.

Thus, while spatial inequalities are defined as inequitable access to :

(i) productive activities and

(ii) social services

The components of the same may be reflected in the distribution of :-

- Physical
- Human and
- Institutional resources

at physical, social and economic level categorised under individual sub-heads as discussed further in the chart.

while spatial inequalities are identified as:

i. inequitable access to productive activities

ii. inequitable access to social services.

the components of the same may be reflected in the distribution of:

- physical resource
- human resource
- institutional resource

at physical, social and economic levels categorized under individual subheads as discussed further :

Components of inequitable access to
- Productive activities
- social services

conceptualized under:

distribution of resources	level of accessibility	type and form	reflected in
physical resource	physical	physical distance connectivity communicative means potential resources to type of activity natural and ecological constraints	level of network mode of operation type of economic activity land use
	social	social mobility social values • attitudes, technical knowhow legislative and administrative limitations.	occupational structure percentage of literacy percentage of
	economic	Economic mobility multiplier effect economic viability	females to infant mortality rate death rate
human resources	physical	proximity communicative means type of activity environmental constraints	percentage decade variation of population migratory pattern
	social	composition of population social facilities, amenities their number and diversity values, dogmas, taboos & attitudes. social structuring grouping class, caste and community social limitations.	level of employment in different sectors percentage of unemployed
	economic	capacity of the activity to generate employment and high returns. inflationary pressure cost of living index nature and pattern of activity unequal play in market forces	dispersal of population over different order settlements level of concentration
institutional resources	physical	physical location their number, diversity and potential capacity connectivity, communicative means and local constrains.	percentage difference of non-working to working population over a decade.
	social	social values, attitudes stigma, cohesion etc. social mobility stimulation limitation	level of infrastructure irrigation power soil conditions
	economic	viability procedural hurdles legeslative and administrative limitations the type and nature of the economic activity market trends	means of productive occupation

From the foregoing analysis it can be seen that the levels of spatial inequalities could be figured out as product of various components categorised under individual sub-heads and the measure of the reflection under the sub-head would identify the indices of inequalities. Comparison of these indices with the resource potentials could subsequently establish inequalities rankings within different regions or districts as units in focus.

3.2 EVOLVING SUITABLE INDICATORS

Having analysed the components of spatial inequalities and their subsequent reflections under individual sub-heads, the task is now to figure rational indicators. As such over an area, the distribution of population and economic activities and the physical movements and interaction which connect them are apparently complicated. The total complexity of the spatial structure tracing the underlying disparities can be analysed by subdividing it into constituent and components, while accounting for alterations in the configuration of people, production and its structure which occur overtime, by reference to aspects such as dispersal of population over different order settlement as a comparison of the composition of the other districts within a region and the directions

and intensity of movement as reflected in the level of the networks together with the characteristics of the sectoral economic activity.

Each and all of these aspects can be related to the potential resource structure and their associated technologies capable of exploiting them and then related together with prevailing economic activities and social formation to characterise a spatial dispersal and resultant inequalities.

Thus, the reflections of inequalities access to productive activities and social services is broadly classified under the following components.

1. Demographic Characteristics
2. Occupational structure
3. Population dispersal over settlement
4. Network
5. Agriculture
6. Industries
7. Institutions

These are further discussed in detail identifying individual subheads.

Demographic Characteristics - Under this classification various aspects are considered which directly or

indirectly contribute towards the composition of district, or influence an activity over an administrative area within a unit in focus.

While identifying the trends in population, movement of people and commodities signify diagnostic tendencies, the volume and direction of the movement being related to magnitudes of activity, i.e. orogressively greater between areas having large population and high levels of production. This relationship is extended and shaped by both the 'distance' and the 'level of attraction' : migrants move from areas where opportunities both real and perceived are scarce to those where they are abundant, while goods and services are exchanged between centres of production and areas of demand signified in the supply pattern. Other things being equal, the greater the distance, the higher the cost of moving and less perfect the information available, the less will be the flow involved.

Movements reflect the existing order of population and production over an area and accomplish the transfer of people and goods responding to that order. As such an exact assessment of outgoing migrants seeking productive occupation and other institutional advantages could throw a considerable light on the capacity of the area to

withhold the population and the resultant push factor depicting the levels of inequalities. But,"it is rather unfortunate that census has not yet been able to publish the migration tables in detail and that has discouraged research workers taking up migfation studies based on intensive analysis of census data."* *

All the same the decade variation of the district population together with percentage of female population could draw a close relation on the structure of the district and thereby could be identified as an indicator in this classification.

Further, the level of literacy is reflected as an assessment of the degree of facilities for education together with its accessibility. It also reflects the prevalence of social taboos and dogmas shaping the growth and development of an area thereby expressing the level of social mobility and its subsequent impact on accessibility in the context of social services and productive occupation. The level of literary can also be corelated with the infant mortality rate and level of acceptance of the medical facilities while expressing the capacity of the medical facilities identified in the levels of death per 1000 population.

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* Ashish Bose"Studies in Indian Urbanisation," Delhi, 1966.

Thus, under this classification the following set up indicators are considered as contributors to the process of diagnosing the spatially victimised areas.

- % of decade variation of population
- % of females to total population
- % of literacy
- infant mortality rate
- death rate

2. Occupational Structure - While focussing the discussion of this area reference is drawn to the classification of the population under primary, secondary and tertiary sectors together with degree of nonworking sections of the population. The degree of variation of population in different sectors of the area is an expression of the concentration of the sectoral activity in that area and the subsequent dispersal of economic activity sustaining growth and development.

This can be further corelated with agricultural industrial and institutional indicators. As regards nonworking population is concerned it can be further classified into unemployed and other dependents, thereby giving a true picture of the situation as regards opportunities for

gainful employment is concerned and hence unemployment acts as a major factor reflecting the distribution of such chances.

Definition of unemployed needs to be specified here, beggars, vagrants, persons seeking employment, persons employed before but now out of job and seeking work are considered 'unemployed population'.[2]

Thus under this classification the following set of indicators are considered as contributors to the process of diagnosing the spatially victimised areas.

- % of population in Primary sector
- --do-- Secondary sector
- --do-- Tertiary sector
- % of population unemployed
- % of difference of population not at work (includes other dependant togetherwith unemployed population) between 1961-71 census figures.

3. Population Dispersal - The equitable distribution of population over an area is reflected in the level of concentration or dispersal of population over the different order settlements related to particularly intense settlement and activity.

The organisation and exchange of goods and services between groups of people over an area is carried on by way

of regular series of functionally specific settlements which are spaced out according to population and production densities and levels of productivity, within which there appears a graded structure of settlements in ascending order of size and specialization.[3] The overall percentage distribution of population in different order settlement and their densities are a reflection of available movement opportunities transportation networks, centrality and agglomerations, subsequently consolidated through specific elements of comparative advantage and accessibility identifying spatial inequalities.

Thus the components and structure of population and activity togetherwith the levels of life and welfare are a expression of underlying configuration and forces determining the shape of a situation. Hence, the level of population in different order settlements which is a product of the spatial advantages, and or disadvantages could be, considered as a true indicator of the composite components of spatial inequalities.

This could be figured as a percentage distribution of the total district population classified under the indentified census categories specified below :

% of population in urban settlement under class

I	1,00,000 or above
II	50,000 - 99,999
III	20,000 - 49,999
IV	10,000 - 19,999
V	5,000 - 9,999
VI	less than 5,000

% of population in rural settlements under the following classifications :

less than 200

200 - 499

500 - 999

1,000 - 1,999

2,000 - 4,999

5,000 - 9,999

10,000 and above

4. Networks - Movements are condifioned by the network of routes together with spatial configuration of population and production. The degree of connectivity of a place enhances the growth and activity over an area while encouraging the accessibility to social services thereby banking on neighbouring settlements. The capacity of a

facility to sustain and stimulate diverse possibility could be fulfilled with a greater degree of connectivity increasing the dependence of increased bulk of population. In turn the web of routes further support the arrangements of people and activities by providing the means of minimizing the scale of distance in the transfer of both.

Thus the percentage distribution of the network to the area could be an effective indicator of the level of possibilities in the context of other indicators of dispersal. These could be identified under :

% of total road length to area

% of rail length to area

5. Economic Activity : Under this classification various related aspects of the economic activity are considered that contribute towards the equitable distribution of facilities that strengthen spatial dispersal of agricultural, industrial and other institutional activities while sustaining growth and development over an area. In addition to occupational structure and other demographic characteristics together with social welfare indicators, the degree of agricultural accessibility over an area in terms of facilities for irrigation, cultivable land, area under forest, percentage of fallow land and culturable waste could indicate the

capacity of the area to generate productive occupation and resultant disparities in that sector. Similarly capital movements tend to have a similar effect of increasing inequality. In centres of expansions increased demand will spur investment which in its turn will increase income and demand causing new investment and subsequent concentration.

Thus, the level of industrial activity over an area could closely identify the inequitable dispersal of activities over the area.

As regards institutional activities are concerned the operations of the market forces play a considerable role, so that if one area has advanced because of its initial advantage it deprives the other areas from expanding by sapping the potential areas around. This is reflected in the degree of economic activity carried on ever a region as seen in the potential trade and commerce.

Therefore, the dispersal of economic activity over a space which is a resultant of equitable dispersal of exploited resources spatially is conceptualised in the intensity of financial institutions reflecting the degree of concentration.

Thus within the parameters of economic activity

agriculture, industry and financial institutions are considered as broader areas under which the final indicators could be d figured out.

All the same in deciding the levels of spatial inequalities the levels of existance of an economic activity is vital as compared to the results of the activity. As such under this category the following set of indicators are finalised with a concept of incorporating the economic activity as means to an end.

Therefore under :

1. Agriculture : % of cultivable land,
   % of total irrigated area to cultivable land
   % of fallow
   % of culturable waste
   % of land under forest

2. Industrial : Number of industries as % of the area
   Ratio of population to working factory divided by hundred.

3. Institutional: Offices of the scheduled, nonscheduled and cooperative bank as % of the area
   Ratio of population to the banks divided by hundred.

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No.	District	I1 % Decade variation of population	I2 % Of females to population	I3 % Of literacy (1971)	I4 Mortality rate (1971)	I5 Death rate (1974)	I6 Primary	I7 Secondary	I8 Tertiary	I9 % Of population unemployed (1961)	I10 % Decade difference of non working population
		Population characteristics					Occupational characteristics % Of working population				
2	Thane	38·06	47·19	40·65	27	6·0	21·22	8·59	7·85	·77	9·41
3	Kulaba	18·28	51·36	35·32	39	7·5	28·55	2·72	4·16	·42	10·95
4	Ratnagiri	8·94	55·44	39·83	32	8·9	29·41	1·77	4·70	·49	9·9
5	Nashik	27·70	48·45	36·30	51	9·1	27·73	4·61	5·56	·39	11·37
6	Dhule	23 01	48·80	31·89	57	10·4	29·21	2·44	4·13	·37	11 50
7	Jalgaon	20·28	48·69	45·24	59	11·0	28·33	2·75	2·02	·25	9·98
8	Ahmednagar	27·77	48·87	36·23	85	7·6	27·76	3·30	4·37	·34	14·84
9	Pune	28·83	48·27	44·62	55	8·5	17·65	6·08	8·88	·74	10·08
10	Satara	20·79	50·90	38·32	47	9·0	23·99	2·87	4 48	·28	12·10
11	Sangli	25·12	48·69	37·48	03	7·0	23·23	3·28	4·50	·41	10·9
12	Solapur	21·17	48·27	33·90	56	9·1	23·78	4·89	5·02	67	10·14
13	Kolhapur	28·28	48·95	35·37	39	8·5	25·12	4·37	4·51	·30	11·57
14	Aurangabad	28·63	48·53	28·49	49	7·7	29·85	2 53	4·69	·33	15·25
15	Parbhani	24·92	48·99	24·31	56	6 9	30·92	2·03	4·47	36	14·33
16	B	28·42	48·82	24·01	40	6·2	30·17	1 02	3·64	40	18 9
17	Nanded	29·46	48·86	22·78	43	6·0	28·92	2·57	4·11	·45	16·8
18	Osmanabad	28·36	48 57	27·88	44	7·9	28·67	1·80	3·32	·32	18·27
19	Buldana	19·18	48·83	37·34	74	11·9	36·16	1·88	3·94	·35	9·32
20	Akola	26·24	48·48	39·55	41	8·3	32·94	2·12	4·91	48	9·24
21	Amravati	25·02	48·22	42·36	54	9·5	30·29	2·33	6·14	41	8·42
22	Yavatmal	29·61	49·00	31·60	56	10·1	36·48	3·62	7·26	41	11·81
23	Wardha	22·91	48·68	41·71	82	9·7	30·62	3·07	5·41	35	10·82
24	Nagpur	28·79	47·96	45·26	65	8·2	19·10	1·23	15·15	75	10·83
25	Bhandara	24·59	49·67	35·40	84	10·8	34·10	8·94	3·78	31	8·75
26	Chandrapur	32·48	49·24	26·77	74	10·7	34·03	2·67	3·81	35	17·27

No.	District	I11 I	I12 II	I13 III	I14 IV	I15 V	I16 VI	I17 Less than 200	I18 200 to 499	I19 500 to 999	I20 1000 to 1999	I21 2000 to 4999	I22 5000 to 9999	I23 10000
		% Of total District population urban						% Of total district population rural						
2	Thane	13·57	11·46	2·11	2·95	2·80	0·19	0·10	7·22	15·92	17·01	1·01	7·08	1·42
3	Kulaba	–	–	2·11	7·24	2·30	0·43	25·8	17·03	28·49	23·58	13·71	2·54	–
4	Ratnagiri	–	–	2·94	2·32	2·81	0·33	·47	4·76	17·07	33·25	27·04	6·36	7·05
5	Nashik	15·53	2·34	5·33	3·57	7·37	–	·78	5·92	16·18	22·00	18·52	7·41	0·57
6	Dhule	8·25	3·25	2·76	3·05	–	–	1·61	6·85	16·66	29·6	21·57	8·39	2·99
7	Jalgaon	5·03	7·18	6·74	3·96	0·76	–	·85	5·67	15·49	19·31	22·74	6·90	5·39
8	Ahmednagar	5·21	–	5·47	–	0·40	–	·14	3·18	13·67	24·9	26·32	12·49	7·71
9	Pune	26·94	7·14	3·24	3·19	0·97	0·37	·68	3·94	8·80	14·32	17·21	8·44	4·76
10	Satara	–	3 85	5·22	10·93	1 64	0·53	·88	4·70	11·31	23·96	32·45	10·41	3·24
11	Sangli	7·48	5·04	3·17	2·37	0·59	–	·12	0·58	5·15	17·96	30·46	18·08	9·02
12	Solapur	17 60	5·15	1·18	3·06	0 03	–	·02	1 28	9·78	20·78	26·91	10·35	3·82
13	Kolhapur	12·65	4·28	–	3·46	0·78	0·33	1·30	3·26	10·19	22·16	27·65	11·86	2·64
14	Aurangabad	7 63	4 62	–	2 86	1 59	–	1 13	0·87	24·70	27·04	17·82	3·14	–
15	Parbhani	–	4·08	3·57	7·36	1·1	–	1 55	11·35	23·74	28·02	15·42	3·82	–
16	B	–	–	8·46	7·70	·45	–	38	6·31	20·03	31·13	21·58	3·96	–
17	Nanded	9·05	–	1·56	2·48	3·24	–	96	8·23	25·45	23·22	17·99	2·81	–
18	Osmanabad	–	3·70	3·05	4·48	1·27	–	44	4·58	18·25	30·16	25·38	8·24	–
19	Buldana	–	4·25	8·47	4·83	–	–	11 24	8 68	22 44	25·76	17·37	6·65	–
20	Akola	1·12	–	9·97	1·72	·62	–	1·72	10·71	21·63	20·17	17·10	4·17	1·51
21	Amravati	12·57	–	10·57	3·62	0·6	0·16	2 88	10 89	17·35	13·31	12·12	10 20	0·71
22	Yavatmal	–	0·42	0·47	0·30	0·05	–	1·4	12·56	24·52	30·35	13·40	2·54	0 72
23	Wardha	–	8·65	13·36	–	2·28	–	2·23	14·20	23·19	19·77	12·0[illegible]	[illegible]	–
24	Nagpur	44·58	2·74	1·39	4·19	1·40	–	2·28	10·45	14·04	8·46	7·66	[illegible]	–
25	Bhandara	–	4·91	4·36	2·10	–	–	1·49	9·99	20·60	31·99	23·87	3·60	–
26	Chandrapur	–	4·58	3·63	0·71	1·25	–	6·12	15·29	25·58	20·62	13·22	5·73	2·25

No.	District	I24 % Of rail length to total district area	I25 % Of road length to total district area	I26 % Of total irrigated area	I27 % Of land under cultivation	I28 % Of culturable waste	I29 % Fallow land	I30 % Forest land	I31 No. of industries as % of area	I32 Ratio of population to working factories divided by hundred	I33 Offices of the scheduled non scheduled co-operatives bank as % of the area	I34 Ratio of population to working factories divided by hundred
		Networks		Agriculture 1974-75					Institute			
2	Thane	2·61	33·85	0·60	27	15·37	2·4	38·6	11·86	019·96	2·16	110·76
3	Kulaba	1·22	56·11	0·95	29	13·26	7·77	22·39	1·83	095·38	1·44	121·44
4	Ratnagiri	–	44·13	1·06	29	27·70	10·82	2·37	0·53	288·49	·85	117·73
5	Nashik	1·66	43·32	7·39	56	02·91	7·44	21·69	1·84	082·84	·55	128·07
6	Dhule	1·26	32·56	5·22	52	5·39	2·0	43·8	0·79	159·83	·73	173·14
7	Jalgaon	3·29	28·77	9·29	68	06·21	2·44	14·5	1·86	096·95	1·40	128·67
8	Ahmednagar	1·16	43·49	11·12	72	03·38	7·76	10·8	0·47	283·64	1·03	129·63
9	Pune	1·94	54·49	10·01	61	09·64	3·96	12·09	6·75	030·09	2·37	085·69
10	Satara	1·16	43·58	9·1	56	13·27	4·38	14·15	0·82	200·86	1·52	107·90
11	Sangli	1 97	48·03	7 28	75	04·9	7·05	5·43	1·80	099·99	1·97	091·14
12	Solapur	3·00	33·39	10 47	81	06·32	5·16	2·18	1·55	096·73	1·05	142·65
13	Kolhapur	0·51	46·61	7·30	50	15·21	8·09	18·6	5 45	046·65	2·79	091·02
14	Aurangabad	1·07	15·32	5·60	81	3·11	1·96	5·2	0·88	132·83	·90	135·00
15	Parbhani	2·27	14·83	2·51	77	7·49	7·75	3·0	0·38	320·59	·54	221·58
16	B	0·43	13·83	5·50	73	7·88	12·72	1·9	0·20	559·18	·63	181·14
17	Nanded	2·16	17·57	2·27	71	9·5	5·19	7·6	0·52	254·14	·79	168·41
18	Osmanabad	0·95	17·68	7·37	79	8·7	9·9	0·09	0·21	632·23	·73	180·63
19	Buldana	0·88	17·59	2·65	18	9·91	3·0	12·11	0·65	200·47	·78	166·81
20	Akola	3·06	18·73	1·79	78	7·12	2·8	6·54	0·94	151·66	·66	214·50
21	Amravati	1·51	23·86	1·10	58	5·79	3·0	29·0	0·78	160·54	·61	205·50
22	Yavatmal	0·58	17·75	1·31	60	8·3	4·1	18·19	0·50	206·33	·49	208·36
23	Wardha	2·36	23·99	2·7	69	11·43	1·92	10·6	0·67	185·61	·71	173·24
24	Nagpur	3·57	17·81	4·75	56	14·12	2·59	18·4	4·24	046·14	1·42	137·78
25	Bhandara	3·13	30·29	15·64	42	18·1	8·55	27·0	1·42	105·00	·52	330·33
26	Chandrapur	1·72	10·65	4·57	26	11·17	1·23	56·3	0·19	341·70	·18	348·97

No.	District	Population characteristics						Occupational characteristics						% Of total district population urban							% Of total district population rural								Road length to total			Agriculture (1974-75)					Industry			Institute				
		% Decade variation of population	% Of females to population	% Of literacy (1971)	Mortality rate (1971)	Death rate (1974)	Composite index 15%	%Of working population: Primary	Secondary	Tertiary	% Of population unemployed (1961)	% Decade difference of non working population	Composit index 15%	I	II	III	IV	V	VI	Composite index 10%	Less than 200	200 to 499	500 to 999	1000 to 1999	2000 to 4999	5000 to 9999	10000	Composite index 10%	Composite index 20%	% Of rail length to total District	% Of road length to total	Composite index 20%	% Of total irrigated area	% Of ladd under cultivation	% Of culturable waste	% Of fallow land	% Forest land	Composite index 10%	No. of industries as % of area	Ratio of population to factories divided by hundred	Composite index 10%	Offices of the scheduled non scheduled co-operatives bank as % of the area	Ratio of population to working factories	Composite index 10%	Composite index 30%	Final composite index 100%
		I_1	I_2	I_3	I_4	I_5		I_6	I_7	I_8	I_9	I_{10}		I_{11}	I_{12}	I_{13}	I_{14}	I_{15}	I_{16}		I_{17}	I_{18}	I_{19}	I_{20}	I_{21}	I_{22}	I_{23}			I_{24}	I_{25}		I_{26}	I_{27}	I_{28}	I_{29}	I_{30}		I_{31}	I_{32}		I_{33}	I_{34}			
2	Thane	100	0·0	23	31·86	0	24·38	18·95	95·46	44·40	100·00	9·44	-0·22	78·78	100·00	19·52	51·44	100·00	100·0	74·95	0	66·66	91·66	94·36	0	68·15	26·45	51·12	63·04	69	51	58·2	0	14·29	50·26	10·88	68·51	5·59	100	0	-50	75·86	9·45	33·21	8·86	36·75
3	Kulaba	35·51	50·54	16	46·02	24·43	8·87	57·87	19·32	16·30	32·69	24·14	-4·88	-	-	9·87	74·46	41·93	0·00	21·04	100·00	24·15	100·00	79·07	44·34	9·25	-	60·94	40·99	25	100	70	2·33	17·46	41·75	56·92	39·67	4·13	13·93	12·38	·77	48·27	13·51	17·39	1·41	21·66
4	Ratnagiri	0	100·00	22	57·76	49·15	26·97	62·45	7·00	20·41	46·15	14·12	-4·18	-	-	12·79	18·13	46·34	0·00	12·9	·45	20·93	39·79	99·82	80·98	27·50	7·26	39·51	26·21	-	74	44·4	3·05	17·46	100·00	8·46	4·05	-26·74	2·89	43·86	-20·49	25·67	12·10	6·78	-4·04	5·4
5	Nashik	64·42	15·27	18	60·18	52·55	0·29	53·53	43·84	26·96	26·92	28·15	-0·02	89·32	10·71	36·68	42·44	23·48	-	30·5	1·07	39·73	67·44	100·00	82·84	52·10	0·00	49	39·75	39	72	58·8	45·15	60·30	0·0	40·57	38·42	24·2	14·02	10·28	1·87	14·18	16·03	0·92	2·5	22·29
6	Dhule	48·31	20·60	12	67·26	74·58	9·95	61·39	15·62	16·07	23·07	29·39	-3·71	27·25	9·00	8·25	19·21	-	-	10·61	0·00	36·27	58·60	100·00	86·07	47·85	20·46	49·89	40·25	26	48	39·2	30·72	53·07	10·00	6·70	76·31	31·89	5·10	22·85	-8·87	21·07	33·17	6·04	1·7	15·54
7	Jalgaon	38·94	18·18	29	69·62	84·75	9·04	56·72	19·71	0·00	0·00	14·88	-4·84	17·52	42·65	44·92	44·65	0·00	-	24·95	·45	35·54	60·45	81·33	100·00	45·11	71·80	56·34	40·65	91	40	60·4	57·78	79·37	18·31	10·53	25·63	32·29	14·10	12·58	·76	46·74	16·26	15·24	4·82	24·41
8	Ahmednagar	64·66	20·36	17	100·00	27·12	6·36	53·69	26·85	17·90	17·30	61·26	-13·08	17·16	-	33·11	-	6·10	-	9·39	0·0	18·19	41·14	91·81	100·00	78·30	97·10	60·31	34·85	23	77	55·4	69·95	85·71	1·90	22·01	17·61	35·26	2·38	43·08	-20·74	32·57	16·64	7·95	4·12	19·26
9	Pune	68·30	13·09	28	64·9	42·37	4·24	0·0	62·91	52·25	94·23	15·84	-12·96	100·00	36·96	17·83	32·56	14·16	0·00	33·57	1·28	21·37	18·15	43·20	61·24	49·52	56·32	35·8	34·68	48	96	76·8	62·57	68·25	27·15	23·75	21·34	24·85	55·73	1·66	27·03	83·90	0	4·95	9·46	30·36
10	Satara	40·69	44·97	20	55·46	50·85	5·00	33·67	21·27	8·74	1·92	82·82	-20·46	-	13·99	22·26	100·00	21·85	-	26·39	1·20	20·78	20·61	68·19	100·00	50·41	28·91	41·36	33·86	23	72	52·4	56·52	60·32	41·79	27·41	25·63	25·74	5·35	29·55	-12·10	51·34	8·39	21·47	3·52	16·95
11	Sangli	55·56	18·18	19	3·54	10·95	12·60	29·63	26·59	19·50	30·77	15·93	-3·02	22·49	22·85	16·59	22·74	9·50	-	15·68	0·00	2·49	0·00	50·74	100·00	100·00	100·00	50·43	33·06	49	82	68·4	44·41	90·48	8·03	50·65	9·50	19·19	13·68	13·07	0·31	68·58	11·99	33·29	5·28	27·01
12	Solapur	42·00	0·96	14	66·08	52·55	4·67	32·55	47·47	22·85	80·70	16·41	-12·09	65·01	26·98	6·82	34·19	5·35	0·00	23·05	0·00	7·16	21·70	72·69	100·00	83·32	48·24	44·71	33·80	82	50	62·8	65·62	100·00	13·75	34·20	3·72	30·98	11·55	12·55	-0·5	33·33	24·48	4·19	3·47	20·30
13	Kolhapur	66·41	21·33	16	46·02	42·38	2·90	39·67	40·73	18·96	9·61	9·54	7·51	44·00	20·21	-	35·20	10·34	-	18·29	3·92	17·09	27·86	76·14	100·00	76·31	78·88	51·28	34·76	03	79	48·6	44·55	50·79	49·62	59·70	32·93	9·32	44·68	4·37	20·16	100·00	1·95	49·03	7·85	26·19
14	Aurangabad	67·61	16·24	7	57·82	28·62	0·96	64·79	16·86	20·33	15·38	65·17	-10·55	23·45	19·43	-	22·71	16·87	-	13·74	10·06	0	86·55	100·00	61·06	10·90	-	37·5	25·62	20	10	14·0	33·24	100·00	16·94	6·35	9·09	29·13	5·86	18·44	-6·29	27·50	18·67	4·42	2·72	9·20
15	Parbhani	54·87	21·81	2	66·88	15·23	-4·88	70·47	10·38	18·66	21·15	56·39	-12·11	-	14·99	14·78	71·36	0·00	-	16·85	1·01	60·66	80·94	100·00	50·54	13·80	-	43·84	30·34	59	9	29·0	12·70	93·65	18·47	56·74	5·17	14·78	1·61	49·10	-33·7	13·79	51·58	2·43	-1·13	8·19
16	Bhir	66·89	19·76	2	47·2	3·39	3·5	66·48	2·46	12·34	28·84	100·00	-32·08	-	-	43·38	23·14	1·38	-	11·3	0·0	30·69	56·73	100·00	67·18	45·06	-	42·8	27·05	0	7	4·2	32·58	87·30	20·04	100·00	3·22	9·98	0·08	94·62	-47·27	17·29	36·20	17·17	-5·45	-3·48
17	Nanded	70·46	20·24	0	56·70	0	3·43	59·85	17·38	15·92	34·61	70·01	-22·28	3·52	-	4·02	19·02	58·56	-	18·84	0·0	47·24	100·00	89·10	67·80	9·32	-	44·76	31·8	55	15	31	11·10	84·13	26·58	34·46	13·36	15·53	2·80	38·26	-17·73	23·37	31·21	3·91	-·61	9·12
18	Osmanabad	66·69	16·72	7	51·92	32·21	1·58	58·52	7·39	9·90	13·46	93·99	-27·23	-	14·84	14·53	41·71	17·56	-	14·76	0·0	22·17	51·95	100·00	83·00	42·14	-	42·72	28·74	17	15	15·8	45·01	96·83	23·36	75·46	0	17·22	0·17	100·00	-49·15	21·07	36·00	7·46	-3·95	1·12
19	Buldana	35·16	19·88	19	87·32	100·00	17·89	98·30	8·43	14·62	19·23	8·59	8·47	-	15·18	47·25	41·68	-	-	17·34	0·00	46·91	83·56	100·00	65·39	34·52	-	46·25	40·6	04	15	10·6	13·63	0	12·10	15·40	21·38	2·28	3·91	29·98	-12·79	22·99	30·76	3·88	-1·44	7·43
20	Akola	59·41	15·63	22	48·38	38·99	3·65	81·20	11·54	22·01	44·23	7·82	1·89	0	-	73·49	16·05	0·00	-	14·92	5·70	76·40	100·00	91·69	77·21	25·72	14·42	56·27	35·6	84	18	44·4	7·91	95·24	16·98	13·65	11·47	22·23	6·37	2·51	-7·57	18·39	48·89	15·24	-2·06	14·77
21	Amravati	95·5	12·48	25	63·72	59·33	4·12	67·12	14·26	31·38	30·72	0·0	7·65	71·77	-	100·00	61·75	16·05	0·00	41·58	17·49	99·36	100·0	71·89	67·84	98·61	10·68	66·55	54·07	27	29	26·6	3·32	63·49	11·61	15·40	51·43	22·19	5·01	22·97	-8·93	18·47	64·47	23·99	-1·07	16·01
22	Yavatmal	70·98	21·93	11	66·08	69·30	4·04	100·00	33·99	39·91	30·77	32·35	3·75	-	0	2·27	2·54	0	-	6·8	6·05	65·71	76·92	100·00	41·16	10·48	7·53	43·54	25·37	05	16	11·6	4·72	66·67	21·74	24·97	32·19	15·95	2·63	30·46	-13·92	11·88	44·65	16·38	-1·43	5·91
23	Wardha	47·97	16·06	25	96·76	62·72	10·99	68·83	23·86	25·82	57·70	22·90	6·28	-	46·28	87·69	-	1·44	-	22·56	0·00	90·89	100·00	80·48	44·04	11·13	-	46·63	34·55	61	29	41·8	14·23	80·95	34·37	6·00	18·69	19·06	3·50	27·07	11·76	20·31	33·20	6·44	-0·09	12·78
24	Nagpur	47·56	9·33	24	76·7	37·29	1·79	7·7	0	100·00	96·15	22·99	16·96	100·00	12·89	0·0	19·88	·25	-	20·02	2·27	33·38	15·23	0·00	9·67	1·76		8·3	14·41	03	16	49·6	27·59	60·31	45·27	11·83	32·57	16·	24·41	4·28	15·06	47·50	19·73	13·89	-4·53	14·52
25	Bhandara	53·74	30·06	16	94·12	81·36	16·53	87·36	100·00	13·40	11·53	2·96	22·94	-	15·22	15·52	6·10	-	-	4·04	0·00	28·65	55·47	100·00	71·93	8·20	-	37·11	20·6	86	43	60·2	100·00	38·10	61·27	11·48	47·87	25·12	10·45	13·90	-1·63	13·03	92·92	39·95	-1·65	15·47
26	Chandrapur	80·83	24·84	5	85·5	79·67	8·58	66·99	18·62	13·03	19·23	84·45	-19·12	-	21·92	19·43	0	13·66	-	9·66	24·12	100·00	100·00	76·42	47·61	0·0	21·14	52·73	31·2	25	0	10	26·40	12·65	33·32	0	100·00	21·79	0	52·56	-26·28	0	100·00	50·00	-5·45	4·37

3.4 Problem of Weightage

The main problem encountered in the formulation of a suitable index for spatial inequality - was the question of assigning relative weights to the chosen set of variables as indicators of inequalities. In order to obtain a comprehensive relative inequality index, each variable should receive no greater weight than its share of influence.

In the context of the problem classification was done in two groups :

(i) Weights for the sets

(ii) Weights for the variables within the particular identified set.

Further two criterias were adjudged important in this connection.

(a) The amount of influence a set and or a variable within a set would have by itself and

(b) Extent to which it co-relates with other sets and or variables within a set, in expressing the spatial inequalities as component of the processes of ultimate indicator.

All the same a basic principle underlying the weighting system is that weights must be assigned to minimise overlapping influences.

Variables which on conceptual grounds are supposed to be inversely related to the need for spatial equity are considered as negative variables and the composite index would be the expression of algebric sum of the positive and negative variables. Thus within the identified areas the districts with highest integer scoring would rank first and so on.

Thus with these rationalised constraints the following weights were arbitrarily assigned.

1. In the context of the sets ;
   (REFER CHART)

Weight distribution structure :

set no.	form	% weight assigned
I	demographic characteristics	30
	• population variables	15
	• occupational variables	15
II	population dispersal	40
	• % distribution of district population over different order settlement	20
	· urban 50%	
	· rural 50%	
	• % of network to area	20
	· rail 40%	
	· road 60%	
III	economic activities	30
	• agriculture	10
	• industry	10
	• commerce	10

2. In the context of the variables :

Under individual stage the following breakup of weights were attributed while considering one such subdivision of a set as a complete unit, it was further subdivided into percentile weights allocated to individual components or the variables under that division subsequently contributing to the composition of the set within the given weights.

Thus under the different sets we have ;

(Refer Chart)

A population variables: 15%

indicator number	indicator characteristics	idicator quality	% indicator weight.
I_1	% decade variation of popⁿ	+ve	25
I_2	% of females to total popⁿ	-ve	20
I_3	% of litretcy	+ve	25
I_4	infant mortality rate	-ve	20
I_5	death rate	-ve	10

B occupational variables: 15%.

I_6	% of population engaged in	+ve	
I_7	primary sector	+ve	33·3
I_8	secondary sector	+ve	33·3
	tertiary sector	+ve	33·3
$I_6+I_7+I_8$	expressed as	+ve	40
I_9	% of total popⁿ unemployed	-ve	40
I_{10}	% difference of 1961-71 popⁿ not at work	-ve	60
I_9+I_{10}	expressed as	-ve	60

C % distribution of district population over different order settlements 20%

I_{11}-I_{16}	population dispersal-urban	50%
	under each indicator from I_{11}-I_{16}	100/6
I_{17}-I_{23}	population dispersal-rural	50%
	under each indicator from I_{16}-I_{23}	100/6

D	% of network to area			20%
	eg.	characteristics	quality	% weight
	I_{24}	% of rail length to total district area	+ve	40
	I_{25}	% of road length to total district area	+ve	60.
E	agriculture variables			10%
	I_{26}	% of total irrigated area	+ve	25
	I_{27}	% of land under cultivation	+ve	30
	I_{28}	% of culturable waste	-ve	15
	I_{29}	% of fallow land	-ve	10
	I_{30}	% of land under forestry	+ve	20
F	induries variables			10%
	I_{31}	no of industries as % of area	+ve	50
	I_{32}	ratio of popn to working factories	-ve	50
G	institutional variables			10%
	I_{33}	offices of the scheduled non-scheduled and co-op. banks as % of area.	+ve	50
	I_{34}	ratio of popn to working factories	-ve	50

final ranking as a composite index of (A + B + C + D + E + F + G) variables for respective districts.

Finally, summing up, the ultimate inequality index would be considered as a product of the contribution of the three sets in varying degree of influence combining to express the inequality ranking of different districts as units of reference in the context of the State as a scale of action.

3.5 Rationale for the Weights

The rationale behind the weighing system identified for expressing the spatial inequalities is as follows :

Primarily, within the three broad areas recognised as indicators of spatial inequality, the major constraint that governs the situation is the processes involved in conditioning the disparities more than the conditioned disparities reflected in the ends like per capita and other measures. As such, the process of the product is expressed closely in the structure of different order settlements over an area and hence this aspect of dispersal of population over the different order settlements gets a higher weight over others and while dispersal of population is conditioned with opportunities for productive occupation and social services, the degree of connectivity plays an equally important role expressing the possibility of movement over

different order settlement. As such, the percentage distribution of rail and road lengths over an area forms a component part sharing the weights thereby expressing the degree of co-relation.

Thus 40% weight given to set II is further subdivided equally into population dispersal and network. Within these individual groupings, population dispersal is further subdivided into urban and rural again both carrying equal weights justified in the light of relationships established both within and without which also rationalises the equal weights within the individual subdivisions at urban and rural level dissociating any biasis in the form of degree of weights to the different sectors and different order settlement.

Within the subdivision of the network the weights given to percentage of road length to the area is higher as compared to the percentage of rail length to the area on the grounds that the degree of connectivity in an area to its ultimate lower order is expressed through the level of roads connecting the ultimate point together with the possibility of a media to establish a link and its level of percolation. Thus percentage distribution of road length to area is given 60% weight while the percentage distribution of rail length to area is given 40% weight.

As far as Demographic Characteristics and Economic Activities are concerned they get equal weights of the second order in comparison with population dispersal. Neither of the set appears to over power the other in terms of identification of spatial inequalities and therefore Demographic characteristics get 30% weight and Economic activity gets 30% weight.

Within the set of Demographic Characteristics population variables and occupational variables both get equal weights in the context of their contribution towards the composition of spatial inequality index, as they express a greater degree of mutual dependance on each other. This relation of 'reason to effect' and 'effect to reason' of these group of variables justifies the equal distribution of weights under this set I.

As regards weights within the variables for different indicators is concerned the rationale limits, to the degree of importance of one indicator to the other in expressing the spatial inequalities together with the reversal factor within the indicator that influences the face of the indicator. (An indicator may have contradictory factors within it accounting for lower weight to the indicator in contrast to explicit constraints within it having direct implications on its composition and its contribution) e.g. severity of

death rate is not purely accounted to medical and other facilities but also to natural death which also contribute in varying degree to the composition of population etc. and in contrast infant mortality rate accounts primarily for the inadequate accessibility to medical facilities physically, socially and economically together with nutritional and other factors of care and general well being. Thus this overpowers the indicator of death rate and gets an edge over the other indicator. Similarly level of literacy has diverse implications in terms of levels of educational facilities, accessibilities, social taboos, attitudes, values poverty, well being and other related aspects. Thus in the grouping gets highest standing and so higher weight as a contributor to the expression of inequalities.

Within this nature of guidelines the weights for different indicators under respective variable is rationalised.

3.6 Construction of Spatial Inequality Index

The task now focuses around applicability of the available data in the form of indicators with relevant weights. Within the 26 districts of Maharashtra, Greater Bombay was not considered in evolving a comparative

measure like this, primarily due to the scale and nature of activity that could significantly disfigure the total image of the other districts in comparison. As such the focus centres around other districts of the state with a view to rank them on the composite grounds of the identified indicators. The range of this ranking moves from 1 to 100, With lowest integer value 1 being the worst possible case in the context of comparative inequalities and inversely 100 being the best scoring. Thus a district that scores highest points is treated as the best in comparison.

Here 100 is a hyphotical case and no attempt has been made to figure out what is ideal case in the light of composite index - An Uthopian is not fixed - as such it is a comparison with the best case available among the compared cases. Also the possibility of fixing an ideal or a 100 case is ruled out here on the grounds that an individual case with varying degrees of indicator inputs based on its resource structure would have a standing by itself and that could be the best possible one for that particular case exploiting the available resources to its ultimate order and yet it may not prove the best possible in comparison with some other case with a different base.

Thus the formula used here is a comparative tool/ measure of the cases in focus.

The minimum value in a particular variable was the value for (i_o) and the maximum value in the same variable was the value of (i_{100}) having fixed the range with minimum and maximum values as constants for different variables the negative variables in focus were also conceptualised with similar and atrributes excepting the ultimate value which the indicator received was negative one as a result of the quality of the variable.

Thus with these constraints the following formula was applied.

$$I = \frac{i_1 - i_0}{i_{100} - i_0} \times 100$$

where I = indicator index

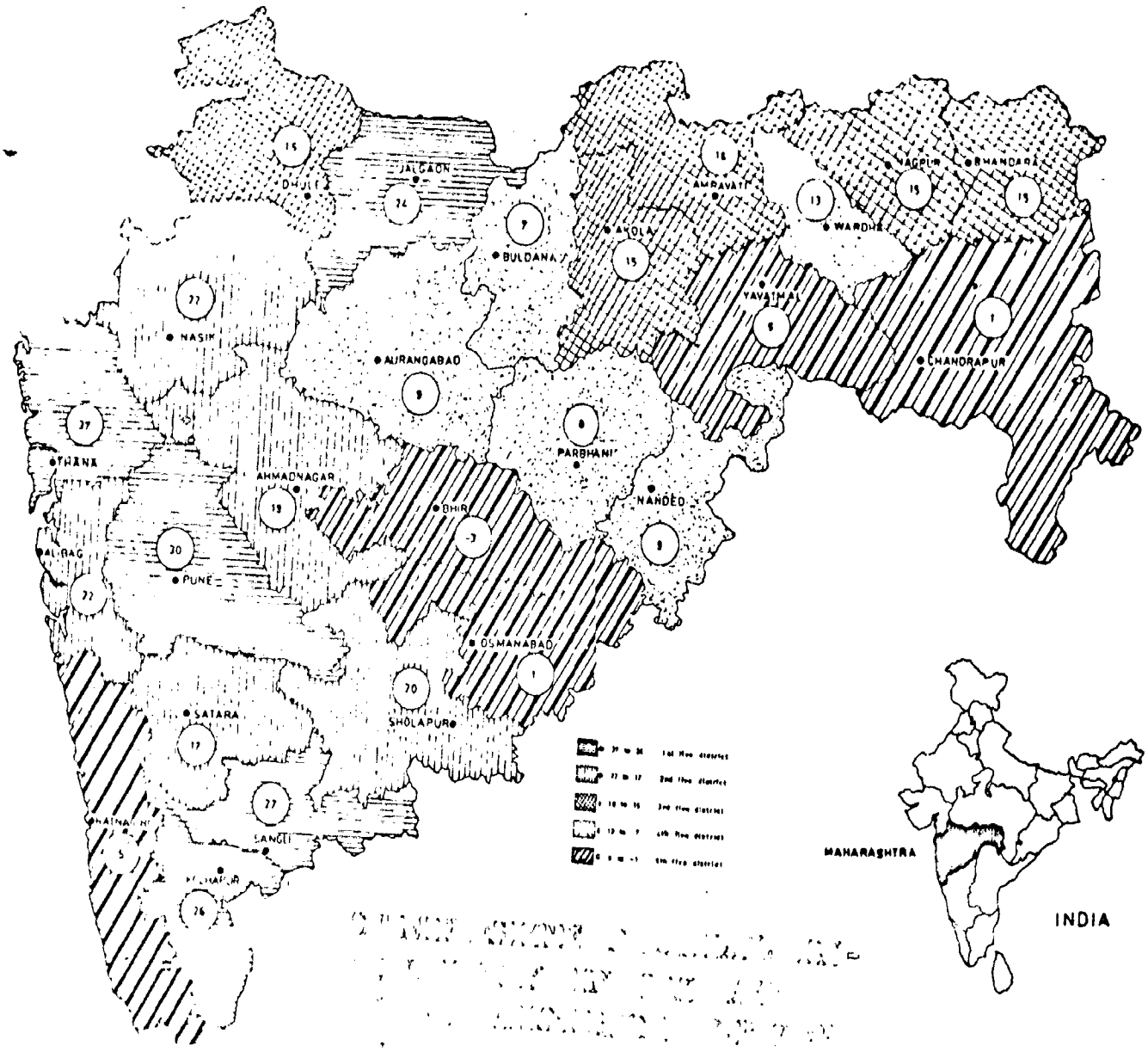
i_1 = observed value of the indicator in the particular variable.

and i_0 & i_{100} are two critical points on the observed data in reference.

With this formula indices for all the districts under 34 observed indicator datas were calculated and subsequently composite index was evolved identifying the levels of inequalities.

Subsequently this is compared with the potentialities of the districts expressing their ultimate standing in the composition of the state structure. (Refer Chart)

Thus identifying the levels of spatial inequalities while establishing guidelines deciding the priority of action rationalised under the same.


JALGAON
BULDANA
AKOLA
AMRAVATI
WARDHA
NAGPUR
BHANDARA
YAVATMAL
CHANDRAPUR
NASIK
AURANGABAD
PARBHANI
NANDED
THANA
AHMADNAGAR
BHIR
OSMANABAD
PUNE
SATARA
SHOLAPUR
SANGLI
MAHARASHTRA
INDIA

eg. human resource is directly related to the available or felt potential of productive occupation and flows with the possibilities of the same being greater and viceversa. power potentialities are considered equal with the existance of state and national power grids providing accessibility to every district based on its requirements. accessibility to Capital is considered equal with in the available state resources depending on the viability of the development planning project.

thus depending on the level of inequality and potentiality of the district, strategies for strengthening and weakening of functional links would be formulated. there by deciding degree of concentration or dispersal of economic activity in the context of social structure.

chapter four

4.0 APPROACH FOR PROJECTION

Having identified spatial inequalities at a state level in the context of districts as units of reference the task now, is to establish a structure plan for state, guiding action in the light of pin pointed defeciencies. Thus to stimulate growth and development with definite justice and have a closer concern on the growing gap the need is expressed not to even out disperaties alone, but to sustain the effects of planned development to its ultimate lower order while channelising the limited available resources in fulfilling the aspirations of the people.

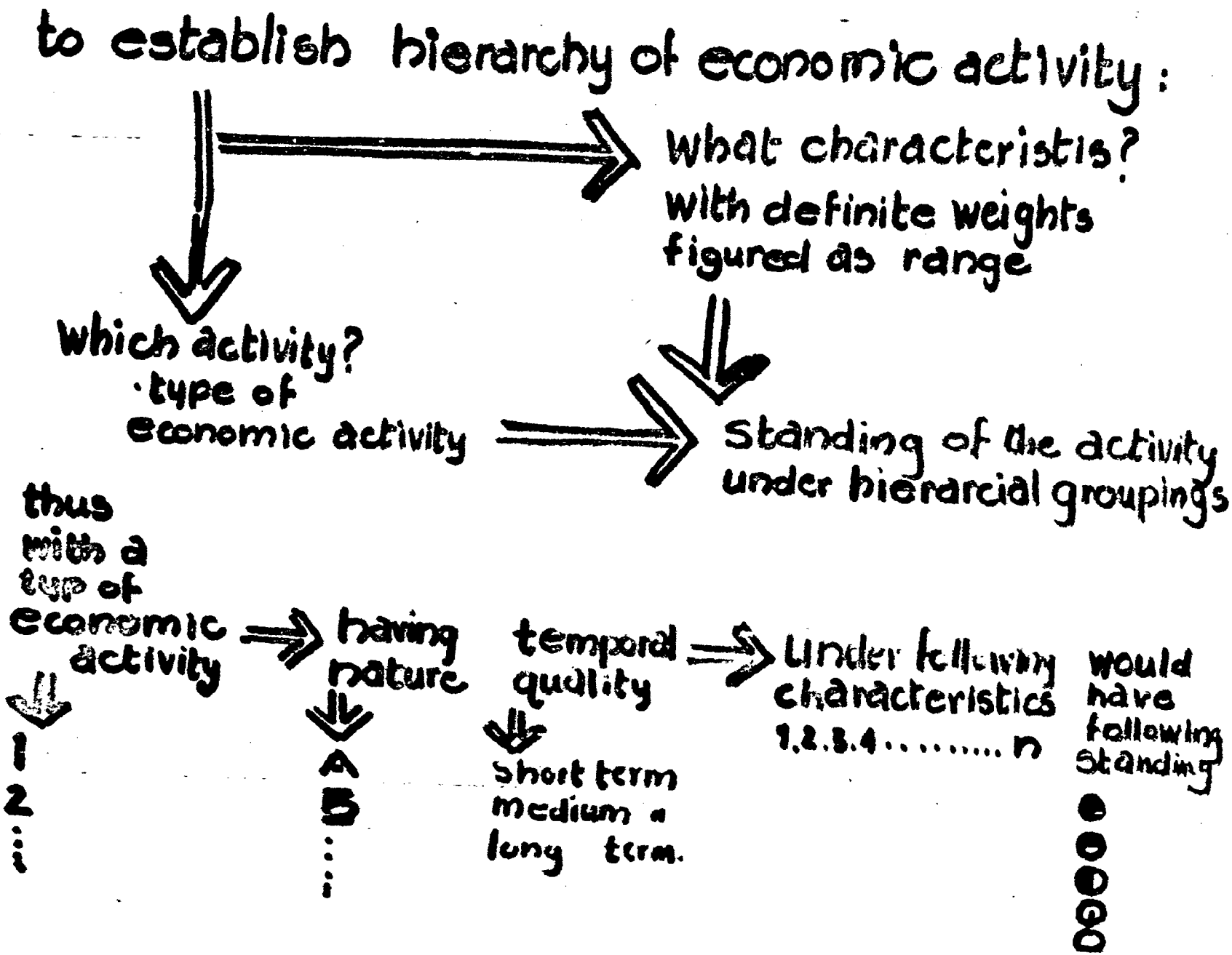
As such the concern of encouraging inequalities or discouraging disperaties between planning units does not arise. All the same issue of growing concentration or lack of developmental inputs and inequitable access to various activities over different regions could be tackled with a rational approach in the light of existing disperaties through an integrated matrix for development stimulating both the economic activity and social mobility over a space in time.

The need to have an integrated approach in developmental planning is realised through development of matrix

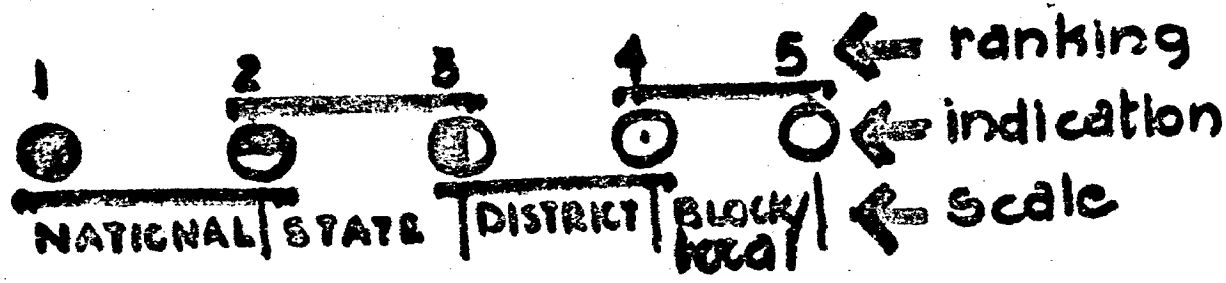
shaping the activities within the districts as units in focus paving way for detailed strategies at that level.

4.1 Identifying Hierarchy of Economic Activity and its Intensity

The presentation of this study is done through charts attached herewith.


to establish hierarchy of economic activity :
What characteristis?
with definite weights
figured as range
Which activity?
· type of
economic activity
Standing of the activity
under hierarcial groupings
thus
with a
type of
economic
activity
having
nature
A
B
temporal
quality
short term
medium a
long term.
under following
characteristics
1.2.3.4.....n
would
have
following
standing
1
2
i

With these standings, the decision for the dispersal of the activity could be done at following scale:



all the same decisions at individual scale would be governed by the respective state/national framework there by making it a function of the total scale.. the decision of the activity for overlapping scale to be rationalised in the light of activity itself enhancing viable dispersal

the nature of the activity is characterised by the following determining qualities

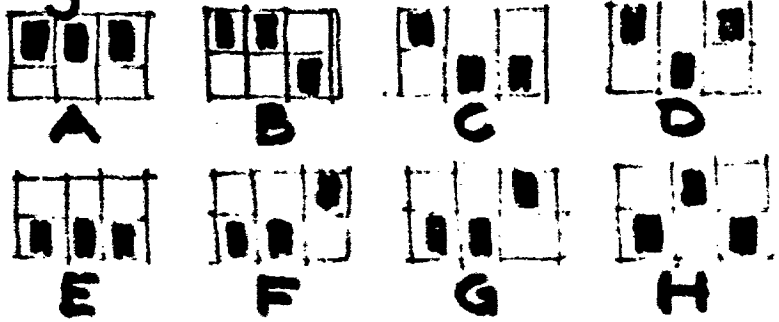
a · sustained
b · incidental
c · supportive
d · generative
e · seasonal
f · annual/continuous.

structurally related as under

columns ⇓

a	c	e
b	d	f

selecting either quality under each column thus expressing eight possible permutation combination given by:



subsequently compared with temporal quality giving the form of activity under each type.

nature of activity	temporal quality	type: agriculture form of activity
A		possibility over ruled
B	L	1. irrigation sustainance, tributories ii. agriculture credit socities iii transportation iv forest conservation
C	L	i. cultivation ii. vegetation iii. different types of cropping iv. dairy products v. animal husbandry vi. poultry farming vii. forestry viii agriculture goods market.
D	L	1 cultivation vegetation different types of cropping ii. seasonal markets. iii. fisheries iv. milk and dairy products.
E		possibility over ruled.
F	S	i. market for particular agriculture goods ii. seasonal agriculture labour tilling cultivating iii supply of fodder. etc. iv service and repair of agricultural equipments.
G	S	i. construction of irrigation cannals
H		possibility over ruled

type number	nature of activity	temporal quality	type: mining and quarrying form of activity
2	A		possibility over ruled
	B	L	i. infrastructure sustainance ·power ·road ·transport ·communication ·housing ·exploration
	C	L	i. mining ii. quarrying iii. marketing the extract iv. processing v.
	D	L	1. open cast mining ii. quarrying iii. maketing the extract
	E		possibility overruled
	F	S	i. carting the gang ii. seperation of the by-products iii channelising the water.
	G	S	i. provision of infrastructure for mining and quarrying operation, processing / dispatch.
	H		possibility over ruled.

type number	nature of activity	temporal quality	type: industry form of activity
3	A		possibility over ruled.
	B	L	i. service and repair industry ii. maintenance of infrastructure iii. hydro-electric power station
	C	L	i. heavy industry steel plant cement plant fertalizer plants ii medium industry iii manufacturing industry house holds other than household iv. mills, yarns v. tannery vi. light industry vii. printing press viii. cottage industry ix. handicraft units
	D	L	i. light industries ii. seasonal manufacturing units iii. small scale units iv.
	E		possibility over ruled.
	F	S	i. construction of dams bridges townships cannals roads ii other public construction works.
	G	S	i. provision of the above facilities and infrastructure & services needed to enhance the same.
	H		possibility over ruled.

type number / nature of activity / temporal quality

type: trade & commerce

form of activity

A possibility over ruled.

B N.L. i. Consumer co-op societies
ii agricultual co-op credit societies
iii " "

C L i. banking
ii. joint stock companies
iii. speculative trade
iv. import house / shipment cargo freightcargo
v. export house
vi. entairtainment houses
- cinema
- drama
- restaurant
- hotels
- music, halls etc.

vii. share trade
viii. wholesale trade
ix retail trade
x activities of the film industry

D L Seasonal variations of the above may be accounted here.

E possibility overruled

F S i. commercial activities due to
- national and international event
- religious festivals
- tourist traffic
- circus / mobil entertainment units.

G S i. agricultural co-operatives farmers co-operatives agriculture Credit societies
ii. provision of infrastructure for commercial and trade events
iii. communicative system network etc.

H possibility over ruled

type number / nature of activity / temporal quality

type: infrastructure-service based.

form of activity

A possibility over ruled

B N.L. i. health facilities
ii. educational facilities
iii. professional and institutional services
iv extention and mobile services.
v. transportation all three modes
vi communication broadcasting telecasting
vii irrigation
viii network
ix power supply and generation.
x other services with sustainance

C L i manufacturing and producing of the goods and equipments needed to meet the requirement of the above facilities and services.
ii. Indigenous units
iii.

D L possibility overruled.

E possibility overruled.

F S i. possibility overruled.

G S i mobile medical and judicial facilities as extensive services
ii provision and laying of infrastructure facilities

H possibility over ruled.

type number / nature of activity / temporal quality

type: tourism and/or religious

form of activity.

A possibility over ruled.

B M.L i tourist and or religious infrastructure sustainance.
ii. maintenance, development and restoration of tourist and religious areas / places.
iii connectivity means distance
iv conservation.

C L i facilities for lodging boarding
ii entertainment facilities
iii recreational facilities

D L i seasonal implications of the above facilities in particular tourist areas.

E possibility overruled.

F S i. construction activity
ii. national international event
iii. fairs,
iv tournaments and games
v seminars, conferences
vi melas, rituals, festivals and other ceremonies

G S M i provision of the above facilities and amenities stimulating tourism

H possibility over ruled.

classification coding				form of activity	generation of employment		generation of economy		type of activity		productivity				Infrastructural requirement			manpower requirement				
type	nature	temporal quality	sub-number		per unit area 1	per unit investment 2	per unit area 3	per unit investment 4	labour intensive 5	capital intensive 6	neither labour nor capital intensive 7	per capita investment 8	per capital output 9	range of multipliers considered 10	multiplier effects 11	connectivity 12	water 13	power 14	skilled 15	unskilled 16	special constraints 17	special weightage 18	range of final standing

through this skeleton different forms of economic activities in the respective type could be compared under 18 characteristics expressed above by way of relative measure ranging from high to low represented in the following hierarchy ● ⊖ ◐ ⊙ ○ depending on the significance of the impact under individual characteristic identified through exhaustive data on the same as a part of the contribution of the economic discipline. thus denoting the standing of the particular economic activity deciding the scale of action.

4.2 NEED FOR SOCIAL MOBILITY

Social structure may be looked upon as a product of economic development as much as the inversal of the same. As such development over an area cannot individually concentrate over the economic components alone and therefore needs an integrated approach conceiving a parallel social stimulation, social change, signified in the social mobility over a space in time. The segmental efforts of development concentrated on the economic progress and economic returns overlooking the social welfare returns, which, may not be measured in economic terms could prove an overall reduced (drop in) development.

Thus, dispersal of economic activity based on its hierarchy demands a social stimulation within different order social structures enhancing sustained development, thereby providing greater accessibilities to different order social compositions and social units.

This aspect could be conceptualized under 'social mobilization' providing greater degree of flexibility between social groupings and structuring of different social units, with a higher degree of stimulation as an added incentive for persistant development in different order settlements spatially dispersed, based on the

hierarchy of economic activity. Their degree of influence in shaping social mobility would denote the range of the activity within a region as much as their number and diversity reflected as a product of the capacity of the activity itself, thereby identifying social mobility as much an integrated part of the development as the dispersion of the economic activity.

4.3 Intensity Distribution of Social Activities

The presentation of this part of study is done through charts attached herewith.

4.4 Integrated Distribution Matrix

Chart attached herewith.

for a sustained economic development dispersed over different order settlements it is necessary to induce social stimulus

generated through social inputs expressing wider social possibilities over a space in time thus social flexibility + stability → social mobilisation.

social services are resultant of said parameters denoting level of social interaction - as an indicator of

intensity destribution of social services:

identify social services → role and capacity → distribution

- activities that generate social interaction over different social units/parameters as platforms for the same. thus under social units:

- residential : house, cluster, community, social groupings
- educational : schools, collages, institutes, universities
- recreational : active (playfields, gymnastics) passive (movie theatre, restaurants)
- religious : caste compartments, ethnic group, religious organisations institutions.
- medical : prevention and cure, pvt clinic, raidyl, phc, hospital
- occupational : working groups, class strata.

→ to cater society
- qualitatively
- quantitatively

denoting type and degree of social interaction possible.

→ to have influence over one social units (parameters) thus deciding no and diversity of social units.

their significance depends on the society they cater its composition
- characteristics age sex ratio
- accessibility of the addicts
  - physically
  - socially
  - economically

capacity of the society they cater.

type nature sub. no.	form	accessibility required					composite reading	degree of interaction or level of dependance				degree of over-lapping influence	possibility of over-lapping performance	play of communal forces				degree of attractions	play of externalities	special constraints	resultant frequency required	
		physical		social		eco		male		female												
		qualitative	quantitative	qualitative	quantitative			dependants	working	dependants	working			religious	caste	economic class	ethnic group (territorial links				qualitative	quantitative
		1	2	3	4	5		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20.

through this skeleton the intensity of the activity to shape the mobility is determined, conceptualised under columns 19 and 20. i e. the standing of the activity as a relative expression in the context of the particular area in focus and subsequently for a particular order settlement with particular order economic activities the degree of social stimulus required could be provided through the identified inputs based on prevailing value system while checking the existing structure of social services as a comparison with the required based on this chart.

integrated distribution matrix:

Economic activities to social structure

Priority of economic inputs as resultant constants localised in the context of the case in focus at its level of hierarchy.

economic activities		situational characteristics	resultant variables	Social services	
type	form	hierarchy of activity	spatial characteristics	priority of social inputs as dependant variables (value judgment) localised in the context of the case in focus depending on 'intensity distribution' structure.	
nature	temporal quality sub-number	potential scale of the activity	qualitative	type nature hierarchy quality sub-number	form
		mode of technology	quantitative		
		range of influence	cultural background		
		resultant dominant activities	% of population attracted		
		other eco activities			

depending on the intensity of the economic input level of

social input could be thus decided.

high — medium high — low

close-up format deciding intensity input.

thus determining action programme.

intensity coding:

← social input

↑ economic input

chapter five

5.0 DIRECTIVES FOR PLANNING AND DEVELOPMENT

Once the 'plan action' is prepared then, the parameters could be developed for coordinating the 'plan action' strategy with functional links at inter-regional and intra-regional level thus creating base for effective action translating the policy decision.

Here the possibility of establishing functional links through continuous structure plans for different states with necessary stabilisation of the functional composition in reference to particular state is explored. In turn forming a broad guideline for decision at national level subsequently being detailed back at state and district level.

Eventually, within the structure plan for state the individual districts/planning units could now come in focus for detail strategies enhancing development at the same time maintaining the balance of state development rationale. This by and large eliminates the possibility of any bias in favour of particular planning unit at lower levels in hierarchy.

Thus within the explicit rationale for decision making directives for planning and action could be laid down at the smallest scale by formulating strategies. These strategies

could then be translated into conceptual plans. All the same the task here, in this study, is primarily limited to the formation of strategies and as such translation of these strategies into conceptual form is not discussed.

Further, the possibility of exploiting a similar rational framework in formulating fiscal progfammes and administrative framework based on management techniques is discussed. Here the need to review plan machinery to stimulate effective action is foreseen in the explicit framework of action programme. The exact restructuring of the implementative framework is not dealt with, within the scope of this work. All the same the possibility of doing a similar effort as an offshoot of this study is stressed for obvious results identifying the functional importance of the same in the development process.

5.1 Parameters for establishing functional links for development at interstate level and intra state level

The integrated matrix for development planning in the context of state is further extended as a part of possibility to other states, while conceiving an integrated national development in the spatial context and eventually proliferating the effects of planned development at a district level within the established National and State

framework for developmental action.

This is rationalised through effective measures at different levels in the light of the area in focus based on the potentials of the individual state and its spatial characteristics stabilised on the local conditions.

Thus the charts :

5.2 Evolving Development Planning Strategies

These are presented in the form of charts attached herewith.

parameters for establishing functional links are conceptualised under subsequent constraints:

1. identifying special characteristics reflected as individual limitations and
2. capacity of the area in focus reflected as resource potentials.

thus

limitations + potentials → effective parameters stabilising the matrix for development planning.

special characteristics —

a study of resultant factors and their impact as motivational force in change and development figured through :

i physical features :

geography, topography climatology etc.
connectivity
standing in the national and stat context - location.

ii social structure :

composition of the society
population trends
attitudes, values
role of religion and other social forces as determinants to resultant impact.

iii economic structure :

play of market forces
relation of the economic activity in the national context
inital advantages enhancing economic viability.

resource potentials —

a study of determining constants reflected in resource structure figured under following sub heads:

i natural resource :

availability of mineral and other reserve shaping the activity pattern or as a base for economic activity.

ii human resource :

age-sex ratio of the population
capacity of the population to support a level of activity over a space in time.
qualitative and quantative aspects of the population and its degree of diversity

iii Institutional resource :

extent of externalities effecting a decision
contributions to national economy (income)
play of overlapping influence structured between different administrative boundries
other institutional forces shaping the type and form of development over an area.

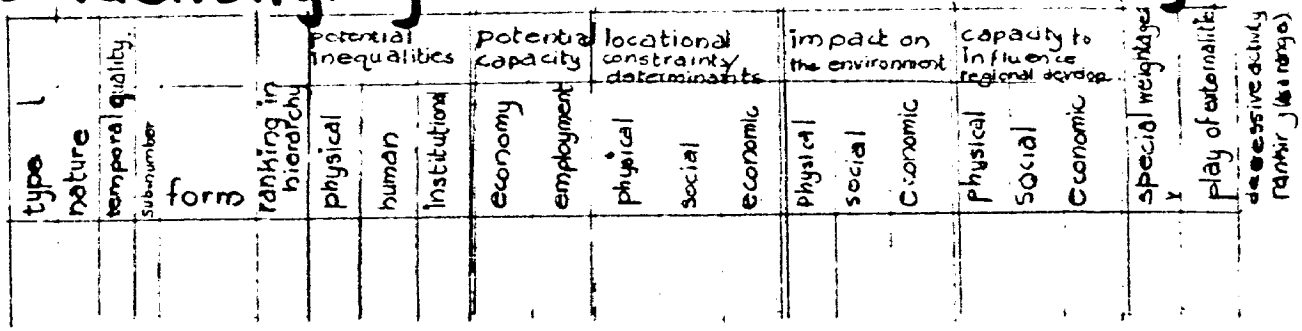
subsequently an exact assesment of the above constraints under varying heads and their intensity of influence over development together with extent of mutual inter-actions with in the constraints would thus lead into rational parameters reflected in the hierarchy of influence concieved as under:

1. identifying the economic activities that region/state is based on
2. identifying the difference between potential resources to exploited.
3. population composition
4. social groupings and social structure.
5. spatial dispersal of different order settlements
6. level of network.
7. administrative set up guiding the action
8. play of externalities shaping the decisions
9. extent of overlapping influence of the activities over the administrative parameters.

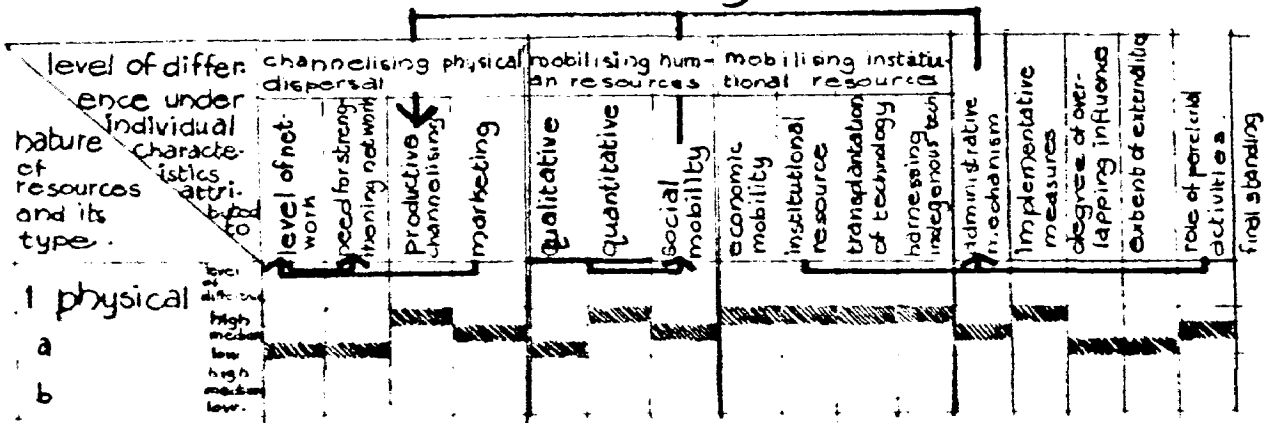
these are co-related in the order structured below:

under individual indicators:

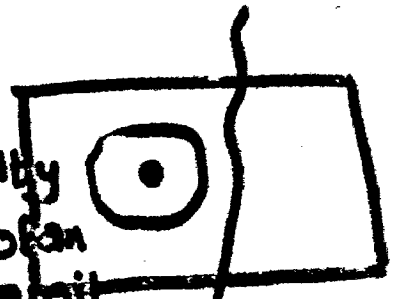
1. identifying the economic activity based on



2. potential resources to exploited resources, identifying their level of difference and factors attributed to, depending on the resource type.



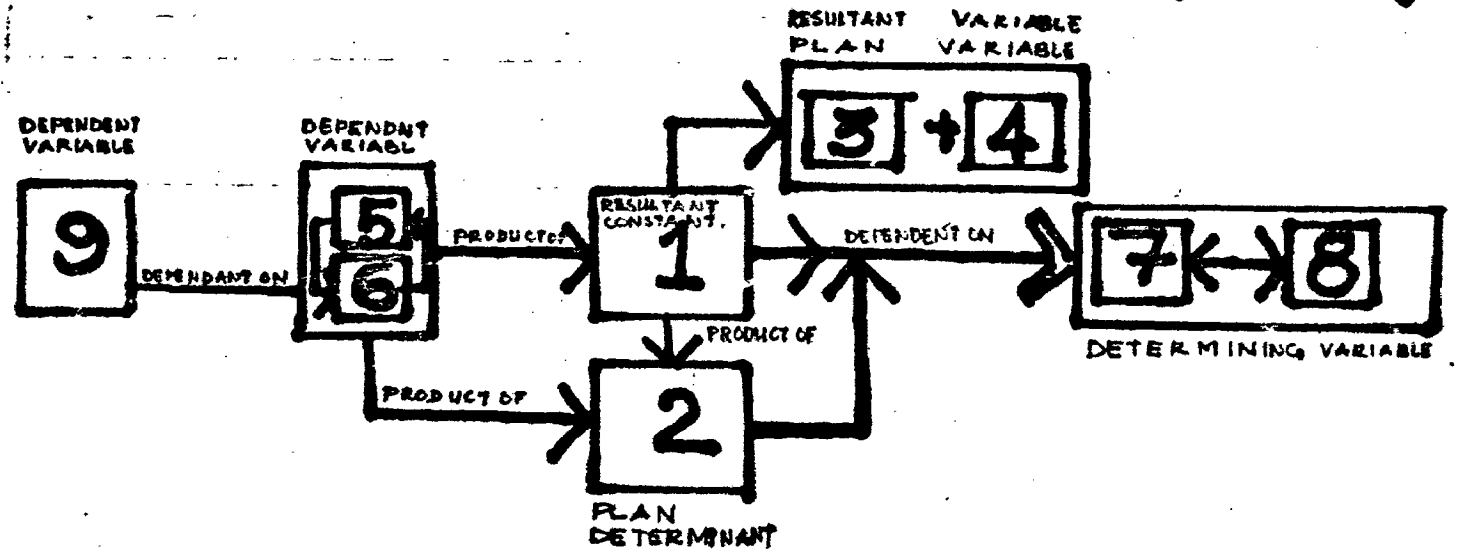
to stabilise the matrix for development in the process of establishing parameters it is necessary to account for overlapping influence of the economic activity in the adjoining state.



economic activity on the border of an administrative unit to be taken into account for its
- influence and
- capacity to attract migrants while generating economy in the context of national development spatially while establishing parameters for stabilising functional links at the state level.

this decision surpasses state boundries and is tackled at a combined level in the national intrest.

their relationships in the composition of the final parameters stabilising the matrix for development may be identified in the following diagram.



thus determining the role and influence of the parameters contributing to the processes of stabilising the matrix.

spatial relationships among investments and their combined impact on rate and direction of development is directly related to :

- distribution of economic activities and
- the level of social services supporting them.

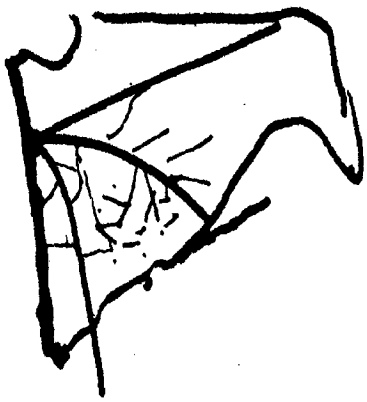
thus identifying them as the core of development strategy stregthened by effective network enhancing the same.

at state level and

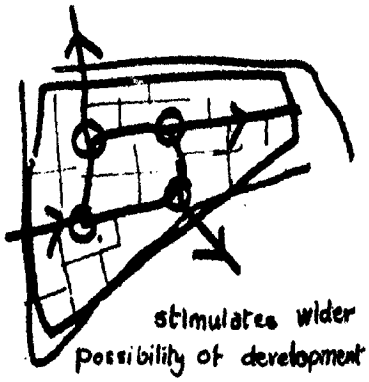
at district level.

while formulating strategies for developing the districts lagging behind in the inequality context at state level,
better accessibilities to
productive activities and
social services
could be provided with a higher degree of connection on the state routes enhancing the possibility of exploiting the available resources stimulating development together with
increasing the possibility of dependancy on the other pereferial districts.

→ thus trunk routes to disperse development



present structure of network radiating out of Bombay or focused at one point discouraging the development of sects of inbetween land encouraging growth of bigcities at distant ends



stimulates wider possibility of development of hinterlands providing accessibility to various activities and places at a related level in hierarchy.

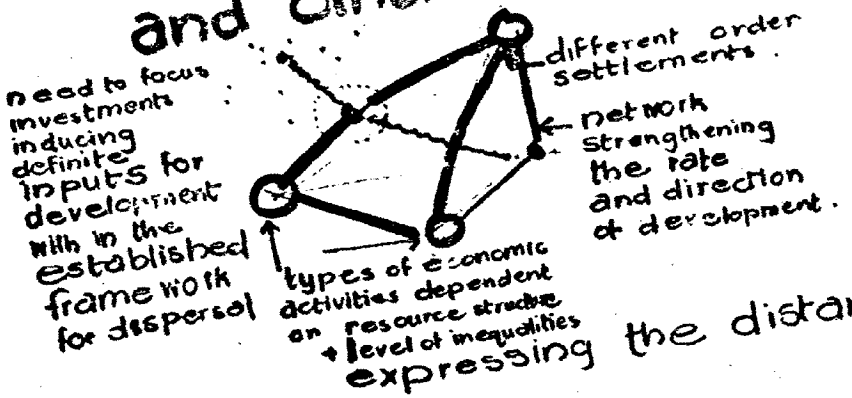
with in the links at district level the following strategies for development planning could be laid down.

→ guidelines for appropriate spatial pattern of settlements.
deciding

- settlements for investments
- kinds of investments most appropriate

stimulating growth of settlement developed as a framework for distribution of social services and economic activities

order settlements
based on
exact assessment of resources
the physical
the human
the institutional
identifying growth constraints
together with
identified inequalities
with in the perspective of political
and other forces shaping the decisions



expressing the distance/scale between different

order settlements while identifying their dependancy.

stimulating
the strengthening or weakening functional links
while locating new or
stimulating old economic activities
existing
as a part of strategies for state/district development
established through development
planning matrix
aimed at providing
equitable access to
economic activities and
social services
while dispersing the activities at that scale.

the capacity of the attivity over a settlement is determined by
level of inequality + potential resource
thus deciding the dispersal of settlements
spatially by the order of size
number
and distance between them.

further identifying concentration/dispersal needed for strengthening functional links

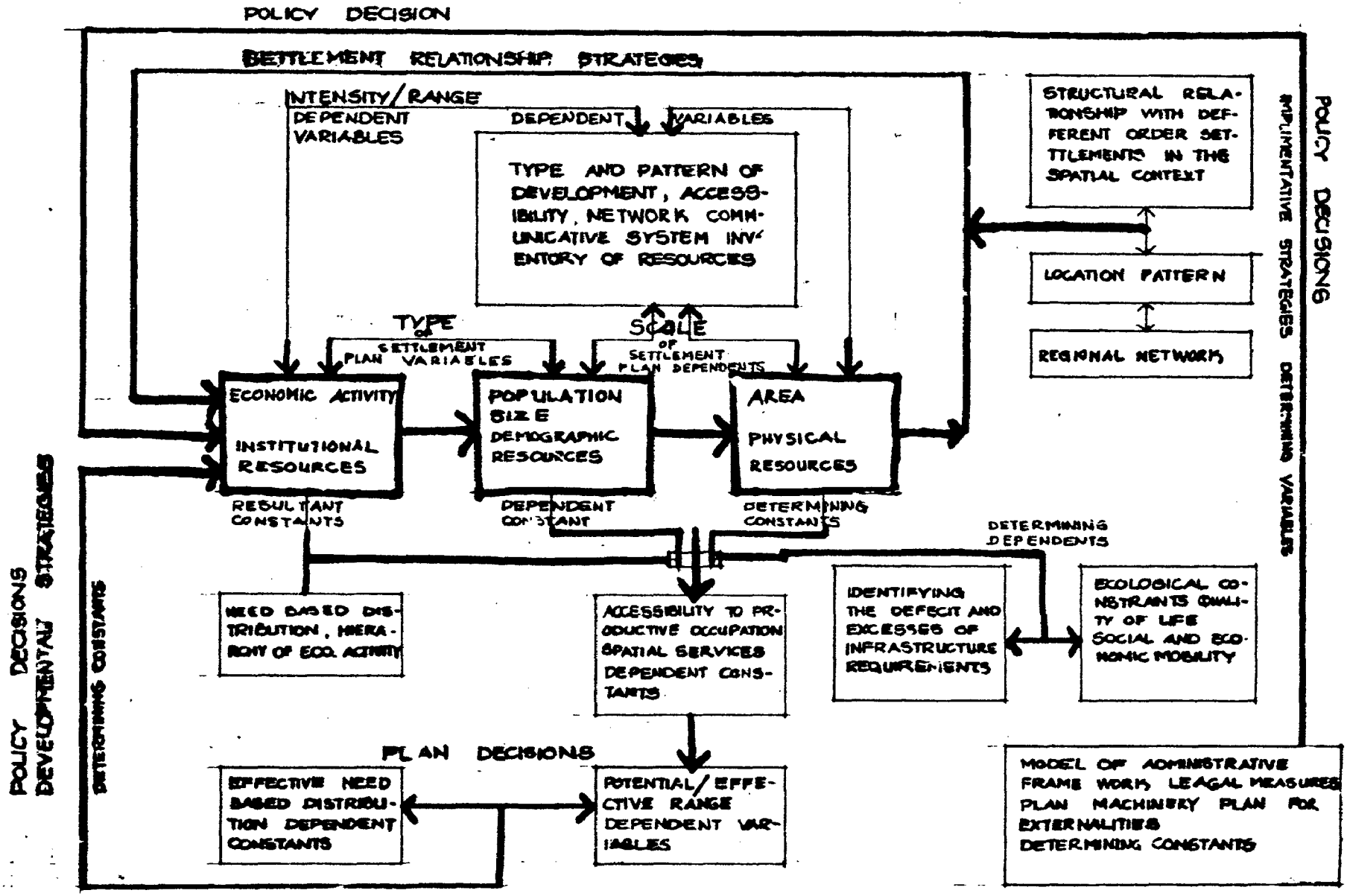
enhancing

- better quality of life with equitable access to productive activities and social services there by projecting number and diversity of the same.

thus with in the structure of the state strategy for development planning in the context of the district could be foreseen as inputs of forms of economic activities together with related inputs of forms of social services structured under different order settlements.

	eco input / settlement size	I	II	III	IV	V	VI	i	ii	iii	iv	v	vi	vii	settlement size / social input		
type (numerical quality nature)	form of economic activity	50,000 and above	50,000 to 20,000	20,000 to 10,000	10,000 to 5,000	5,000 to 2,000	less than 2,000	less than 200	200 to 499	500 to 999	1000 to 1,999	2,000 to 4,999	5,000 to 9,999	10,000 and above	form of social structure	numerical quality nature	type
1																	1
2																	2
3																	3
4																	4
5																	5
6																	6
existing	% of district popn																EXISTING
	no. of settlement																
resultant	% of district popn.																RESULTANT
	no. of such settlemt.																

SPATIAL PLANNING MODEL SHAPING EFFECTIVE POLICY DECISION.



5.3 Fiscal and Administrative Framework

Having discussed the development planning strategies in the context of spatial inequalities and potentialities as framework for dispersal of economic activities and social services, the need now is to rationalise the allocation of financial resources in the above context while bringing forth the administrative framework needed to steer the 'plan action'.

Within the spatial planning matrix established in the context of spatial inequalities and resource potential at respective district levels and further stabilised at respective state levels to give a national spatial plan as an added dimension in the existing policy plan at a national level. primarily delibrating on the allocation of sectoral financial resources alone.

With this, it is now possible to channelise the allocation of financial resources rationalised spatially and further filter down at a district and local level the effects of planned development while enhancing optimum development of the districts within the identified framework thereby, maintaining the balance of the state and national development at every stage of translation of the economic plans into spatial ones.

Thus the very ___ spatial planning ___ framework could be structured as a determining guideline for distribution of, or allocation of the financial resources both, at a national and state level and therefore could be looked upon a fiscal framework for policy decisions.

Subsequently, within the established framework the administrative structure required, stimulating effective plan action is explecit. This can thus be set in the hierarchy of the structural frame work filtering down from the national spatial planning scale to the ultimate lower order scale at local level channelising the policy decisions in either directions both vertically and horizontally in turn contributing to the formation of the very policy decision from whole to part as much as from part to whole in the process of developmental activity spatially.

5.4 Management Techniques and Plan Machinery

Having established the administrative framework in the light of the rationalised spatial planning structure it is necessary to employ management techniques realising the efficiency of implementative procedures.

Presently, the gap between the aims and the achievements may be largely attributed to :

(i) the gap between the plan formation and implementation.

(ii) the bottlenecks in the plan implementative procedures itself.

thus reflecting lacunain the process of plan formation to implementation.

Within the pre-requisites of the effective administrative framework necessary efforts through management techniques could stimulate a detrimental'plan action' shaping the developmental activities spatially.

Thus the plan machinery at all levels could mobilise implicit action in the perview of the policy rational structured in the spatial plans at national and state levels with a sounder base, effecting optimum development of the unit in focus through a planned phased programme discriminating localised decisions disfiguring development. Thus keeping in conformation with the totality of the situation enhancing viable development in the light of development planning strategies.

chapter six

6.0 NEED FOR RESEARCH AND DEVELOPMENT

Within the scope of this study as reflected in the earlier part of the compilation efforts are made to present a skeleton shaping development planning practices with particular reference to spatial inequality and resource structure in the perspective of national and state setting.

All the same as these efforts embrace a wider spectrum of thoughts while establishing a need for spatial dimension in the national policy planning, it expresses a greater need to focus in particular on the individual components of the skeleton with a closer and objective view. Thus identifying research and development potentials in the same.

6.1 Prospective Research Areas

Having identified the need to explore the research potentials of this study a brief discussion of the probable research areas is presented here;-

1. While identifying the spatial inequality in ranking of the chosen areas at state level a shift in scale from district to block and local level as units in focus

together with added indicators like impact of over lapping influence and dependancy ratio eventually related to the state scale contributing further towards rationalising the results. Thus moving from part to whole in the entire process.

Discussing the additional indicator index and its role :-

(i) Impact of overlapping influence : Here the level of accessibility to productive and other activities on the border of the area in reference having overlapping influence needs to be assessed in an attempt to attribute its contribution towards the final ranking. Thus being considered as an added indicator index.

(ii) Dependancy ratio : In the context of inter-district inequalities where settlements of different order come into focus as units of reference, the level of dependancy of one order settlement over the other would significantly attribute towards the deficit and excesses of the activity pattern, further rationalising the inequality ranking of the chosen areas.

Here the spatial dispersal of settlement and its connectivity is brought into focus and needs to be elaborated at a microscopic level through physical plan

and other related data. Thus contributing as an added indicator index.

Thus, while assessing the resource potentials and levels of accessibility over an area determining spatial inequality, a further refinement could be achieved.

2. As development planning strategies are formed in the light of spatial inequality and resource structure while dispersing the economic activity in the hierarchy of standing and social services it is necessary to co-relate the same in spatial context with particular reference to district and blocks as units in focus in the process of translating the strategies at that level. Thus,

(i) Diagonising the carrying capacity of the economic activities to be dispersed over a particular district or area.

(ii) Structuring the order of settlements, its number, spatial distribution and connectivity in a particular context. Thus identifying spatio-economic areas of action while optimising infra-structure provision for settlements of various sizes and groupings.

3. Deducing framework for allocation of financial resources as pre-requisites for the five year plans within the rationals of the spatial distribution matrix at that scale.

4. Establishing administrative structure providing effective linkages in the horizontal and vertical levels of communication in the context of the development planning skeleton stimulating effective action at the implementative level.

6.2 Task Ahead

With the established skeleton shaping the development planning activity spatially it is necessary to evolve a structure plan for all the states and the nation as a whole, as an integrated part of the five year plan. Thus preparing a format for critically evaluating the course of alternative choices in the context of policy decision and action programmes at all levels to bring about a qualitative change over the regional development programme (in preference to the existing planning structure.)

Further, forming an evaluative and feed-back set-up vitalizing the simulation process relating the developmental activity realistically to a situation while fulfiling aspirations of the people achieving better quality of life.

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