CHAPTER NINE

REGIONAL DEVELOPMENT ISSUES: POLICY PERSPECTIVES

Regional development planning as a theoretical entity requires being detached from the economic development planning. The indicators uses for analysis development status is neither micro nor macro differentiation however, its implication are within the designated region, so demarcated to have unique development identity. Gujarat being a Meso region of Western Region in India shares the regional characteristics of neighbouring states, Maharashtra, Madhya Pradesh and Rajasthan Regional inequality has been concern of the Gujarat state and country as a whole, but in implementation of the development programs the regional backwardness is co-terminus with the economic backwardness of the State and districts. The national governments and its planning commission though concerned with imbalances in the development of states nearly showed little interest towards preparation of the regional development plans.

Planning regions defined by the Town and Country Planning Organisation (TCPO), the country divided into thirteen macro-regions, which are further subdivided into 35 meso regions. The regional development policies for backward regional development planning policies such as development plans and Industrial policy Resolution is included since 1956. The state formations in India are based on the linguistic characteristics rather than the economic, but Gujarat emerged as distinct linguistic and economic entity in country. Within state the divisions are based on the broad regional characteristics, such as Mainland, Saurashtra and Kachchh.

These planning regions reflect the scope of planning suited to the national level planning agencies and decision makers. The departure from the centralised plan framework towards the State independent thinking on the development functions have been recent more so during the last two plan period in the 21st century. The State appears to be partially deviated both politically and economically from the national policy perspectives reflects in its approach to state policies where the State is looking at its

spatial advantages and potentials. The focus shifted from mere five-year plans to the State lead policy events and marketability to the external investors without direct involvement of the central agencies. Gujarat likewise the other developed state that has seen consistent increment in the State domestic product and per capita income has seen comparing itself with smaller nations and even aspiring to become an economic entity on its own. The national agenda in future five year plans might provide continuity to the spatial development strategy adopted by the Gujarat. The regional character of Gujarat in India has begun to emerge as independent entity driven by market principles, which is result of past policy and development decisions taken by the planning commission post 1990s.

Gujarat needs now to look towards its sub-region for the dispersal and spatial spread of the development agenda, mostly distribution of the fruits of economic development to the human development concerns in the 21st century. The issues and concerns raised in earlier chapters regarding land, agriculture, sustainability of industrial growth, urbanisation and environmental issues would be important subjects to be considered for analysing and deriving the regional perspectives of development for Gujarat.

The districts in the State are often regarded as regions indicating the gap between theory of regional planning and actual practice, where administrative boundaries conflicts with regional limits. The need for planning for regions arises because of widespread development inequalities within state and districts. Since in practice, the regional planning with in state is left to market forces all economic activities trends to get concentrated in a few regions. Thus, widening of the regional disparity amongst its region can be observed in the State.

Though country has been practicing distinct economic development policies, whereby central and state government produces plan documents related to perspective, five year and annual plans, there is inconsistency in approach towards the regional plans. The backward areas until recently did not have distinct approach throughout the plan periods. The policy shifts from community development program, agricultural extension works, industrial location, tribal area plans and special component plans has not been uniform. During different phases of planning, the thrust areas were altered, ignoring the

earlier ones. By and large, every new phase added new schemes over and above the existing ones of the earlier Plans. Certain existing schemes were phased out in a planned manner or dropped due to non-performance and lack of interest among the implementing agencies.

The present chapter deals with the policy framework adopted by the State and its continuity during different periods. The development planning framework of the State prior to the pre-liberalisation period was mostly the extension of the Central schemes. Latter, the State has emerged as a distinct political and structural entity with more responsibility awarded to the State Planning Board to plan for the State. However, the districts as planning units are yet to provide district specific development plan documents. Districts have been functioning as simply allocating agencies of resources and extending the plans prepared by the State Government. The spatial perspective in the Plan documents (10^{th} and 11^{th} Plans) have recently emerged with specific programmes implemented for coastal areas, tribal regions, industrial areas and other backward regions.

9.1 Regional Orientation of Development Planning in Gujarat

The development planning practiced in the country has not percolated at the regional levels, the structure of planning mechanism in the State reflects though the regional concern but administrative mechanism allows only the planning at district level. The *taluka* (block) level plans are also an extension of the district plans. However, with the decentralization the district planning committee has also been active in the planning for the district with the help of state. The regional planning scenario has not progressed beyond some specific projects, but in Gujarat even that projects specific regional plans are non-existent. The plan mechanism deals with the backward areas it fails to demarcate the regional limits and prepare the spatial or geographical plan. The *taluka* and district plans are considered synonymous with the regional planning in country.

9.1.2 Decentralised Planning and its Assessment

The decentralised planning process was started in 1953 with launching of the community development program and various initiatives since the first plan. The Balwant

Rai Mehta committee (1957) gave recommendation of planning from below. The committee also suggested three tier Panchayati raj system viz., gram panchayat, block and district. The Ashok Mehta and GVK Rao committee (year) also suggested similar process for participatory development planning for involving people in development process.

9.1.3 Assessment of requirement

Based on the discussion and observation on the visited panchayats, *taluka* and districts offices in the State there are important elements required at the institutional level to initiate the decentralised development planning. Some of them are under the process of development at the different levels. In most cases the panchayat levels planning still seems to be distant exercise. Following observation is made;

(a) The database which is basic requirement for the planning is not developed for undertaking planning exercise. The data includes the information on the natural resources, infrastructure (physical and social), agricultural and industrial production, socio-economic condition of people etc. Information is available only in pieces at the district and *taluka* level. It is grossly unavailable at the panchayat level. With poor expertise available even at the *taluka* level, the planning for the unit has been from top to bottom. On discussion regarding the policy directives given by the Central and State agencies with the concerned officials, it was revealed that, even though they are empowered, the lack of human resources and capacity does not allow the comprehensive planning activities.

(b) Planning infrastructure in terms of adequate office, record room/data storage, computerisation etc are partially available even at the district level it's nearly minimal at *taluka* and absent at the *Panchayat* level. The state is yet to build the planning capacities at the grassroots level. The available infrastructure is not enough to carry out meaningful planning exercise.

(c) Planning is specialised domain requires skilled work force at the district, *taluka* and panchayat levels which is not available in the State. The administrative

officers at different levels are still allocating resources based on the arbitrary or schematic arrangement done at the State level. Central government directs special programs which is rendering the decentralised planning useless, or not worth an attempt.

(i) Gram *Panchayat* (GP) as planning unit

With the 73rd constitutional amendment (1992) which empowers the gram panchayat for the planning at the gram panchayat, a new paradigm of planning has begun. With this amendment, the gram panchayat are expected to make plans as per their local resources, felt needs and undertake necessary programmes of direct importance to the community and also to the individuals. The gram panchayats needs to undertake the following;

(a) The assessment of the existing resources, needs and problems.
(b) Formulation of objectives and alternative status of development; and
(c) Designing suitable development programmes and projects to fulfil the desired objectives of the plan.
(d) The GP have to be accountable only for the quality of the services expected by the residents but also for satisfying the diverse needs of the various social groups or community.

(ii) *Taluka* / Block as Planning Unit

The *Taluka* / Block were considered as primary development unit for the community development till 73rd and 74th constitutional amendment. *Taluka* development initiatives were enlarged to basic sectors and schemes were implemented through the beneficiaries and villages are identified for the specific projects. These projects and schemes implemented through *taluka* development officers who acted as nodal officers of major central schemes. The assessment of the schemes effectiveness, outreach and impact evaluated based on the block specific analysis by the central planning (evaluation) agencies. The *Taluka* level planning has to undertake following;

(a) Integration of Panchayat level plans, in order to draw perspectives for the *taluka*, including the urban as well as rural areas.

(b) Integration of urban and rural areas plan to enhance the integrity of *taluka* plan with strong urban and rural integration.

(c) Facilitating rural development beyond villages with emphasis on the linking villages with more emphasis on the service orientation of the *panchayats*.

(d) To aim towards increasing the earning potentials of the *taluka* by enhancing the revenue sharing mechanism between the *panchayats* and reducing the dependency on the State grants.

The emphasis on the *taluka* as development unit has been stressed recently on the State government programs such, '*aapno taluko – vibrant taluko*' i.e., emphasis on the identifying the development gaps and promoting the programs of the government.

(iii) District as planning unit

The Gujarat is a pioneer State to implement the programme of Decentralised District Planning in true sense. Under this programme, about 20 per cent of the grant of the district level provision is put at the discretion of District Planning Boards to formulate and implement development schemes of local importance. Under this scheme, from the year 2002-03, every MLA can suggest works of Rs. 50 lakhs per year (Rs.30 lakh for the year 2001-02) for his constituency.

Districts are now supposed to prepare the District Development Plan (DDP) incorporating plans formulated at the GPs and blocks level. The plans are forwarded to District Planning Unit (DPU). The departments such as irrigation, roads, forest, agriculture etc supporting the districts also prepare their plan and forward it to DPU. The plans are compiled by the concerned officials headed by the District Development Officer (DDO) and submitted to *Zilla (District) Panchayat* (a body comprised of elected representatives of Panchayats in district) for approval. Following can be assessed important for district planning;

(a) Preparation of the DDP as per the provisions and procedures laid under 73rd and 74th Constitutional Amendment Act.

(b) Incorporating the model DDP guidelines and methodologies suggested by the planning commission.

(c) Creation of the planning team and coordination between the *taluka* level officials for integrated district development plan.

(d) Using the authority of the district collector and chief executive of the urban local body for incorporating urban and rural areas plan in single framework.

(e) Strengthening and training the DPU in preparation of the plan and management.

Many schemes from State-District-*Taluka* and Panchayat is pending for approval, state has replaced centre in many dimension. The state prepares and enforces specific programs to the district and *taluka* level government with its own benchmarking. There is shift of program focus from the central perspective to state level.

9.1.4 Urban Area Planning

Urbanisation process in the State in general has gained momentum over the recent years due to excessive industrialisation in the major corridors and cities. The shift of the growth towards the newer areas like coasts due to port development, SEZ lead development near to small towns and villages, Special Investment Regions like Mundra-Gandhidham (Kachchh), Dholera (Ahmedabad) and Dahej (Bharuch) etc., and investment in infrastructure in existing cites. These activities would further enhance the urbanisation rates in state and sooner than expected more than half of state's population would be living in urban areas. The following can be important assessment required for improving the urban area planning in the State:

(a) The pressure on the urban land would be contributing towards the sprawl of development towards the periphery and to the larger metropolitan centres, ultimately subsuming the small and medium towns.

(b) The expansion of existing urban regions like Ahmedabad, Vadodara, Surat, Gandhidham and Rajkot might also contribute towards the growth of economic potentials as well as livelihoods of the sub-regions.

(c) The land management, transportation plan, infrastructure plan, renewal of old city areas and housing strategies would be important for the organised growth of not only for the metropolitan cities but also for the medium towns.

(d) The quality of life can be enhanced with sustainable use of natural resources, the checks and balance can be developed to contribute towards the agricultural economy of the immediate hinterland.

(e) The human resources development including the skill enhancement in the urban areas would be essential in order to build the economic base of cities with new industrialisation and economic activities.

(f) The urban management of the cities with more emphasis on the providing efficient and maximum hours of services would be required along with the reforms for improving the financial strengths of the municipalities.

(g) The linkages between municipalities and institutes or the technology suppliers are important for preparing development plan.

(h) Successive use of natural resources have depleted the water resources, increased risks from natural disasters and increase in pollutants from human activity has affected the urban environment. Environment Management Plans with proper risk assessment for the urban areas are important to prepare the city for any disasters in addition to mitigate the impact of changing urban environs.

(i) Participatory and citizen centric policies and program would receive positive inputs for development and infrastructure projects.

(j) There is substantial increase in the price of the land and has negative impact on the development projects.

(k) Delays, lack of funding and inability of the private sector in participate for the projects in urban areas impacts the development plan proposals.

(l) The minimum human development standards need to be maintained at least in the urban areas. Thus an urban area planning could contribute towards the larger spatial planning at the district and state level.

9.1.5 Industrial Area Planning

Gujarat Industrial Development Corporation (GIDC) since its inception has planned and implemented industrial estates in majority development blocks or *talukas* of the State. From the industrial estates of the late 1960s to the current Special Investment Regions, land area under the industrial area planning in the State has expanded from 20 acres to 5,000 acres. The scale of industrial area has increased from earlier area plans resulting in both positive and negative effects on the regions. As described earlier (see chapter –Three) the important concern for the industrial areas are the utilization of land and its impact on the environments. Efforts are required in order to assess the environmental impact of industrialisation on the sub-regions of the State. The studies done by Gujarat Ecology Commission (1998-2001) on the State of environment in Gujarat though remains eluded from the public discussion have highlighted concerns now expressed by Central Pollution Control Board (New Delhi) in its State of River Report (2007-08). The alarming pollution levels have forced the State to restrict the promotion of chemical industries further in some sub-regions such as Nandesri, Ankleshwar and Vapi.

The current proposal for the Special Investment Region (SIR) and Special Economic Zones (SEZ) which is expected to utilize over 2.5 lakh hectares of land needs to focus extensively on the Industrial Area Planning. More focus can be developing at least for setting up of industries. The projects though have been initiated by Central Pollution Control Board (CPCB) and now taken up by the Gujarat Pollution Control Board (GPCB) needs to be passed on to the industrial decision makers. The vibrant Gujarat Summits (for attracting investment) in future should take into account the sites found suitable for industrialisation,

Excessive industrialisation in some of the regions like South and Central Gujarat can be avoided in order to provide sustainable environment. The deterioration of land and water quality needs to be arrested in order to improve the quality of water and make land fit for cultivation. The current agrarian areas in regions need protection from

industrialisation and resultant urbanisation for the better 'food security' of the State. The ecological damage along the coasts needs to be monitored with stringent implementation of Coastal Regulated Zones (CRZ). The present implementation of Integrated Coastal Zone Management programmes (ICZM) under Ministry of Environment and Forest, Government of India in Kachchh, Bharuch and Vapi (South Gujarat) and Gulf of Cambay (Central Gujarat) are expected to provide necessary protection.

Rehabilitation and protection of sensitive ecosystems is necessary along with equitable development policies taking into account the needs of the local communities. The need for sub-regional plan and agencies is to be earnestly addressed by the State Government to provide planned development efforts. Industrial Areas in the State are the major support not only to small and medium enterprises but also to large scale capital intensive industries, but proper infrastructure key to environmental protection should be in place. The regional plans should be taking into account the needs of industries and local population in order to maintain the proper balance in natural resource. The scientific management of the natural resources like river, lakes, forest, minerals and land is essential requirement for sustainable industrial area planning.

The participation of communities and social impact assessment should be the key component apart from the Environmental Impact Assessment of the Industrial Area Planning. The efforts by the planning community especially at the industrial and regional area levels should be properly addressed by the State policy makers.

9.1.6 Emerging Trends for Regional /Spatial Planning in Gujarat

The planning mechanisms are not only confined to the central and state planning agencies it has been mostly extended to the local bodies. The role of urban local bodies is enlarged given the increasing urbanisation levels with up to 42 per cent of population of the State are living in Urban Areas. The spatial extent of the urban region is expected to impact half of state's geographical extent. Such as the impact of Greater Ahmedabad Region (12,000 sq.km), Surat (1500 Sq.km), Vadodara (140 sq.km) etc would be larger in context of spatial planning. The regional plans in the mainland Gujarat except eastern hills is mostly thrusted through urban planning. The eastern hills now devoid of regional plans should be preparing for the spatial sub-regional plans with more focus on the

natural resource management. The use of technologies like Remote Sensing and Geographical Information System needs to be extended to such areas, beyond the demonstration projects by the State or national space application agencies. The state needs to be more systematic in their approach towards the sub-regional plans, adopting some provisions from the Gujarat Town Planning and Valuation Act, 1976.

The analysis presented in earlier chapters presents peoples' dissatisfaction and negative impact of the regional development policies. While formulating regional development policies, the regional concerns should therefore be considered. The regional policy should be effective framework for the land management, resource management, human resource development and economic growth. The habitat level concerns using the technology and service based approach should be able to allow the decision making process more participatory. The urban reform initiated through current schemes under JnNURM (2007-2012) has provided ample scope for preparing such framework.

The consolidation of planning resources like Tribal Sub Plan (TSP), Backward Area Grant Fund (BRGF), MNREGA, Drought Prone Area Development Program (DDAP), Sagarkhedu, Vanbandhu Kalyan Yojna etc should be done while preparing the framework for the regional plans.

There is a need to use the existing planning frameworks as well as the new ones in order to bring synergy in the mechanism and public accountability of the system. Democratic tools should be used to bring inclusive and participatory nature of planning. The information dissemination and transparency in the decision making process would yield the desired results in association with improvement in literacy levels and penetration of telecommunication technologies in the State.

9.2 Decentralised Planning and Regional Plan

Efforts of the decentralised planning without adequate regional plan with district as regional planning units are expected to yield poor development outcomes. The district development plans (DDP) never took off beyond the sector specific allotment of resources and schemes. The physical components, linkages between the rural –urban

areas are poorly evaluated and understood in order to develop the suitable DDP. Except Kerala state no other state has made serious attempt in pursuing the desired objective beyond setting up of institutional structure. Gujarat needs to adopt the model district planning framework proposed by the planning commission through participatory preparation of DDP.

Even though Article 40, Constitution of India, which reads,

> *"The state shall take steps to organise village panchayats and endow them with such power and authority as may be necessary to enable them to function as units of self-government."*

The community development projects (1952) as noted earlier, could not achieve its targeted goal due to ineffective institutions at the village levels. The recent programme implementation such as MNREGA provides opportunity for jobs as well as creation of community assets.

Panchayats at district, intermediate and village levels are the principal authorities for planning and implementation of MGNREGA under Section 13 of the Act. It is notable that:

a) At least 50 per cent of MGNREGA funds are to be spent directly by the *Gram Panchayats* (GPs) – in fact, generally GPs spend much more than 50 per cent of the funds,

b) *Gram Sabhas* (GSs) are to recommend specific projects to the GPs and conduct social audit of MGNREGA works,

c) District Programme Coordinators and Programme Officers are to assist District and Intermediate *Panchayats* in discharging their functions respectively.

These features of MGNREGA offer a unique opportunity to strengthen and enable PRIs, particularly the GPs and GSs. The rejuvenated and enabled PRIs, in turn, can become powerful instruments in making MGNREGA a much better success. It is

generally seen that states with vibrant and optimally sized *Panchayats* with requisite manpower have implemented MGNREGA better.[399]

The strengthening of Panchayats also calls for directive guidance for planned efforts and regional perspectives regarding the consolidation of resources and management of resources needs to be evolved through the district plans. There is wide misunderstanding on the effectiveness of such schemes in the absence of planning at the grassroots. The capacity building in rural and urban areas are required in order to enable participatory and grass root development initiatives.

9.2.1 Port based Development

The State has 1600 Km. long coastline, representing a third of the nation's water front. The State has 40 minor and intermediate ports geographically dispersed across South Gujarat (13 ports), Saurashtra (23 ports) and Kachchh region (4 ports). One of the major ports of India under the administrative control of the Central Government, Kandla, is also located in the State.

The ports of Gujarat have been developed by the Gujarat Maritime Boards (GMB), which plans for the development of ports for its services to hinterland, mainly central and north India. The vision 2020 by the GMB for the ports is to enable the State to retain its position as the leading maritime state in the country by handling around 40 per cent of the country's cargo, capturing at least 10 per cent of value addition to exports at the ports and capturing the highest share of high value cargo such as liquid cargo, LNG, POL Products and containers.[400] The development is mainly targeted through encouragement and development of private ports, joint sector ports, state public ports, captive jetties and private jetties.

The port led development also means that the State has planned mega industrial development along the Gujarat coast along with providing road and rail infrastructure connectivity to the ports. The State is expected to have high cargo potential because of its locational advantage and emerge as the key service provider. The State since 1995, has an

[399] Govt. of India (2011): *Road Map to Panchayati Raj (2011-16): An All India Perspective*, Ministry of Panchayati Raj, New Delhi, PDF.
[400] Dash, H. K. (2004): "Port Led Development in Gujarat, Gujarat Maritime Board". Gandhinagar, online ppt. from www.gmb.org.

effective port development policy which is being used for public-private sector participation by bringing investors and creating a market driven port sector.

Although the regional linkages towards coastal development are limited to providing employment, the indirect benefits are expected to be high. The negative impacts on the environment though estimated to be severe, are still to be assessed for the coastal areas. The activities which are likely to be stimulated along with the development of ports are development of core industries (steel, chemicals etc.), power projects (based on imported coal and gas), petrochemicals (imported crude), cement plants, production of capital goods (through Special Economic Zones), Ship-Building, Fisheries etcetera.

The development of infrastructure like road and rail might also have positive impact on the economy of South Gujarat, Saurashtra and Kachchh. The value addition in goods and capital investment in the industries would also benefit the State. Although employment potential in the region is going to be high, lack of skill and training among the local population might dampen the prospects. The port led economic growth might lead to exclusive development of some sections of the society leaving the vast backward communities unaffected. For example, development at Mundra, Dahej and Hazira has economically benefitted mainly the land holding and other castes.[401]

The port led development is expected to provide revenue resources to the State by development of ancillary industries and secondary service providers. The ports also would lead to its contribution towards central and state taxes – Excise, Value Added Tax, and Custom.

9.2.2 Tourism based Development

The archaeological and religious sites in the State have been attracting tourists both from India and abroad. There is also appreciation in the tourism activities along the coastal areas, water reservoirs (such as Narmada) and forest retreats etcetera due to development of the sites. The Government of Gujarat initiated tourism mainly associated with business and religious travellers to the State. The development efforts are mainly for the development of key infrastructure at the site, however, the integrated approach as regards to the economic benefits to the regions are missing. The localised impact of the

[401] See Lobo and Kumar (2009)

tourism industry is being confined to businesses located at the site. The organisation of *melas* or cultural gatherings does benefit the locals for a limited period in a year.

The states like Goa has benefited from tourism since 1960s with the development of beaches and facilities. These have enhanced the flow of tourists and sustained the local economy. But, it also damages the coastal environment without effective management system of solid and liquid wastes. Although, at present, the tourists prefer the coasts of Daman and Diu, instead of the beaches of Gujarat such that of Mandvi and Somanth etcetera, the sites located along the coasts of the State need to be developed with due consideration of not only of impact on economy but also on the environment.

The religious tourism has developed due to emphasis by the State on the development of sites such as Dwarka, Somnath, Ambaji, Pavagadh and Dakor etcetera. The plans, mostly physical land use plans, aim at providing physical amenities to the visitors. But in a strict tourist sense, these sites do not encourage the visitors to stay there longer than a few days in a year. The tourism based development planning needs to identify the regions particularly in the hills in order to integrate the development efforts so as to percolate the benefits to rural and hilly areas.

The urban areas also act as large revenue generators particularly for small and medium business. The events organised in the urban centres of the State attract the travellers, who prefer to stay for more days, at times for two weeks during the *Navratri* and *Uttarayan* festivals in the months of October-November and January respectively.

9.2.3 Industrial Area Planning

The development of the Special Investment Region (SIR) and Special Economic Zone (SEZ) in the State is going to impact all the regions of the State. The extent of the SEZ ranges from 10 hectares to 5000 hectares or more offers a chance to integrate the plans with regional characteristics of the areas. The proposals for the SEZ so far have been detached from the region, and it is treated as per the legislation a separate administrative entity. On the one hand SEZ does not comply with the regional framework of development and on the other, the proposed Special Investment regions in the State *(See Chapter 4)* also draws attention towards the regional planning issues.

9.3 Tribal Plans – Scope for Regional Plans

The development needs of Scheduled Tribes and Scheduled Castes are being met through the mechanism of Tribal Area Sub-Plan and Special Component Plan. A State level Planning Board has been setup for the planning of Tribal Area Sub-Plan at the State level under the Chairmanship of Hon'ble Chief Minister of the State. A district level *Jilla Adijati Vikas Mandal* has been constituted for the formulation of the scheme, implementation and co-ordination of outlay to be allocated at the district level. The State Government has increased per centage of job reservation for Tribals from 14 per cent to 15 per cent. The State Government has decided to earmark 17.57 per cent of the outlay of the State Annual Development Plan every year for the Tribal Area Sub-Plan. More efforts are required to address of land alienation not only due to pressure of urbanisation and industrialisation but also protection of habitats and livelihoods of scheduled tribes. The implementation of Forest Rights Acts in its totality along with granting the tribes the development opportunity would achieve the State level integration plans.

9.4 Community Perspectives of Development Planning

During course of research, the investigation on the development changes perceived by the target population over the years due to government programs and schemes. The few projects and selected area study was done in various parts of state. The objective was to seek answer to the questions such as whether there is any development change in their social lives and in what way the development has affected the rural masses in Gujarat. The author would like to present the areas of improvement as well as no change and deterioration mostly based on the discussion and examples from the field research in various parts of state.

(a) Among the Project affected People of Sardar Sarovar Dam.

To ascertain the status of the Sardar Sarovar oustees resettled in various sites a study was carried out by a researcher (May –July 2009) from Center for the Study of Regional Development (CSRD), JNU, New Delhi[402]. The author had accompanied the field team to the sites selected for the research. Apart from the household schedule based

[402] Field notes prepared while investigating the villages resettled by SSP for Dr. Sushil Dalal, CSRD, JNU

study of the ousted households, Participatory Rural Appraisal (PRA) was conducted in the study villages and the results were presented in the study. During the study, following observations were made by the present author which are relevant to this study;

- The ousted/resettled population has been provided with better opportunities in comparison to the host population of the rehabilitated villages.
- The improved amenities have been provided to the oustees, but their relationships with the host population has been formal rather than social.
- Regional adaptation of people resettled was poor for example; people who were resettled in South Gujarat remained better connected with natural resources than those resettled in Central Gujarat.
- The poverty ratios in some of the host villages of the resettlement sites were high and development issue based contrasts were observed across the society.
- The land rights of the resettled people were protected whereas the similar tribes and communities in the host villages were mostly landless labourers.

(b) Response of Project Displaced People – Various Projects

A study was conducted by the Centre for Culture and Development, Vadodara, on the development induced displacement in Gujarat.[403] The study involved field assessment of over 124 project affected villages and over 1,800 households. The analysis and findings were reported in the year 2007. Apart from other aspects, the study schedule contained certain specific questions pertaining to the changes over the last decade. The findings are as under;

- Project affected people are never classified as 'displaced' though most of them would have lost their land and habitat.
- The lands lost were compensated with cash award as per the provisions of the Land Acquisition Act, which were not sufficient to sustain after a decade, thus rendering the families dependent upon the casual labour market.

[403] Author was involved in the study as Associate Project Director (2004-2007)

- The project authorities or the government agencies never came to assess the situation of the oustees once resettled, as was the case of Ukai and Madhuban Dam oustees, thus allowing them to live in a distressed situation.
- The rehabilitation of the land holders were never done as per the norms although most of them were provided community facilities.
- The social and economic status of the communities like Scheduled Tribes, Scheduled Castes and Below Poverty Line group's etcetera were not considered while acquiring the land. It was the value of land which was the only consideration while awarding compensation, thus placing the oustees in a disadvantageous position.
- There is no restriction on the amount of land which can be taken from the villages for a development project. Given the situation the villagers have lost more than 50 per cent of their agricultural land resulting in loss of livelihood.

(c) Salt Workers in Bhavnagar

The investigation were done into the development concerns for the salt workers (also traditionally known as *Agarias*), where the State contributes over 70 per cent of the production in the country. The site located in Bhavnagar district was selected for the review of their development status and changes. The study conducted mainly for the Masters thesis in Urban Planning[404], advised by author. The major findings based on field investigation reveals following;

The study reveals that 48 per cent where the migrants and 52 per cent were local. Only 32 per cent Agarias were aware about their identity cards issued from the Gujarat Shram Yogi Kalyan Board.

Education facility: The *Agarias* from nearby district migrate to the salt fields for 8-9 months; children are pushed out of the school for major part of the year. The illiteracy level is quite high among the *Agarias*. Among the population studied about 49 per cent

[404] Raval, Bhavna (2012): *Socially Inclusive Development Strategy for Salt Producing Region of Bhavnagar District*, Unpublished Dissertation, (cited with author's permission), Bhaikaka Centre for Human Settlement, V.V. Nagar.

male and 75 per cent female were found illiterate. The fields lack education facilities for the childrens of Agarias resulting in poor ability of the households from move away from present working conditions.

Health facility: Availability of health facility in all salt fields is low and the survey shows that 56.5% of *Agariyas* (salt workers) were having health problems. The skin ulcer (surveyed area shows 35%) and the eye problem are major health problems among the *Agariyas* due to exposure to harsh climate. The blood pressure and the urinary sodium excretion which are due to prolonged exposure to salt. The medical van visits the fields regularly but the provision of medicines are limited for the common diseases. The medical emergency during the night are difficult to attend due to location of salt fields 20-25 km. away from Government hospital. The malnutrition among the children is high due to poor diet and its supplements.

Housing: In the survey area 63% houses are provided by the salt industry and 30% are under state governments programs. The survey shows that 53% of houses are kutcha house where as the 42% were semi-pucca house. The houses were not provided with sanitation facility despite the model design under the government schemes.

Institutional finance and security: The survey shows that the 50 per cent *Agariyas* are Below Poverty Line (BPL), they are economically weak and unable to finance their production themselves which pushes them in a spiraling debt cycle. There is disparity of wages for the *Agariyas* working in different type of salt fields; they get Rs. 34-70 per tonne where as the salt owner sells at the rate of Rs. 350-400 per tonne. The salt pan owners with land from 100 to 500 acres prefer to hire workers through labour contractors or '*Mukadam*'.

The *Mukadam* gets a commission of almost Rs. 100-200 per labourer. The salary of the *Mukadam* is 15,000-20,000 per month. The *Agariya* takes the money in the form of advance around 20,000-30,000 in the beginning for the production and also in the middle

of the season through the *Mukadam*. The accounts are settled at the end of the season but many a times the debts are not repaid and they fall prey to greedy traders.

Insurance: The entire surveyed household was not aware about any insurance schemes as well as they were not getting any benefits or social security from the salt field owners.

Dysfunctional Schemes: The state government claims that it has provided the various schemes like 45 Salt Workers Welfare Centres' and almost 50 *Balvadis*[405] near the temporary residence of *Agariyas* , but it is inadequate in the study area. Field observations cite poor functioning of these special centres.

(d) Urban Slum Dwellers in Surat and Vadodara

The development projects in the urban areas have often affected the slum dwellers in most of the metropolitan cities in the State. The author have been associated with two such studies[406] which also throws light on the development prospects of slum dwellers and their appreciation of development efforts. The arguments placed for the betterment of people by their representative's calls for serious concerns;

- Rights of slum dwellers – the governments does not have specific guidelines even though the Government of India is signatory to UN Habitat charters for protection of tenure rights.
- Housing for the poor is never addressed at the right time and supply was never enough for the people who intend to purchase the houses.
- Cost of living in slums are not low, they have high cost of living given the health, education and occupation implications.

[405] *Balvadi*,- Pre-School or nursery centre for children below school going age, often associated by Food and Nutrition program initiated by Government of India and implemented by the State government.

[406] A study of Bapunagar Slums (Surat) for Community Initiatives for Resettlement Plan (2009) and Memorandum for resettlement and compensation for Slums in Sayajigunj (2008), though in both the cases the local body had gone ahead as per there plans and people had to follow the instruction from the administration to leave the site for the development projects. The civil rights groups were helpless and withdrew the protest subsequently against the political pressure. (*Names of organisation and persons involved are withheld by author*) This information is based on field notes during 2008-09 at Vadodara and Surat.

- Since the land was not owned by slum dwellers the land owners either private or government does not bother to protect their right even after staying beyond 20 years.
- The informal employment of the slum dwellers does not provide enough opportunity to progress and sustain livelihood resulting in vicious cycle of poverty.
- The local administration on the pressure of international and national agencies do provide basic amenities, health care and education in situ which creates a false sense of ownership which people in general could not understand on the event of takeover of land by respective agencies.
- Political parties and leaders exploit the situation have promised security of tenure and does not stand behind once they are in critical needs given the political situation of the State.
- The polarisation of poor on the income, caste and communal lines have created huge gap amongst the people to come together to fight for their rights.
- The middle income group and others often use their services but does not provide enough support for their basic needs. There is greater class divide often depicts the twin face of society.
- The youth living in slums are not often provided with the opportunity even though the Non-government agencies are providing services they are not enough to cater most of families living in slums.
- Slum dwellers know it's difficult to fight with government agencies and expect their voice to be heard at suitable government departments, which they think is not being done.

(e) Among the farmers in Mainland Gujarat

The mainland Gujarat from the North, Central and South Gujarat plains are the major beneficiaries of the irrigation facilities developed since its inception. The plains have played important role in maintaining the agricultural growth of the State. The travels in the Mehsana, Mansa, Kheda, Anand, Vadodara, Jambusar, Bharuch, Olpad, Navsari and Valsad areas for seeking the answers were made during different period of time. The field notes and observation are here presented collectively which might capture the changing

development dynamics in mainland Gujarat. The changing caste and class characteristics might also be responsible for emergence of present status.[407] The following are the major arguments related to regional development perspectives;

- Land holding communities have improved their earnings due to access to water and finance made available by government agencies and financial institutions.
- Farm Mechanisation increased during last two decade due to diversion of farm labourers to other sectors of economy (mostly industries and urban areas).
- Changing cropping pattern from the food crops to cash crops and plantation have lead to major change in earning potential of farm sector.
- Inputs form the agricultural universities and research stations during last 50 years have been positive in improving the seed quality, crop types and inputs.
- Irrigation facilities from multiple schemes and later inter-linking of rivers[408] by the State also helped in improving the agricultural output.
- Farm electrification in the mainland has helped exploiting the ground water sources, which helped the rural hinterland to grow beyond the canal catchments mainly in North Gujarat. The 24 hours electricity supply in most of mainland Gujarat had further enhanced the exploitation of ground water.
- The emergence of cooperative movements led by dairy, and cash crops (cotton and Tobacco) have helped in sustaining the crisis during the intermediate periods such as Drought and floods.

(f) Villagers affected by Mining

The mining areas in Gujarat mainly related to lignite, stone quarry, calcite, agate etc are located in Panandro (Kachchh), Chotaudaipur (Vadodara), parts of Narmada, Bharuch, Surat and Valsad district. Most of the mining is done through open cast mining. The issues concerning the impact in the mining areas and villages are discussed during the

[407] Author is thankful to the discussions and answers provided on the related questions by the author with Dr. Lancy Lobo (Director, CCD Vadodara), Prof. Biswaroop Das (CSS Surat), Prof. A. M. Shah (Ex Professor of Sociology, Delhi School of Economics, DU), Dr. Jayesh Shah (CCD, Vadodara), Mr. Falgun Gajjar (Amrit Gajjar & Associates, Ahmedabad) and others. It often takes multiple opinions into consideration may not be complementary to one another. The conclusions of discussion is drawn by the author.

[408] See *Sujlam-Suflam Scheme*, Government of Gujarat.

field visits from the labourers and villagers.[409] Most of the mines are leased to the private parties by the Gujarat Mineral Development Corporation (GMDC). The scope for reclaimation was studied in this context the major findings are as under;

- Open cast mining in state uses machinery and transports the mining materials to the concerned storage areas. The areas acquired for mining by the small and medium miners often left unattended after extraction of resources.
- Even where GMDC is directly involved in mining the quality of water in the vicinity up to 5 kms radius of mining areas are not fit for drinking and other domestic uses. Even in mining areas have polluted the rivers which are not fit for the domestic animals and aquatic life.
- The villagers are often resettled with minimum amenities have to depend on the project authorities for the water supplies.
- The mining areas in the State such as Panandro (lignite) (Kachchh district) has caused serious health hazard to vicinity (about 15-20 villages) raising various human rights issues.[410]
- In Amod and others villages in Jhagadia *taluka* (Bharuch district) the road infrastructure is deteriorated due to constant movement of the heavy vehicles, the villagers are not able to grow crops even after irrigation due to poor quality of soil due to increased soil pollution and suspended particles.
- The areas near the limestone mines in Porbandar, Junagadh and Jamnagar the dust from the plants and quarry has affected the crop cultivation and poses serious health hazards to the people.

(g) Opportunities for People in Sanand – Viramgam (Ahmedabad District)

After declaration and setting up of the automobile factory by the leading car maker in Sanand, the Government of Gujarat has setup increased facilities into its neighbourhood. The Special Investment Region (SIR) and estates by the Gujarat Industrial Development Corporation (GIDC) has affected the land uses in about fifty

[409] Kumar, Shashikant (2007): "Reclamation of Mining Areas and its Environmental Impacts", Unpublished Paper presented in a seminar at BCHS, APIED.
[410] This was earlier confirmed in a study by Ranjan, Prem (1996), Human Rights Issues: Panandro Mines, Unpublished Masters Thesis, School of Planning, CEPT (Ahmedabad)

villages in Ahmedabad district. The impact of the changing land use was studied during a field study.[411] Following are the major observation;

- The land holding community got good value for the land sold and acquired for the industrial areas.
- The value of the land near to the factory areas have increased and led to abandonment of the cropping due to prospects of land conversion from agriculture to non agricultural uses.
- The investment by the State governments during last 30 years on the various irrigation schemes could not be realised due to change in land uses.
- The socio-economic development of villagers in the region was low including the lack of literacy and infrastructure making them un-prepared for the employment opportunities provided by the automobile sector.
- The people quick to invest in the properties in the Ahmedabad city, thereby mostly the youngsters migrated with their families.
- The traditional farm labourer's community about 60 per cent of the population are marginalised due to sudden change in the land uses.
- Though the youth were encouraged by the State government to undertake training in the factories and industrial training institute the most of working age groups above 25 years to 58 years have to adopt the informal employment or work as casual labourers.
- Employment of women in the factory sector have improved in the nearby the Changodar (Bavla *Taluka*) have improved.
- Housing condition of casual labourers, and informal workers has not improved and most of industries are not provided industrial housing.
- There is growth of farm houses and mega housing schemes targeted towards the high income group (due to its location in outskirts of the Ahmedabad Municipal Corporation).
- The pace of urban sprawl has increased with over 5000 hectare land has been converted to non-agricultural uses during last five years.

[411] Study conducted for preparing Regional Development Plan along with students of Masters of Urban Planning, Bhaikaka Centre for Human Settlement, APIED, V.V. Nagar, Unpublished report.

- The region was known for its own brand of Wheat (Bal) and Maize is now limited to Dholka *Taluka* which is also under pressure from urbanisation.
- The land acquisition for the roads and Metro railway (proposed from Ahmedabad-Dholera) is further going to utilize the land in the region.
- There is pressure on the water resources, the surface water sources like ponds and rivers are increasingly under threat for pollution, the wet land (Nalsarovar) in the region has recorded reduction in migratory bird population.

(h) People benefited by Watershed Projects

The community based development of watershed projects mostly initiated in mid 1990s in various parts of the State gained momentum through state initiatives in 2002-03 onwards. The watershed development project by the various NGOs concentrated in hilly regions and dry areas of state. The author have evaluated watershed schemes in villages of Umarpada and Dediapada in Surat (by the NGO) and Tharad and Vav *taluka* in Banaskantha district (under District Rural Development Agency, Banaskantha) .[412] Following are the major findings;

- Watersheds are selected after the baseline studies conducted on the household's socio-economic characteristics.
- The major objectives were to improve the livelihood of the people by enhancing the availability of water and enhance the water table in the target villages.
- Community involvement was done for the planning and implementation of the watershed schemes.
- Structures were constructed as per the pre-conceived ideas such as embankment – Gabion structure, bunds, etc. micro structures were erected on the site to tap the excess runoff.

[412] Evaluation of Watershed in Umarpada and Dediapada *taluka* was done for Samaj Kalyan Kendra, Dediapada in 2007 and water shed in Tharad and Vav *taluka* was done in 2008. The findings are abridged here to point out the impact of such schemes including the gaps. Author is thankful to the Fr. Obery De'Suza, Project Director at Samaj Kalyan Kendra, Dr. Lancy Lobo (Centre for Culture and Development, Vadodara) and Ms. Khyati Desai (MUP student, BCHS, V.V. Nagar) for their effective support for the study. The findings are solely noted by the author for this study.

- Watershed projects by the NGO also involved the other field activities like laying field channels, levelling of the fields (using manual labourers), providing improved seeds and plants.
- The formation of women self help groups (SHG) was done mainly in the watershed projects by the NGOs, however in the villages under the DRDA scheme the village level committees were formed.
- Common uses of the water were more encouraged under the DRDA schemes leading to social forestry and plantation works.
- In all the cases the livelihood of the people did improve in terms of enhanced agricultural production, but could not sustain beyond the project period.
- Most of the watershed projects lack proper capacity building for the village communities leading to poor maintenance of infrastructure created under the projects.

The Gujarat state has about three lakh such micro water structures mostly constructed under the schemes for improvement of water table in the difficult terrains. The impacts of the projects are good but temporary in nature given the project model and lack of capacity building within the village community. Though intention of the project is well received its longevity and impacts are short lived due to poor planning and implementation.

(i) Youth Looking for employment in North Gujarat

The improvement of the literacy levels in the State during the last two decades have resulted in more expectation from the youth for gainful employment. The north Gujarat during last two decade has more literate youth seeking jobs than before. The investments by the industries (in Kadi, Kalol, Mehsana and Gandhinagar) have raised hope for the youth for such employment. A study was conducted by the author for feasibility of technical institution in the region.[413] The findings are presented here in the light of the regional aspirations and expectations of the people.

[413] Kumar, Shashikant (2012): "Technical Feasibility for Technical Community College", Unpublished Report, Centre for Culture and Development, Vadodara. Conclusions are not cited from the report, rather reproduced from the field notes during the study. The author is thankful social workers in North Gujarat for collective inputs during the discussion.

- Training requirements have increased among the village youth including the girls requiring employment.
- The industry at present train youth at their own place but does not want to spend on training (formal) of its employees due to uncertainty of youth stay in job.
- The institute providing training to the youth are not as per the requirement of the industries they are often not ready to take floor of factory due to poor understanding.
- Youth are mostly interested in working in large cities where there investment in training can be properly rewarded with good salaries. The region does not offer enough employment to recover high cost of training.
- Villagers mostly the women and girls though want training but cannot move out of village (social reasons) render them jobless and marginal employment.
- Most of the women want the employment near to their villages or safe working environment for them.
- The villages in the region have been selling land for the land non agricultural purposes have surplus income to support the studies of the youth but are not capable for providing employment.
- Most of the industries located in the region are capital intensive and manpower intensive industries are few.
- The youth are engaged in the informal employment with little job security making them restless to move to large cities with high incomes.
- Lack of basic training in sciences and English makes them at disadvantageous position when in competition with urban youth from large cities such as Ahmedabad and Mehsana.

(j) Peoples reaction to urbanisation and Industrialisation in Mundra (Kachchh)

The Mundra *taluka* (Kachchh) district have attracted large scale investment in medium port, special economic zones, power plant, residential township, private airport, etc by a corporate group. Thus Mundra from being a small fishing town has now been converted

into busy port area. The investment by the industries led to inflow of migrants and thereby activities expanding to neighbouring villages. The author was able to interact with the fishermen's from the villages and land holding community during the site visits as well as a meeting conducted at Ahmedabad.[414] Following concerns are expressed;

- Mundra Port in Kachchh established by Adani Group as the 'Gujarat Adani Port Limited in 1998. Subsequently Mundra Special Economic Zone was incorporated in 2003 and Merged with GAPL in 2006. The combined company was renamed 'Mundra Port and Special Economic Zone Limited'.
- The Mundra region is more fragile, where about 2000 ha of forest land were diverted and cleared to set up a solar salt works/salt washers and desalination plant and subsequently for the change of land use to Mundra SEZ.
- It is alleged that, the entire process is carried out without proper environmental clearance or social impact assessment.
- The activities have affected the livelihood of rural people; specifically the dalits and Muslims are thrown out of their traditional fishing occupation.
- Communities dependent upon the production of coals from the scrub forest cannot use the resources because of destruction by industries.
- The fishing communities have reported loss of production of fishes closer to coast and creek due to constant dredging activities.
- Public hearing for the project took place after sanctioning and implementation of the project.
- About 1400 ha of land was lost from 14 villages, Kutch Nav Nirman Abhiyan in 2010 reported loss of livelihood amongst the traditional communities including the agriculturists, horticulturists and animal herders.

9.5 Climate Change Perspectives and Regional Development

Any future development strategy should encompass the climate change concerns which on the one hand about reducing the Green House Gas (GHG) emission while reduction in poverty level on another. The country level strategy adopted by India, also

[414] Site Visits, August 2010 and meeting with Macchimar Adhikar Sangh was done January 2012

shows this concern when it wants to develop the economy and also does not exceed per capita GHG emissions of the developed countries in future.[415]

> "*India has already declared that even as it pursues its social and economic development objectives, it will not allow its per capita GHG emissions to exceed the average per capita emissions of the developed countries.*"[416]

A series of mitigation efforts would be required at the country as well as state level, though the State government has established Department of Climate Change (2007-08), one of first state government in the country to take action. The threat posed to state has been high due to its physiographic features, including 1600 km sea coasts, arid-semi arid north Gujarat and forested eastern hilly regions.

9.5.1 Climate Change and Gujarat

Gujarat also is predicted to be affected by changes in the oceanic weather systems particularly in monsoon systems. The impacts of climate change on the State are already manifested in the recent decades in the form of occurrence of unpredictable and increased frequency and intensity of drought, flood and change of seasons.

Global action on the climate change talks of effective measures at the local level[417] in 1992 by the UN for its member countries. India being one of the important members is signatory for taking steps towards mitigating the climate change.

Gujarat is one of the major contributors of the industrial development has one of highest emission of harmful gases in country. It has in past four decades emerged as the chemical hub of country, attracting huge investments and industries in its regions. It is estimated by author that Gujarat emitted 465 MT (metric tonnes) of Carbon dioxide is generated annually in Gujarat as per the present energy production of 9288 MW (mega watt) in the State (2004). The state consumed 10605 MW of total energy till 2004-05[418]. In year 2005 it was estimated that 57 per cent of energy is produced for the industrial sector, 24 agricultural and 11 per cent domestics and others. Thus emission of Green

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[415] Govt. of India (2009): *Road to Copenhagen: India's Position on Climate Change*, Public Diplomacy Division, Ministry of External Affairs, PDF, accessed from www.meaindia.nic.in on 16.03.2009.
[416] Ibid, p.3
[417] See provisions of *Agenda 21, Rio Summit Declaration*, 1992
[418] Calculated on the basis of, 1 Kwh energy generated produces two kilograms of Carbon Dioxide.

House Gases (GHG) the energy sector contributes more in Gujarat fuelled by high industrial growth. The effects of climate changes in Gujarat can be explained in terms of changes in agricultural production, floods, drought, and coastal topography.

It is estimated that Agriculture will be worst affected in the coastal regions of Gujarat, where agriculturally fertile areas are vulnerable to inundation and salinity ingress. Standing crops in coastal regions along Arabian Sea are likely to be damaged due to increased cyclonic activity. The coastal areas of Gujarat face a serious risk from sea level rise, which could flood land (including agricultural land), and cause damage to coastal infrastructure and properties.

Gujarat has already on the verge of serious Geoclimatic crises which is manifestation of disturbance and breakdown of natural and anthropologic system. The Gujarat Ecology Commission (agency by Government of Gujarat) during its State of Environment reports studied during year 1994-2000 analyzed various aspects of physical changes in the State. The fluvial erosion has increased in the North Gujarat and Saurashtra; aridity increase in North West Gujarat and North Saurashtra districts, ground water salinity ingress increased in coastal districts particularly Junagadh, Porbandar, Jamnagar and Kachchh and high soil salinity along the Rann of Kachchh affecting districts of Surendranagar, Patan, Banaskantha and Mehsana. Gujarat in next decades needs to deal with drought, floods (river and sea water inundation) and extreme temperature.

The State has serious threat of natural disasters in next 50 years (2050-70) mostly related to coastal changes due to climate change phenomena. The coastal vulnerability is assessed particularly to draw some strategies for regional development in the coastal areas. Following are some of the scenarios of Coastal Vulnerability.

The vulnerability graph along the coastal districts of the State depicts that Surat and Valsad district is most vulnerable given the length of coast and population density. In the Saurashtra region, Jamnagar and Junagadh (inclusive of Porbandar) district can be most vulnerable to the sea water changes. This vulnerability is further going to increase in next 100 year given population rise from present 5.6 million (2006) to 5.9 Million

(2011), 6.6 Million (2021), 10.0 Million (2041), 17.8 Million (2061) and 36 Million (2091). In the coastal districts population would be 3.8 Million (2021), 9.6 (2061) and 19.3 Million (2091) persons. Increased urbanization and industrialization along the coasts especially in Valsad, Surat, Bhavnagar, Junagadh and Jamnagar makes them vulnerable to sea water rise. The resultant urbanization and economic activities along the coast would also have negative impact on the coastal ecosystem and surface water channels. More analysis at micro level is required in order to have location specific mitigation plan for the upcoming natural disasters.[419]

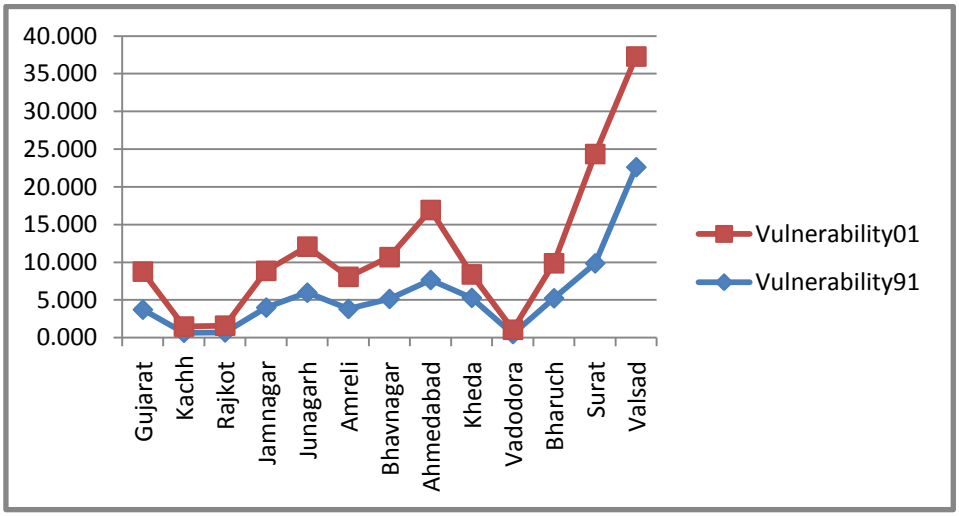


Figure 9.1: Vulnerability Change in Gujarat Coast (1991-2001)

9.5.2 Vulnerability risk of Coast to Storm Events

The above vulnerability profile of the coastline can also be seen in the backdrop of the trend and pattern of cyclonic storm events across the coastline, which may pose risk to the human population, economic systems, infrastructure and ecosystems. It can be seen that the risk of occurrence of storms itself is much smaller on the South-West coast, which has a high coastal vulnerability (IMD 1979). More or less similar observations can be drawn with respect to land falls, as land falls are only a proportion of the cyclonic storm occurrences.

[419] Kumar, Shashikant, (2009): "Towards Spatial Prediction Model: A Case Study of Gujarat", A unpublished paper presented at National Research Convention, Punjab University, Organised by Association of Indian University, Chandhigarh.

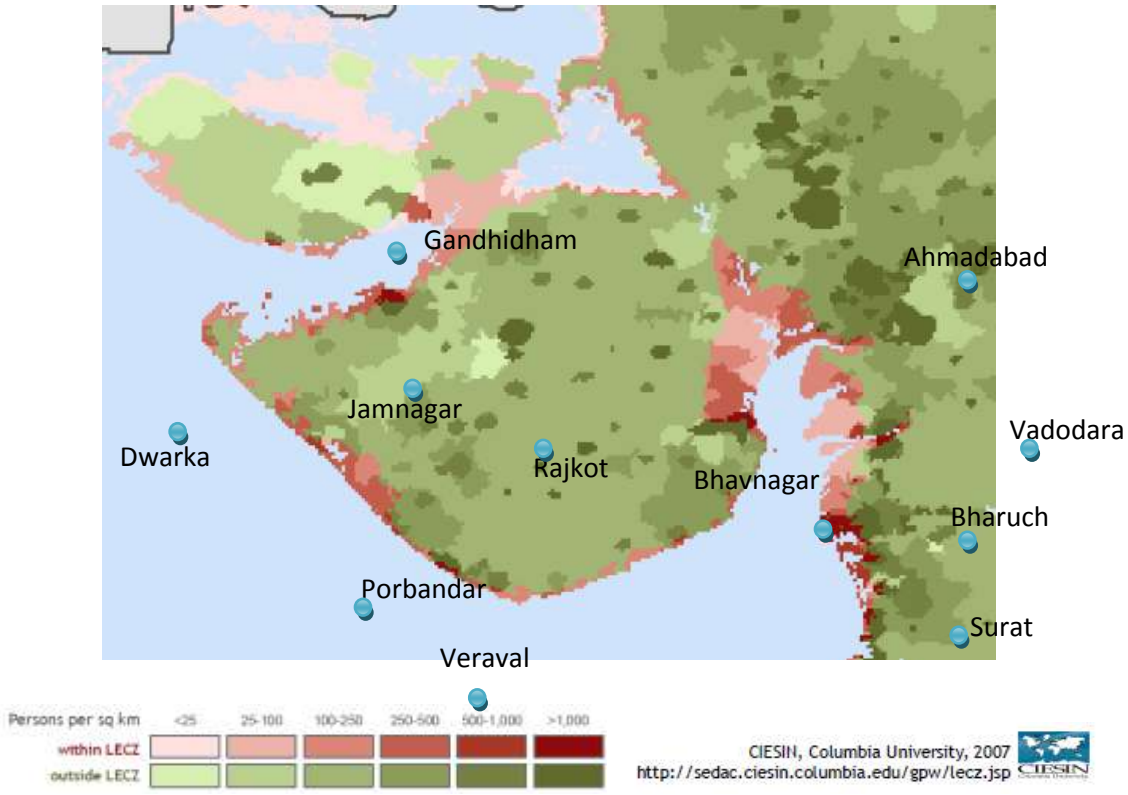


Figure 9.2: Population Density within and outside 10m Coastal zone.

9.5.3 Vulnerability of Climate Change

The vulnerability index, measured here, tries to capture a more comprehensive scale of vulnerability. This is done by including many indicators that serve as proxies to look at different aspects of vulnerability. In other words, we assume that vulnerability can arise out of a variety of factors. In particular, we look at four different sources of vulnerability. This includes the climatic factors, demographic factors, agricultural factors and occupational factors that are trivial in determining the overall vulnerability of an area. The idea is to prepare an index to map the vulnerability among the various coastal districts of the Gujarat and rank the districts in terms of vulnerability.

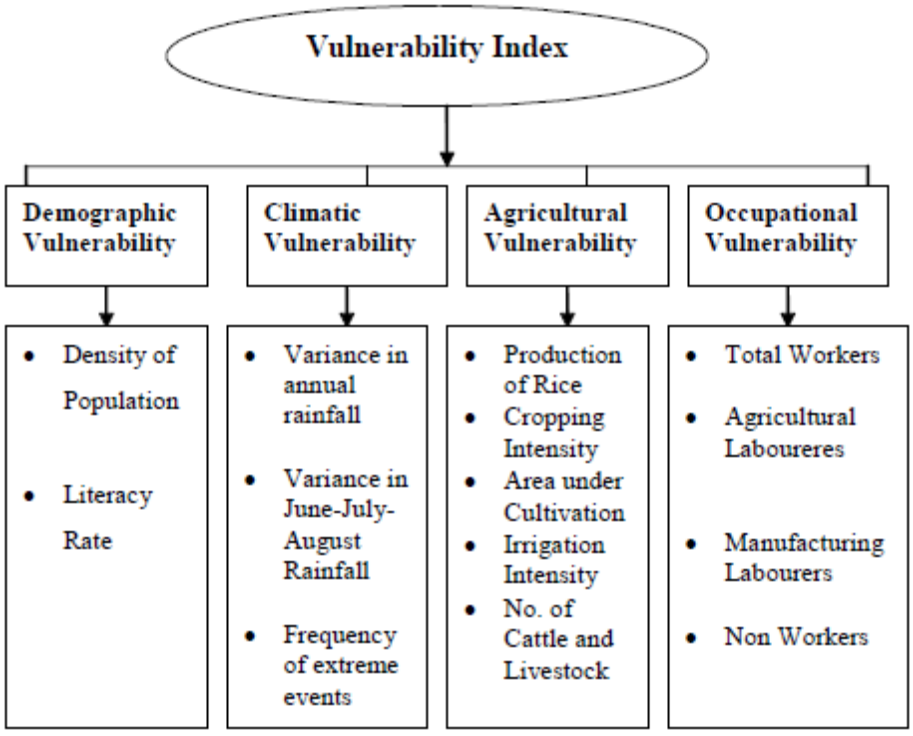


Figure 9.3: Factors of Vulnerability

Vulnerability Analysis

Tata Energy Research Institute (TERI) and Canadian research agencies jointly conducted Vulnerability of districts in India and generated map outputs. Looking into the method adopted as learning / training point for the Spatial Prediction Model (SPM) for Climate Change. It is based on the Vulnerability Measures[420]

Where, VI = F(eX + sN + aC)

- Climate Change vulnerability is function of Exposure (eX), Sensitivity (sN) and Adaptive Capacity (aC)
- Vulnerability Index (VI) is based on these factorized analyses of relevant variables.
- Indicators are compiled, analyzed, scaled, weighted and mapped using GIS system.

[420] Based on TERI-IPCC adopted Method for Vulnerability, 2001, 2008

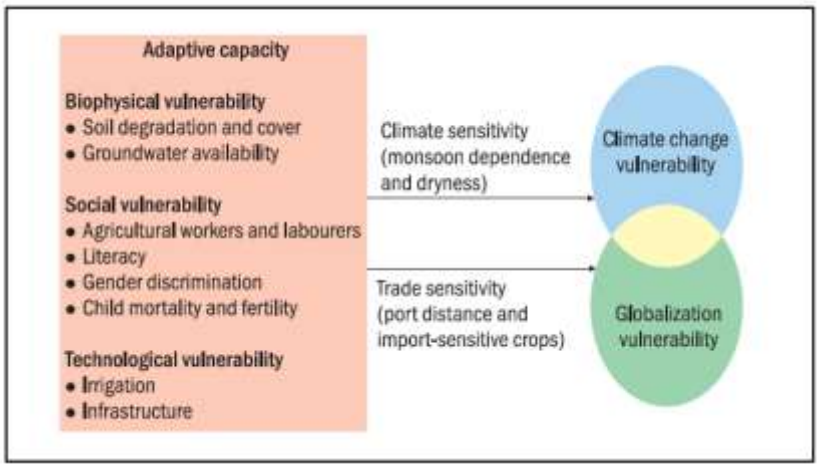


Figure 9.4: Elements of Vulnerability Profile[421]

Based on the reported results the vulnerability of the Gujarat state is worked out by the author[422] for the adaptive capacity.

Summary of Vulnerability by District

The vulnerability analysis shows the State's biophysical, social and technological vulnerability due to climate change and globalisation. The elements of the vulnerability are derived mainly from the status report prepared by TERI (2008). The maps are derived from the results presented for the country by the research groups, however, there can be more micro analysis which has not been attempted in the present research. The objective was to understand these vulnerabilities in order to prepare the regional development perspectives for the State.

[421] Pachori, R. K. (2003): Coping with Global Change: Vulnerability and Adaptation in Indian Agriculture, Monograph, PDF, TERI, New Delhi.

[422] Kumar, Shashikant (2010): "Spatial Prediction Model for Vegetation and Hydrological Changes: A Geographical Perspective of Climate Change", a paper presented at National Seminar on Climate Change: Issues and Consequences held at The M.S. University of Baroda, 22-23 Oct (2010): Unpublished.

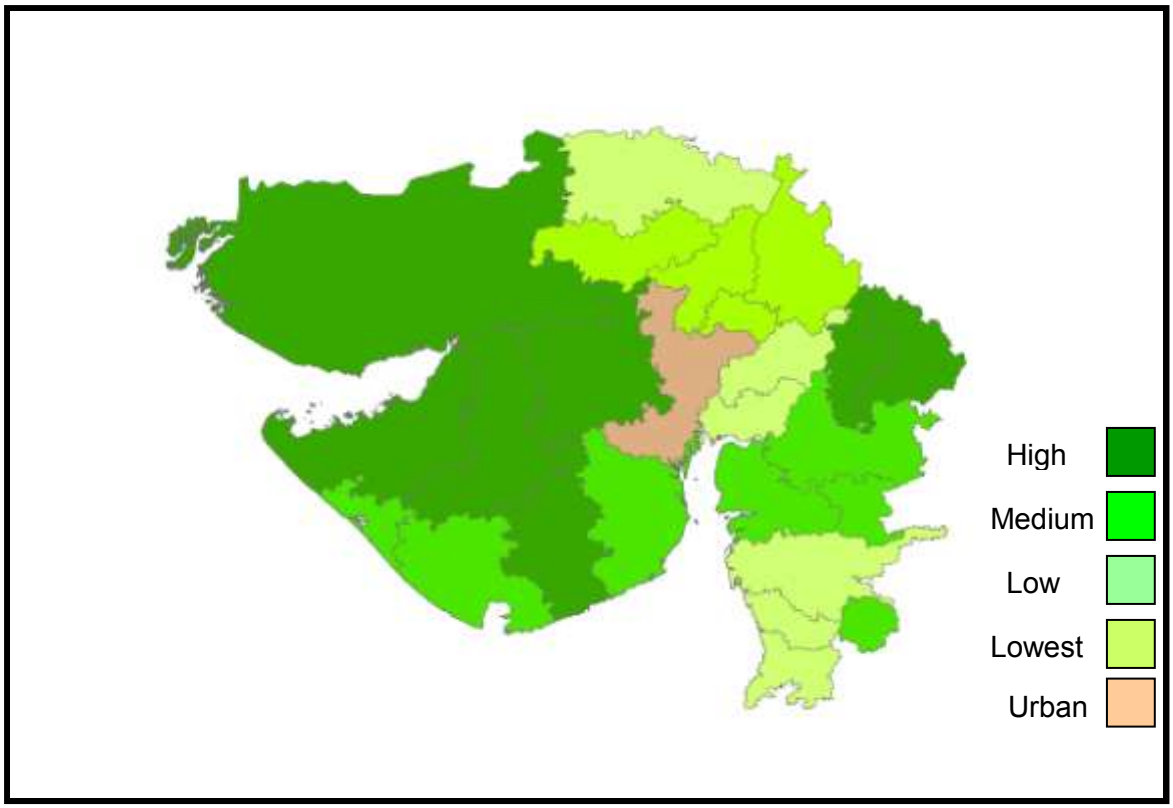


Figure 9.5: Biophysical Vulnerability

Biophysical Vulnerability

Biophysical factors that influence agricultural production include soil conditions and groundwater availability. It is assumed that areas with more productive soil and more groundwater available for agriculture will be more adaptable to adverse climatic condition

Social Vulnerability

The social factors that influence adaptive capacity comprise indicators representing the per centage of workers employed in agriculture, the per centage of landless labourers in the agricultural workforce, human capital (as represented by literacy levels), gender discrimination (as measured by excess girl child mortality), and child mortality and fertility (as measured by female literacy rates).

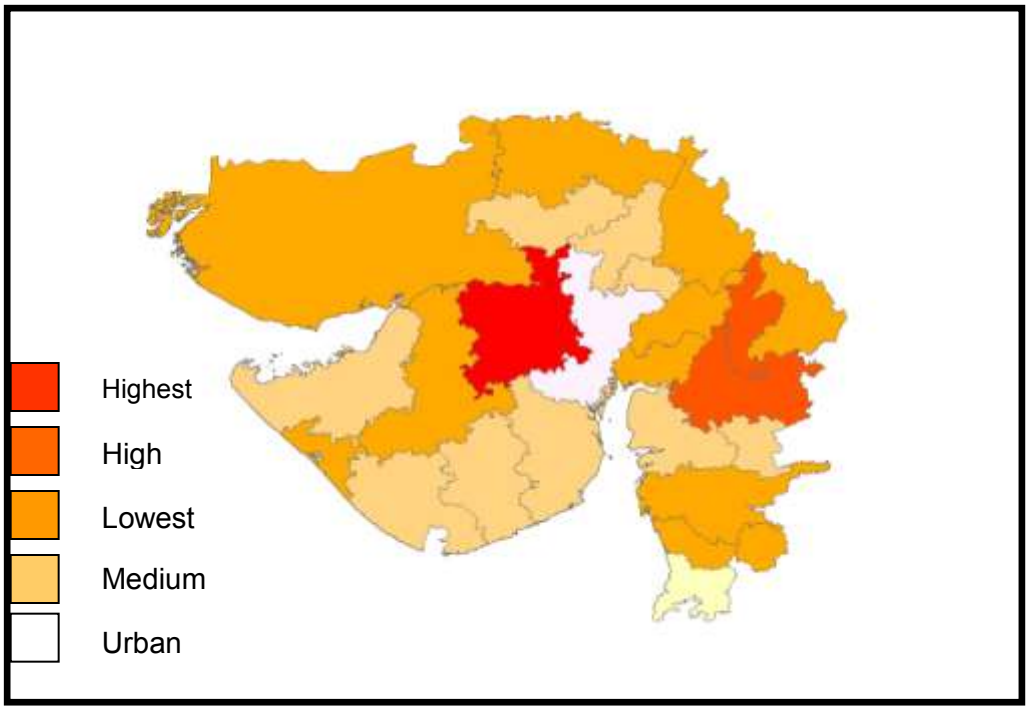


Figure 9.6: Social Vulnerability

Technological Vulnerability

Technological Factors affecting adaptation includes extent of areas under Irrigation and Infrastructure Development Index (physical & social) for the district. Low area under irrigation and poor infrastructure development would make the areas susceptible to the climate change.

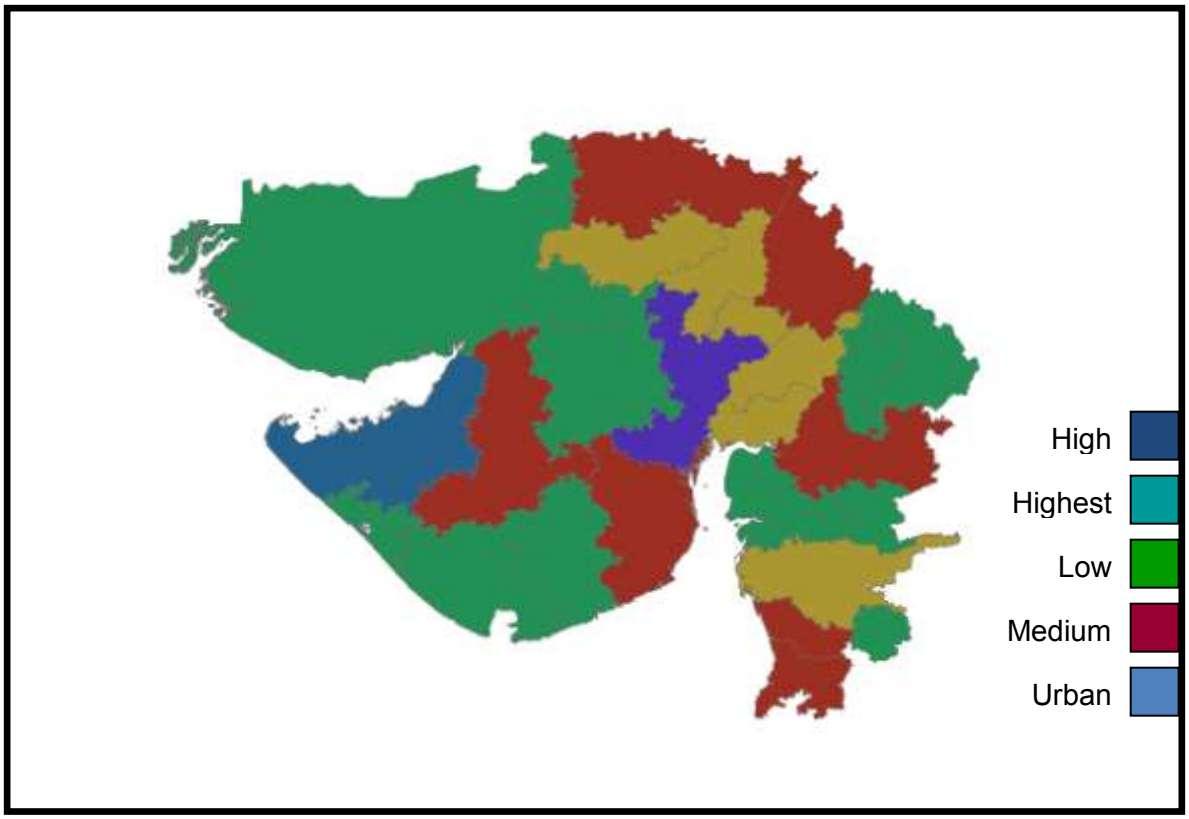


Figure 9.7: Technological Vulnerability

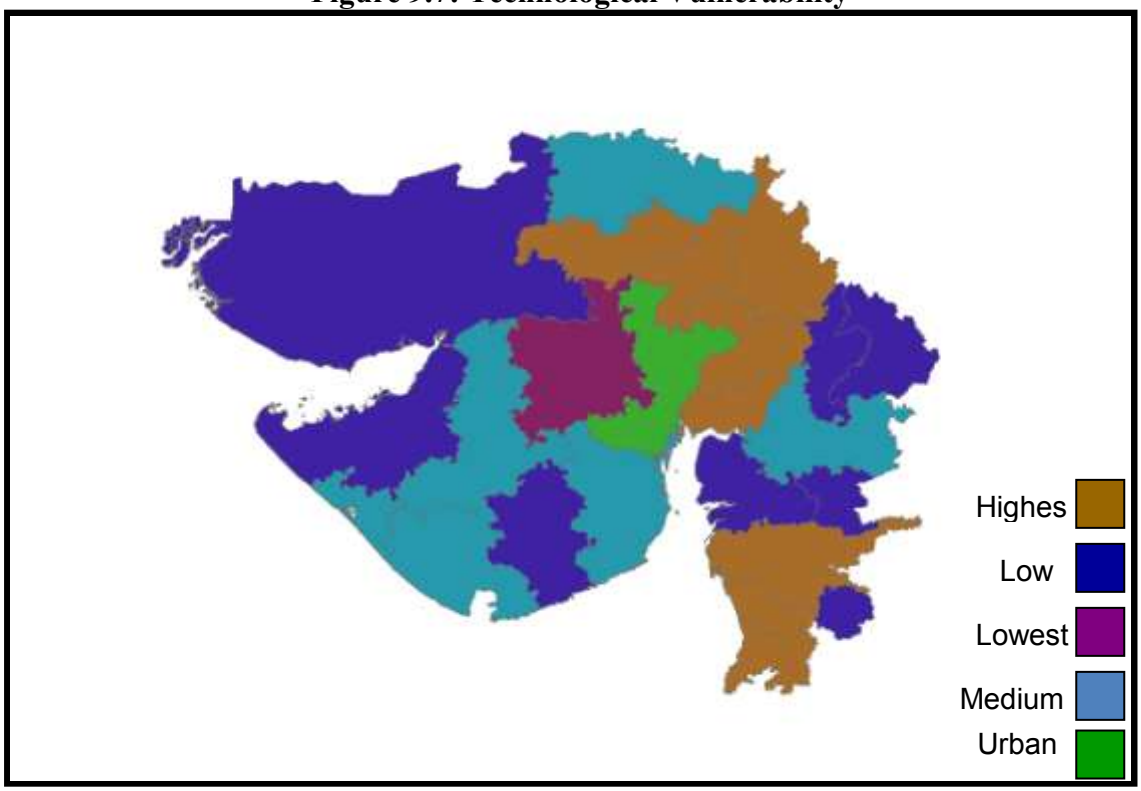


Figure 9.8: Adaptive Capacity of State

Adaptive Capacity: BioPhysical, Social and Technological Vulnerability is equally weighted (averaged) to produce adaptive capacity of districts. The adaptive capacity index was included in a more comprehensive climate change vulnerability profile, which included a climate sensitivity index as defined by dryness and monsoon dependency. Based on a 0.5° × 0.5° gridded dataset for 1961–90 (CRU,University of East Anglia in UK (New, Hulme, and Jones 1999).

The sensitivity index was recalculated using the output from the **HadRM2** downscaled general circulation model[423] to show potential shifts in regional climate sensitivity resulting from climate change exposure.[424] The resulting climate vulnerability map illustrates the spatial distribution of vulnerability as reworked for the Gujarat state.

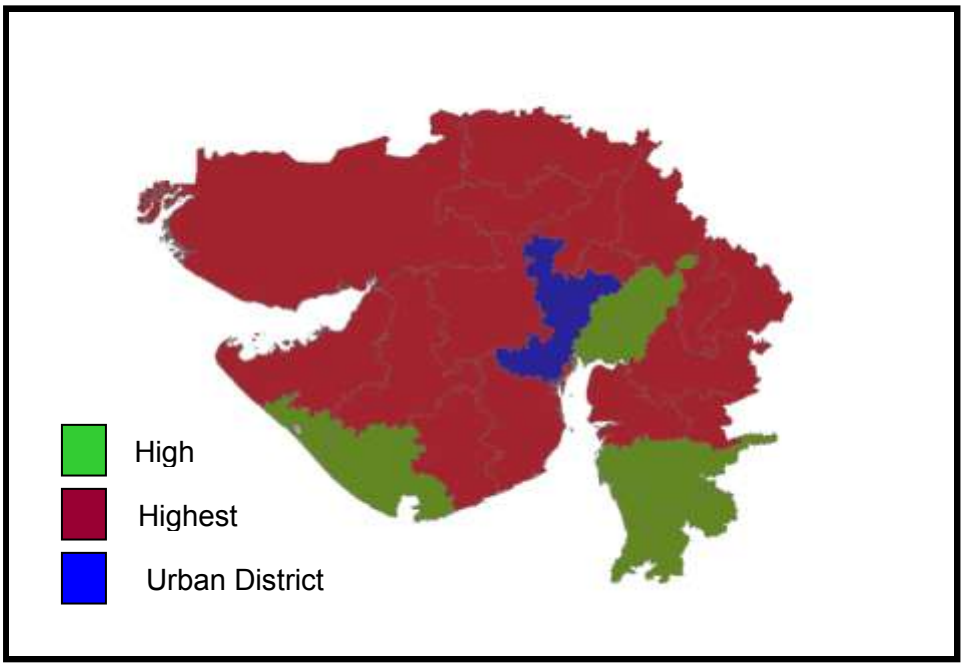


Figure 9.9: Climate Vulnerability map of the State

Impact of Globalisation

In addition to above vulnerability the State is also subject to intense changes due to globalisation. The TERI has also worked out the scenarios for the country; the

[423] Turnpenny, Rossley, Hulme, *et al.* 2002
[424] O'Brien, Leichenko, Kelkar, *et al*. Forthcoming

adoption for the same is done for the Gujarat State. Globalization of Agriculture is mainly considered for this variable for analysis. As estimated by TERI study the factors affected globalization of Agriculture are:

- Export Sensitivity
- Import Sensitivity
- Analyzed with Adaptive Capacity and Distance from International port.
- Changing Crop production conditions associated with economic globalisation.

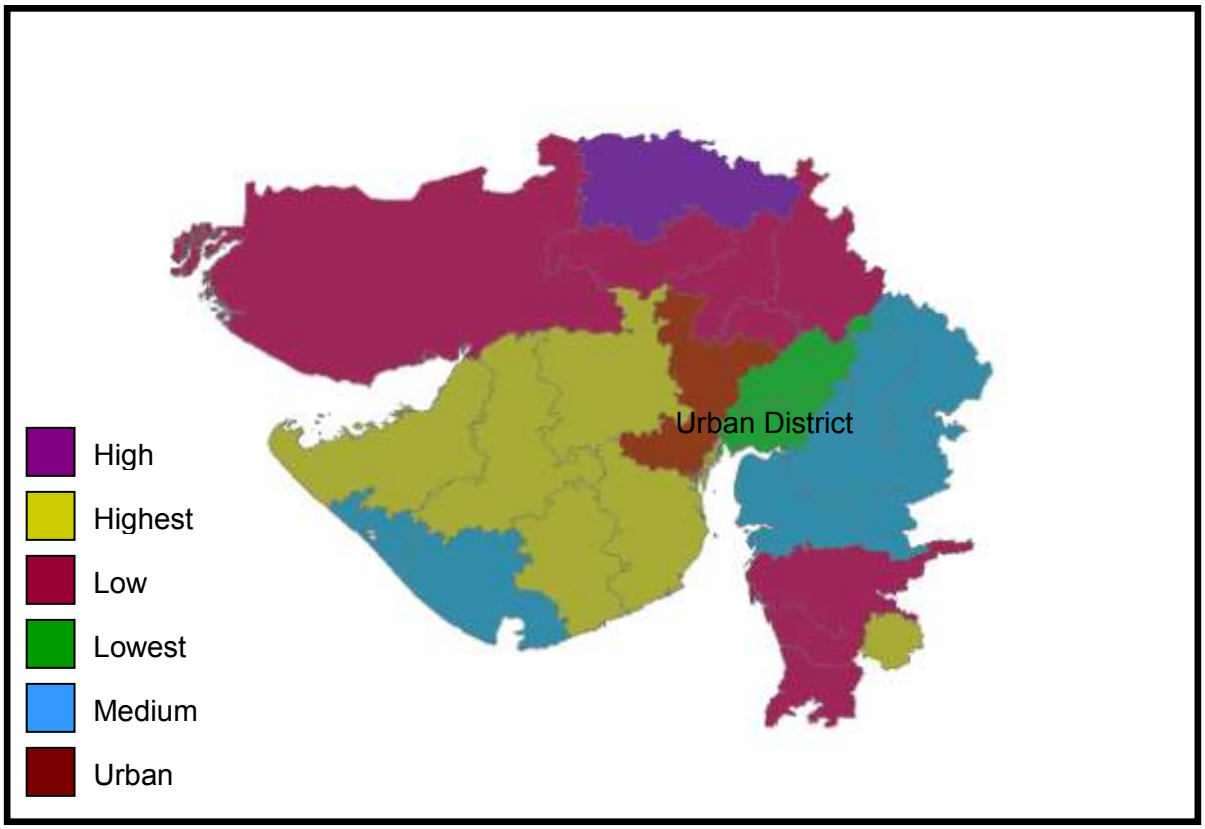


Figure 9.10: Vulnerability of Globalisation in Gujarat

With the above analysis it can be asserted that Gujarat faces high agricultural globalization changes (irrigation, technology etc). Highest changes were observed in Banaskantha and Panchmahals regions. Double exposure was observed under the TERI study for India reworked for Gujarat. Gujarat has more than 15 districts falling under the double exposed (Climate Vulnerability and Globalisation of agriculture

9.5.4 Conceptualization of Climate Change and Development Relationships

National mission adopted by India[425], i.e. National Mission for adopting strategic knowledge for climate change its required to understand the socio-economic impact of the climate change including impact on health, demography, migration patterns and livelihoods of coastal communities. Among the few guiding principles for National Action plan for Climate change includes, (a) Protecting the poor and vulnerable sections of society through an inclusive and sustainable development strategy, sensitive to climate change. (b) Achieving national growth objectives through a qualitative change in direction that enhances ecological sustainability, leading to further mitigation of greenhouse gas emissions.

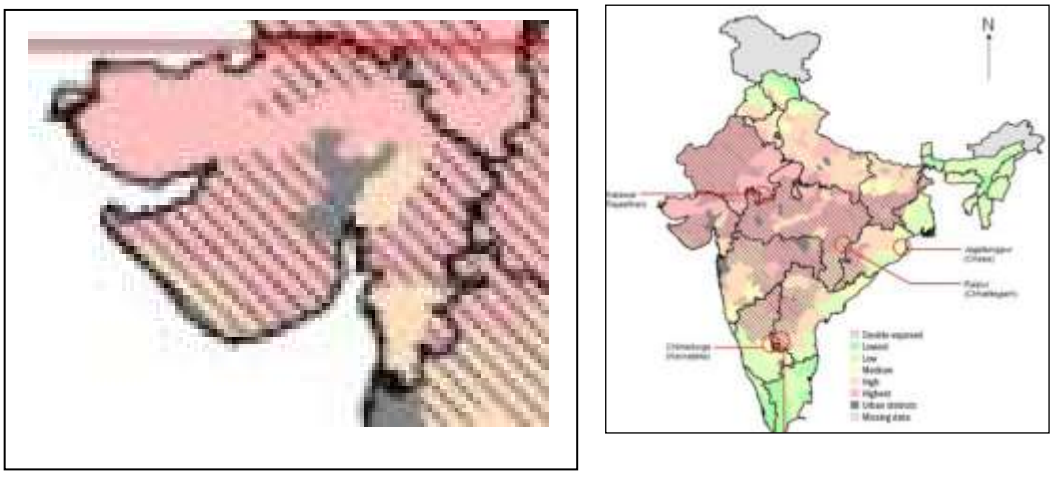


Figure 9.11: Vulnerability to Climate Change and Globalisation

[425] Govt. of India (2010): *National Action Plan on Climate Change*, Prime Ministers Council on Climate Change, PDF, www.nic.in

9.5.5 Spatial relationships – Regional Scale

The idea is to allow regional investments based on the clean energy, locating projects on the areas having least development leading to low carbon emission. The State has very high investment in the South Gujarat region along the coasts might also represents high carbon emissions due to location of metropolitan cities, port activities, industrial areas etc. The dispersal of the activities is essential in order to have sustainable industrial development, having low impact carbon emissions. The impact of climate change in agricultural output needs to be understood from the impact on irrigation, food production, energy and disaster mitigation.

It is estimated that most of the districts in the State would be prone to climate change disasters in coming decades ranging from extreme events like, floods and drought leading severe stress on the settlements. The climate induced displacement is expected to be on rise in addition to the already environmental stressed regions like eastern hills of the State. It is estimated that there would be crisis in the Luni and Sabarmati basin leading to water shortage in coming five decades, where as Narmada and Tapti faces no such crises[426]. It is also expected that the sea water intrusion is further going to impact the coastal districts. The Global report indicates a loss of 10-40 per cent of agricultural production by the year 2100.

9.6 Impacts on Regional Development

Some Projections of Climate Change over India for the 21st Century[427]

Some modelling and other studies have projected the following changes due to increase in atmospheric GHG concentrations arising from increased global anthropogenic emissions:

- Annual mean surface temperature rise by the end of century, ranging from 3 to 5° C under A2 scenario and 2.5 to 4° C under B2 scenario of IPCC, with warming more pronounced in the northern parts of India, from simulations by Indian

[426] Ibid, p. 15, Impact on Water Resources.
[427] Ibid, p. 14

Institute of Tropical Meteorology (IITM), Pune.

- Indian summer monsoon (ISM) is a manifestation of complex interactions between land, ocean and atmosphere. The simulation of ISM's mean pattern as well as variability on interannual and intraseasonal scales has been a challenging ongoing problem. Some simulations by IITM, Pune, have indicated that summer monsoon intensity may increase beginning from 2040 and by 10% by 2100 under A2 scenario of IPCC.

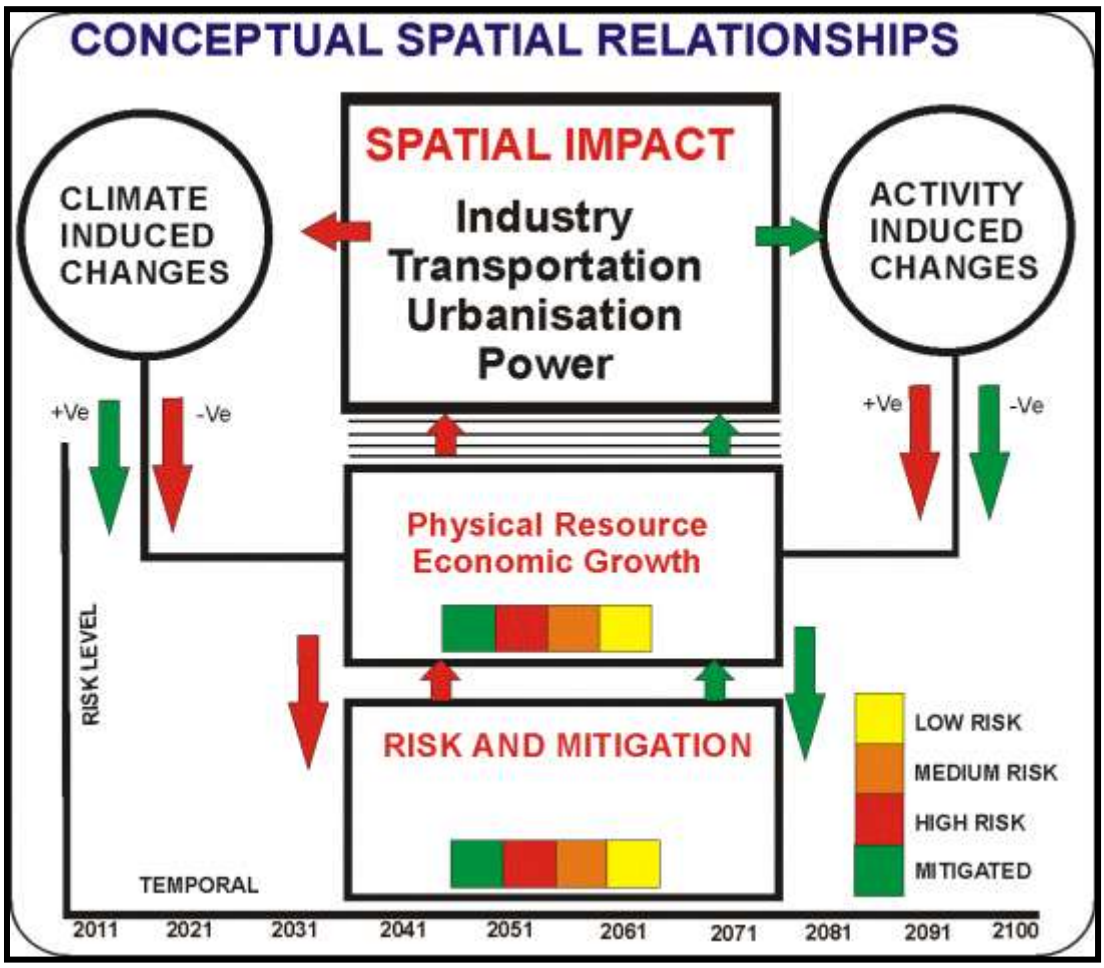
- Changes in frequency and/ or magnitude of extreme temperature and precipitation events. Some results show that fine-scale snow albedo influence the response of both hot and cold events and that peak increase in extreme hot events are amplified by surface moisture feedbacks.

Spatial Prediction Model (SPM): A Conceptual Description

Through research on the Spatial Prediction Model due to climate change the public and government of the region can be sensitized to action that is needed for adaptation to the impacts of climate change and appropriate mitigation measures. The present description for the spatial prediction model[428] (a concept by author) is intended for explaining the phenomenon. The detail analysis for the same is not attempted in the present research.

[428] Spatial Prediction Model: It is model for estimating the risk levels on physical resources and economic growth due to climate change events and human activity induced changes. The conceptual model is developed by the author for the future research which would be important to prepare the sustainable regional development plan. The model has been presented at the zonal and national level annual research convention at The M.S. University of Baroda (Western Zone) and The Punjab University at Chandhigarh (National Research Convention) during 2009-10. An event organized annually by Association of Indian Universities, New Delhi (INDIA).

Figure 9.12: Conceptual Model Spatial Prediction



About the Spatial Prediction

Spatial prediction, in general, is any prediction method that incorporates spatial dependence. The spatial prediction is supposed to encompass the geographical space in the prediction of climate change scenarios, impacts and mitigation. The Models conceptualized for the regional and micro assessment of climate change phenomenon. The spatial prediction model emanates from the climate change scenarios as documented by the Intergovernmental Panel on Climate change (IPCC) at the World, Continent and regional levels. These scenarios are accepted as the baseline information for the climate analysis. The Spatial Prediction of the scenarios using the Satellite Imageries,

Topography, Physiographical, land use etc information and maps for regional and local scenarios.

Estimating the Risk Levels in model

- Four Scenarios of Risk estimated for the model
  - Low Risk
  - Moderate Risk
  - High Risk
  - Mitigated Risk
- Temporal Climate Predictions would have impacts on the economic growth projects for the sector 5 -15% by *Taluka*/District.
- Model needs to be set based on the sector/scenarios to predict the impact in economic terms / real life value terms

9.6.1 Agricultural Changes

The estimate changes in agricultural production are due to extreme temperature and precipitation variation across the State. The changing water regime due to increase and decrease in water balance in various river basins in the State is likely to impact the crop production. The shortage is predicted in Luni and Sabarmati Basin affecting the water balance in Kachchh and North Gujarat (Banaskantha, Mehsana, Patan and Surendranagar). Similar changes might also affect water in Mahi, Narmada and Tapti basin. The irrigation dependent agriculture mainly in the mainland Gujarat is likely to be more affected due to such events. The impacts on the various crops are being studied at the national level such as studies by Indian Agricultural Research Institute (IARI) predicting reduction in Rabi crop. Though studies specific to the State is yet to be undertaken there is likelihood of impact as predicted by the national studies.

9.6.2 Natural Disasters

The increased frequency of natural disasters such as floods and drought during the last fifty years in country and state shows the impact of climate change. The industrialised and urbanised regions of the State would not be free from these disasters,

the cities like Ahmedabad, Surat and Vadodara has faced the flooding at least twice in a decade. The considerable loss of life and property is result of lack of preparedness and management of such disasters. The regions near to semi-arid areas like Kachchh and North Gujarat faces severity of drought due to changing climate regime (El-Niño and El-Nina).

The predicted sea water rise would also add to vulnerability of coastal regions and the disaster mitigation strategies. Considerably investment is being done at the coastal districts and would increase more in future require a detail inventory of vulnerability. The preparedness has increased due to active intervention from the central and state agencies like the National Disaster Management Authority and Gujarat State Disaster Management Authority.

9.6.3 Coastal Urbanisation

The highly populated areas in low elevation zones (such as in case of coastal areas) needs to be prepared for the adaptation and mitigation for such disasters. The coastal cities need to have strategies for the tackling the flooding and resultants impact on the human and natural ecosystems. Gujarat has large number of cities located near to coastal areas which needs to be planned while considering the changes in coastal climates. The cities like Jamnagar, Surat, Bhavnagar, Vapi, Dahej, Bharuch etc which are located near to the coast needs to adhere to the Coastal Regulation Zone lines and look towards the protection of mangroves and creeks. The development of port cities in the State is being planned with increased investment in key infrastructure which needs to be protected against the upcoming calamities. The disaster preparedness of these cities should be planned in order to sustain the cities for its economic potentialities and sustainability.

9.7 Need for climate Sensitive Regional Planning in Gujarat

As study by Gupta (2005) points out that '*The impact of vulnerability is not only decided by the extent of climate change but also by the robustness of the developmental process in the economy. The quality of development would provide an insurance against*

the impact of climate change and increase adaptive capacity. India has realized that more rigour in efforts today might avoid its reduction commitment in the next commitment period of the Kyoto Protocol and it has therefore initiated domestic efforts for enhancing adaptive capacity and mitigating GHG emissions. However, there is a long way to go to achieve the desired results.'[429]

The regional development strategies is present times cannot be devoid from the recent climate change studies and its results. There is scope for the development planning to be much more sensitive towards the extreme events which might break the efforts of the governments for achieving the desired goals.

9.7.1 Scope for Adaptation

The regions across the State would be able to adapt to the changing climate phenomenon including the changes in cropping pattern and water cycle. The increasing or decreasing amount of precipitation should be coupled with intensive program by the authorities for the utilization of water resources. The monitoring of the changing agricultural systems and interventions by the scientific communities for the protection of crops against the pests and insects emerging due to climate change is required.

Economic changes resulting due ecological changes mostly affecting the forest communities and agriculturists might also influence the migration pattern leading to adoption of sensitive policy measures in regions. For example, in the State of Gujarat, only 2000 villages experienced drought in 1961, but by 1988, over 145,00 villages were affected[430].

Adaptation needs vary across geographical scales (local, national, regional, global), temporal scales (coping with current impacts versus preparing for long-term change), and must be addressed within complex and uncertain conditions. Responding to this process hence calls for interdisciplinary and multiple expertise – i.e., bringing together researchers and practitioners in climatology, geography, ecology, economics,

[429] Gupta, Vijaya (2005): "Climate Change and Domestic Mitigation Efforts", EPW, XL (10), , p.987
[430] Tompkins, Heather (2002): "Climate Change and Extreme Weather Events: Is there a Connection?", PDF Document by Cicerone, International Institute of Sustainable Development (IISD).www.cicero.uio.no

management of natural resources, public health, disaster risk reduction, planning and community development.

The regional development strategies should look into the risks involved in extreme events such as drought and floods. The authorities should take precautionary measures to anticipate, prevent or minimises the human and other property losses mostly to facilitate the adaptation to climate changes. The adaptation policies if required can be streamlined with development and poverty reduction strategies such as in case of protecting settlements against the sea water intrusion, fighting water scarcity with micro irrigation projects and providing employment opportunities on the event of drought or floods.

9.7.2 Scope for Mitigation

The climate change efforts so far has been linked to serious mitigation strategies at Global and national levels, including reduction in emission of Green house gases and adoption of clean technology. Gujarat being part of wider national strategies is expected to contribute towards adoption of national policies such as reduction in Vehicular Pollution, encouraging bio-fuels, enhancing forest areas and encouraging renewal sources of energy. Though the State has adopted the policies there is lacuna in monitoring the environmental status due to lack of technical infrastructure and efforts at the local level.

Major hindrance is presented by the industries not been able to utilize the clean technologies due to technological and financial constraints. The regions like Naroda, Vatva, Nandesri, Ankleshwar, Vapi and Morbi being industrial areas are very low on adopting the measures required for the reduction in emission of Green House gases. The efforts by the cities in reducing vehicular pollution are linked to their serious efforts in checking the emissions within the prescribed limits.

9.8 Spatial Development Issues in Gujarat

To bring out the importance of the regional development strategies within the existing development policies it would be wise to orient the development towards the spatial development planning. Spatial development planning and policies would be answer to the present understanding of planning mechanism at the centre and state. Regional

development planning has been adopted mostly in terms of macroeconomic policies eventually practiced as scheme based approach of development of spaces.

Spatial development policies need to promote sustainable development of the Gujarat through a balanced spatial structure. For spatial planning three policy guidelines for the spatial development of the State can be attempted;

a) development of a balanced and polycentric urban system and a new urban-rural relationship;
b) securing parity of access to infrastructure and knowledge; and
c) sustainable development, prudent management and protection of nature

Policy aimed exclusively at balancing the regions might lead to weakening economically stronger regions and, simultaneously, increasing the dependency of backward regions. Economic development alone would favour an increase of regional disparities. An overemphasis on protection or preservation of spatial structures, on the other hand, bears the risk of stagnation since it might slow down modernisation trends. Determining the emphasis to be accorded to the objectives and their interrelationship according to the local situation is the only possible way of achieving balanced and sustainable development in the Gujarat.

9.8.1 Change towards the Urban Systems in Gujarat

Gujarat is characterised by a high level of urbanisation and strong regional variations. Nevertheless, only around a third of the urban population lives in major metropolises. In contrast to neighbouring state, spatial settlement patterns in the Gujarat are characterised by rural areas that are densely populated. About a third of the urban population lives in small and medium-sized cities outside the large metropolitan agglomerations.

The decentralized history of Gujarat characterized by development regions, such as Saurashtra and Kachchh experienced development of districts and subsequent investments that has favoured the emergence of a strong polycentric urban system. A complex web of large, medium-sized and smaller cities has arisen, which in large parts of

Gujarat form the basis for urbanized spatial structures even in agricultural areas. Technological, political, social and economic changes have an impact on the urban system - on its functions and on the spatial context.

(a) Change towards the economic Opportunities

Competition between the cities and the regions for investment is increasing, and for some, the maintenance or reestablishment of competitiveness is a major and important challenge. With the emergence of existing and proposed SEZs and SIRs in the State, many cities mainly metropolitan areas will have to develop new economic potential. The earlier and existing industrialised cities such as Ahmedabad, Surat and Vadodara in Central Gujarat must continue their process of economic modernisation.

Cities and regions which depend much heavily on a single economic sector, such as administration, market, industrial centre, tourism or port functions, must try to widen their economic base. Some cities in rural or peripheral regions will find it difficult to secure and develop their economic base. Even in peripheral regions, however, there are cities which are certainly sufficiently strong and attractive to pull in investment for themselves and their surrounding areas.

Cities which assume special gateway functions can, in particular, exploit their peripheral position to a very positive effect. Cities and regions which know how to exploit their own economic opportunities and potential do not do so at the cost of others but, on the contrary, can strengthen the nationwide competitive position of the Gujarat state. In this sense, competition is very positive. It is important, however, that competition between cities, regions and districts is socially inclusive and environmentally responsible. Unconditional competition and investment policies of contemporary Gujarat state which is for “using all available means”, will damage cities and regions in the medium term and will not contribute to the sustainable development of India

(b) Continuing Urban Sprawl

Due to increase in the number of households, migration and average per capita residential space, the demand for residential accommodation and building land in major urban areas continues to rise. As a result of urban renewal schemes initiated in 2007 and

investment in infrastructure, in major cities in of the State, new housing provisions are being made in the existing residential areas or on new sites. In many cases, this was done in a planned and orderly fashion, but sometimes it was relatively uncontrolled. Uncontrolled growth results in increased levels of private transport; increased energy consumption; increased infrastructure and services costs; and negative effects on the quality of the rural hinterland and the environment. In addition, increasing prosperity in metropolitan areas in the State has fuelled the demand for second homes with the result that many towns located on the outskirts can now be described as "weekend towns".

(c) Increasing Social Segregation in Cities

Growing differences in income and lifestyles are reflected in different needs in terms of housing and residential location in the large cities as well as other class I cities of the State and there are different possibilities for satisfying these needs. Living conditions in core city areas of large metropolitan cities are often considered unsuitable for the needs of children. As per the present dominant city structure in the State, for families with children, the areas outside the city core and suburban areas offer a better quality of life and the '*dream houses*' are offered there because of the large price difference. Many middle-to-high income families therefore, move out of the city. Poorer families and migrants are concentrated in the inner city and on large public sector housing projects. Other central residential areas in Ahmedabad, Vadodara and Surat now attract young people and students, while others attract higher-income and two-income families.[431]

Social disintegration or segregation is not a problem in itself. However, where economic disadvantage, unemployment and social stigmatization come together in areas which in addition are often characterised by regional and community differences. Such a social situation demand high integration efforts from their inhabitants where the risk of social exclusion and polarisation is reinforced. It is necessary to incorporate social inclusiveness in city development programmes and address these problems not only because they are widespread in our cities but also because they underline the importance

[431] Shashikant Kumar (2010): *Social Polarization and City Structure in Gujarat,* unpublished research document (mimeo).

of the social dimension in the sustainable development of urban areas in Gujarat. In order to find a suitable solution to the problem of poverty, social exclusion and slums or *ghettos*, it is particularly important to reduce long-term unemployment in large metropolitan cities in the State. After the recent reforms due to Central schemes, some cities have successfully attempted to do so with development of poor city areas.

(d) Improving quality of life and environment in Urban Areas

The urban reforms in the State, particularly after a string of urban development projects since 2005, the quality of life in the urban areas are expanded to have improved in terms of infrastructure. There are persisting areas of concern such as, the access and poor sanitation in the cities. Since the last two decades, cities in Gujarat have introduced measures to combat environmental problems such as noise, air and water pollution, traffic congestion, waste production and excessive water consumption. However, the quality of the environment is still in need of further improvement in many city areas.

In addition, urban development measures have often diminished the historic fabric of many cities and eroded their identity. The erstwhile city roads are converted to have more widened transportation options depriving them of well-lined trees and green cover. The expansion of the road (wall to wall) in some of cities has also affected movement of pedestrians and non-motorised vehicle. This not only has a negative effect on the quality of life and the health of the city dwellers but also would have an economic impact in future such as loss of attractiveness and reduced investment, employment and municipal financial resources.

9.8.2 Changing Role and Function of Rural Gujarat

As a regional policy, it is important to relook rural areas differently as an entity. The traditional and popular notion of segregating the rural and urban areas based on economic activities and thereby resulting in heavy investment in the key infrastructure has weakened its links with the immediate rural hinterland. The following section provides perspectives for the rural areas as a part of urban continuum.

(a) Increasing Interdependence of Rural –Urban Areas

The future of many rural areas is becoming increasingly related to the development of urban settlements in traditionally rural regions. Towns and cities for rural regions are an integral component in rural development. It is essential to ensure that town and country can formulate and successfully implement regional development concepts in partnership based collaboration. However, the rural-urban relationship in densely populated regions differs from that in sparsely populated regions. In densely populated regions, the areas with rural characteristics are under substantial urbanisation pressure, with all the side effects of increased density, including the negative ones.

These include pollution of soil and water, fragmentation of open areas and the loss of rural character. Some traditional rural functions such as extensive agriculture, forestry, nature conservation and development, for example, are highly dependent on a high degree of continuous open countryside. A key function of spatial development is, therefore, to achieve a better balance between urban development and protection of the open countryside. Urban and rural areas are closely interconnected, especially in highly developed regions. Rural areas benefit from the cultural activities of cities, while the cities benefit from the leisure and recreation value of rural areas. Town and country are, therefore, partners rather than competitors. The State needs to reinsert this in their district development perspectives and regional centers.

(b) Distinct Development Trends in Rural Areas

A major contributor to the cultural, natural and topographical diversity in Gujarat is its rural areas. From policy perspective it is necessary to recognize that the functions of the villages in the urban hinterland are not just as suburban trading area of the cities, and they are dependent on just agriculture or tourism. It involves more than ensuring food production and resource conservation. On the contrary, rural development in the State involves a wide variety of spatial trends, schemes and influencing factors. Many rural areas in Gujarat have successfully passed through the process of modernization with improved access to road, electricity and other amenities. Some even have industrial investments and have independently developed. In the realisation of the goals for spatial

development in Gujarat, not only the large cities and urban regions but also the rural areas are very important. The exception to this can be found in the tribal regions, where urbanisation has been the minimum.

Achievement of a decentralised polycentric settlement structure will be greatly assisted if the socio-economic function of rural areas can be stabilised, established and secured over the long term. The possibility of access to infrastructure and knowledge is a key factor. With good infrastructure facilities and adequate access to information, rural areas would display potential in terms of economic attractiveness and diversification. Rural areas are also especially important for the development of the natural and cultural heritage for the State.

In backward regions of the State, agriculture as a source of income is still very important, but is with a relatively poor competitive position. Diversification, plurality of activity and securing alternative sources of income are goals which are hard to achieve without assistance and the exchange of experience. We must wait to see how far the new information and communication technologies can promote decentralized development in rural areas. There are some promising approaches, e.g. in Saurashtra and Kachchh, where small and medium sized enterprises in rural areas have obtained access to information and communication technologies with Government support and have the capacity to tap the global market.

(c) Shifts in Agriculture and Emerging land uses

The gradual reform of agriculture in the face of liberalization, cuts in public spending, subsidy and environmental considerations are set to continue. According to estimates, between 30 to 80 per cent of agricultural land might be taken over by non-agricultural activities. The leading position of agriculture as the basis for regional development, economy and employment will, however, continue in some of the regions.

Certain parts of Gujarat across the sub-regions can remain competitive through increased intensification of agriculture. This can be supported by production methods, which lead, in an extreme form, to an agriculture based on logistics and the application of technology rather than understanding of an area's natural capacity. While this approach raises productivity (at least in the short term) and increases the competitiveness of the

Gujarat's agriculture and agro-based industry, it can have negative effects; such as, decline employment opportunities, rise in the pollution levels, reduction in biodiversity and landscapes becoming increasingly standardized or mono-cultured. With absence of suitable land reform measures and presence of a large number of small-medium size farmers, the sustainability of technology is also doubtful given the high cost of inputs. The underdeveloped agricultural markets and linkages in the backward regions of the State would put immense pressure on the current cropping areas.

Marginalisation occurs when farming ceases to be economically viable. Marginalisation can have a positive impact on the environment and the landscape by opening up the possibility of other forms of land use such as horticulture and forestry. The small and medium farmers in the rich agricultural regions of the State are shifting towards the timber and horticulture related plantation activities. On the other hand, there are negative aspects including the possible exodus of workers from the agricultural sector; increased risk of soil erosion and deterioration in the quality of the rural environs. Marginalisation therefore, could undermine the basis of regional economies, for instance in the Central and South Gujarat. Even though the region has been moving towards intensive agriculture, there are a high per centage of people living Below Poverty Line (BPL).

The changes in agriculture, underline the diversity of rural developments, which can provide more opportunities than risks to Gujarat's regions. Intensification opens up possibilities for investment and leaves space for other activities. Diversification can lead to incomes that are less dependent on subsidies and open up new opportunities for nature conservation and land use protection and alternative sources of income. Marginalisation and intensification may, in some areas, improve the prospects for afforestation and green cover as evident from the increased vegetation presence in Central Gujarat.

(d) Emerging rural-urban linkages

Since fifty per cent of the people in Gujarat are expected to live in the urban areas, almost all the regions are going to be highly urbanised. The regional development perspectives require addressing the immediate rural-urban linkages to sustain the rural economies. The poor rural-urban linkages emerge due to weak development of integrated

policies towards urbanisation, agriculture and employment. The urban centric policy focuses more on the serving people living in the urban areas and providing employment opportunities within and nearer to the urban areas.

There is a need to understand and develop the urban markets which would also cater to the requirements of the immediate rural hinterland. In the absence of which, there would be increased rural-urban migration and mobility within the region. The outward movement of capital and investment from the urban areas into the rural hinterland at present has weak linkages with demands, skill and labour available in the rural areas. This also results in loss of livelihood for the poor such as landless and agricultural labourers. The cities like Ahmedabad, Surat, Vadodara, Rajkot etcetera need to consider the rural hinterlands not just as areas but as areas of economic entities which, given the opportunity, can help in the sustenance of urban economy.

9.8.3 Role of Transport and Communication Networks

The present transport routes and networks, such as Expressway, National and State Highway etcetera and communication infrastructure originated predominantly in a National context. India invested heavily on the National as well as State Roads under the various programmes. The State Government has also nurtured the linkages, which is evident in many parts of the State. Future transport and infrastructure policy of the State should be framed taking into account of its overall planning objectives and in collaboration with the urban and district administrations. Such a thoughtful transport and infrastructure policy would have positive impact on important aspects such as, liberalization, increased efficiency, environmental friendliness and integration of sub-networks from urban to rural hinterlands.

(a) Integration of the Border areas

The state has large extent of its areas having coastline and its share of international border with the neighbouring country. Many settlements on the coasts and border need to be integrated in order to facilitate the development. The transportation network in the border areas of the State especially in the North Gujarat and Kachchh needs to be improved to boost the economic development. The dry land areas in the semi-

arid North Gujarat especially the Danta-Deesa-Tharad-Patan region could not develop due to lack of interlinkages.

The state through its coastal areas is now aiming at the economic development of hinterland specially the large urban areas is not only focused in South and Central Gujarat but also in Saurashtra and Kachchh. A sub regional perspective can be developed linking the rural economies of coasts to the hinterland towards the urban continuum. The coastal city development and integration with immediate rural hinterland for economic base would provide sustainable development directions.

(b) Increasing Traffic and Congestion along major corridors

Increases in transport flows have been most pronounced in those parts of the Gujarat which already experience the greatest amount of congestion along major corridors. Many additional bottlenecks have, therefore, arisen in the transport network, particularly in the urban regions and high-density areas, with hindrances to both passenger and freight transport and both short-distance and long-distance movements. Congestion costs time and money and impairs the quality of life and environmental conditions. Congestion in major transport corridors such as the Ahmedabad-Rajkot, Ahmedabad-Bhavnagar in Saurashtra and Palanpur - Kachchh corridors or at crossing points into neighbouring states i.e. Maharashtra and Rajasthan. Though a major expansion of National Highway and Expressway is under completion in the State, secondary roads and perspective corridor development plan needs to be developed as per the future demands to address the multi-model transport and subsequent shifts.

The improvement of accessibility does not guarantee in itself further economic development in backward area like in Eastern Hilly region or coastal areas; suitable regional development strategies must also be in place to support this. Improved accessibility will expand the hinterlands of the economically stronger areas. The metropolitan cities like Ahmedabad, Surat, Vadodara, Rajkot and Jamnagar can contribute to for development of respective hinterlands. The newly accessible economies in developing regions will have to compete against the large firms and the competitive services in these economically developed regions. Competition may well benefit the

stronger regions more than the newly accessible weaker ones. Improvements in accessibility need to be considered along with other sectoral policies and integrated strategies.

(c) Concentration and Development of Corridors

Infrastructure networks often have the effect of strengthening the functions of existing industrial areas like proposed Special Economic Zones (SEZ), Special Investment Regions (SIR) and Industrial port towns. Large networks bring the danger of reinforcing concentration leading to urbanisation, as investors may be discouraged to settle in backward regions which are poorly linked to major networks. For this reason, "development corridors" are increasingly emerging in all regions of Gujarat. These corridors, which are developing particularly in relatively urbanised areas, are often interspersed with district boundaries, and therefore require an integrated spatial planning approach that also goes beyond purely state and national policies. Current investment trend post *Vibrant Gujarat* meets and market oriented approach seems to be leading to a further increase in passenger as well as cargo traffic in all regions of state thus might lead to congestion of the transport terminals (air, road and rail) in future.

In Saurashtra there is a concentration of sea ports which account for most of Gujarat's international sea links. The functional hinterlands of these ports cover practically the whole of the Gujarat territory and overlap considerably. These ports mostly now developed through public private partnership or through private investment in future would have strong competition with each other and would improve their individual positions through its commercial offering like in Dahej, Hazira, Mundra, Okha, Sikka, Vadinar etc. A greater degree of co-operation amongst these ports could bring spatial and environmental benefits to the State.

Many ports existing as well proposed in the coastal Saurashtra region do not have the favourable hinterland connection enjoyed by the ports in Kachchh, so their chance of becoming intercontinental transport nodes tends to be small. These ports, however, play an important role in their regional economies and many of them can improve their potential as short sea shipping ports. The development of ports along other parts of India,

Middle East, North Africa and South Asia could further enhance their economic function as gateways to Gujarat and India stimulating development in the hinterland of these ports. This could have a major impact on spatial development in Gujarat. Greater use of maritime transport would also ease the burden on land transport in state. The geophysical position of the "Saurashtra peninsula" could be better exploited in this way.

(d) Disparity and diffusion of Innovation and Knowledge (Internet/SatCom)

A phenomenon with a potentially enormous spatial impact is that of telematics. The combination of new radio and television technologies, cable technology and a policy of liberalisation offer new potential services such as tele-education, tele-medicine, tele-working and tele-conferencing. These "electronic marketplaces" theoretically allow people and enterprises to become less location-based in their behaviour. The resultant opportunities for more remote areas may be very significant, provided the skills exist to take advantage of these opportunities. Further development of these "infostructures" and telecommunications is potentially an important force for closer integration and the promotion of enhanced competitiveness for the cities and regions of the Gujarat. The impact of "infostructures" on spatial development cannot yet be forecast in detail. It would seem that they will supplement conventional infrastructures rather than replace them and they can support and reinforce each other. Regions that have excellent access to "infostructures" and traditional infrastructure networks are therefore at an advantage.

Since 1999-2000 rise of internet era, a substantial proportion of the regions state has efficient systems, although organisational improvements may also be needed to ensure that the benefits of the investment feed through into more competitive call charges. Knowledge, education and training are becoming an ever more important foundation stone for economic participation and success. Regions with limited or unsatisfactory access to information and knowledge, because of a lack of further education, research and training facilities, are likely to have problems in maintaining quality population and, in particular, getting people with higher education and more advanced skills attached to the region. This could reinforce population movements to areas that are already well endowed with infrastructure, increasing pressures on these

areas while reducing the prospects for better living standards in economically weaker regions.

9.8.4 Environmental Concerns and Issues for Regional Approach

Gujarat coasts with their great diversity of sensitive biotopes are of major importance for human living space, for tourism and transport, for industry and energy production and for agriculture and fishing. They are generally threatened by rapid urbanization and industrialisation, mass tourism, the excessive use of fertilizers in fields and pollution at different levels.

On the other hand, the eastern hilly regions in state provide habitats for wild animals and plants and are the source of water. They are not only important natural areas, but also a significant economic and living areas for Scheduled Tribes (ST) specially the Primitive Tribal Groups (PTGs) in Gujarat. Hilly regions along the *'Golden Corridors'* in Gujarat are in many cases threatened by growing mass tourism, dams and new transport routes and by overgrazing, erosion and non-cultivation.

Water bodies such as Mud-flats, rivers and lakes have vital ecological functions and are unique repositories for archaeological finds. The number, size and territorial integrity of mud-flats along the coastal areas are being severely reduced through drainage, cultivation, sinking of the ground water level, reduced water flow and new transit routes. Rivers are being straightened, their flood patterns are being restricted and dams are being built. Forests, as the "green lungs" of state, contribute to the conservation of water and land resources. They are also an important habitat for flora and fauna and provide recreation areas for people. The main hazards for the forests and vegetation near the human settlements mostly after expansion of the urban areas would be air pollution, insect and fungus infestation and degradation of species quantity and quality.

Soils are the basis of life and provide living space for people, animals and plants and are therefore an essential component in the natural balance. The richness of different soil types in Gujarat is explained on the one hand by the diversity of natural factors, but at the same time it provides for distinct regional identification. Soil is decomposition and neutralisation medium for the natural material cycles, and almost all food for people,

animals and plants relies on the fertility of the earth. The diversity of soil types and their natural functions are, however, greatly threatened by human activity in many areas.

Moreover, climate is a part of the environment, of the natural resources, suffering more than ever from the negative impacts of human activities. Increases of harmful gases are responsible for the greenhouse effect, caused by humans; modify temperature and the distribution of rainfall. This leads to shifts of arable areas, endangers flora growth and increases both periodicity and intensity of bad weather.

The main types of endangered area, such as coastal areas, mountain ranges, mud-flats, reservoirs, and forest, are at great risk throughout the whole of Gujarat. Following outcome and regional environmental characteristics emerges resulting in

(a) Loss of coastal ecosystem

There is reported loss of the coastal ecosystem in most of the developed areas of the State, excepting in the areas where intensive National and State level programmes for conservation of coastal areas have been initiated. The loss of mangroves and vital species along the coastal areas and ecological diversity was reported by the Gujarat Ecology Commission (2000).[432] The study on soil erosion by ISRO-MoEF (2010)[433] along the coastal areas, reports on heavy erosion near the ports and urbanised areas in addition to the irrigated regions. Human activity along the Gulf of Kachchh and Gulf of Khambhat (Cambay) has increased the vulnerability of the coastal areas by damaging the immediate coastal areas.

Unless specific coastal perspectives are developed for the regional environmental management along with economic potential, the damage would continue, given the pressure of industrialisation along the coasts. The increase in pollution load along the coastal areas of mainland Gujarat from Anand-Vadodara to Bharuch-Vapi continues unchecked which draws attention towards preventing the successive damages to the ecosystem.

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[432] Sengupta, R and Deshmukhe, G (2000): Coastal and Maritime Environments of Gujarat: Ecology and Economics; Gujarat Ecology Commission; Vadodara

[433] ISRO-MoEF, (2010): National Assessment of Shoreline Changes: Gujarat Report, PDF, National Centre for Sustainable Coastal Management (NCSCM) website: www.ncscm.org, August 2010

(b) Water Security

Even with the functioning of the two recent large projects, i.e. Narmada Canal and *Sujalam Suflam* Yojna, water scarcity and resultant dependency of the regions in North Gujarat, Saurashtra and Kachchh would persist. The depletion of ground water, salinity ingress and increased fluoride content in water would all contribute to threaten the availability of portable water and water for irrigation. The energisation policy with electrification of the farms increases the regional imbalances in the ground water sources and encourages continued drawl of water for water intensive agriculture. Depletion of ground water cannot be arrested without addressing the critical areas with more *talukas* adding up to the *dark zones.*[434]

The eastern and southern hilly regions of the State, despite nearness to the water resources, could not be catered through sufficient water supply schemes. The water unavailability for even drinking purposes in the region has added to their poor development. The agricultural performances along with development of dairy farming in the region would be affected due to lack of water for irrigation and animals. The recent water supply schemes would be insufficient to cater to the development needs of the hilly regions.

(c) Pollution

As discussed in the earlier chapters, Gujarat emerges as the chemical hub for the country with poor record and performance for the development with insufficient pollution control measures. There are more than 200 industrial complexes in the *Golden Corridor*. The Golden Corridor has rapidly developed as an industrial belt stretching from Vapi at the southern end of Gujarat to Mehsana in the north for about 290 kilometres. Most of the companies in the Golden Corridor are domestic, but recently foreign companies have also started their factories in the region.

If adequate safety practices are not introduced, then the *Golden Corridor* is a "Disaster Corridor" in the making, and may result a tragedy similar to chemical disaster in Bhopal (1984). Routine toxic emissions and haphazard waste disposal practices at

[434] *Dark zones* means areas not fit for withdrawal of ground water and permission for deep bore wells cannot be granted. Such zones are demarcated by the government where corrective measures are required to recharge the underground aquifers.

Ankleshwar, Nandesri, Vapi and other chemical centers are contaminating the environment and taking a toll on the health of the residents for generations to come. The Golden Corridor is well on its way to becoming a toxic zone with serious environmental and human impacts. Regional environment in the State is being forfeited for the sake of industrialization, chemical consumption and to retain its competitive position in global chemical markets. The recent report (reference) on the effectiveness of the Common Effluent Treatment Plants (CETP) across the Golden Corridor calls for suitable plan to phase out or manage the hazardous industries. The development of mostly hazardous and polluting industries along the coasts and Kachchh could cause irreparable damage to the ecology. The concern of the State should to prepare plans to maintain the ecological balance within its regions.

(d) Natural Disasters

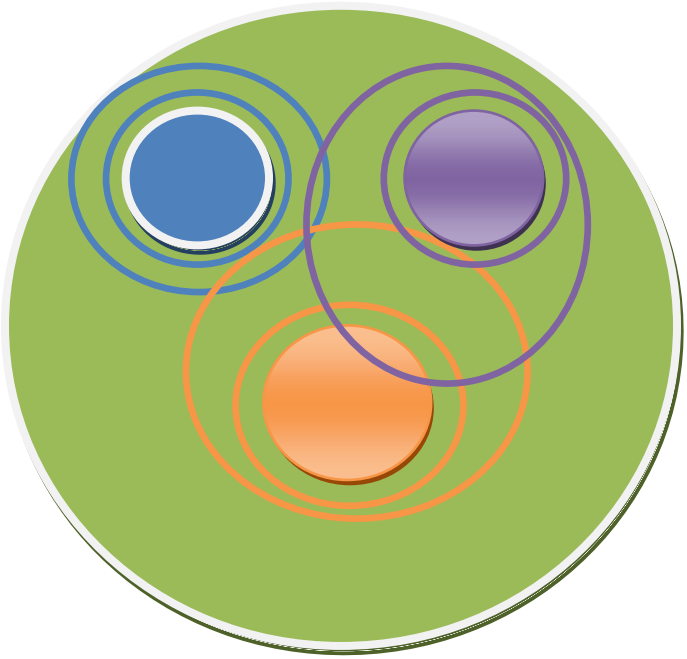
The state is prone to natural disasters like Flood, Cyclone and Earthquake, the vulnerability has been assessed both by the national and state level disaster management agencies. Enough needs to be taken to prepare the disaster prone regions for such disasters. The Gujarat State Disaster Management Agency (GSDMA) did prepare the risk assessment documents for the major disasters for the State. State coordination has improved, mostly using the traditional methods and legislative frameworks. The regional preparedness has been low due to lack of manpower, training and equipment required to handle such disasters in future. The state and its administration need to prepare the citizens for the averting such disasters as well as training professionals.

9.9 Approach towards the Delineation of Sub Regions (Regional Typologies)

The Geographical Analysis presents new regional typologies that can be delineated for the State. The notion of developed and non developed region seems to be misnomer in the geographical parlances; the development debate should include the geographical status of region in their perspective of the development plans. The proposed classification though not new, here emphasizes the role of physical and economic characteristics determining the dominant activity region, which needs to emphasize in the macro and meso planning framework i.e. at the National, State and district planning. At the micro

level (panchayat) the linkages of the settlements and level of urbanisation characterizes the economic potential in the new or emerging economies of 21st century. The present proposal attempts to classify the *taluka* as a part of identified regional characteristics.

Figure 9.13: Conceptual Spatial Interaction Model



The spatial interaction between the lands uses leads to the development of regions. The development of non-agricultural Land use over the agricultural land use is an outcome of pressure of population and their economic activities. The more the network of transportation there is more likely chance of spread of human settlements. The modernisation, associated with urbanisation and industrialisation plays important role in expansion of urban areas. It can be theoretically assumed the role played by the level of infrastructure services like transportation, power and water supply in expansion of a settlement. However at the regional scale the multiple settlements around a single metropolitan cities and number of small and medium towns emerge to form urban region.

The presence and absence of these characteristics have been mostly dependent upon the State policy for the industrial investments and development of transportation. The study of Gujarat and its regional development shows the expansion of urban areas

sufficiently associated with the transportation and industrial investment. If this is the spatial development model emerged during last 50 years than how regional planning framework can be adopted.

The following section attempts to discussion on the conceptual preposition for regional perspectives based on outcome of the analysis using the spatial correlation methods.

9.9.1 New Assumptions for Regional Development Perspectives

a) Greater the emphasis on the agricultural regions, greater would be the control over unabated urbanisation and Industrialisation

b) Greater the emphasis on urbanization, lesser would be the development of agriculture in the hinterlands and growth of manufacturing industries.

c) Greater the emphasis on industrial development, lesser would be the growth of agriculture and urbanisation

d) Macro regional characteristics emanate out of the combined land utilisation pattern by the three major typologies

9.9.2 Role of Transportation (Intra-Regional Movement)

The development of transportation within the region would promote the connectivity to the settlements, facilitating the Intra-Regional movement of the good, services and manpower. These have been provided during the various plan periods wherein about 90 per cent of the settlements in Gujarat state have access roads.

Though the connectivity has promoted the movement of agricultural produce to the nearest collection centres or town, there are smaller settlements or non-agrarian villages wherein the roads have provided access of the nearest town. The more goods and services from the nearest towns have been able to reach the villages. The distance between the town and villages, status of the town and economic base of the town, would be responsible for the development of the region.

Emergence of Transportation (Trans-Regional Phenomenon)

The increased presence of the transportation network connecting regions of country, mainly port, rail, road, and air connectivity has resulted in movement of goods and passengers across the country. The development of regions as the transfer stations or intermediate transit points has emerged, historically as well as recently. The proposed Western Freight Corridors by Indian Railway (Delhi-Mumbai about 570 kms in Gujarat), private port development in Gujarat serving to Western and Northern India and increased traffic on the airports, would all result in expansion of transport nodes. The proposed activity nodes in all these projects in the State are going to emerge as industrial as well as urbanisation hub. It might change the regional characters of North Gujarat, Saurashtra and Kachchh. An effective regional planning mechanism should be evolved not only to take care of investment but also impact on the rural livelihoods and employment pattern. There would be lot of pressure on agricultural and vacant lands to be utilized for the purposes and would affect the urbanisation pattern in the State.

9.9.3 Classification of Spatial Regions by Activities

The regional classification of the space based on the broad category of land utilization for development involves contextual changes based on frequency and quantum of its change over the previous use. The development perspectives of regions based on land use change can be classified as under;

(a) No Change Region

Due to emergence of the environmental and regulatory frameworks for the protection of natural resources the land use of certain areas cannot be changed except minor changes for providing access. The areas under the water bodies such as river, lakes, ponds, dam reservoir etc. cannot be altered for the development of human settlements. Similarly the large areas of forest reserves, wetlands and protected areas (defence/electrical installations etc) as declared under the statuary provisions cannot be altered. The spatial perspectives or plan should not alter the uses of such land which are required for protections.

(b) Agriculture or Transition Region

Over the periods the agricultural lands have remained unprotected from the changes due to industrialization and urbanisation. A large tract of areas under agriculture exists on the fringes of urban and industrial areas which are subject to change for economic growth. The agricultural uses may be termed as 'transition' use, that are prone to development changes, resulting in certain development *taluka* / blocks losing more than 70-80 per cent land to urbanisation. The rate of conversion of these transition lands for the non-agricultural land should determine the sprawl pattern of the large urban agglomerations.

These agricultural regions need protection in order to ensure food security of the future population. A lot of plan expenditure has been incurred on the development of agriculture sector, by investing in irrigation network, levelling of soil, development of water resources etc thus requiring protection. The agriculture development policies of the State should also encompass the areas needed for the cultivation of various crops including food, cereals, cash crops and plantation. The fertile tract with multiple cropping needs protection from the urbanisation and industrialization.

In addition, in a sub-region within the large urban complex with high agricultural potential needs protection so as to be utilized for cropping. Thus, important for ensuring food supply for the future populations in the region.

(c) Urban Region

The emergence of large urban areas beyond its historical limits have to led to expansion of fringes and in some case led to development of multi-core cities. There is distinct development and expansion of these city cores due to subsequent land utilization is promoted through development plans (by urban development authorities). During the next 50 years the State might have large urban agglomerations such as Ahmedabad (12,000 Sq.km), Vadodara 1500 sq.km, Surat 2500 Sq.km, Rajkot 500 Sq.km, Bharuch 200 Sq.km) etc. These large urban tracts would have transportation networks connecting all the multiple cores and residential zones ferrying people through mass transport systems.

The specific development plans for these urban regions are within the existing framework of land use planning done under the Gujarat Town Planning and Valuation Act, 1976., Gujarat Township Act, Special Investment Regions, Special Economic Zones etc. Thus urban regions have statuary provisions for their protection and planning leading to organized development in future.

Urban Region cannot be revert back to agriculture dominated region thereby needs careful planning for protection of natural areas including water bodies, forest areas and wild life reserves. Large urban areas would also reject harmful manufacturing industries, leading to movement of people in new areas.

(d) Investment or Industrial regions

The manufacturing sector has been contributing towards 30 per cent of Gujarat's State Domestic Product. From being started as small scale units with a few large public sector projects in the 1960s to the present large corporate investments, the spatial requirements of industrial units have changed leading to expansion of land requirements. The concept of special investment regions and special economic zones has emerged after 2004 due to economic compulsions of planning in India. The State has existing and proposed over 90 special economic zones and 13 special investment regions where land areas utilized by SEZs range from 10 acres to 5,000 acres, whereas up to 1,000 sq.kms. of land is proposed to be utilized for a Special Investment Region. The need for the industrial area planning has attained importance given the logistics requirements and facilities to be provided for sustained development.

But it can also be assessed that these investment regions and economic zones would have adverse impact on the environment and human health. Specific planning provisions would be required in order to provide adequate protection against the negative impact of the industrial activities in the region.

Such areas require constant monitoring of air, water and land pollution levels, and zoning of areas suitable for industries needs to be carried out in order to offer land to industries. Industries also tend to provide employment to at least a quarter of the skilled manpower in urban areas; thereby linkages with existing urban areas tend to be

important. Export possessing zones may have specialized products and processes requiring specific spatial planning for the investment regions.

9.9.4 Proposed Scalar Regional Development Model

The aim for presenting the Regional Development Model is to adopt the systems approach in maintaining Settlement Hierarchy and Usage

Assumptions:

(a) No distinction between rural and urban settlements.
(b) Hierarchy of settlement to be maintained as per the land use desired
(c) Transformation for settlements takes place from agricultural to Industrial/Service based societies, thus affecting the land utilization.

The models presented below represents the transformation of settlements from agrarian to industrial –urbanised places. It may be rural-urban, urban to urban and small size city to large metropolitan areas. Transects are estimated based on the criteria evolved from the present urban development practices in India. However, user can place the various model diagrams in groups or combinations of models to visualize the regional develop characters. The cluster based development approach can also adopt the model provided land suitability analysis and data is made available for selection of appropriate diagram.

Figure 9.14: Transect Model of Urban Region

Transecting

Urban areas tend to expand to its rural hinterland from a small town to metropolitan city given its expansion in manufacturing base, later the manufacturing may shift to periphery. Thus conversion of region of rural region to an urban region, changes the spatial characteristics from individual settlements to combined urban space. The size of urban region demarcates the development potentials and investments in the region.

Scalar Settlement (Development Stage) Typologies in region:

(a) Rural Settlement (more primary economic activities)

(b) Small and Medium Town

(c) Metropolitan Areas or Class-I towns

(d) A Large Urban Agglomeration or Planned Urban Area

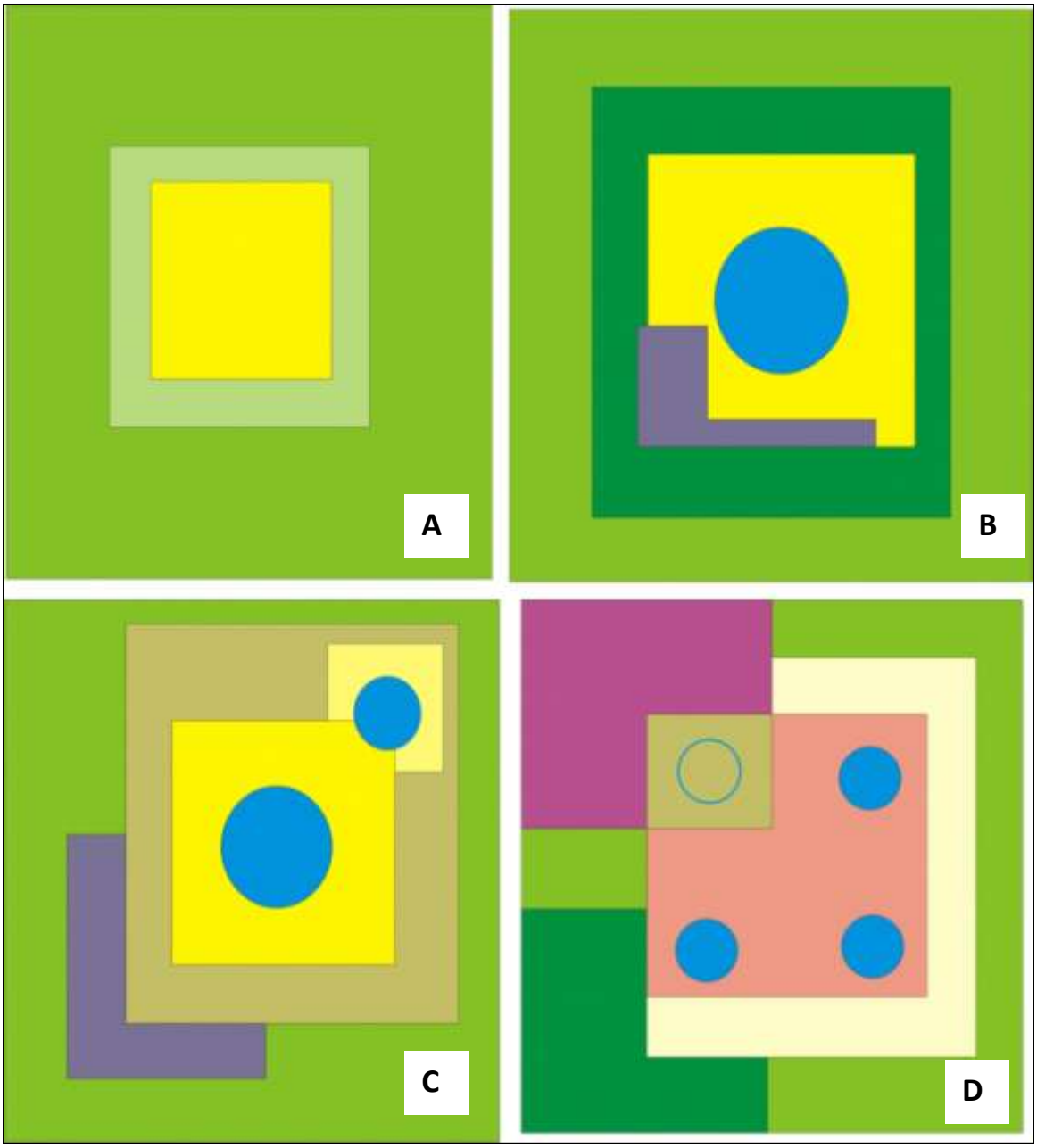


Figure 9.15: Scalar Settlement (Development Stage) Typologies in region.

Spatial classification of settlements based on its development characteristics provides an opportunity to understand urbanisation and industrialisation in the region. The following figure attempts scale the regional planning based on the spatial characteristics. The regional plan based on the above spatial characteristics of settlement can be prepared for future to manage the land. Land utilization would become important component not only for the urban areas but also its hinterland.

Combination of Urban Levels to prepare regional perspective (Spatial)

User can try to prepare the perspective of regional plan using the level of settlement through its combinations to prepare *taluka* and district level spatial models for coming 50-100 years concerning land management and characteristics of society. The choice of settlement typologies would depend on how regions economic activities based on industrialisation and urbanisation can be targeted.

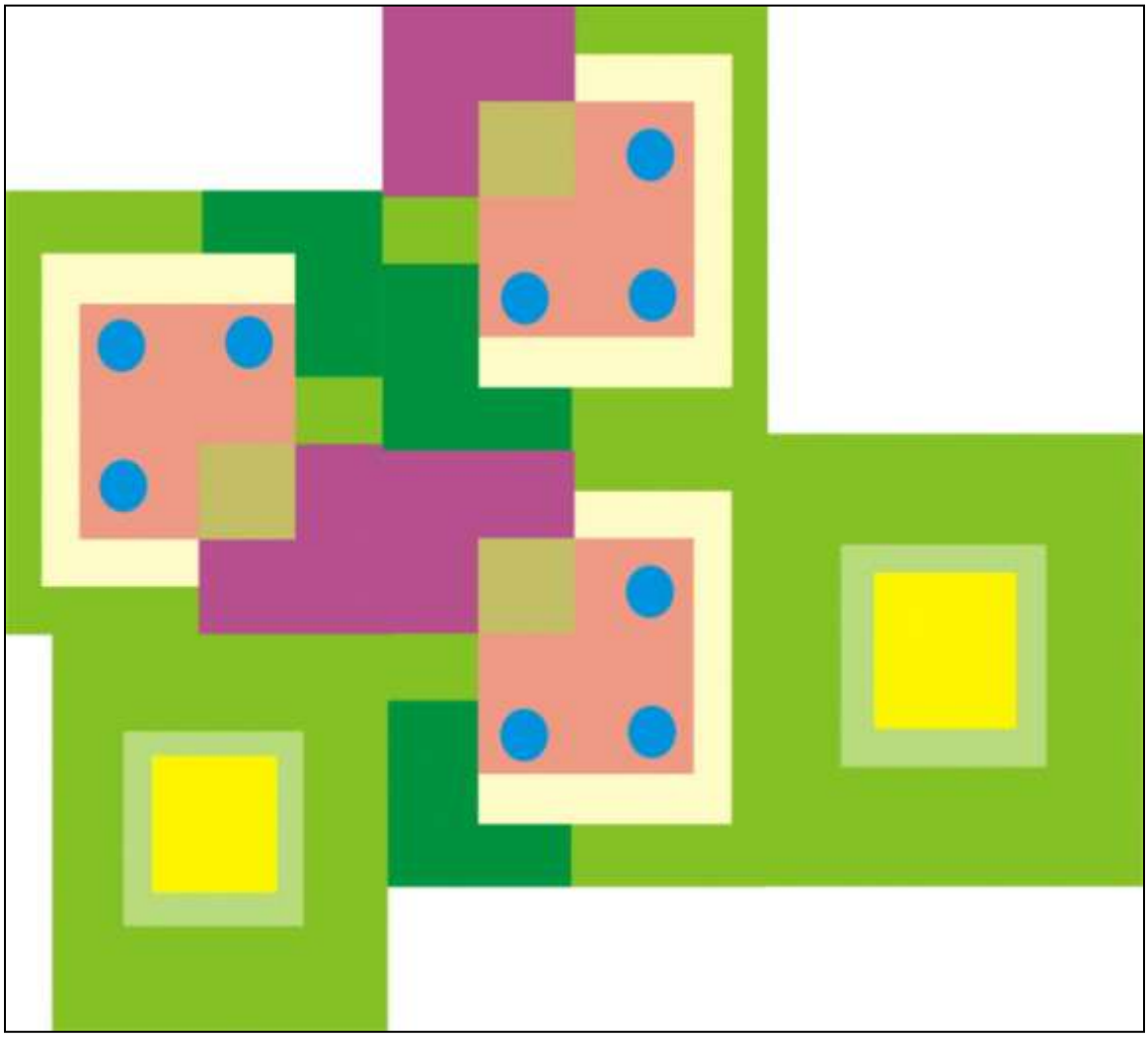


Figure 9.16: Sub regional scale: Metropolitan Area and Hinterland.

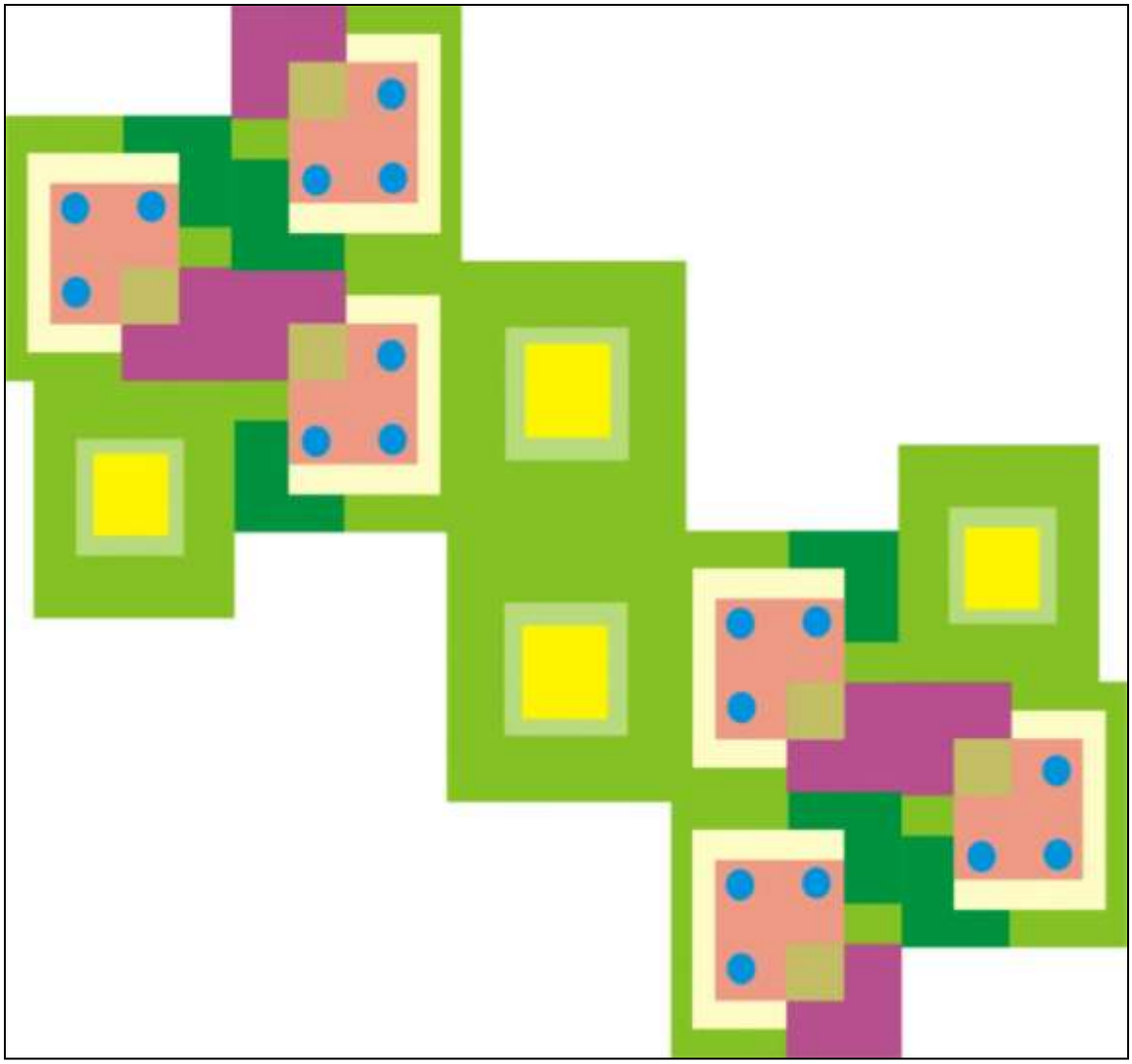


Figure: 9.17: Regional Scale Model: Metropolitan areas interspersed with rural hinterland.

9.10 Geographical / Regional Development Matrix (Dominant Characteristics)

Following section provides for the dominant characteristics of development leading to development dynamics of state and country in general. However, much of the thoughts mentioned can be useful for development perspectives for the region, these are general observations.

(a) Socio-Political Changes in Gujarat

The regions development aspirations are influenced by the social actions of dominant castes, mainly *Patidars*[435] in Central and North Gujarat, Rajputs in Saurashtra, leading tribal groups like the *Choudharies* and the *Patidars* in South Gujarat and Kacchi Patels in Kachchh. These elite groups dominated the aspects of development as well as politics of the respective regions till 1980s. Later on, the numerically dominating backward castes and tribes started influencing the politics of the State, resulting in the violent reactions of the elite castes. As Atul Kohli (2009)[436] points out,

> '*The major target of the insurrections is the State itself. It is important to emphasize that the importance of the State for opposing groups is not primarily the policies the State pursues but rather the symbolism of power and, more important, the economic resources the State controls. As an articulate participant to Gujarat Politics put, it 'If you are not with the ruling party today, chances are life will be difficult'. The state is everywhere. Life chances are influenced by the State. If you don't have access to the State, life is difficult.*' (p.314)

The numerically significant regions and communities have responded to the development policies of the elites after 1980s. Those living in Saurashtra and South Gujarat challenged the political dominance of Central and North Gujarat. In response, the development violence persists on North and Central Gujarat, which seek to corner the development funds in a reaction to growing development of the backward regions. The suppressive policies in eastern hills dominated Gujarat politics until the early 2000s and with the enactment of the Forest Rights Act, the assertions of the tribal rights on

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[435] *Patidars,* a term used for the main land holding and farming community in central Gujarat often for the Patel's of central Gujarat. Similarly the term *Choudharis* are used for such communities in South Gujarat.

[436] Kohli, Atul (2009): "Democracy and Development in India: From Socialism to Pro-Business", Reprint from 'Growing Turmoil in an 'Advanced State: Gujarat' in Atul Kohli, *Democracy and Discontent: India's Growing Crisis and Governability*, Cambridge University Press, New York, pp. 238-66

development is established. Later, the State was forced to invest in these regions in order to gain the political power as well as access to the natural resources.

It can be summarized that concern for backward area development in the State policies and programmes do not make enough impact on the ground. Its often observed for the politicians that '*What goes on is get into power, amass wealth, keep talking about welfare of the poor and backward areas and find the ways to win the next elections.*' The ground reality of development as community leaders but it's also equally true for political parties.

(b) Spatial Fix: A Geographical Construct for Development

The problem of uneven growth and inequality is discussed in the literature published as far back as 1821 with publication of Hegels, *Philosophy of Right* (1821), Von Thunen, *The Isolated State* (1826), Karl Marx, *Capital* (1875) and *Critique of Hagels Philosophy of Right* (1970), David Harvey, *Radical Geography* (1977) and *Limits to Capital* (1982).

Spatial Fix is term used by Karl Marx for *Outer Transformation* of Space in contradiction to *Inner Transformation* of Society, where the earlier represents the expansion of capitalism, through imperialism, colonialism and geographical expansion while the later represents ultimate dissolution of inner contradiction of society to achieve ideal state.[437]

In present context the development contradiction in the country and state is often reviewed and current approach (in 11th and 12th Plan) is aiming for 'inclusive growth'. It appears that the development strategies based on growth of Gross Domestic Product (GDP) is inspired by Harrod-Domar model[438] is moving towards Spatial Fix i.e. more aggressive market based economy. It is this reality for developing countries like India the Statement, *there is no hidden hand in capitalist mode of development carried forward by market based economies* holds true against the belief of classical economist Adam Smith.

[437] Harvey, David (2009): "The Spatial Fix – Hegel, Von Thunen and Karl Marx", Lecture at John Hopkins University, PDF.
[438] Harrod- Domar Model basically delivers on present GDP based growth in country and state 'where GDP growth is proportional to the share of investment spending in GDP'.

The 'inclusive growth' principle adheres more towards 'spatial fix' i.e. development transformation of outer spaces.

During the early 18th century the idea of 'Imperialism' was mooted to resolve this inner contradiction is society as David Harvey suggests was mooted by Hagel (1821) in his works. Later Von Thunen (1826), in his construct of 'Ideal State' tries to accept the social reality and resolves by creating 'Isolated State'. He presented details about spatial ordering of agricultural production. In part two of The Isolated State (1850), 'Von Thunen's enquiry undergoes a profound change, the two parts of The Isolated State exhibit certain continuities. The ideal construct of the isolated state is preserved, for example, but is used in Part 2 as a tool to investigate how social stability, continuity and harmony can be maintained in a civil society increasingly threatened by the social disorders stemming from rising class antagonisms and mass poverty.'[439]

To simplify the concept the nature of Spatial Fix is opposed to the idea of socialist society as propounded by Marx, Lenin and others which primarily deals with the removing the inner contradiction in society. The neo-classical economists led by Alfred Marshall as per David Harvey had abandoned the 'spatial fix' a part of political economy. As he mentions,

> *'Economics, as Walter Isard was later to complain, thereafter abandoned all serious consideration of space and accepted Marshall's dictum that "the influence of time" is "more fundamental than that of space." But elimination of the spatial fix from consideration was also crucial to dismantling traditional political economy. Spatial relations became the exclusive preserve of political theory, which severed all direct connection with the day-to-day realities of the circulation of capital and its contradictions, and substituted an organicist theory of the State (caught in a struggle for survival, needing lebensraum, etc.) and associated doctrines of manifest destiny, white man's burden, racist superiority, and the like.'*[440]

As per understanding of the Marxists thought, there is unification of capitalist exploitation and spatial fix as David Harvey explains the contradiction as,

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[439] Op.Cit. Harvey David (2002)
[440] Ibid, p.9

> *'Centers exploit peripheries, the metropolis exploits its hinterland, the first world subjugates and mercilessly exploits the third, and so on. Class struggle within a particular civil society is reconstituted as the struggle of peripheral social formations against some central source of oppression. The country revolts against the city, the periphery against the center, the third world against the first.'*

These phenomenon as explained are part of spatial fix nurtured through the capitalist system now transformed from market based economy to globalisation. Location and spatial aspects were neglected over the years by the economists leading to lack of development studies. The development of macro-economic theories and emergence of national concerns led to serious thinking towards spatial development. The independence of countries from their erstwhile colonial masters urged them towards growth of nations; thereby the development thinking emerged. The emergence of regional economics was due to importance of economic analysis and thoughts for spatial development strategies.

The market based economists and socialist developmental theorists adopted the strategies suitable for their political economy. Thus the formation of two development blocks in world economy i.e. capitalist and socialist. The capital based development imagined conditions of perfect competition and perfect mobility of factors of production, where factor prices in all regions would be equalised. Whereas, the socialist based development thought favoured about planned intervention to understand interdependence of regional economies and provide for the development of backward regions by institutionalising the investment and role of the State in production and distribution.

The failure or collapse of the communist's regime in former USSR led to setback to the socialist model of development and resulted in further aggressive movement of capital through globalisation has set into the world economic system. Thus it can be said, 'Spatial Fix' as endorsed and propounded by Karl Marx tends to continue and enforce the dominance of capital on the outer space. Even though there is mix planning approach recently in countries like China and India the social inequality persists amongst world regions and also within the countries.

(c) Measurement of Development and Regional Development

As the dominance of economists has grown within development thought, of the measures were used for conducting macro-economic studies. The numerous indicators developed in the early 1980s led to quantification of development by the World forums, initially looking at the poverty levels by measuring the per capita income and growth of Gross Domestic Product (GDP). The Gini Coefficient and Lorenz Curve were important tools to measure development and inequality in the regions.

The development of Physical Quality of Life Index (PQLI) for measuring a country's provision of basic amenities such as health, nutrition as well as education was proposed by M.D. Morris in 1979. He used this measure for the upper 40 per cent of the population. He constructed PQLI measure in terms of three indicators, like (a) Longevity, as measured by Life Expectancy at Birth, (b) Infant Mortality at age one and (c) adult literacy. Since 1991 United Nations Development Programme (UNDP) has started measurement of Human Development Index for the World and has also presented annual reports for different countries. Later, since 1997, the Human Poverty Index (HPI) is also being presented for the countries for material standard of living including the purchasing power parity (in US$) and real Gross National Product per capita. The relative deprivation of countries within certain development blocks is represented in HPI, where income and poverty in certain societies poses strain on relatively poor person in the form of social exclusion.[441]

Regional development on the other hand, has a wide variety of indicators which includes geographical and physiographical characteristics, physical availability of amenities, nature of agriculture, employment in sectors, concentration of backward communities' etcetera. The planning framework tends to assume that overall economic growth would automatically lead to the development of backward areas and regional imbalances that might get accentuated on the account of the operations of planning process could be rectified with help of instruments such as industrialisation, provision of education and training, providing physical infrastructure etcetera.

[441] Pal, Saroj (2005): *Lexicon on Geography of Development*, Concept Publication, New Delhi, pp. 17-24.

The identification of backward areas in India by various committees instituted by the planning commission could have help in reducing the backwardness in some of the poor states. In terms of per centage of backward districts, the State like Gujarat and West Bengal had more backward districts than Jammu and Kashmir, Orissa, Bihar, Assam and Rajasthan. Since certain programmes like industrialisation required certain minimum basic facilities as a result most of the investments by the industries were limited to the developed areas. In Gujarat state regional investment for the industries were concentrated in the backward areas of developed districts.

Gujarat achieved sectoral and temporal integration of the planned intervention from the initial plan to the present. Thus, resulting in the growth of the sectors and enhancing of funds over the years. What may be missed is '*spatial integration*' i.e. linkages between the spaces that constitute an area. This is similar to linkages amongst the activities ensuring development of economic sectors and leading to overall growth, the spatial linkages within the region might result in balanced growth of region. The approach would require the identification of spatial characteristics of the region by its dominant land uses and integrated with other similar or varied land uses to achieve the planning goals.

9.11 Conclusion

The regional planning perspective presented here draws the points from the theoretical debate ranging from the development concerns expressed at global, national and state level. The future of strategies for regional development for the State should be looking into the suitable planning units within districts, or start a special area approach as in case with investment regions and special economic zones. The concerns of people related to land losses, damages to environment, dispossession due to development and development of backward communities needs to be stressed. The findings related to climate change and impact on the State should be understood from the perspective of vulnerability of regions. The development targets and investment in the vulnerable regions needs have addition mitigation measures and increased adaptation capacity. The urban-rural framework needs to be re looked in terms of reducing the development divide by emphasising on the need for the investment in

infrastructure. The urban areas across the regions should contribute towards the development of rural hinterland and spatially interlinked to achieve the development goals. The backward areas need urbanisation strategies so as to trigger the economic as well as human development.

The classification of region based on the dominant land use needs to understand from the perspective of spatial integration. The recognition of areas specific for certain land uses particularly agricultural areas would result in sustainable development as well as protection of natural resources. The nature of development by the dominance of the capital needs to be understood from its exploitative tendencies, a progress towards the inner development of societies should be emerging goals. The regional development shall have to integrate the spatial units within its area for planning, rather than merely concentrating on the investment in sectors.

CHAPTER TEN

SUMMERY, SCOPE AND PERSPECTIVES OF REGIONAL DEVELOPMENT PLANNING IN GUJARAT

At the outset of the study, it was hypothesised that,

"The development dynamics and dimensions within districts/regions are different depending upon the location, natural resources and population composition, and need special attention in relation to inter-regional and intra-regional socio-economic and political forces"

The hypothesis was found to be true after having a critical analysis of the development processes, causative phenomena and impacts across the various regions of Gujarat. The appraisal of key sectors like, agriculture and industry indicates that these sectors have led to multi-dimensional outcome in the economy of the State. The planning mechanism understood mainly through the study of documents related to National Development Council, revealed the process of planning. The field investigations for the purpose of this research as well as during the period (2005-2012) also led to the understanding of the processes, efforts and outcomes of the State Government efforts. It was also found that there are several note worthy studies conducted on development-induced displacement, changing forest characteristics, deliberations by the National Development Council and events that happened post 2002.

The research would have been completed well in time given the nature of investigation. But due to frequent policy changes and transition of the State from welfare to capitalist oriented framework led to delay in analysis and presentation of the results. Although the above hypothesis has not been tested using specific parameters and statistical tools, and more reliance has been laid on descriptive, logical and exploratory methods, it stands the scrutiny and corroborates with the reality. The study should also stand tested on the fundamental principles of conducting geographical studies particularly in Human Geography.

This chapter is an attempt to summarize and conclude the study. The regional development planning strategies for the State is discussed by linking the perspectives of development in general and regional development in particular.

The Gujarat state by itself presented a case study of intense development changes and issues mainly concerned with urbanisation, industrialization and resource exploitation. In the process, the State could achieve its growth targets, but it also alienated large masses in the backward regions and the backward communities in developed areas including the urban areas. The resource exploitation, including the spatial localization of industries, has resulted in negative impacts of the environment of different regions. This has had serious negative impact on the quality of water, not only for drinking purposes but also for irrigation, affecting the areas under agriculture. The development induced displacements over the years has resulted in large dispossession of people and communities affecting their abilities to come forward to enjoy the fruits of economic growth.

The nature of development in the State brought out through the geographical analysis of its spatial development characteristics indicates that several distortions have been introduced in the process. On the basis of the study on Gujarat's Development Model (post-2002), the following political - economic explanations emerge.

(a) India's National development efforts emerged from the strategies and policies effectively planned during the various plan periods. Gujarat, like all other state of the country, has been provided with the plan direction and funding from the Ist plan to the XIIth Plan period. The funds were released according to agreed framework set up by the Planning Commission.

(b) The State was early to adopt industrialization strategies encouraging small and medium enterprises through industrial estates. This boosted the industrial climate of the State with concentration of industries subsequently nearer to urban areas.

(c) Industrialisation and urbanisation in the State are strongly related to each other due to their spatial co-existence in all the regions. The major economic change in the mainland Gujarat till the 1990s, in Saurashtra after the 1990s and in Kachchh post 2001, resulted in an increase in the per capita income of the State.

(d) Migration to the metropolitan cities continues unabated, contributing to sprawl of cities like, Ahmedabad, Surat, Vadodara and Rajkot. The de-urbanisation of small and medium towns was also the result of lack of investment in their infrastructure as well as strong 'pull factor' of large cities.

(e) The location of industries and its growth has also affected the quality of water and land in the State, thereby making much of mainland Gujarat not fit for further industrial investment.

(f) The mega water resource projects like Dharoi, Ukai, Damanganga, Karjan Mahi and Narmada, have led to the creation of vast reservoir and canal networks inducing agricultural changes in North, Central and South Gujarat plains. But it has also alienated and displaced the backward communities like dalits and tribes from the land which was crucial for their livelihoods.

(g) Aggressive mining policies have lead to the development of the mineral sector, particularly oil exploration and lignite in the State, but have also lead to the destruction of several habitats in the mining areas.

(h) Post 2001, the State adopted a distinct model, often named after the current Chief Minister, and kind of politics practiced by the party in power. On the one hand, during 1990-2001, Gujarat had been termed as '*Hindutva*' laboratory by the social analysts, opposition parties and others, but on the other hand, during 2002-2012, Gujarat presented distinct development strategies.

(i) The so called '*Hindutva*' politics has lead to social transformation in Gujarat, particularly localized in the plains of North and Central Gujarat. The polarization of society on the lines of communities, i.e. caste and religion, had major impacts on the urban areas. The continuity of the policies of the State is more towards assertion of these ideologies through the development programmes.[442]

(j) Globalisation of Gujarat was basically as a result of aggressive economic policies and changes in the administration of development programmes. The State has been initiating special institutions, like corporate companies, trusts and societies, all owned by the State institutions. The objective has been to manage the State affairs not only through Government Departments but also through these new Organisations.

(k) Post 2002, the Gujarat state had strengthened the corporate formation of many companies and institutions such as, split of electricity boards into five different companies (GETCO, UGVCL, MGVCL, SGVCL, PGVCL), Gujarat State Petrochemical Limited, (GSPCL), Gujarat Green Revolution Company Ltd (GGR), Gujarat State Non-Resident Gujarati Foundation (NGT), D-SAG, etc. Thus, increasing the State capital and forging state capitalism as policy directional change.

(l) These companies and societies are formed to streamline the State investment in the sectors which were opened for private investment after the liberalisation of the economy post 1991.

Thus, it can be said that,

[442] Section (h) and (i) have not been discussed in the report,Details are available from the works done the Achyut Yagnik and Suchitra Seth, Lancy Lobo, Ghanshyam Shah, and Arvind M Shah during various studies conducted on the social changes in Gujarat during period 1990 to 2012.

"*India had adopted a mixed economy, whereas there are two states, West Bengal and Kerala, which had earlier adopted separate development models, based on the socialist framework (also termed leftist), whereas post 2002, the Gujarat state has adopted the capitalist model, a perspective different from the National planning perspective. The aggressive nature of the capitalist perspective of the State is being presented during the various investment summits (Vibrant Gujarat) organized since 2003".*

Regional development planning mostly concerns itself with equitable distribution of resources, and for the purpose, the State agencies provide with appropriate policy framework/formulate appropriate strategies for the development of the constituent units of the region. The following strategies may be of crucial significance in the context of regional development planning in the State.

a) Regions delimited on the basis of their regional characteristics and provided with specific institutions for focused attention for their development should not be limited only to the backward areas but also should incorporate protection of communities in these regions.

b) The concept of the agricultural region (may be part of a larger region) may serve the purpose to protect the agricultural areas for ensuring food security.[443]

c) The industrial regions, on the other hand, might strengthen the economic investment climate in the State, but would also be crucial for reducing the negative externalities.

d) The transitional zones, as discussed earlier (see chapter Nine), are the areas left for spatial planning, may not be being used for any specific purpose, but are likely to get urbanised given the pressure of population and development.

[443] Also termed as *Green Economic Zone* (GEZ) by a development activist Bhasha Research Center Vadodara (2010).

How to address the development concerns of the backward areas, lagging or poor regions and other regions? It is easier to announce the institutions to begin the regional development planning but most important would be to discuss the concepts, issues and concerns so required not only for proposed institutional mechanism but also for adoption in the present planning mechanism. The conclusions and findings though have been also presented in earlier chapters, it is equally important to relate them with the regional concepts which can be adopted. The following sections present such explanations, not necessarily as an outcome of this research but a collective presentation of the efforts required for general development strategy and also supporting the backward regions.

A. Nature of Regional Development and Potentials

There is a need to develop a coordinated regional development strategy for the backward regions, at least for the following reasons.

a) Evidence that there are strong "neighbourhood effects", as explained in subsequent section that, in the backward *talukas* or regions drag down the growth of the State. As a result, these low growth regions tend to get clustered and 'divided' from the rest of the Gujarat economy.

b) The low growth regions of the State have strong growth potential. These are densely populated regions like the Eastern Hills, Saurashtra and North Gujarat, with a large potential market, along with mineral and natural resources. Developing these resources is important not only for the *talukas* or sub-regions but also for overall growth of the State. The regions located between sea ports and urban centers have good potential for growth.

c) Growth in the backward regions is required for further development of the State. The spill over effects of lower growth in the backward regions will also affect growth of the rest of Gujarat.

Scope for Regional Development

a) *The priority in a regional development strategy should be to address the dependence of the backward regions on agriculture and other primary occupations with low and subsistence production, which is a constraint on the growth of the these regions.*

The challenge for primarily agricultural economies in backward areas such as, northern dry lands, Eastern Hills and Coastal Saurashtra, will be to plan for transition towards more diversified and more productive manufacturing and services sectors. But, such a transition would require growth in agricultural productivity as a precondition to build the base for economic diversification and urban development.

b) *The 'agriculture-first' strategy will need to be complemented with rural-urban linkages and urban development focusing on small and medium towns which are interlinked closely to the rural economy.*

Investment in urban infrastructure and services are required in the small and medium towns (market towns) located in backward *talukas*. Over the medium term, the priority can be to support the growth of the larger towns in the backward regions. Specific urbanisation and development schemes are required for long term intervention for growth of urban centers.

c) *Agricultural growth, urban development and rural-urban linkages in the backward regions are constrained particularly, by poor 'local infrastructure' and 'resource utilisation.'*

Regional planning should consider expansion of road networks that link villages with State and National Highways and market towns, and improving connectivity between market towns and other towns. In addition, financial inclusion of poor and

backward communities needs to be addressed in this respect for increasing their access to credit and power.

d) *While the backward talukas and regions like Eastern Hills, Dangs, northern dry lands (Banaskantha, Sabarkantha) lag behind in most human development indicators which affect long-term growth prospects, the underlying constraint that needs to be addressed is social development.*

Greater investments in human capital and improvements in service delivery, where the human development performance is poor, are required to be improved. The *most important* social development in such regions can be taken up by prioritizing: female literacy, work participation and empowerment by providing quality infrastructure; targeted sub-regional development programmes for 'No Change' regions like forests, subsistence agriculture regions and other regions; to improve infrastructure and economic opportunities for tribal, minority and some pockets of Scheduled Caste communities; promoting 'inclusive development'; implementation of 73rd and 74th constitutional amendments; and community participation in planning process.

e) *Finally, growth and development in the backward regions are constrained by the lower development expenditures and weak institutions.*

Public investments for well over two decades in infrastructure and social development on a per capita basis have been one-third to one-half of those in the developed *talukas*. Increasing planned investment in a sustainable manner to bridge these investment gaps will be important for the growth of such areas. But equally important will be, increasing the efficiency and effectiveness of public spending by strengthening institutions and incentives to deliver development outcomes. On its part, the special area planning approach can be adopted for the sub-region and introduce spatial and community based targeted programmes to increase expenditure. The sustained efforts by formation of Regional Development Authority which can be provided funds from the State Plans, conditional on improvements in results (outputs and outcomes), better

financial management and accountability, and monitoring and evaluation of development outcomes.

This study, thus, identifies regional development strategy built around policies that are good for both the development of the less developed regions and for overall development of the State. That is, these policies are more specific to the geographical nature of the State and distribution of communities would place a greater focus on regional and state specific development. These focuses on and addressing key issues: adverse effects on urbanisation and industrial backward Areas; the comparative advantages of the backwards regions in agriculture and development towns located in region, agro-based, labour intensive industries; support for infrastructure; critical human and social development that addresses exclusion, and; targeted investments of public expenditures alongside capacity building for the communities. Further, Regional development policy should aim to achieve greater equity in welfare for the population of different regions rather than equality of economic activity in all regions.

A regional development authority may be set up to design and coordinate the implementation of the regional development plan. Such an authority, comprising the State government, district and *taluka* level officials and peoples' representatives could help to: (i) strengthen the Nation's and the State's focus on regional development and coordinate regional infrastructure investments to redistribute according to spatial requirements; (ii) coordinate fiscal, industrial and regulatory policies by providing competing and excessive fiscal, credit, regulatory and incentives for investments; and (iii) design targeted area and conditional transfer programmes using both Central and state resources aimed at improving human development indicators for depressed communities including females, tribal's, dalits, other backward castes and minorities.

The next section, Section B, presents the key findings about the regions; Section C summarizes the findings on the constraints they face in raising growth and development.

B. Key Findings – Spatial Diversity, Geography and Migration Trends

There is considerable diversity within the lagging regions/

Five different types of lagging regions can be identified, the last of which actually lies in the urbanized regions: (i) the densely populated Northern dry lands and Eastern Hills which are constrained by water and thus lacks agricultural development; (ii) the urbanized and industrial Backward Areas – urbanised districts of Ahmedabad and Gandhinagar in North, Anand-Vadodara in Central, Bharuch-Ankleshwar, Surat-Navsari and Valsad-Vapi in South Gujarat have more industrial investment and public expenditure but have poor human development performance particularly in the lagging *talukas* of these regions. Saurashtra and Kachchh, where human development indicators are better, perform poorly in infrastructure investments in urban areas with exception to some pockets in Jamnagar, Rajkot and Bhavnagar; (iii) the poorer, sparsely populated districts with a significant share of tribal population and other backward communities that are clustered around coastal areas of the main land, Saurashtra and Kachchh; in the Eastern hills starting from Northern hilly regions, Panchmahal and Dahod, parts of Vadodara, Narmada, parts of Bharuch, Tapi, parts of Navsari, Valsad and The Dangs; (iv) the hilly regions, along with conflict with forest department and dispossession due to development projects, are marked with short supply of arable land, except in the hilly regions in Central Gujarat; and (v) 50 per cent poor *talukas* in the developed districts, extending from North to South specifically in Mehsana, Ahmedabad, Anand, Vadodara, Bharuch and Surat districts. Significantly, this last group borders the lagging *talukas* of the State.

Most of the backward regions have access to natural resources. The backward regions face one disadvantage in connectivity, except for coastal areas, they are all landlocked. However, most parts of the backward regions, except for the arid regions in North Gujarat, are well endowed with natural resources, especially water, fertile soil, forests, and minerals. Bharuch and Kachchh districts have most of the mineral reserves in the State. These areas alone have large share of inland oil exploration (Bharuch), lignite, limestones, and 90 per cent of the chrome deposits of the State. Approximately around 25 per cent of all mineral resources are concentrated in Kachchh. Virtually all of the State's petroleum prospects are located in the backward regions. These 'lagging regions' are

thus, well endowed with what economic geographers[444] (Krugman, 2006[445]) call '*first nature geography*.'

At the same time, the lagging regions are clearly poorer in 'second nature geography,' that is, infrastructure and human development. While, overall highway development and road density have improved considerably in the backward regions since the 1980s, they have consistently lagged behind the developed *talukas* in terms of villages having access to paved roads (67 % in the backwards *talukas* as against 95 % in the developed *talukas*), power (70 % as against 98.5%), and credit (per capita credit is about one-fifth that of the richer districts). There is a perceptible difference in the availability of infrastructure: districts with better infrastructure in the 1980s experienced relatively faster growth during the 1990s. Village access to paved roads and rural-urban connectivity were particularly important for generating growth in agricultural productivity and non-farm employment, and in supporting urban development. The evidence also suggests that infrastructure availability, particularly of power, is one of the most important factors determining industry location. A survey in 2004 revealed that *talukas* in the backward regions, mostly in Central Gujarat, to be among the worst in the State in the utilization of incentives, power and credit facilities. Backward areas, thus, can be regarded as key constraints to growth.

Intra-regional differences in infrastructure and human development are also strikingly higher in the poor regions of the State. The poorer and backward regions also have their own backward *talukas* and villages. This is seen in the significantly higher clustering of infrastructure and development indicators at the district levels but poorer than state level average. The variation in education, health and infrastructural development, in the backward *talukas* across districts, can be as much as 2 to 3 times higher than in the developed *taluka*s. Further, while inter-regional inequality has fallen dramatically for some indicators (such as access to power) over the past three decades, it has widened for other indicators (such as access to health, markets, roads and educational facilities).

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[444] Advantage of *first nature geography* simply means that being close to rivers, coasts, ports, forests etc. some regions may benefit from natural endowments through specialization in certain type of activities like fishing , growing crops and forestry.

[445] Paul, Krugman (2006): First Nature, Second Nature, and Metropolitan Location, Journal of Regional Science, XXXIII (2), pp. 129-144

The inter-regional migration rates have declined in Gujarat, indicating reduction in labour mobility due to emergence of regional urbanised areas and industrial activities. While there is some long-term migration out of the backward regions such as from North Gujarat, Eastern hilly region, coasts and parts of Saurashtra, in the 2001 census, there is limited inter-district migration, and rural to rural and rural to urban migration was largely intra-district migration in the region. Net outward migration was highest from backward regions. Male migrants came mostly from rural areas, and 60 per cent reported that they had moved for work and permanent employment-related reasons.

Overall, however, factors such as the large and fast growing populations of the region, cultural impediments to migration, the lack of sufficient jobs in urban areas as indicated by low and even declining real urban casual wages, and the relatively low casual wage differentials across regions (20 to 30%) suggest that long term economic migration cannot be the main instrument for solving the problems of the poorer regions of the State. The economic and human development of these regions, mainly in the small and medium towns and its rural hinterland, remained poor, indicating concentration of development activities in the large cities.

Migration, especially seasonal migration, however, could help people in the tribal regions to move out of the clutches of poverty. Such seasonal and often circulatory migration of labour for employment is an important component of the livelihood strategies of people living in rural areas, especially those living in the backward regions of the State. Such migration is often a vital source of cash for households particularly those from the tribal areas of the Eastern Hills. At the same time, the extremely poor in rural areas do not take advantage of migration opportunities. A minimum level of assets is required to make the investment for migration – money for travel, purchasing supplies to take to the destination and leaving enough for the household left behind to survive. In addition, with few safety nets to fall back on, migrants are a very vulnerable group. Interventions that would address these issues will be needed to help the poorest to take advantage of migration opportunities. This is especially important given that migration can be important for livelihoods in the sparsely

populated areas around Saurashtra, Northern dry lands, coastal areas and Eastern Hilly regions.

C. National and State Planning, Constraints to Development and Policy Implications

The potential for development and population growth in backward regions in the State suggests that the regional development strategy should emphasize 'providing employment to the people'. It is important to keep in mind two key lessons of National Development Planning for formulating such a strategy**.** First, investments and incentives for regional development should target the constraints requiring minimum administrative changes associated with such strategies. Planning Commission's experience from National Planning suggests that broad fiscal incentives, such as tax breaks or subsidies, have modest effects on influencing regional growth or on the location of firms in backward areas (see industrial policies *chapter four*). While they may affect investors' location decisions when the incentives are large enough, they have not guaranteed that the resulting investments have broader multiplier effects on the regional economy or that such effects will be sustained. Even a specific intervention, such as providing infrastructure, needs to be well targeted; in the case of roads, for instance, evidence suggests, major inter-regional road connectivity investments had significant productivity impacts on existing industries but their effect on inducing industrialization in backward regions was limited. In some cases, inter-regional infrastructure improvements, *without complementary investments* in local infrastructure and public services, may in fact, worsen the performance of backward regions by exposing small local producers to larger outside firms and reducing manufacturing in the regions. Offsetting such problems will require investments in improving local infrastructure and investment climate. Similarly, investments in power and telecommunications will have an impact only if they address more basic binding constraints such as property rights, and law and order.

Policy interventions need to be based on the region's strengths and comparative advantages. Both, the principles and theories in economic geography and regional development, suggest that economic activity locates where there are large and growing markets, the presence of suppliers and services, and lower costs. The efforts by

Central and State Governments to alter the location of economic activity against these factors may be costly, both in terms of budgets and efficiency of the regional economy. The evidence also suggests that any single solution, of either promoting capital flows to backward regions (as in case of past development programmes) or stimulating mobility of people out of poor areas (by development of growth poles/centres), is unlikely to deliver the desired results. Though Gujarat has moved from cluster based industrial development to mega industrial regions, it may result in good capital investment but at the cost of raising regional inequality. What might be required is a regional development strategy that combines improvements in service delivery, local amenities, and a supply of factors and management that take advantage of the characteristics of the region and address its key constraints.

In the case of the backward regions, five main constraints will need to be addressed: (i) clustering and strong neighbourhood effects, through which the low growth of the backward areas lowers the growth of its 'neighbours' and the region as a whole (for example in the developed districts, the presence of backward *talukas*); (ii) the dependence of backward and poor economies on less productive agriculture such as in the tribal regions which are associated with low growth of non-farm jobs and urban development; (iii) infrastructure, financial development and regulatory weaknesses; (iv) low levels of human and social development; and (v) the complementary challenges of low investment rates and weak institutions. These are discussed below.

Addressing Clustering and Neighbourhood Effects…

Regional clustering of outcomes – as depicted by spatial distribution data -- is evident in a variety of dimensions: in income levels, in the diversification of the economy, in the development of facilities, and in human development and service delivery indicators. Consequentially the following pattern emerges: (a) poverty is clustered in the backward regions, often in contiguous locations; close to 80 per cent of the poorest districts, measured by consumption of households, are located in the backward regions; (b) except for part of South Gujarat and Saurashtra, the backward regions are not industrialised; (c) facilities development, such as paved road connectivity,

power connections, and postal communications etcetera, are similarly clustered, with the poor regions lagging behind; (d) key human development indicators, such as high infant mortality rates, low female literacy and female work participation rates, which represent the effects of both household incomes and policies, are also significantly clustered in the backward regions; (e) the clustering is even stronger at the sub-regional level.

Clustering leads to neighbourhood effects which, in turn, again reinforce clustering, leading to a vicious cycle of development. This means that the slower development of *talukas* and districts, particularly in the backward areas, acts as a drag on the growth of neighbouring regions through spill over effects. The evidence of the neighbourhood effect also comes from other sources: (a) the positive effect of infrastructure in neighbouring districts leading to higher agricultural productivity, more non-farm jobs and urban development in a particular district; and (b) the significant and higher impact of infrastructure variables in the backward areas. This means that the high inequality within the backward *talukas* is itself an important factor in constraining the region's development. It also means that the slower growth in the poor regions has spillovers, adversely affecting the growth of the neighbouring regions and the State's overall growth. As it was seen in Vadodara, Bharuch and Surat districts which has considerable tribal dominated *taluka*s having poor growth affecting overall performance of the district, thus requiring further division of the district to form new districts, namely, Narmada and Tapi during the last decade and further new subdivisions proposed Aravalli (Sabarkantha), Mahi (Vadodara) and Girnar (Junagadh).

The significance of clustering and neighbourhood effects on growth and development highlight the importance of developing a coordinated strategy for regional development. A regional development body, such as an Area Development Authority, set up by the State could be one of the options. The regional authority must identify the dominant activities for the overall comprehensive management of agriculture, industrialization and urbanisation. The regions can be classified as sub-regions of the main regions by clubbing the *talukas* with their dominant characteristics. Such authorities can be based on following the proposed sub-regions:

Agricultural areas of Northern Plains, Ahmedabad Urban Region, Forested - Northern Hills, Dry-Semi-Arid Regions of North Gujarat, Eastern Tribal regions, Central

Gujarat – Agricultural areas of Anand, Kheda and Vadodara, Industrial Areas of Vadodara, Vadodara Urban Region, Agricultural areas of South Gujarat Plains, Coastal areas of South Gujarat,

Industrial Areas of South Gujarat (Bharuch – Ankleshwar and Vapi-Valsad), Surat Urban Region, Forested Areas of Navsari, Valsad and The Dangs, Kachchh coastal areas, Urban Complex – Gandhidham, Mundra, Anjar, Bhuj Urban Region, Industrial Areas of Jamnagar, Rajkot Urban Region, Agriculture belts in Jamnagar –Rajkot, Bhavnagar and Amreli – Agriculture areas,

Forested regions of Junagadh, Coastal areas of Saurashtra, Agriculture regions of Surendranagar-Ahmedabad, Eco-sensitive Zones around Rann of Kachchh, Wetland areas in Saurashtra and Gulf Regions of Anand, Bhavnagar and Bharuch (encompassing Kalpsar project region).

Such an authority could address the following: (i) strengthening the focus on problems of the areas by developing a regional strategy that recognizes the inter-dependence of development issues among these regions, and the need to address the lagging districts through regional and state level programmes and without only depending on Central Government programmes; (ii) coordinating infrastructure investment requirements to avoid duplication and congestion in some areas and underdevelopment in other areas; this would specifically ensure that the *taluka* development plans being prepared are coordinated and consistent; (iii) coordinating fiscal and regulatory policies to avoid 'race to the bottom' by excessively competitive fiscal and tax concessions; (iv) coordinating and harmonizing regulatory policies so that industry has equal opportunities across regions; and (v) designing and implementing capacity building, institutional development in financial management, public investment programmes, urban management, knowledge and technology dissemination. At this juncture, it would be important to have a division of responsibility among the regions in establishing centers of excellence and training in these areas to take advantage of economies of scale. Another alternative could be to have a machanism to address the development of the lagging regions in the State Planning Board or District Planning Committees which would be important for a regional development strategy.

Stimulating Agricultural Productivity Growth…As the Starting Point….

The economy in backward areas is characterized by large shares of low productivity and volatile agriculture, and low shares of urbanization and manufacturing. However, raising agricultural productivity is likely to be the cornerstone of the lagging regions' growth strategy for several reasons: (a) the decline of productivity growth and empirical work suggest that it was the differences in agricultural productivity growth in the 1980s that led to divergence in per-capita incomes in the first instance; (b) the availability of water, rainfall and good soil in most of the South Gujarat region and in parts of the hilly regions, is conducive to raising agricultural productivity and horticulture; (c) the lower crop productivity in the poor areas compared to other regions (40 % in the case of food grains), despite their natural advantages, suggests that with the right technology, productivity in such areas can be increased significantly; and (d) productivity growth in agriculture, which constitutes a large share of the economies and employment in the backward regions, would result in sustained increase in income for the majority of the population and promote economic diversification.

The support for an agriculture-first strategy also comes from analyzing the sources of per capita income growth across the State. There were differences in the growth of labour productivity in agriculture in the 1980s and later in services, between the backward areas and other districts of Gujarat.

The agriculture-first strategy for the agricultural regions and backward areas in Eastern Hills could provide Gujarat with a sustainable development strategy. Sustaining the growth of food grain production, based on growth in yields in the traditional granaries of Central Gujarat, Northern Plains and the plains of South Gujarat, which are dependent on the incentives provided by power and water subsidies and high priced procurement, may be unsustainable for fiscal reasons. Water logging in Central Plains and a drop in ground water levels in North Gujarat like Ahmedabad, Mehsana, Patan and Banaskantha, may also lead to long term soil degradation causing long term harm to the environment, and reducing the returns in cereal production. Increasing yields in the agricultural regions to meet the State's cereal needs thus makes good regional economic strategy. This could be done by shifting large parts of the Minimum Support Price-based procurement of crops to the low income regions but

without providing farmers with high unsustainable subsidies for power, fertilizer, water, and procurement.

The other areas where action is needed are:

a) Realizing the untapped irrigation potential of the tribal and hilly areas by insisting on micro-irrigation schemes. Less than 10 per cent of the agricultural land is irrigated in most low-income and eastern districts, despite considerable untapped irrigation potential. A combination of approaches to rehabilitating and investing in surface irrigation will be needed, with minor and medium irrigation schemes to be maintained by Water Users' Associations (WUA) and incentives for cost recovery and credit facilities to farmers for using more ground water.

b) Improving access to production and marketing information in the backward *taluka*s. Despite significant State Government expenditure on agricultural extension, a few farmers have access to Government extension services. Institutional innovations will be needed, such as spreading the new decentralized farmer-driven private partnership based approach.

c) Making land markets more efficient: This could enable consolidation through leasing and developing contract markets for land use. Land surveys need to be improved. Maps of agricultural lands at the village level would be required. Excessive land utilization by the industries and urbanisation needs to be monitored by ensuring the high yielding areas to have low probability for non-agricultural activities. The land alienation amongst the small and medium farmers and tribal's needs to be arrested by improving state land management. The regional plans should ensure the suitable compensation and rehabilitation package in all these cases with high social impacts.

d) For the development of facilities for marketing, storing and cold-chains. These will help bring about investment in food processing and other labour-intensive manufacturing activities.

e) Improving connectivity with markets. On an average, a wholesale market in a low income state services 30,500 hectares of cropped area, compared to a wholesale market in the middle and high income states which services 17,000

to 22,000 hectares. The backward *talukas* have 40 per cent of the area and about 45 per cent of the population of the State, but paradoxically have low share of the total road length.

….Complemented by Urban Development and…

Increasing agricultural productivity in the backward regions will need to be complemented with policies that support urban development along three lines: (a) development of small market towns for agricultural marketing which can also host small-scale manufacturing clusters; (b) development of medium-size towns which can provide agglomeration and scale advantages to draw in services; and (c) development of urban management capacity to support urban development.

Three specific interventions will be needed for developing markets and small towns. First, local roads need expansion and improvement to make it easier to link neighbouring towns to rural areas. Second, empirical evidence suggests that the provision of primary schools, electricity and paved roads is positively related with market development. Finally, the development of small market towns will be facilitated by the growth of small industry clusters, an area where the backward *talukas* are currently lagging.

In the medium-term, a broader strategy for urban development, aimed at the larger towns (more than 1,00,000 persons each), will also be important, considering that Gujarat's growth since the 1990s has been mostly urban-based and larger towns provide more agglomeration benefits of a diversified economy. Overall, poorer regions are at a disadvantage here. The urbanization rate in the backward *talukas*, on an average, has been low (5- 20 % of the population) compared to the developed district (40-70 %). Lower urban development in the most of backward *talukas*, in turn, is linked to significantly lower public and private investment rates compared to the developed industrial and urban regions.

Improving city level infrastructure and service delivery are crucial for attracting private investment; this will require a significant ramping up of local infrastructure. The new investment areas in the State i.e. proposed Special Economic Zones and Special Investment Regions lack local expenditure. The regional infrastructure

status is lower than already developed regions of mainland Gujarat. Improving service delivery and infrastructure complemented by better expenditure management in the new investment regions. Increasing transfer for the development expenditure by the State to small and medium towns in the short run is likely to stimulate economic benefits, access to infrastructure and willingness of citizens to pay for services via direct user charges (as citizens of towns see visible improvements in service performance). This would, in turn, stimulate new economic activity – thereby increasing the tax base of the towns.

In the medium-term, it will be necessary for the State to decentralize functions to Urban Local Bodies (ULBs) and increase their own revenues, in order to improve services and increase accountability. In practice, service delivery arrangements for the small and medium towns are mostly centralized. Decentralization in urban management will bring decision-making over the type, quality and cost of services to be provided physically closer to citizens. This is particularly necessary in the case of the *talukas* where distances between district headquarters and towns are large, and where urban mobility is high, based on geography, ethnicity or other factors. Enhancing self-revenues of towns would be important for increasing accountability. This will require using a combination of new valuation methods and enhanced administrative capacity. If an area-based system is adopted, as is used now in some of the larger urban local bodies in the country, then a method of updating the guidance values on a regular basis is necessary. A method to update information on new constructions or major renovations or urban sub-divisions will need to be put in place. But, implementing such revenue measures in small and medium towns would require political will and significant investments in enhancing administrative capacities

….Developing Infrastructure and Increasing Access to Credit…

Five of six development indicators are related to infrastructure which is required to improve and helps the backward regions to grow and develop. These are: *village access to paved roads* that connect villages to towns and highways, and access to *credit* and *power*. The most important factor is village access to paved roads. Analysis suggests that the road density in the regions across the State has improved and have improved access to paved roads. The availability of power and road has significantly

contributed in improving agricultural productivity, non-farm employment and urbanization in the region. But, as observed in geographical analysis that even after improving connectivity in tribal regions and dry areas, these areas did not have the desired impact without being complemented with employment opportunity and urbanisation.

The second important factor behind lower growth in the backward areas is credit constraints. Investment and per capita credit flow in the backward areas is poor than what is available in developed regions. While most banks in the backward areas use the same lending methods for small business financing as they do for large corporations, they do not have the necessary credit information on small and medium enterprise (SME) to assess credit risks. Also, small firms often find it difficult to provide collaterals against loans. Problems in using land as collateral (due to legal constraints, lack of updated land records and titles), non-recognition by lenders of other types of collaterals, difficulty in collateral enforcement and loan recovery, and a bankruptcy framework that does not allow for the easy exit of troubled firms, further drive up the risks of defaults. In this context, it becomes important for governments to help the financial sector invest in gathering credit rating information to lower credit risks for lending to SMEs.

…..Supported by Investment in Human and Social Development…

As a group, the backward regions in the State perform poorly on Human Development Indicators basically pertaining to health, nutrition, and education. The worse indicators in the backward regions like Northern Dry lands, North and Eastern hills and parts of Saurashtra and Kachchh are closely related to lower growth of household income and consumption. The differences in human development are particularly marked in the areas of health outcomes and gender differences, key indicators of social development. The strategy for the regional development authorities should be to monitor the progress of the HDI by integrating the efforts and providing for specific target communities and areas. The need based planning efforts, through access to facilities, special schemes for migrant families for accessing social benefits, and micro planning should help in improving the HDI.

Improving the service delivery in backward areas depends on key factors: These are; (a) access to social infrastructure; (b) quality and efficient service delivery; and (c) accountability and responsibility of administration. Access to basic infrastructure and facilities is important for improving human development: for example, the availability of primary health centers makes a statistically significant and favourable impact on health outcomes such as infant mortality rate, awareness about health issues, sex ratio, total fertility rate (TFR), antenatal check-up, efforts for reducing anaemia and institutional delivery etcetera. Funding and facilities for the backward regions are not sufficient: the evidence suggests that poor service delivery adversely affects human development outcomes in the backward areas. Low immunization coverage and teacher absenteeism are much more significant problems in the backward areas. Service delivery in health, education, road transport and water supply in the backward areas is rated as the worst in Gujarat.

The underlying factor behind lower human development and poor service delivery in the backward areas and lack of progress in social development in tribal areas needs improvement. Measured in terms of female empowerment, social inclusion and 'decentralization', the backward areas lag behind in all these aspects of social development. Lower female empowerment in the backward areas - as indicated by several factors such as gender inequality in adult literacy, female participation and female infanticide, adversely affects health indicators such as fertility, birth, infant mortality and child vaccination rates. It also impacts educational indicators such as adult female literacy, gross primary enrolment and gender inequality in basic education, even after accounting for other indicators. Thus, women empowerment is not only an important development goal in itself, but will also be instrumental in achieving other Millennium Development Goals (MDG) targets for the region.

Some of the backward regions (North Gujarat, Saurashtra and Kachchh) and the tribal regions are characterized by the presence of significant backward communities and tribal populations. Significant per centage of tribal population in the State live in the backward areas, while the Scheduled Caste (SC) population is more evenly spread nearer to the urban areas. The field evidence and case studies presented in earlier chapters also suggests that not only the Scheduled Tribes (ST) have lower access

to assets such as education and land, but they also get lower returns on the assets they have, even after accounting for the quality of these assets and the skill attainment levels of the tribal's. The poverty amongst the tribes is due to policy discrimination and lack of access to resources that might help to increase their economic profile. The poverty results in reduction in the school enrolments not only amongst the tribal's but also among the *dalit* households. The tribal regions are relatively by-passed by the otherwise improved policy environments in the State. The poor presence of social infrastructure other than those by the Government is also an indicator of poor potentials. As a result, there is poor development of health and education facilities in the regions.

Regional Development agencies can address lack of social development by empowering the excluded groups (such as primitive tribal groups, backwards tribes) and by targeting services to the other backward communities. The State has pursued active policies of reserving seats in local and state legislatures, employment in government and semi government organisation for OBC, SC and ST has helped in improvement of human development in mainland Gujarat and of residents in urban areas. The community based targets for the programmes could also be strengthened by making benefits provided to communities in other social protection programmes partly conditional on improvements in human development indicators.

Decentralization efforts in the backward regions are required to strengthen social development. The social mobilization of population towards the *Panchayati Raj* institutions and community organizations such as self-help groups, and social organisation are required at community level. Studies in different parts of the State for evaluating the central and state programmes/schemes has also helped in improvement in service delivery, enhancing the chances of the communities moving out of poverty and access to schools and heath care. The policies adopted, such as Right to Information, Right to Education and Recognition of Land Rights etcetera, should help in promoting transparency in government functioning, public awareness and ensuring that the government is held accountable. The NGOs and community based organisations should be participating in preparation of such plans for the socio-economic benefit of the region, as well as to carry out independent third-party audit and monitoring of the quality of services being provided.

Fiscal and Financing Development ….

The Union and State Government can direct more plan transfers to the regions and their regional authorities. The State can achieve this by providing performance-based transfers to eligible regions, based on their meeting agreed target improvements in high priority areas such as health and education outcomes for their regions. Such an arrangement would have the following key elements: agreed targets would be on objectively measurable improvement in a small set of results indicators for service delivery outputs. The threshold for determining which regions should be focused depends on the assessment on vulnerability of the communities and thereafter designing of programmes and achievement of goals.

Overall, however, strengthening development finance and related systems in the backward areas will be the key to increasing expenditure for development programmes. Increased public spending in the lagging regions is often constrained by the absorbing capacity of the *talukas'* development agencies. In fact, the infusion of more financial resources into a weak governance and low accountability environment can lead to lower efficiency in public spending and high leakages, especially in an environment where other income-earning opportunities are low. Thus, increased spending will have to go hand in hand with better resource management. These efforts should include work on improving expenditure planning, execution, accounting and transparency, and involve the private sector, civil societies and communities as important partners in this endeavour. Concurrently, there is a need to introduce technical improvements in budgeting, execution, procurement, accounting, control and transparency, and monitoring and oversight arrangements. Ultimately, improving the functioning of public financial management will require backward regions to address the fragmentation in their systems for planning, spending, and accounting in the use of public money. The regions thus identified would require leadership and additional support from the State Government in this endeavour.

A reorientation of the public agencies, towards greater focus on results, is needed. While this is a gradual process, key elements of such a system would be: enhanced accountability, including of agency managers, for delivery of results (outputs) produced by the agency compared to agreed targets; increased managerial flexibility,

notably in the use of staff and other inputs, to produce the agreed results; strengthened monitoring and evaluation systems, reoriented towards measuring results as opposed to currently measuring compliance and activity implementation. Strengthening financial management will also be a key element here.

Institutional structure…

To this end, the State Government can consider introducing a planning mechanism, financial management reform along with a technical assistance window by encouraging regional authority and regulatory mechanism, similar to the Urban Development Authorities, Special Economic Zones and Special Investment regions.

The inability to maintain law and order, avoid conflict and provide timely justice are other examples of fundamental institutional failures in the lagging regions in particular. These conflicts (such as in tribal areas and urban communities), combined with the economic underdevelopment of clearly marked ethnic groups such as certain tribal groups, are also sustaining social conflicts (caste or communal). All these suggest that, pursuing development and economic growth, resolving conflict, and improving governance will have to go hand in hand.

The key underlying question is: how good governance and institutions can be fostered in the poor and backward regions? The relationship between political institutions and growth in the backward regions of the State is complex. A large body of research suggests that citizens try to be aware of the Government's performance when it votes, beyond caste or other identities. This demand for good governance and awareness about the Government's performance at the local, regional and state government levels will need to be supported by promoting the social monitoring and transparent dissemination of information on the performance of governments, to influence election outcomes. This will create incentives for the political process to improve development outcomes.

To conclude there has been an attempt to present the case for the preparation of regional development plans within the existing framework. The present research thus completed the process of understanding development in Gujarat since first plan in 1951. Though the study was initially limited to year 2002 was extended so as to include the

development changes till present. However, study remains inconclusive on the specific development strategy for the regions of state. General theoretical arguments has been arranged so as to conduct the further research on the subject. Many perspectives like Spatial Prediction Model, Regional Scalar Model and Specific Sub-divisions based on dominant land uses would require research efforts in future. The author hopes to have opened many issues for discussion for the scholars in Geography, Economics, Regional and Urban Planning to undertake further research.

Limitations of the Study

The study was conducted based on the field observation and investigation was mostly based on discussions with the stakeholders. No formal structured interviews were conducted to test the hypothesis. The scope of work was limited to Gujarat state hence, the comments on the National planning mechanism, can be derived on the basis of the investigation in study areas. The study did not incorporate the sector specific analysis of the development efforts at the national or state and was limited to geographical approach limiting to development analysis from the secondary data related to outcome. The study due to its macro and temporal nature is limited to provide the policy directions based on the *taluka* and district level data. The state level institutions and programs were not evaluated by the author using distinct statistical methods, rather a field investigation into the people's perceptions were studied.