CHAPTER 2

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CHAPTER 2
RESEARCH METHODOLOGY

2.1 INTRODUCTION

Natural disasters do take place over and again in the entire world, though the degree and nature of disasters are found varied across the regions of the world. Huge literature is available pertaining to the study of impacts of disasters, on the economy in general and a sector in particular.

The studies are found multi-disciplinary in nature. The scholars have made an indebt exercise to throw light on the theoretical framework, highlighting the relationship between disaster and development. There have been plenty of works undertaken across the regions in respect of experiences of development during post disaster period.

In view of making this study more interesting and alarming, some literature is studied and a part of it is presented as the background of this study. The literature survey examines recent and historically significant research studies that act as a basis for the proposed study. According to Kumar A. (2003) literature survey serves several important functions:

- It provides knowledge of related research and enables the researcher to define the frontiers of his field.
- It provides understanding of theory in the field and enables the researcher to place his equation in perspective.
- Through studying related research one learns which procedure and instrument have proved useful and which seems less promising.
- A thorough search of related research avoids unintentional replication of previous studies.

The study of related literature places the researcher in a better position to interpret the significance of his own results.

2.2 REVIEW OF LITERATURE

At the 36th Annual Economy Conference of Gujarat Economic Association some presentations were made regarding the post-disaster scenario in Kachchh district. The conclusions reveal the pattern of development, emerging in the post-disaster period. This can be cited as under:
• Dr. Paresh Bangoria has mentioned in his article that, Post disaster has brought forth a kind of awareness at least in some parts of the district. So called, traditional pattern of thinking and living is now gradually giving a broader outlook, wider horizon and higher thinking for application of upgraded technology here. More important here, is to have live institutional environment; making people convinced to think in the direction of absorption of changes. Industrial economy also demands effective, dynamic and vibrant leadership to visualize the future; and accordingly create a sound platform for industries to enable them to add their capacities and make environment conducive for sustainable development.

• As per the article of Patel Kailash K. (Rebuilding the roads is huge challenging task); two things are important to note. First, instead of depending on local Govt., this task having treated as special task brought forth, advantage professionalization in application of technology. Amount spent for the projects in the number seems huge but considering the quality of the work and the pace, even the technocrats admit it as more economic. It seems the task of monitoring the projects is also undertaken with due care. These are some lapses found in within the city roads – but these could be met with in the third phase of development of projects. Important point of concern is still about border roads. Borders exactly are now well served, cared by way of fencing them and providing lights. There are villages still deprived of roads facility. This area should be included in completion task and accordingly with sizeable fund. This issue needs to be addressed as early as possible. In economic terms the co-efficient index in respect of man days spent for the task within the provisioning of funds seems higher and better.

• It is found in article of Dr. Patel Arvind F., that a devastating earthquake took place on 26th January, 2001 in the morning. Epic centre of the quake was reported at LODAI near Bhuj. Its magnitude was more than 7 on Richter scale as per the official report. This earthquake shock was experienced in India and Pakistan. However, some of the districts of Gujarat experienced it more severely and the worst was the situation found in Kachchh district. Besides huge death toll it also resorted into huge economic loss through destruction and damage of public and private property. Agrarian economy of Kachchh was also worst hit by several kinds of damages. One such was the damage caused to
various irrigation projects. As per the official report of the department the damage caused to the irrigation constructions was approximately 100s to the 51,800 hectors of kind apart from Rs. 40 Crores damage.

• In view of the research, physical area that is Saurashtra, a historical work was undertaken specially by Vakil C.N., Lakdawala and M.B.Desai. It was indeed a pioneering bench mark study. In that pioneering study also it was observed that a little dominance of the towns over small towns had begun. It was clearly mentioned, that even in those days, in comparison with the district like Bhavnagar, Jamnagar and Junagadh the growth of Rajkot was quite phenomenal.

• Historically, it is reviewed that the process of resource based industrial development in Saurashtra region is found deep rooted. Mr. Narmadashankar Lalshankar in his translated work on, “Kathiyad Sarvesangrah” has mentioned that availability of the basic raw material from the area surroundings, worked as the propelling force for industrialization in Saurashtra. In the very early days of 1873 some boosting example for industrialization were found in the Bhavnagar district.

• Mr. Dev and Mr. Unni derived common findings in their separate studies. Both have indicated that while there are evidences at regional level, agricultural productivity per hectar has positive association with rural non-farm employment. The link between agricultural output per head and agricultural employment was not found to be significant.

• Prof. Schultz addressed task of financing the critical attributes of traditional agriculture. He opines that, under traditional agriculture, the firm is a commercialized enterprise but there are comparatively few significant inefficiencies in the allocation of the factors of production and the prices of the sources of income, steams from agricultural production is relatively high in traditional agriculture.

• Amita Shah in her review article on ‘Rural Industrialization in Gujarat’ expressed her view that the consumption linkages though important, seems to have remained rather stagnant because of the moderate but regionally uneven spread of agricultural growth and whatever demand stimulus is generated, are largely absorbed by the industrial sector in the urban rather then in rural areas.
• M.Govid Rao, R.D.Shand and K.P. Kalirajan have prepared a research article examining conversion of incomes across Indian states. As part of analysis, it is found from the article that dispersion in the income of the primary sectors have been the major source of distribution in per capita S.D.P. particularly until 1991. The o-values for the primary sector increased from 0.177 in 1965-66 to 0.377 in 1991-92 and around that value thereafter. In contrast, o-value for the secondary sector fluctuated around 0.48 through out the period until 1990 but increased sharply thereafter in response to the better performance of advanced states. After economic liberalization was introduced, with much of the tertiary sector being influenced by income from government services, o-value for the sector does not show any consistent stand.

• Empirical studies by Kuznets Johnson and Kilbee have revealed a number of significant trends in respect of the sectoral productivity. In the first place, inter-sectoral productivity differences are the greatest in the beginning of development process with agriculture having the lowest average production of labour, but as the per capita income increases, these differences get narrowed down. In the beginning of development process all the non-cultural sector have labor convergence towards the national average. Thus, the development process is marked by a shift of out-put and labor force to sectors with higher labor productivity.

• Dr. Tushar Hathi mentioned in his article that in a border area like Kachchh, developmental task demands more care and special touch. It is during this period that the awareness was brought forth. However, it is important to put a word of caution regarding the requirement for the development. Let there be dispersion of activities at large, across the district. These drought prone areas of Gandhidham, Mundra, Anjar and Bhuj are still deprived. Let efforts be made to bring these areas into the light, by exploring the skill that they possess, through linking the areas with infrastructure and encouraging local people to become masters with professional touch for sustainable development.

• Horie (2003) presented five points (1) The processes and problems of assessment performed in the Hanshin Awaji Earthquake disaster, (2) the changes in the nature of information needed by the victims, (3) the improvements over the present damage assessment, (4) the housing situation in Japan, and (5) the international situation on damage assessment. They found
that Housing damage assessment influenced most of the rebuilding of the livelihood in the long term, because the victim certificate issued by the local government based on the result of the Housing damage assessment was required to receive most of the individual ascendance measure. In the process of Housing damage assessment, many complex problem arose, leading to observe work on the part of the disaster responders, consequently, due to a flood of request for resurvey, disaster responder has to work on damage assessment, leaving relief activities aside. They proposed a design concept for a comprehensive damage assessment system, which had been derived from their study for post disaster management.

• Mehrotra (1998) suggested that buildings located in a particulars zone need to be designed to respond for moderate, severe or high intensities. There are five elements in an earthquake that cause damage to a building (a) strength of waves, (b) Length of horizontal and vertical motion, (c) proximity of the fault (d) Geological foundation, (e) Building design and type of construction. Mechanism of failure depends on the vulnerability of buildings to these seismic factors. She also suggested seismic resistant construction and technical information about the house building.

• Sandhu (2001) focused on the practical problems in the Management of mass casualties during Gujarat earthquake. He says that there was a collapse of the local health command and control system. The armed forces, in the management of casualties and injuries of such great extent, faced a number of problems like lack of communication, electricity and water supply, medical supplies, hospital beds, linens, operating room, equipments, instruments etc. Another major issue of the health safety during a disaster situation, which was faced in the Gujarat earthquake, was of biomedical waste disposal and disposal of dead bodies.

• Rutter (2001) found that right from the beginning the Indian and Gujarat government fell short in their task of coordinating the rescue and relief work. But where the government failed, the people of India reacted to the Gujarat quake in the most impressive way. Financial support, relief supplies and volunteers poured in from all over the country.

• Chang (2001) studied the Kobe earthquake in Japan and found that earthquake disasters had caused major damage to transportation system leading to
significant economic disruption. He evaluated the performance in terms of network coverage and transport accessibility perforation degradation was much more severe for highways and railways than for other lifetime infrastructure system. Both transportation systems (Rail and Roadways) fared poorly in the disaster areas but service restoration proceeded much more rapidly for rail. By comparison they found that there is substantial spatial disparity that is maintained throughout the restoration period.

- Spence (2003) studied the 1999 Kocaeli earthquake in Turkey and compared the loss estimation. The losses which would be predicted from two different approaches, one using predicted macro seismic intensity and the other using the spectral displacement method. They were compared with actual observed losses in the Kocaeli event at two different locations where surveys were carried out. It is shown that the predicted methods available generally overestimated the losses at these distances and a number of possible reasons for these discrepancies were considered.

- Lekkas (2002) studied the characteristic types of building failure in various parts of world due to earthquake. He discussed various types of building damage pattern, which can be utilized in the reduction of seismic risk in construction and urban complexes.

- Bremer (2003) in his study of Gujarat earthquake found that most of the civilian hospitals had collapsed, and army field hospitals provided medical care to most of the patients under primitive conditions using tents. When the foreign field hospitals arrived five to seven days after the earthquake, most of the casualties requiring surgical intervention already had been operated on. Relief provided to the disaster victims had low quality for the following reasons: (1) Proper public health indicators had not yet been developed, (2) efficient coordination was lacking, (3) underestimated or partially irrelevant relief was provided, (4) relief was delayed because of bureaucracy and (5) policies on the delivery of disaster relief were not developed.

- Prof. Schultz’s addressed task of financing the critical attributes of traditional agriculture. He opines that under traditional agriculture the firm is a commercialized enterprise but there are comparatively few significant inefficiencies in the allocations of the factors of production and the prices of the sources of income steams from agricultural production is relatively high in
traditional agriculture.

- Louis (2001) said that the earthquake in Gujarat claimed thousands of lives, many still unaccounted for. It was the army and several NGO groups who took the initiative in launching rescue and relief efforts, but the responsibility of reconstruction and rebuilding lies on the Government. This task of rebuilding of sustainable, stable future has also to be accomplished by keeping in mind people’s sentiments and the need to maintain transparency in all its dealings. He further talked about the alleged discrimination in rescue and relief operation etc.

- Roy (2002) in his study of Gujarat earthquake found that most of the patients had travelled more than 200 km using their family cars, pickups, trucks or buses to reach the buffer zone hospitals during the earthquake. The daily hospital admission rate returned to pre event level five days after the event and all of the hospital services were restored by nine days after the quake. Most of the patients received definitive treatment in the buffer zone hospitals, few were referred to tertiary care centers and around 10 percent took discharge against medical advice. The entrapped village folk with their traditional architecture had less injuries and a higher rescue rate than did the semi urban towns people, who are trapped in collapsed concrete masonry buildings and narrow alleys. Volunteer doctors from various backgrounds teamed up to meet the medical crisis. International relief agencies working through local groups were more effective. Local relief groups needed to co-ordinate better. Finally he found that injury profile was similar to that reported for most of other daytime earthquake.

- Sharma (2001) investigated the Gujarat earthquake that caused extensive damage to life and property. Apart from human misery, it had devastated the state physically, socially and economically. He focused on some areas like seismicity of the affected area, search and rescue, relief, rehabilitation information and communication loss estimation, scientific and technical and earthquake preparedness. He found that the problems observed in this disaster are no different from other major recent earthquakes in the world. As usual there was a huge amount of existing knowledge which was not properly utilized by the entrepreneurs, decision makers and policy makers. He also described the lessons which he learned from this disaster in managing future
Suri (2000) admits that Amateur (HAM) radio is a communication tool that puts thousand of people into direct, two way contact with each other every day all over the world. Amateur have rendered those services during many disasters and emergencies. Disaster prevention, timely avoidance, relief and rehabilitation begin with information and run through communicating and sharing practical experience between communities both vulnerable and those that have been through a disaster.

Scanlon (2003) looked at the way in which public transport is used for evaluation of the event of emergency or disaster. Although, the work of the emergency service is well documented, it seems that the important task of evacuation, and particularly planning, operation and documentation is often overlooked. He also made a comment on how public transport copes with this task and discussed the strategy and planning, to move large crowds to and from the venue in the event of disaster like earthquake.

Shaw (2001) found that there was misunderstanding about survivor’s reactions and their abilities to act rationally and altruistically immediately in the aftermath of disaster. He further said that people can and do act rationally fearlessly and selflessly after major incidents often reducing loss of life, introducing some sense of order and beginning the real job of rescue and care for the injured.

Prasannan (2000) argued that there is no mention of disaster or calamity relief in the charter of duties of the armed forces. The development of army is governed by the Government of India’s instruction on aid to the civil authorities by the armed forces, under which, apart from the maintenance of law and order, the army can be deployed for maintenance of external services and assistance during calamities.

S.K. Tharat explains the theories of agricultural development. In his paper he has tried to identify several points of interaction between the agricultural & the industrial sector as under: (a) a substantial amount of labour force from the agricultural sector is transported to the industrial sector (b) The agricultural sector is a potential market for the industrial output of consumer goods. (c) The creation of non form jobs in the urban sector requires capital; and agriculture being the dominant sector is in historical evidence and an economic logic and
an important source for such capital (d) Transformation of traditional agriculture depends to a large extent on the introduction of high pay off inputs, which must be produced in the industrial sector.

- Coburn (2002) emphasis on the immediate need for Food water and sanitation. Food and water supplies are unlikely to be available to the dispossessed in the first few days. Mass cooking and supply of water by tankers and packed food and water, if distributed properly can temporary solve the problem for first few days. Problem of sanitation due to shortage of water supply and people living in temporary can be managed by deploying temporary arrangements i.e. mobile latrines etc.

- In the occasional paper of Sudershan Iyenger, on the level and pattern of economic growth in Gujarat, he has concluded that the analysis of the growth experience in Gujarat does not bring out any specific impact of economic reforms on the regional economy and its vulnerable sections. The growth pattern of Gujarat suggests that there are problems that are inherent in the structure of the economy. The mean value of indices for primary sector is very low, despite the fact that the share of commercial crops to gross cropped area has been consistently high from the late1960’s. It is largely because of lack of irrigation that agricultural production is not stabilized. The gestation period for the investment in large irrigation projects appears to have been very high. The secondary sector was dominated by the experienced slowing down of growth since the 80’s. The growth rate covering 1980-1994 has been slower compared to earlier decades.

- Ghafoory (1999) found that the overall performance of the rescue and relief operation was excellent in the previous few earthquakes in Iran. In the three earthquakes, from Feb to May 1997, 95 percent of people were rescued within first 24 hours and by 48 hours all the affected people were settled in 70,000 tents as temporary shelters. Out of 29,000 planned houses 21,000 houses were built within a short period of time. He gave a brief description of earthquake from seismological and structural point of view, evaluation of the rescue and relief operation and reconstruction programs.

- Prof. A.G.B. Fisher and Prof. J. Faorasite have also maintained that the shift to the secondary and then to the territory sector is the inescapable reflection of economic progress. Prof. Faorasite has argued that apart from the higher
income elasticity of demand to territory products, as compared to secondary products comes in the process of economic growth. When the industrial sector will be saturated, people will be shifted to territory sector; where the goods and services continue to be in high demand.

- Krishna Mazumdar has tried to examine the disproportional growth of service sector in India. In his research paper he concludes that in general, development strategy for any economy has two basic objectives, economic growth and creation of employment opportunities. In most of the countries of the world the service sector plays a significant role in the expansion of both GDP and employment. In India the service sector has failed to play any significant role in the expansion of employment generation. Policies are required to be adopted so that the service sector in India may play a role in the expansion of employment opportunities along with expansion of GDP.

- Prof Sunil Sharma and Prof Dilip Barad, in their paper titled “Disaster Management” have stated that, “For a country like India, where natural calamities like cyclones, earthquakes and floods are a recurrent feature; Disaster Management and Mitigation are a challenging task. The country’s vast population and the scale of devastation, makes relief and rehabilitation operations even more onerous”.

- Arunav Misra – Environmental consultant (30:01:01 Anand) has concluded that with the continuous relief materials pouring in from national and international agencies, NGO’s, and with tremendous entrepreneurship of Gujarati community at large; I am sure, a new Kachchh would be born. According to him, Time is a big healer which would reduce the intensity of the effects of the natural disaster.

- Govind B. Dave in his paper titled “Socio Economic and Psychosomatic aspects of Disaster Management” has stated that, “Although disasters remain satisfactory rare events, the last decade has seen an increase in the number of major incidence affecting many countries including India. The systems of post traumatic stress disorder (PTSD) may result in an individual experiencing a range of emotional reactions”.

- Shri Digant Oza in his paper “Emergence of Disaster management in present Scenario” sees Gujarat after one year of earthquake. He has concluded that
India is multi disaster prone, and no part of its human inhabitation is free from disasters. The loss of life and property, and infrastructure is one of the highest in the world; and is also on the increase.

- Sanat Mehta in his paper “Changing Economic Profile in Gujarat” has stated that relaying on the NSDP data, compiled by the Bureau of Economics and Statistics, Government of Gujarat; the exponential time – trend growth rate between 1960-61 and 1978-79 by the least squares method was 2.72%. This was lower than all India growth rate and with the higher population growth of Gujarat state, the per capita growth of NSDP in Gujarat would be lower than the all India average. Gujarat will have to strive very hard to maintain its present position of being among the four most developed states in India, in terms of per capita income.

- Maulik Vyas, in his report in TNN – “Revival Of Kachchh Made Possible” (26 Jan 2008) has given his opinion that the genesis of Kachchh region’s splendid comeback has been because of the indomitable spirit of the people, of the region. The change in economic fortunes of the region has changed the social scenario of Kachchh. The flow of prosperity has spilled over into investments in industries and education as well.

- Kates (1977) Presented a model called “Kates and Pijawka model”. They argued that reconstruction process typically occurs in four stages: an emergency period, a restoration phase, a replacement reconstruction period and one of developmental reconstruction. On examining recovery after earthquakes in USA and Central America they found that the phases overlap rather than follow each other in strict succession.

- Marsden (2003) studied the process of reconstruction in Afghanistan. He focused on the degree of support provided by the international community to the government of Afghanistan. He draws the attention to the inter relationship between security and funding for reconstruction. He also analyzed the complex relationship between the administration and the aid community and reports on the calls by the government to be given the major parts of the resources allocated by international donors and to be supported to take the lead in determining policy and strategy. He was both optimistic and cautious, noting the fragility of the situation but also acknowledging that the international
community is taking timely action to address it through reconstruction to give sufficient period.

- Lahiri (2001) made a study on the Gujarat earthquake and found that the earthquake devastated large part of Gujarat and the toll in terms of human lives and properties has been enormous. The loss of a large number of housing units of low value may constitute a relatively small economic loss stated in rupee terms, but is a very large loss in terms of the people’s low – cost housing needs. The total impact of the earthquake on Gujarat’s GSDP may not exceed a quarter percent but the challenge areas remains. Putting in place a proper policy framework may not only restore normalcy in the region, but can slant a recovery boom. The quake is likely to have an adverse impact on the states finances through lost of revenues and additional expenditure. What is important, however, it to limit the damage by avoiding unnecessary tax exemptions and over generous compensations. Even if financing is available, it is important to remember that loan financed quake related expenditure will have an enduring impact on the states finance through the dynamics of public debts.

- Ravi Priya (2004) found that Gujarat Earthquake had a negative impact on the survivors. This has been sharpened by class and caste distinctions in the distribution of compensation, which have significantly affected the healing process. The economic divide has also caused the collapse of the social support network, which has further aggravated the sense of estrangement and vulnerability. She studied the psychological impact of the earthquake on the affected families and found that the psychological impact was deep and serious in 70-80 percent of the families.

- Takeda (2003) made a Total Quality Management (TQM) Based Study of 1995 Kobe earthquake to identify unique needs of the disadvantaged groups and reflect their opinion in mitigation plan and policies. In this study they found that (1) the city redevelopment should take into view the points of the disadvantaged (2) the social support was a key resource for both mental health and community development and (3) disaster experience and adaptation produced civic mildness among people in a community.

- Ali (2000) focused on the issue of disabled people after a disaster. He said that disability issue during disasters are yet to figure in the agendas of professional
bodies in India such as the association of physiotherapist, speech therapist, teachers, police officers, lawyers, medical practitioners and several other professional. As long as the disabled groups are dismissed as a minority of little moral, social and political consequences and as responsible for their own handicap conditions, disaster management will remain so much the poorest. Finally he made some recommendations on the subject.

- Katiyal (2001) said that massive amount of resources deployed by public agencies to undertake reconstruction means that the rehabilitation process provides ground for intense conflict amongst various class/caste groups. While a number of elements of the rehabilitation package provide grounds for this conflict to manifest itself, this article focuses only on one of these – relocation. It explores the current dialectics around the issue of relocation, which has emerged as a critical and central issue in the current phase of rehabilitation in Kachchh. He further suggests some revision in the provision of the relocation in the rural area by giving some examples.

- Khera (2001) made a brief attempt to understand the parameters of social life in moments of crisis as the dialectics between man and nature. It is events like severe earthquake that shake people’s belief in the steadiness of the nature and teach them how to live and adjust with nature. Such natural events shake people’s consciousness, change their thinking, and reformulate their relationship to nature, restructure the system of settlement, indeed, the character of social life. It influences the unconscious mind and brings about demographic changes. The people of Kachchh had exhibited extraordinary endeavor to develop quake resistant settlement.

- Professor Gunner Myrdal has discussed in detail economic growth process and regional inequality. In his theory of economic underdevelopment through the concept of regional equalities within and between the nations - he has analyzed "backwash" and "spread effects". According to him during the growth process of economy in underdeveloped economy regional inequalities prevail mainly because of the strong backwash effects" and "Weak spread effects".

- The draft "Ninth five year plan" had acknowledged that "growth has not been as regionally balance as it should have been" and goes on to state that planned intervention is required to ensure that large regional imbalances do not occur.
• Indira Hirway has concluded in her study that there were great regional disparities in levels of development and claimed that the nature of developments in Gujarat is biased in favour of developed regions and relatively better off sections of the population. In her other work (2000), she further observed that the process of economic growth in Gujarat was associated with a highly diversified economic structure during the post reform period and government measures had contributed to that diversification. She however explicitly expresses that the process does not seem to be sustainable, as it has distorted the agriculture industry linkage in the state. Besides this, environment has also experienced severe degradation and that it has become a major constraint on sustainable development.

• Mathur and Kashyap (2000) observed that in the agricultural sector, the contribution of the area to the output growth has declined in almost all districts in the state. The study further found that the 1980s were marked by a major shift in the crop pattern towards non-food crops. They also found that the growth in land productivity in the state had experienced a significant declaration after the 1980s.

• Dinesh Awasthi (2000) has tried to focus on recent changes in Gujarat industry. He subscribes to the view that Gujarat state has responded well to economic reforms and industry has grown especially manufacturing industry. He however suggests that for long-term growth, a greater emphasis on the infrastructure sector is needed. Promoting cluster can help small-scale industry. He also has passed a word of caution to the government that mere fiscal incentives will not be able to attract industries to the state. That could work only as auxiliary and not the primary attraction for investment.

• Dholakiya Archana (2000) has tried to explore the issues that have cropped up in respect of fiscal consolidation in the state during the reforms process. She has highlighted the causes responsible for fiscal imbalances in Gujarat. She expresses the view that in order to accelerate the pace of growth with fiscal consolidation Gujarat needs to raise its non-tax revenue to case its fiscal visits. She has analyzed in her article Gujarat's non-tax revenues and subsidies to find possibilities of improvement. Contrary to the state of reforms the state in Gujarat is more active in areas from which it should withdraw as shown by
high economic subsidies, and it is less active in areas where intervention is called for as shown by low social sector subsidies.

2.3 RESEARCH PROBLEM

Natural disasters do cause multi dimensional impacts over the economy. In general a great loss in terms of physical property and human resource is visible. Natural resources are also hit as part of its disastrous impact. This leads to immediate fiscal imbalances. Finances from Governmental and non-Governmental agencies as well as international institutions begin to flow to the disaster-affected areas. It is observed that the process of rehabilitation is accompanied by a shift in development paradigm. In ordinary course, social institutional fabric, beurocratic approach and work culture remain largely static or less dynamic. But with the process of rehabilitation, the concept of “Reconstruction” gains prominence. This very concept of “Reconstruction”, otherwise absent during normal course, brings forth significant changes in working pattern causing multifold impact on the development indicators. There is always both positive and negative impact of the process shift on the nature of development. It is therefore, of crucial importance to examine the nature of this change in the development process as part of “Reconstruction” of the economy. Does it lead to rise in the standard of living of people in general? Is it more inflation prone? Does it lead to major sectoral shift in the development process? Does it influence the process of reform at the micro level? Has it influenced distributive justice aspect? And finally is this process in tune with that of mainstream of development?

All these are the major issues, which need to be examined and explored in the light of the “Reconstruction Process” being implemented in Kachchh district as part of revival of regional economy after the 26 Jan 2001 disaster. In view of the above, the researcher is inclined to undertake micro level analytical study to enquire into the nature and level of changes that have taken place in Kachchh district during the post disaster period.

2.4 OBJECTIVES OF THE STUDY

Research is a scientific study to achieve predetermined goals. For this purpose, the first step in the research activity is to identify the objectives. Consequently the objectives of this research are as follows:

- To have a historical review of the development pattern of Kachchh district during 1961 to 2001.
To analyze the damage and work out the impact of the losses occurred on lives and physical injury, housing damage, loss of livelihood and damage to infrastructure, due to earthquake.

To examine and evaluate the progress observed in Kachchh district as a part of the rehabilitation work.

To have a comparative look at the sectoral pattern of development in the district, visualized during the pre-disaster (earthquake) and post disaster period.

To explain the areas yet to be covered fully or integrated in the process of reconstruction.

To suggest some follow-up actions to, accelerate and integrate the development process.

To study and analyze the process of providing immediate relief, humanitarian relief, rehabilitation and reconstruction of housing, livelihood and rebuilding of infrastructure after the Kachchh earthquake.

To study the development of new contingencies plans and changes in the old ones for disaster mitigation after the Kachchh earthquake, in India and Gujarat.

2.5 **HYPOTHESIS**

In view of the objectives of the study, the research is based on the basis of following hypothesis:

1. Basic economic scenario of the district is found slightly changed after the disaster.
2. Least sectoral diversification is observed in the district after the disaster.
3. The process of rehabilitation of the population or reshaping of the economy has not led to the process of urbanization.
4. Not much variation is found in the pattern of saving and investment after the disaster.
5. Aggregate indicators pertaining to growth and development do not show significant variation after the disaster.
6. Assessment of damage was timely done and relief, rehabilitation and reconstruction of various sectors were adequate to a large extent, after the earthquake.
2.6 RESEARCH METHODOLOGY

Research Methodology is the systematic method dealing with enunciating or identifying and reaching at certain conclusions either in the form of solution towards the problem concerned or certain generalization for some theoretical formulation.

The data from the secondary sources is arranged in the form of tables for each section and parameters respectively. This includes, temporal analysis and some selected variables. The tables are then analyzed through percentage and graphical presentation.

Primary data reflecting the observations of the respondents directly is also arranged into tables and examined through Chi-square ($X^2$) test. The findings of the $X^2$ test along with the graphical presentation, forms the core part of the research work.

The research work is based on primary as well as secondary data.

Sources of Data :-

The Secondary data has been collected through the following sources:-

1. All reports collected from district statistical office of the district Panchayat Kachchh.
2. Reports from District Industries center.

Primary Data

In order to review, the pattern of change observed by the people of the local Kachchh and outsiders; some visits and a small survey was conducted. This included rural and urban section of the district; and also a group of regular visitors from different categories.

Sample Size

Primary respondents were classified into two broad categories. The first one represented, 300 of the total respondents; 60 each from five of the tehsils namely, Rapar, Bhachau, Gandhidham, Anjar and Bhuj. This sampling of 300 respondents, was a random sampling; covering the broader socio-economic groups.

In the other category, 75 primary respondents were selected, from five of the different categories i.e. medical, para-medical, banking and industry related personnel’s, pilgrims, Govt. officials and others. 15 from each of the category formed the reflections of 75 respondents.
2.7 **CHAPTERIZATION**

In this study, various issues related to disasters and reconstruction has been undertaken for analysis purpose. This study commenced with the introduction to disaster, the emerging issues related to disaster, and finally summed up with observations and suggestions of the study. Keeping in view of the above objectives and hypothesis, the thesis has been divided in the following chapters:-

**Chapter-1 “Introduction to the Theory of Development”**

This chapter deals with the introduction of the subject. It explains the concept of development and growth. It also deals in some detail with the various doctrines and theories of development. This chapter also analyses the trends in development at national and regional levels.

**Chapter-2 “Research Methodology”**

This chapter gives out the broad framework of the study to include the research problem, objectives, hypothesis on which the study is based, the methodology followed and the review of the literature.

**Chapter-3 “Historical Background of Kachchh District”**

This chapter gives the reader insight into the history of Kachchh dividing it into three distinct eras, The Ancient Period (3000 B.C. to 920 AD), The Medieval Period (921 AD to 1500 AD), and the Modern Period beginning 1500 AD till date. It traces the evolution of development in the Kachchh region and more importantly the trends in development during 1961 to 2001 i.e. till the earthquake devastated the region.

**Chapter-4 “Disaster and Development”**

The fourth chapter gives a glimpse of the natural disasters in the Kachchh region and a detailed account of 2001 earthquake. It highlights the measures taken by the Govt. and NGO’s. It goes on to analyze the state of economy in general in the post disaster period.

**Chapter-5 “Analysis of developmental Trends in Post Disaster Period”**

This chapter takes a look at the state of development in various sectors like agriculture, industries, service sector and social infrastructure sector. It analyses the impact of “Reconstruction Process” on all these sectors. It also looks at the anomalies and imbalances in development in various sectors.
Chapter-6 “Conclusion and Suggestions”

The sixth and the last chapter include the validity of the hypothesis. It draws some major conclusions derived from the study of both primary and secondary data and offers a few suggestions pertaining to the developmental pattern observed during the post disaster period.

2.8 CONCLUSIONS

Having undergone the exercise of Primary and Secondary data analysis, the major outcomes that form the actual impact of disaster are as under:

1. The progress observed in Kachchh district as part of rehabilitation work – is itself an indicator of the level and nature of the physical change observed in the entire district.
2. It is explicitly found that there is considerable change in the sectoral pattern of development. This change is more significant when it is compared with Pre-disaster period.
3. The pattern of development visualized across the region proves that there is ample scope for addition in economic and social services.
4. Institutional factors still play influential role in shaping the development process.

2.9 SIGNIFICANCE OF THE STUDY

The study brings out the impact of “Reconstruction Process” consequent to disaster on the work culture, standard of living of people in general, on development processes in various sectors like agriculture, industry, service sector and social infrastructure etc, and finally it examines whether this process is in tune with that of mainstream of development. The study goes on to recommend measures to address the anomalies and expedite the process of balanced development.

2.10 LIMITATIONS OF THE STUDY

The study has the following limitations: -

(a) The post disaster development process is still on and therefore it is still early to gauge the full impact on various sectors.
(b) The worldwide recession has slowed the developmental process. In order to revive the economy there may be change in sectoral emphasis by the Govt.
(c) Owing to physical and financial constraints the sample size is limited.
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