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2. Research Methodology

Title of the Study

Community Based Disaster Preparedness: An Analytical Study on Community Based Disaster Preparedness Programmes in Gujarat.

Introduction to the Research Study

Research has been described as “inquisition” and “study” by the dictionaries in English Language. Every research has an aim, a purpose leading to certain objectives. These objectives underline the need and establish the scope of the study. While each inquisition requires a purposeful exploration with a defined scope to qualify as a research, the following sections deal with the significance, scope and methodology for the research undertaken.

Ever since the beginning of civilization, human being has struggled against the elemental forces of nature and has attempted to tame these forces and have tried to establish mastery over the environment. Despite the tremendous strides made in science and technology in the present century, we have still not become absolutely immune when nature strikes in form of earthquake or similar calamity. Large regions of the world are susceptible to natural calamity and are becoming increasingly vulnerable. Records show that disasters have been increasing both in terms of frequency and severity. Disasters are caused not only due to natural hazards but also through the human interference with the environment. Therefore, it is very much required that the main culprits are worked out to minimize the adverse impact of the natural disasters and the loss and damage caused to built areas, economy and social fabric of the community. This would be essential to ensure sustainable development of the area for making optimum utilization of scarce
resources available with the region and to safeguard the interest of vulnerable strata of society.

With its vast territory, large population and unique geo-climatic conditions, Indian sub-continent is exposed to natural catastrophes traditionally. This has caused erosion of developmental gain, achieved through developmental initiatives of national and state Governments. India as such poses one of the world’s major threats of disasters. Floods, droughts, cyclones and earthquakes pound it endlessly every year. Communal riots, conflicts, fire, epidemics and other man-made disasters compound the country’s proneness to disasters.

The State of Gujarat has been facing the most overwhelming natural disasters in the last decade. These natural disasters have not just caused colossal destruction but have also posed a threat to sustain the various development programmes of the State. The unique geo-physical setting of the State makes this region highly vulnerable to natural disasters like droughts, floods, cyclones, earthquakes, etc. and most recently heat waves. In the last decade either the entire state or a large part of it has witnessed natural phenomena manifested in the most furious forms of extreme climatic conditions or drastic natural events.

The last decade has made it evident to the State of Gujarat that it is highly prone to calamities; be it natural or human-made, slow on-set or rapid on-set. The multi-hazard history of the state indicates that disasters have shattered the State time to time; still they are treated as discontinuous events. Relief is offered by State and Central Government in the wake of calamity and various compensations, assistance and rehabilitation packages are declared by looking at the aftermath of disaster. The sheer magnitude of human problem in disaster areas, exacerbated by the magnitude of disaster and rapid and unplanned expansion of human settlements and population concentration makes the relief
measures and post-disaster rehabilitation insufficient within themselves even with the best Government deliberations. Still the needs of relief phase are met better than rehabilitation since the society takes relief as a collective responsibility, while rehabilitation as the responsibility of Government. Situation in the recent earthquake rehabilitation is enhanced with widespread Voluntary Organizations’ involvement with Government with participatory approach. There is no ready-made solution to disaster problems. An effective disaster preparedness and mitigation system can evolve through continuous learning from experiences of all the stakeholders involved in the process and not just the Government.

Many developed countries have suffered from severe disasters in the past; however, through strategic and preventive planning as focus and with an integrated approach to disaster mitigation and regional development planning for physical, social and economic planning process, these countries have been able to reduce the impact of disasters to a great extent. Efforts in the direction of integrating disaster prevention into habitat planning processes are one of the most viable disaster prevention means. It took several decades for these developed countries to collect data and information, analyse, investigate, study and undertake research and getting through to the main culprits responsible for disasters before evolving a series of actions ensuring utmost disaster reduction in all the aspects. It is also ensured that the process remains continuous to have state-of-art disaster management capabilities.

The study shall aim to understand the present programmes that have been adopted by the state for disaster preparedness. It will also try to include its scope and extent of applicability. This is imperative when one tries to evaluate the benefits it has to offer. The opinion of beneficiaries along with an in-depth study of the programmes for disaster preparedness adopted by various NGOs\INGOs and relevant Government agencies will present a true picture of statement of affairs as well as the future for the same.
It is in the coming future that the idea of community based disaster preparedness will be duly acknowledged, sooner than later and the study aims to be a step in this direction. Also, this shall offer an insight on the issue from both perspectives, the opinion of the beneficiaries as well as of Government and NGOs point of view.

**Significance of the Study**

In India, a considerable and substantial growth has taken place in the quality of life in last two decades. The overall awareness in Gujarat has witnessed a complete turnaround on all possible parameters, more specific on disaster management and civic responsibilities. More effective prevention strategies can save not only billions of dollars, but also save thousands of lives. Funds currently spent on intervention and relief could be devoted to enhancing equitable and sustainable development instead, which would further reduce the risk for war and disaster. Building a culture of prevention is not easy. While the cost of prevention has to be paid in the present, its benefits lie in distant future. Moreover, the benefits are not tangible; they are the disasters that did not happen. A comprehensive study on disaster management practices and their direct and implied benefits would help us in achieving this culture.

The World Disaster Report 2001 indicates that 97% of all disaster related deaths occur in developing countries. Keeping in view the deaths and destructions by devastating disasters, the decade of 1990s was observed, by the United Nations, as the International Decade for Natural disaster reduction. A number of initiatives were taken globally, prominent among them being the Kyoto Protocol, under which the United Nations Framework Convention on Climate Change has been ratified by 175 countries. Under this protocol industrialised countries were to be reduced the collective emission of greenhouse gases by 52% compared to the year 1990. The new millennium began with
launch of International Strategy for Disaster Reduction to build up disaster resilience in vulnerable areas. The Hyogo Framework for Action (2005-2015) was adopted by 168 Governments at the World Conference on Disaster Reduction at Kobe, Japan in January 2005. India is one of the signatories of this declaration.

Among all these global initiatives the focus is on adopting a preventive approach rather than relying upon the traditional relief centric approach. The major learning from past experiences was - to reduce the overall impact of the disasters it is necessary that the objective of disaster management must expand beyond the pattern of traditional response to natural disasters and link it to an ongoing process that does not focus only on immediate disaster. For this purpose a culture of prevention needs to be implemented and preventive measures should be incorporated into developmental programmes. Hence a proactive approach should be adopted rather than the reactive one.

Disaster preparedness is a necessity and would lead to a society where the subjects are able to live with protection and security against the effects of these disasters. In India out of 32 States/Union Territories, 24 State are vulnerable to drought, flood, earthquake and cyclone\(^1\). Every year in India on an average 4350 persons lose lives and 30 million are affected in natural disasters. In addition, 1.4 million hectare cropped land is affected and 2.36 million houses are damaged. It is estimated that 2\% of GDP of the country is directly loss every year due to disasters.\(^2\) On one hand we observe such severe impacts of the disaster and on the other hand there are indications of increasing frequency of disasters. In the past few years we have witnessed many major disasters such as Gujarat earthquake, Gujarat floods, South Asian tsunami and most recently Bihar floods. These disasters made us realise inadequacies of our disaster management policies and our response systems. Frequent disasters led to rethinking on the issue of disaster management. Severe setbacks to development and other human miseries strengthened the political motives in the country at all levels to reduce the disaster risk. At the policy level

\(^1\) Rama Krishna, A, et. al. Curriculum For Disaster Preparedness
\(^2\) Disaster Management Legislative provisions and policies
it was articulated that pre disaster mitigation and preparedness need to be focused to control the damage and reduce the losses of developmental gains. It was also realised that managing disasters required multi dimensional, multi disciplinary and multi-sectoral approach. This learning was further emphasised in the Tenth Five Year plan document that induced a chapter on disaster management, highlighting need for disaster preparedness.

Vulnerability Profile of Gujarat is a concern and there is a pressing need to develop disaster preparedness. Gujarat owing to its geographical position, climatic and geological setting has had a fair share of disasters of varying magnitudes from time immemorial. Non-availability of moisture during the greater duration of the year and majority of the region being arid and semi-arid area makes majority of State’s landmass vulnerable to drought and on the other hand heavy concentration of rainfall within a span of a few rainy days in large part of the State causes heavy run-off, leading to high floods and water-logging problems. The tectonic movements of the plates of Indian subcontinent make it vulnerable to sever seismic disturbances and the cyclones rising from the Arabian Sea frequently attack the 1600Km coastline of Saurashtra peninsula and Kutch.

The state is situated on the West Coast of the country, it has natural resources in plethora and it is one of the rich states of India. However, because of several back pulling factors like devastation caused by different disasters in one form or another in high frequency, the economy is being dragged back regularly. In addition to that, over exploitation and unwise utilization of natural resources by capitalist doles out a hand to the degradation of environment ambient.

As mentioned earlier Gujarat state is highly prone to multi hazards due to its geographical positioning, close proximity to sea, arid and semi arid nature, presence of big rivers, presence of large number of chemical industries and sensitivity towards communal violence. According to seismologists, 23% area of Gujarat lies on seismic zone V with
probable intensity on Richter scale 6-9 and almost 75% area lies on seismic zone III and IV. Kutch district being the most vulnerable as it entirely lies in zone V. The state has the longest coastline (1600 km) in India and falls in the region of tropical cyclones generated in the Arabian Sea and hit nine districts of Gujarat along the coast, particularly the southern region of Kutch, western and southern parts of Saurashtra and the western part of South Gujarat. The state covers 20% (64000 Sq Km.) of country’s total geographical area under arid zone, eight districts of Gujarat state including entire region of Kutch district comes under this category.

Gujarat is also one of the fastest growing states of India especially in chemical industries, with such rapid spurt in chemical industrial growth; Gujarat has a very high level of exposure to chemical hazard risks. The area from Mehsana to Vapi is so heavily industrialized and popularly known as Golden Corridor (from economic point of view). Besides, there is also a possibility that the natural hazards and chemical hazards will collide, aggravating the human and economic impact. In addition, Gujarat has high potential of communal violence often lead to riots.

In addition to existing geographical vulnerabilities, poor housing construction without applying earthquake and cyclone resistant techniques, lack of adequate awareness, lack of safety mechanisms and poor work conditions of fishing community and salt pen workers increases the vulnerability of people.

Some of the most devastating disasters, which have stuck the state in previous decades, include Morbi flood of 1978, the epidemic in Surat of 1994, the Kandla cyclone of 1998, the killer quake of January 26th 2001 in Kutch region, communal riots in Ahmedabad in 2002 and the floods, that swept across various parts of Gujarat in 2000, 2005, 2006 and 2007. Thus Disasters are becoming recurrent phenomena in Gujarat causing loss of lives and properties. If culture of disaster preparedness is adopted and is spread among the
vulnerable masses, it surely helps in reducing losses due to disasters and would help in building disaster resilient communities. The occurrence of disasters well as the growing awareness of the same in the current scenario is viewed with much anticipation. It is also been argued that disaster management capacities are not a driving force in the economic front, at the same time development of various capitalist sectors would provide sustainable development in terms of economic growth.

In addition to that, the state of Gujarat is facing huge problems in terms of its identity, managerial resources, infrastructure facility, institutional image and social responsibility. In these prevailing circumstances and the way the trends indicate, one must surely inquire that the competency in disaster preparedness. Besides, evaluating that the role of these programs is not just restricted to the pushing up of the image of the system is equally necessary. To evaluate and analyze these aspects, the topic of Community based disaster preparedness in Gujarat has been undertaken for a detail study.

The present study is a small step in this direction aims to highlight CBDP approaches at national as well as state level.

**Objectives of the Study**

The Objectives of the study are as follows:

1. To study disaster preparedness plans of the concerned Government agencies and selected organizations in detail.
2. To study opinion of the beneficiaries and opinion of functionaries for the implementation part of such programme.
3. To arrive at a well-informed argument in favour of community based disaster preparedness.
Hypothesis

Trainings and capacity building initiatives help to increase awareness and impart skills that help increase preparedness before disasters and develop coping mechanisms after disasters in communities.

Research Design

The research design is both Exploratory as well as Descriptive in nature. Under Exploratory design, literature research through physical and electronic medium has been carried out. In case of descriptive research, a cross-sectional study consisting NGOs, population covered under its community based disaster preparedness programmes and interviews with Government officials have been carried out.

The study would follow literature review as it is considered to be an important part of every research. Hereby, the various literature as well as the Government measures on the area of the subject will be reviewed in order to judge the appropriateness of the variables that are to be considered along with their implications. Also, it is all the more important to have a concrete understanding of all the theories that are prevailing on the subject as a whole including the external environment as well as the variables that are having an impact on the functioning of the sector as a whole.

As the study, being qualitative in nature as it would examine the phenomenon of community based disaster preparedness through the efforts by NGOs to make disaster resilient communities. The research design would consist of Case Study of the organizations having intervention in the area of disaster preparedness and Focused Group Discussions with the community. It would also incorporate the Interviews of Government
Officials and NGO representatives. So far as trainings of disaster preparedness, educating most vulnerable group and awareness generation for disaster preparedness is concerned; process documentation of the same would also follow.

Universe and Population

For the present study the universe is all the Non Government organization working in the area of Disaster Management and the community under their project areas and the nodal agencies for Disaster Management. The population would comprise of all the nodal agencies and NGOs functioning in the area of CBDP within Gujarat.

Sample and Sampling Method

- Sample would be the Non Government Organization having intervention in Disaster Preparedness and the community covered under those organizations. This will follow a selective sampling method.
- Sample size: Case studies of 7 NGOs working in the area of CBDP and focused group discussion with target community of these organizations is done, followed by interviews with NGO representatives, Government officials and other stakeholders.
Following table represents the sample size:

<table>
<thead>
<tr>
<th>Organization for Case Study</th>
<th>Village &amp; District covered under the organization</th>
<th>No. of Participants covered under FGDs</th>
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<tbody>
<tr>
<td>Anandi</td>
<td>Chikhli, Rajkot</td>
<td>10</td>
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<td></td>
<td>Khirai, Rajkot</td>
<td>10</td>
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<tr>
<td>Cohesion Foundation Trust</td>
<td>Vanoi, Kutch</td>
<td>12</td>
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<td></td>
<td>Vanoi Vandh, Kutch</td>
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<tr>
<td>Gram Vikas Trust</td>
<td>Juni Dhervad, Jamnagar</td>
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<td>Lovarari, Jamnagar</td>
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<td>Prayas</td>
<td>Makhian, Kutch</td>
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<td>Bhuvad, Kutch</td>
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<td>Sava-Jam</td>
<td>Meghpar, Jamnagar</td>
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<td>Zinavari, Jamnagar</td>
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<td>Swati</td>
<td>Bharada, Surendranagar</td>
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<td>Unnati</td>
<td>Lakharaevandh, Kutch</td>
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<td>Baniyari, Kutch</td>
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**Total participants covered under FGD** 140

**Interviews** 60

**Total No. of Participants** 200
Tools for Data Collection

- Literature review
  This methodology is considered to be an important part of every research. Hereby, the various literature as well as the Government regulations on the area of the subject will be reviewed in order to judge the appropriateness of the variables that are to be considered along with their implications. Also, it is all the more important to have a concrete understanding of all the theories that are prevailing on the subject as a whole including the external environment as well as the variables that are having an impact on the subject. Research based articles, reports and papers give a basic overview of the earlier studies done on the subject under consideration.

- Interview Schedule (Questionnaire)
  Survey research is inflexible to discoveries made during data collection. Getting close to the phenomenon, gathering insights or discoveries about casual motivations, reasons why things happened should always precede verification by more objective techniques, such as surveys. In order to know the factors triggering the events as well as keeping in consideration the objectives, it is imperative to generate first account information on the functioning, image as well as potential segments. A survey is therefore a most efficient as well as reliable tool.

- Case Study Guideline
  Case study should help in capturing the knowledge or practitioners and developing theories from it. A case study methodology is well suited to identifying key events and actors and to linking them in a casual chain. Case study is chosen in finding answers to a research question because of its certain unique abilities. These enable it to give possible insights and to generate theories from practice, that allow all to understand the nature and complexity of the processes taking place.

- Guideline for Focused Group Discussion
  A Focused Group Discussions is of great utility when the segment is highly specialized and diverse as well. This method helps in generating great insights into
the objectives of the study and provides reliable suggestions and conclusions. It is indicative of the answer to the research questions given the specialized insight and experience of the respondents and assists in developing subsequent theories.

**Treatment of Data**

Different methods have been chosen for this study. The choice of statistical tools is applicable only for the analysis of the raw information that has been accumulated from the survey research and the secondary data gathered from published reports. The activities, fulfilling this step, will depend on the most appropriate method and on the raw information itself.

The study being qualitative in nature and being diverse in its data collection mechanism, it would follow manual data analysis and interpretation, in order to highlight qualitative discourses that are reflected from the whole process.

- **Justification of Research Methodology**

  The review and analysis of existing literature is done at first stage. Literature study is performed on the basis of cases, various UN reports in field of disaster preparedness and reduction, manuals of current and past workshops and conferences, journals and internet. It also includes study of Community Based Disaster Preparedness practices of South Asian and African countries, as these countries are among the most vulnerable and have successfully implemented disaster preparedness programmes. Books from library and electronic publications are also used for the study.

  Case Studies, Focused Group Discussions and Interviews are main part of the study and consecutive analysis of data gained will secure validity of answer on research questions. Case study will provide data obtained from NGOs, on Community Based Disaster Preparedness programmes. While Focused Group Discussions and Interviews would reveal data on vulnerability of masses, their coping mechanism and need for disaster preparedness practices.
Area and Coverage of the Research Study:

In the process of globalization, India is a rapidly progressing economy. Sooner or later the state will have to provide stability and security to its subjects (citizens) in order to retain the human talent as well as to attract global human talent. This Research Study would help to understand the implications of various factors on the CBDP programs as ultimately this will be the guiding force for the development of the economy and in turn the subjects of the society. This study will help to understand which are the progressive aspects and which factors the policy makers have to acknowledge as well as which ones need to improved further. It is also important to understand the measures adopted by advanced economies in the area of Disaster Management Programs and so as to know its scope and extent of applicability for us. This is imperative when one tries to evaluate the benefits it has to offer to any nation’s development and stability. It is only after knowing the gap between the actual and potential practices that an economy can proceed in the right direction.

The study will deal with natural disaster only, specifically among them: earthquake, cyclone, floods and drought. Other disasters, though very important, are beyond the scope of this study. The researcher expects that this study on Preparedness on Disaster Management will be of use to the captains of the industry, business organizations and academicians as well as research scholars.

Limitations of the Study:

The only thing that is constant is change. In the current scenario, as a result of an intensively dynamic environment, the macro aspects change as a result of their linkage or internal reliance on other macro variables. The results and the subsequent theories that have been a result of this research study are after taking into account the variables and their interaction with the external environment as of now. However, the results may vary with the changing circumstances.
Furthermore, the study also depends on responses from representations of various NGO representatives, their target communities and Government officials for the study. It is based on the assumption that the information gathered for the purpose of the study will be true and unbiased. In addition to that, only the major variables, which are perceived to be having an impact on the subject of the study, are taken into consideration.

Like any other subject of research, where lots of other supporting or counter theories are resulting from any basic work, this subject is no exception. However, the results may vary with the changing circumstances.

**Chapter Scheme**

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<td>Findings, Conclusion and Suggestions</td>
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