Disaster Management: A Study of An Institutional Arrangements in Rajasthan with Special Reference to Kota District

A Thesis

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Degree in

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by

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2018

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I feel great pleasure in certifying that the thesis entitled **"Disaster Management: A Study of An Institutional Arrangements in Rajasthan with Special Reference to Kota District"** is submitted by **Manoj Kumar Jain** is the original piece of research carried out under my supervision. He has completed the following requirements as per Ph.D. regulations of the university.

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Abstract

Disaster Management deals with management of assets and information for a disastrous occurrence is concerned and also how effectively and impeccably one coordinates and mitigates these calamities. Disaster management, at the institutional arrangements level, deals with issues of planning, coordinating, communication and hazard management. This research work teaches that disaster management would achieve very little unless a broad continuum of knowledge is imparted towards concerning effects of various types of disasters, their dimensions and distinctiveness, the role of National, state and District and local level institutions in such complex emergency and the role of Indian central government in prevention and mitigation of disasters. It is also significant the knowledge about the various, national, state level agencies are involved in the disaster relief and humanitarian assistance. This research covers all these subjects in order to find out the present status of disaster management institutions.

This research includes the study of National and state level institutions their Organizations, administrative framework, functions and funding of these institutions. Disaster management has to stanch with the philosophy of zero lenience and that means preventing and prompt mitigation of the hazards and susceptibility rather than only prepare for nastiest scenario. It requires an overhaul of the emergency management philosophy. There are following parts of disaster management research:

- Introduction about Natural or Manmade disaster.
- Disaster Risk Assessment and Vulnerability Analysis.
- Disaster Preparedness plans at each levels.
- Quick Disaster Response and mitigation.
- Solutions and Conclusions of the findings.

The central problem investigated in this thesis is the status of disaster management institutes in India. In this research topic we have selected the Kota districts disaster management institute as random basis. In doing this the study has

analyzed field data from Kota district in Rajasthan. The thesis comprises five chapters.

Chapter one has offered a general introduction and explanation of the research topic. It has also emphasized the objectives, justification, chapterization and relevance of the research study.

The chapter two also has discussed the conceptual and legal framework of the disaster management in India. It describes the concept of disaster, types, impacts and the constitutional and legal arrangements to mitigate this research problem.

Chapter three discusses disaster management in India and Rajasthan state context. It involves the vulnerability, demographic, topographic and frequency of the disasters in India and Rajasthan disaster management. It also describes the institutes' arrangements in India and Rajasthan state.

Chapter four is the study of key research area Kota district which is selected as a whole. It describes the vulnerability, geo-climatic and vulnerability of the disasters in the Kota district. In doing so, researcher also study the Kota district collect rate office, which works as a district disaster management authority (DDMA) and all disaster related departments like Nagar Nigam,Water Resources ,Civil Defense, Fire Station, CMHO and SDRF departments were selected.Chapter five narrates and analyses the research problem. The received data tabulated and filtered to get median range and standard deviation. Then the data was interpreted.

Chapter six discusses viable solution and suggestion for dealing with the problem of institutional management in the disaster management. This chapter also summarizes the lessons that have been learnt.

Candidate's Declaration

I hereby, certify that the work, which is being presented in the thesis, entitled **"**Disaster Management : A Study of An Institutional Arrangements in Rajasthan with Special Reference to Kota District**" i**n partial fulfillment of the requirement for the award of the degree of Doctor of Philosophy, carried under the super vision of Assistant Professor Dr. Raj Kumar Garg, Government Arts College, Kota and submitted to the University of Kota, Kota (Rajasthan) represents my Ideas in my own words and where Other ideas Or words have been included, I have been adequately cited and referenced the original sources. The work presented in this thesis has not been submitted elsewhere for the award of any other degree or diploma from any institutions. I also declared that I have adhered to all principles of academic honesty and integrity and have not misrepresented, fabricated or falsified any Idea/ data/fact/source in my submission. I understand that any violation of the above will cause for disciplinary action by the University and can also evoke penal action from the sources which have thus not been properly cited or from whom that proper permission has not been taken when needed.

(Manoj Kumar Jain)

Date:

This is to certify that the above statement made by Manoj Kumar Jain Enrollment No…….. is correct to the best of my knowledge.

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Acknowledgement

It would have been impossible to write this research work without the help and support of generous people around me and I am extremely privileged to have got this all along the completion of my research work. All that I have done is only due to such supportive supervision and assistance and I would not forget to thank them, to only some of whom it is possible to give particular mention here.

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Abbreviations

The following are the full meaning of the abbreviation used in the thesis-

GOI – Government of India

DM – Disaster Management

NDMA – National disaster management authority

NDRF – National disaster response force

NIDM – National institute of disaster management

SDMA – State disaster management authority

SDRF – State disaster response force

DDMA – District disaster management authority

Chapter- 1

Research Design

1.9 Introduction

1.10 Objectives of the Study

1.11 Scope and Nature of the study

1.12 Relevance of the study

1.13 Research methodology

1.14 Review of Literature

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1.16 Conclusion

Chapter -1

Research Design

1.1 Introduction -

Since the dawn of civilization, human society, the natural environment and disaster have been closely linked. These disasters lead to heavy losses of human lives and property and are serious environmental threats. In the past twenty years, earthquakes, volcano eruptions, landslides, floods, droughts and other natural calamities have killed over 3 million people, inflicting injury, disease, Homelessness and misery and also on the hand one billion people and billions of dollars of material damage. Natural and man-made disasters are global phenomena. Disaster data in recent years shows an increase in the physical, social and economical impact of these tragedies. [1]statically, 90% of the total disasters and 95% of the total disaster related deaths worldwide occur in developing countries, whereas the fraction of National production (GNP) lost estimated to be twenty times greater than in industrialized countries. As per study, by the year 2025, 80% of the world's population will reside in developing countries and it has been estimated that up to 60% of these people are highly vulnerable to floods, severe storms and earthquakes. The world is becoming increasingly vulnerable to disasters due to uncontrolled urbanization, uncontrolled growth, and high population density. Industrialization and other global phenomenon like green-house effect, civil unrest, losses to ozone layer, terrorism, social violence etc. All these factors change the climate, and climate becomes more prone to disasters. Vulnerability of disasters to the whole world, either natural or man-made is increasing day-by-day.[1]

The impact of disasters, from a long time considered as the discontinuation in the development process of a country. From last two decades, disasters affected the many countries of the Asian region. In last years, many lakhs of the people meet to death and priceless infrastructure abolished. To facing the disasters, health, education, roads, communication, electricity and irrigation system damaged. Disasters abolished the development processes of that nation. Disasters, not only destroyed the human and animal lives but they also effects the industrial pro-

duction (GDP) and many helpful services like – Transportation, labor availability, finance and market has been completely affected.

Table No. – 1.1

Total losses in the Southern Asian region during 2000-2009 due to disasters (In US$)

Disasters	Afghanistan	Bangladesh	Bhut-an	India	Mal-dives	Nepal	Pakistan	Sri Lanka
Droughts	50	0	0	1498722	0	0	247000	0
Earth quakes	50	500000	0	4645800	4701000	0	5210500	1316500
Epidemics	0	0	0	0	0	0	0	0
High Temperature	10	0	0	400000	0	0	0	0
High Scale Rains	0	0	0	50000	0	0	0	0
Storms	5000	2300000	0	44416	0	0	1620000	0
Forest fires	0	0	0	0	0	0	0	0
Floods	0	2814000	0	14366347	0	8729	706148	35050

Source – Yojna Magazine, June, 2009, New Delhi, pp 19

As per world disaster report 2001, the 97% of deaths related to disaster has been happened in developing countries, while it is only 2% in the developed countries. So, to looking at a global perspective of disasters, their intensities and vulnerability, it is important to emphasis a proper management of the disasters.

Table No. – 1.2

Total no. of deaths of peoples in Southern Asian region during 2000-2009

Detail	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
Droughts	37	0	0	20	0	0	143	0
Earth quakes	1214	4	0	37705	102	0	73576	35399
Epidemics	3525	245	0	1217	0	377	163	2
High Tem-perature	348	1200	0	4806	0	108	527	0
Floods	1106	2388	200	12166	0	948	2163	345
High Scale Rains	33	0	0	609	0	773	239	0
Storms	1648	5391	0	790	0	0	369	14
Forest fires	0	0	0	0	0	0	0	0

Source – Yojna Magzine

1.2 Etymology:

Disaster is an English word, which means large scale losses of lives and property. Meaning of disaster is:-

Dis-as-ter (dĭ-zăs-tar-săs-)

1. (i) An occurrence causing wide spread destruction and distress; a catastrophe,
   (ii) A grave misfortune.
2. Informed, a total failure; the dinner party was a disaster,
3. Absolute, an evil influence of a star or planet.

1.3 Definitions of disasters -

Disaster is an event or series of events, which gives rise to casualties and damage or loss of properties, infrastructures, environment, essential services or means of livelihood on such a scale which is beyond the normal capacity of the affected community to cope with. Disaster is also sometimes described as a

“catastrophic situation in which the normal pattern of life or eco-system has been disrupted and extra-ordinary emergency interventions are required to save and preserve lives and or the environment”.

The Disaster Management Act, 2005 defines disaster as “a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, property, or damage to, or degradation of, environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area”.

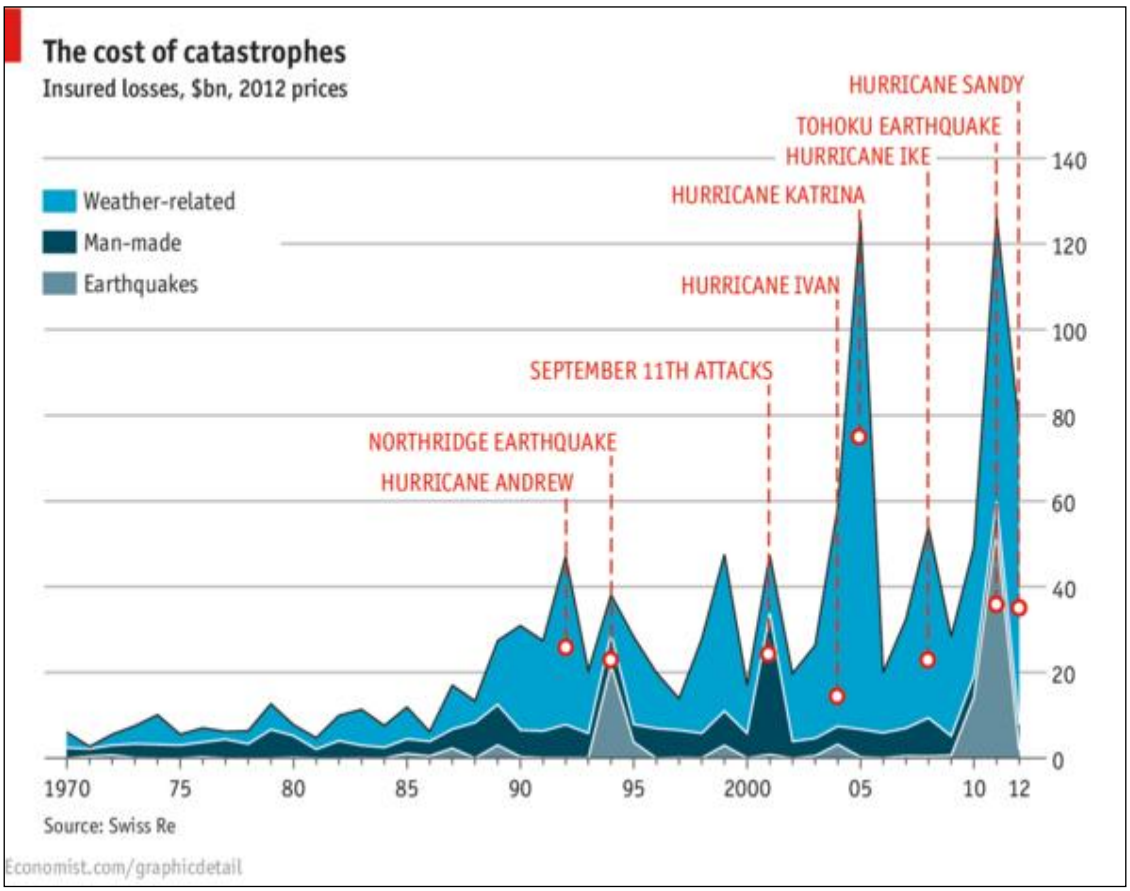
The United Nations defines disaster as “the occurrence of sudden or major misfortune which disrupts the basic fabric and normal functioning of the society or community”. A number of definitions of ‘disaster’ have been proposed over time, many of them focusing on the actual hazard or event and its cost in terms of loss of life or damage to property. Definitions as per “ISDR Secretariat is –” The level of loss a society or community considers acceptable given existing social, economic, political, cultural, technical and environmental conditions”

- Definitions and per AR dictionary is –

1. “An unpropitious or baleful aspect of a planet or star; malevolent, influence of a heavenly body; hence, an ill portent.”
2. “An adverse of unfortunate event, esp. a sudden and extraordinary misfortune; a calamity; a serious mishap.”
3. “A state of extreme (usually irremediable) ruin and misfortune lack of funds has resulted in a catastrophe for our school system; his policies were a disaster.”
4. “An event resulting in great loss and misfortune. The whole city was affected by the irremediable calamity; the earthquake was a disaster.

1.4 Disaster statics -

Figure 1.1 Disaster statics in India



https://www.google.co.in

Disasters weather natural or man-made is very common throughout the world. They occur without warning and are perceived to be on an increase in their magnitude, frequency and socio-economic impact. Disasters pose threats to the life of peoples and assume serious proportions in the countries with dense population areas. During the 20th century, more than 200 worst natural disasters occurred in the different parts of the earth and take 1.4 million people lives. Losses due to natural disasters are 25 times greater in the developing countries than in developed countries. Asia continental is the most vulnerable to the list of casualties due to natural disasters.

Table – 1.3

Some Major Disasters In India

S.No.	Name of Event	Year	State & Area	Fatalities
1.	Floods	October 2014	Jammu & Kashmir	
2.	Cyclone Hud Hud	September 2014	Andhra Pradesh & Odisha	
3.	Odisha Floods	October 2013	Odisha	21
4.	Andhra Floods	October 2013	Andhra Pradesh	53
5.	Cyclone Phailin	October 2013	Odisha and Andhra Pradesh	23
6.	Floods/Landslides	June 2013	Uttarakhand and Himachal Pradesh	4,094
7.	Cyclone Mahasen	May 2013	Tamil Nadu	08
8.	Cyclone Nilam	October 2012	Tamil Nadu	65
9.	Uttarakhand Floods	Aug – Sep 2012	Uttarkashi, Rudraprayag and Bageshwar	52
10.	Assam Floods	July – Aug 2012	Assam	---
11.	Cyclone Thane	December 2011	Tamil Nadu, Puducherry	47
12.	Sikkim Earthquake	September 2011	Sikkim, West Bengal, Bihar	60
13.	Odisha Floods	September 2011	19 Districts of Odisha	45

14.	Sikkim Earthquake	2011	North Eastern India with epicenter near Nepal Border and Sikkim	97 people died (75 in Sikkim)
15.	Cloudburst	2010	Leh, Ladakh in J&K	257 people died
16.	Drought	2009	252 Districts in 10 States	-----
17.	Krishna Floods	2009	Andhra Pradesh, Karnataka	300 people died
18.	Kosi Floods	2008	North Bihar	527 deaths, 19,323 livestock perished, 2,23,000 houses damaged, 3.3 million persons affected
19.	Cyclone Nisha	2008	Tamil Nadu	204 deaths
20.	Maharashtra Floods	July 2005	Maharashtra State	1094 deaths 167 injured 54 missing
21.	Kashmir	2005	Mostly Pakistan, Partially Kashmir	1400 deaths in Kashmir (86,000 deaths in total)
22.	Tsunami	2004	Coastline of Tamil Nadu, Kerala, Andhra Pradesh, Pondicherry and Andaman and Nicobar Islands of India	10,749 deaths 5,640 persons missing 2.79 million people affected 11,827 hectares of crops damaged 300,000 fisher folk lost their livelihood
23.	Gujarat Earthquake	2001	Rapar, Bhuj, Bhachau, Anjar, Ahmedabad and Surat in Gujarat State	13,805 deaths 6.3 million people affected
24.	Orissa Super Cy-	1999	Orissa	Over 10,000

	clone			deaths
25.	Cyclone	1996	Andhra Pradesh	1,000 people died, 5,80,000 housed de-stroyed, Rs. 20.26 billion estimated dam-age
26.	Latur Earthquake	1993	Latur, Marathwada region of Maharashtra	7,928 people died 30,000 injured
27.	Cyclone	1990	Andhra Pradesh	967 people died, 435,000 acres of land affected
28.	Drought	1987	15 States	300 million people affected
29.	Cyclone	1977	Andhra Pradesh	10,000 deaths hundreds of thousands homeless 40,000 cattle deaths
30.	Drought	1972	Large part of the country	200 million people affected

So, in simple terms we can say, “Disaster is a sudden, calamitous event bringing great damage, loss, destruction and devastation to life and properties. Generally, disasters have the following effects in the concerned areas:-

1. It completely disrupts the normal day to day life;
2. It negatively influences the emergency system;
3. Normal needs and processes like food, shelter, health etc. Are affected and deteriorate, depending on the intensity and severity of the disaster.

Thus, a disaster may have the following features:

- Unpredictability
- Unfamiliarity
- Speed
- Urgency
- Uncertainty
- Threat
- Losses to human, animal lives and property.

WHO defines disaster, as "Any occurrences that causes damage ecological disruption, loss of human life detoriation of health and health services, on a scale sufficient to warrant an extraordinary response from outside the affected community or area."

Although, experts may differ in their definitions of disaster, many public health practitioners would characterize a disaster as a "sudden, extraordinary Calamity or Catastrophe, which affects or threatens health."

The dividing line between these types of disaster in imprecise activities related to man may exacerbate natural disasters.

Disasters includes:

Droughts,

- Tornadoes,
- Fires,
- Hurricanes,
- Floods/sea surges/Tsunamis
- Storms,
- Earthquakes
- Landslides,
- Severe air pollution (smog),
- Heat & cold waves,
- Epidemics,
- Building collapse,
- Various types of accidents,
- Toxicological accidents,
- Explosions,
- Civil disturbances, and
- Water contamination etc.

Disasters are classified in various ways:-

Natural disasters and Man-made disasters,

Sudden disasters and slow disasters.

1.5 Effects of disasters:-

Throughout the history Disasters have significant impact on the daily life, health status and life style of population:-

1. Deaths,
2. Severe injuries requiring extensive treatments,
3. Increase risk of communicable diseases,
4. Damage to the health facilities,
5. Damage to the water systems,
6. Food shortage,
7. Population movements, etc.

cyclones, Tsunami, forest fires and the like. Indian sub-continent is also [i]vulnerable to man-made disasters like wars, Rail-Road accidents, industrial accidents, structure collapse, Terrorism, Naxilism etc. and the like. Every now and then Indian sub-continent suffers such kind of disasters. Numbers of innocent people becomes the victims, crores of properties perished within same time. Disasters occur with great regularity and despite better preparedness to meet all contingencies; the economic and social costs on account of losses caused by disaster continue to meet year after year.

The reason behind the losses due to disasters is the lack of proper management. Today, we have grabbed all fields of success sky or moon is our next destinations but disasters destroy our Envy. Disasters left their trails of death and destructions. Earthquake that hit BHUJ (2001) in Gujrat, (killari) Latur in Maharastra, Costal Kerla and Tamilnadu always hit by cyclones that causes thousands of deaths. Flood is very common in monsoon at North India; specially big river like GANGA and BHAHMPUTRA gulp many lives every year. Drought almost every year forces farmers to commit suicide in Maharastra, Andhra Pradesh and Karnataka. Like that man-made disasters are not less. Everyday we watch in Television, Print and Electronic media that hundred of people meet death because of manual mistakes, Head-on collisions involving two trains or other ve-

hicle have become very frequent, mid air collision involving plane Crash etc. Our cities has become prone due to unplanned urbanization, high population density etc. The slums get engulfed in fire-brigade are known to arrive late, at the place of Amarnath many people meet some tragedies every year. Continuous rainfall and unfriendly terrain hampered relief work. These all disastrous accidents, both man-made and natural, greatly affect the human life and property.

The most important reason of these sufferings is lack of proper knowledge and unavailability of resources at same time. Large strata of society is unaware with management system with the tropical climate and unstable landforms coupled with high population density, poverty, illiteracy and lack of adequate infrastructure it is very necessary to adopt a proper disaster management system to :

(i) Minimize the potential risks by developing early warning strategies,

(ii) Prepare and implement, development plans to provide resilience to such disaster,

(iii) Mobilize resources including communication and the medicinal services, and

(iv) To help in rehabilitation and post-disaster reconstruction.

Disaster management on the other hand involves.

(i) Pre-disaster planning, preparedness, monitoring including relief-management capability,

(ii) Prediction and early warning,

(iii) Damage assessment and relief management.

Disaster reduction or mitigation is a systematic work, which involves with different regions, different regions, different professions and different scientific fields has become an important measure for human, society and nature sustainable development.

Disaster not only gives us losses of people and property but also affects the growth rate of the country. So, to viewing these aspects should be tried to control or mitigate the frequencies of the disasters. There should be urgent facilities like social, humanitarian, economical, medical food and rehabilitation, pro-

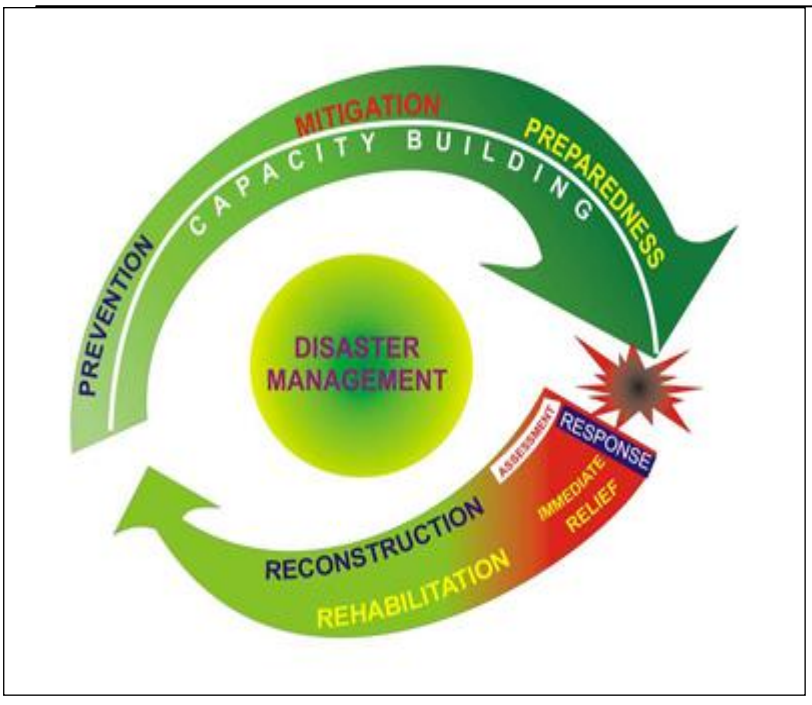
vided to the victims same time. To management of these disasters there should be a foresight vision, proper planning and perfect co-ordination is necessary. Year after year we are facing these countless disasters although, our efforts are improper.

1.5 Disaster Management-

To treat an emergency a holistic and integrated approach needs to be evolved towards disaster management with emphasis on building strategic partnerships at different levels. The themes under disaster policy are:

1. Community based Disaster management
2. Policy and plans
3. Capacity development in all areas
4. Consolidation of past initiatives and best practice
5. Cooperation with agencies at state, national and international levels
6. Multi-sector synergy.

Figure 1.2 Disaster management phases



Today is the era of development administration; so the civilians of the state expect the solutions of these problems from administration. Administration has also responsibility to protect the civilians, their lives and properties from disasters.

Before independence, there was no proper management system to protect from disasters. After independence the Indian Government has constituted the National Crisis Committee to deal with different types of crisis situation. The committee consists of nodal and support ministries to handle them.

Table 1.4

List of Nodal And Support Ministry

Disaster/Crisis	Nodal ministries
Natural disaster (except drought and civil strife)	Ministry of Home affairs
Drought	Ministry of Agriculture
Biological Disaster	Ministry of Health
Chemical Disaster	Ministry of Environment
Nuclear accidents and leakages	Dept. Of Atomic Energy
Railway accidents	Ministry of Railways
Air accidents	Ministry of Civil Aviation[ii]

Source – WHO Regional office

Under the delegated responsibilities between the central and state governments, disaster management is the responsibility of the state government which includes disaster preparedness, response and mitigation measures. Responsibility of the central Government is confirmed to coordination at the national level, lay down policies and guidelines in consultation with the expert committee, Finance Commission and the State Government. In this sequence, Indian Government releases a "Disaster management policy-2005" by the respected Prime-minister.

The objective behind this policy is to protect the civilian lives and properties against natural and man-made disasters.

The Nodal Ministry is mainly responsible for taking all actions to deal with a particular crisis situations. Some situations may require action by made than one ministry or department. The secretary of the Nodal Ministry Co-ordinates all support ministries /departments. Each Nodal Ministry has prepared detailed contingency plans for dealing with crisis situation falling in the areas of their responsibility.

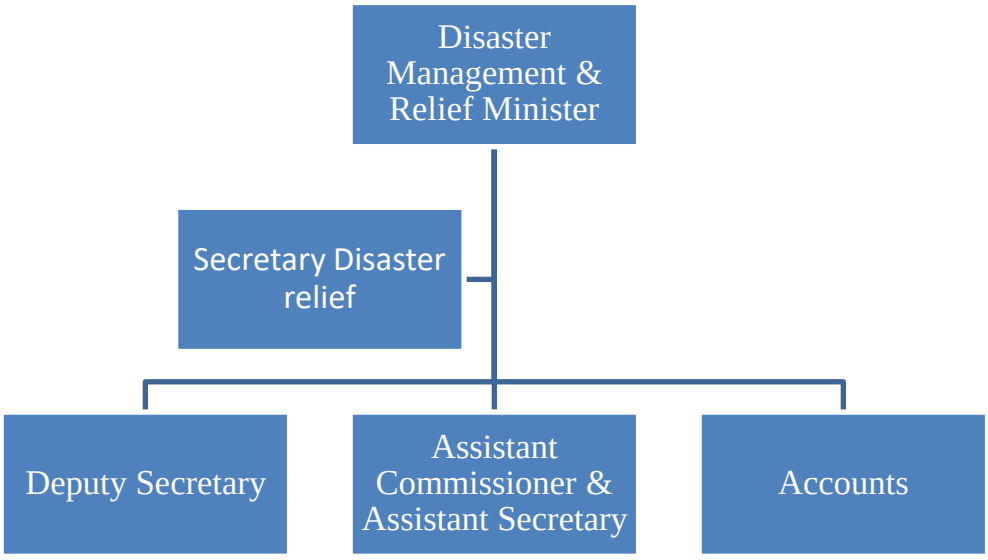
As the National level the emergency medical relief division of Directorate General of health services in the ministry of health and family welfare, is the technical unit exclusively meant for management of crisis situations. The division is headed by the Director, Emergency Medical Services and Relief. For the purpose of the crisis situations, he reports/receives instructions directly from the technical chief (Director General of Health Services) and administrative Head of the Ministry (secretary Health & F.W.). The Secretary Health & Family welfare has empowered Director, EMR to represent the ministry of health and family welfare in different crisis management groups at the national level. The Director, Emergency Medical Services & Relief (EMR) Co-ordinates with the other health sector partners like director of Health Services of the State Governments, stores division under the central Government, vaccine producing institutes, central Govt. hospitals and national institute of Communicable diseases etc. The objectives of the co-ordination are to review crisis situation from time to time and meet those needs, which state Governments cannot meet. For this purpose, continuous dialogue and communication are maintained with them. A health sector emergency preparedness and response program is in place since 1980 which was revised from time to time. Last revision was done in the year 1996. The emergency sector focal points of national, state and district levels are the integral part of the disaster management groups at the respective levels. A detailed guideline separately for flood, drought, cyclone and earthquake has been prepared and circulated in the month of March and April to all the drought-prone states and during May and June to the flood and cyclone-prone states. At the national level they have provided proper tools, material and techniques to properly manage the disasters.

In Rajasthan, on 30th June, 2005, a disaster management cell is established by the Chief Minister which is related to the disaster management policy, 2005. As per this policy a separate ministry in disaster management and relief has been established. This state executive committee has following members :

1. Chief Secretary - Chairman
2. Principal Secretary Disaster Management & Relief (DMR) - Member Secretary
3. Principal Secretary, Finance - Member
4. Principal Secretary, PHED - Member
5. Principal Secretary, Medical & Health - Member

As per disaster management policy an administrative set-up in Rajasthan has been adopted as [7]follows:

Figure – 1.3 Disaster management Administrative set-up



At district level collector ate office has been appointed as a Nodal office in a district. For that District Collector is responsible to manage and organize the district level disaster nodal agency. To cum in force they have provided proper manpower, tolls, techniques, budget and machinery etc. These disaster management centers are founded very useful as they have provided latest technical assistance and materials.

1.6 Objectives of the study:

1. To examine and study the concept and legal framework related to disaster Management.
2. To analyze the institutional set-up for disaster Management at National as well as state level.
3. To analyze the role and effectiveness of present administrative arrangements at district level with special reference to Kota District.
4. To assess the problems regarding the administration of the disaster management.
5. To explore the possibilities of private and non-government organization's role in this area.
6. To find out the role of new management policies and advanced technology in this regard to make a healthy society.
7. To suggest the reforms in the present status of disaster management, if needed.
8. To promote the further research in this regard.

1.7 Importance & Justification of proposed research work:

Kota is the most educational and Industrial city in the Rajasthan. There are KTPS, CFCL, IL, SAMCORE etc. and many other public and private sector institutes are situated here. Kota district is situated at the cool of great 'Chambal' river. These factors makes the Kota district much more disaster prone area, then the other parts of the states. Vulnerability and nature of the disaster is different then other districts, mostly flood related disasters are occurred here. That's why the possibility of disaster or hazards is more. So, there is necessity to make a proper, pro-active disaster management focus. This individual research will be helpful in this regard:

1. There is growing importance to do research work in this areas, as no prior research has been done.
2. This research will explore the structural and procedural deficiencies in the present set up.

3. It would explore present situation of the disaster management in Rajasthan state and Kota district.
4. It would be helpful to introduce new policies, legislation, rules and regulations required in this regard.
5. It would promote the use of new and advanced technology in this area.
6. It would be helpful to take pro-active steps to control and regulate future possibilities of disasters.
7. It would ensure the effective utilization of budget in this field.
8. This research would be helpful to promote further research in this regard.

1.8 Review of Literature:

Review of related literature provides the Ideas, theories, explanation, objectives and hypothesis to the Investigator for the research work. Literature taken as secondary data sources are:

1. A detailed study of **Asian Journal of Environment and disaster management** (AJEDM 2009) has been done which focuses on pro-active risk reduction in Asian region. If focus on the environment and disaster related issues in the Asian region. This Journal provides a forum to communicate research findings not only through Academic research but also incorporating field based action research.[iii]
2. A thesis written by 'Paulina Aldunce': **Opportunities for improving disaster management in Chile-a case study** has been studied. This research paper seeks to proper measures to improve management of rainfall related disasters in Chile. This paper includes social aspects (e.g. community participation, social vulnerability etc.) and disaster management.

3. proposal the background, context and theme of the [iv]study are presented. The objective of the study and the research statements are formulated. Here, vital concepts, Questions and assumptions are stated. Finally, the scope and limitation of the study, methodology to be used and the significance of the research are discussed.

4. Administrative issue involved in **disaster management in India** written by Jagdish Kaur is the Book that includes the study of various articles, amendments, interventions and Administrative issued in different times in India. The book not only emphasis on the administrative frame-work but also the legal aspects in the India by Indian Government.[v]

5. Study of the thesis by Abhijeet Arun Abhyankar "**Rapid assessment of disaster Impacts due to Cyclones using Remotely sensed Data in Disaster management** from IIT, Mumbai has been emphasized on the effects of cyclones in the coastal Gujrat and Mumbai regions and their impacts on the society.

6. Some Conferences, seminars and training held at different places in different times like "**National Conference on Disaster Management**" by Asian Institute of management and Technology form 4-6 April, 2009 in Yamuna Nagar, Delhi – It emphasized on the different types of Disasters in the Indian subcontinent, their Intensities, Impacts on social, economical & Health aspects.

7. "A Conference in "**Dealing with Disasters 2009 Resilience through local Governance International Conference**" held at Kathmandu, Nepal from 11-12 November, 2009 – emphasized on the techniques how to protect human as well as animal lives and property from the disasters. It has also discussed about the uses of new technology, Information technology and other social and community aspects.

8. "**A Conference on Disaster Management**, RICS, India and Federation of Indian Chamber of Commerce and Industry (FICCI), at Delhi from 23-24 April, 2010.

9. Book written by Gujar R. K. and Jatt B.C. – "**National Disaster**" Jaipur (Raj.) – highlights the types and vulnerability of disasters in the Rajasthan state. Book contain geographical structure, statics, disaster mitigation techniques, preparedness to minimize the impacts of disasters.

10. Book published and edited by Dekens, Julie, "**Local knowledge for Disaster preparedness**" (2007) based on a review of literature about local knowledge and practices and attempts to give an overview and framework of local knowledge in disaster preparedness, an understanding of its usefulness in disaster management, and the benefits and problems involved.

11. "**Disaster Prevention and management**" written by Emmanuelle Lettier (Deptt. of Management, Economics and Industrial Engineering, Politecnico di Milano, Milan, Italy) discuss a systematic review of the literature about disaster management with in the period 1980-2006. The research protocol is based on the methodology that is commonly used in healthcare for analyzing the literature and provides a state-of-art medical discipline. The paper presents both a descriptive analysis and a thematic analysis in order to provide a stock-of-art of International literature. The research protocol is provided in order to make transparent the review process.

12. Research paper on "**Local Government Problems with Disaster Management"** written by Robert P. Wolensky & Kenneth C. Wolensky. This study highlights two questions how have local Governments managed the demands associated with major natural disasters, and what explanation have been offered for the performance patterns observed & Questions. First part of Paper describes the social science disaster literature is reviewed to ascertain disaster stages (Predisaster, Planning, Emergency, early recovery and long-term recovery) among the explanations offered for the performance patters, second part of the paper "The disaster management problem" is stipulated and a structural analysis of it is under taken, focusing on the role of local Government within both the Inter-Governmental system and the local structure. The conclusion is that the disaster management problem has root deep within American society and culture, and any attempts to redress the problem will require attention to limiting structural realities.

13. Book written by Bharat Lohani – "**Application of Airborne altimetry LI-DAR (Light Detection and Ranging) is disaster management**" an overview reveals that the LIDAR technology has been used in gather information to manage various natural and artificial disasters. This papers aims at describing the state-of-art in LIDAR technology, its merit and demerit and an overview of its present and prospective uses in Disaster Management.

14. An Interregional Comparative study on "**The Role of Local Institution in Reducing Vulnerability to Natural Disasters**" describes and Analyse the field based evidence of the strengths (and limitations) and the comparative advantages of local Institutions in disaster risk management, clarifying what tasks and requirements should implies. Paper also provides guidance to policy makers on how local organizations could be best empowered as partners in DRM applying the principles of comparative advantage and subsidiary. Paper also elaborate strategies for linking disaster prevention and response activities and log-term sustainable rural development strategies.

15. An article "**Biological, chemical and nuclear terrorism readiness : Major Concerns and Preparedness of Future Nurses – Disaster management and response**" by C. Yong & D. Persell this article describes that the nursing profession is developing educational resources to improve their response to victims of nuclear, biological and chemical terrorism. Future nurses may differ from practicing nurses in their prospective of what is critical information. The purpose of this study was to identify student nurses' major concerns in relation to working with victims of disasters.

16. A text and case studies in **Disaster management** by – D. B. N. Murthy the coverage the various disasters happen in the India during 1980 to 2006. The book has highlighted the need for national policy on disaster management and mitigation policy. The book is an attempt to bridge the gap in the availability on information of disasters. It spells out the need for better disaster management that would bring immediate relief to the victims of the tragedy.

17. ‘A Comparative study of **Economical Impacts and Disaster - Management of Tsunami in Indonesia and Sri Lanka** this research study investigates the differences between Indonesia and Sri Lanka with respect to the economical impacts and disaster management of Tsunami. In this proposal, how the economy and the lives of the people are affected has been investigated. As well, how the international organizations such as the UN, World Bank, and International red-cross contributed in the fast recovery of both countries has been also addressed.

18. **A handbook** by Carter (1991) on disaster management published by the Asian Development Bank provides a comprehensive overview of the issue. Literature on types of disasters mainly categorizes them into two types, namely natural or manmade. These disasters not only cause destruction of human life and property, but also loss of cultural heritage which will be lost forever for future generations.

19. Major global disasters have been described by many authors. (Wei, Zhang, & Fan, 57 2003- Osorio & Hurych, 2004; Pech, & Slade, 2005; Pasricha, 2006; Then & Loosemore, 2006; Al-Tikriti, 2007; Son, Aziz, & Pena-Mora, 2007). Articles describing disasters in general by focusing on one particular type give an understanding about issues related to that kind of disaster.

20. The article by Pollonais (2004) is a general overview of **hurricanes and their after effects.** Atwater et al. (2005) give guidelines on how to survive from tsunami. In the world of information technology, there has been a quantum explosion of digital data. Among the disadvantages of such information is its vulnerability, if destroyed by disaster; data lost may not be recoverable. For example, the primary mission of the Federal Emergency Management Agency, USA (FEMA) is to reduce the loss of life and property and protect the nation from all hazards, including natural disasters, acts of terrorism, and other man-made disasters, by leading and supporting the United States in a

risk-based, comprehensive emergency management system of preparedness, protection, response, recovery, and mitigation are some examples of international agencies which provide services to disaster affected countries. The World Disasters Report published regularly by IFRC since 1993 brings together the latest trends, facts and analysis of contemporary catastrophes and their effect on vulnerable populations world.

21. The national and international literature clearly establishes that communities most vulnerable to disasters are the poor and marginalized segments of society (Hutton, 2001). Many examples are found in the literature, for example, Sundet and Mermelstein (1996 in Pyles, 2007) found an association between community characteristics before a disaster and the survival or failure after disaster of eight communities that experienced the Midwestern flood of 1993 in the USA. Research on disasters in the Philippines and Turkey demonstrate similar findings (Allen, 2003; Ozerdem, 2003, in Pyles, 2007). Access to safe, affordable housing, clean environment and jobs are critical after a disaster for those most vulnerable to long term effects (Pyle, 2007, p. 322).

22. The destruction of roads, bridges, schools, houses, buildings, boats and other assets had devastating impacts on business and employment after the 2004-5 Tsunami and Hurricane Katrina (2006). From agriculture and fishing to industry and trade (Grameen Foundation USA, 2005) no segment of the economy was spared in either of these large scale disasters. In the Tsunami fishermen lost their boats *and* their fishing nets and gear. Farmers lost their crops and equipment. Hurricane Katrina destroyed about 18,700 businesses resulting in over 500,000 people filing new claims for unemployment insurance (Holzer & Lerman in Winston et al., 2006).
23. Norman (2006) in an article discussing New Zealand's holistic framework for disaster recovery argues that a holistic and integrated framework is needed to consider the multi-faceted aspects of recovery which, when combined, support the foundations of community sustainability. New Zealand's framework for integrated and holistic recovery, depicted in figure 4 encompasses the com-

munity and four environments: social, economic, natural and built environments. Recovery activity (the central oval in black) demonstrates the integration between the community and the four environments (Norman, 2006, p.17).

24. The recent literature emphasizes the importance of well targeted interventions to address the social and psychological impacts of disasters. In previous decades Mitchell's widely used model of psychological intervention - Critical Incident Stress Debriefing (CSID) (Mitchell, 1983; Mitchell & Everly, 1996 in (Hutton, 2001) was used as a preventative intervention with significant populations exposed to disasters, based on the assumption that providing survivors with the opportunity to share their experiences in a structured and supportive environment will reduce feelings of abnormality and facilitate more adaptive coping responses (Raphael & Wilson, 2000).

25. The importance of rebuilding in a timely way is demonstrated by Parker's (1977) research of the 1974 Darwin cyclone. While initial levels of dysfunction among survivors were linked to 'mortality stress' (fear of injury or death), maladjustment after 10 weeks was associated with such 'relocation stressors' as loss of residence and possessions and disruptions to communal support networks (Parker, 1977 in Hutton, 2001).

26. Brewster (2005) has noted that communities may see opportunity to improve conditions rather than merely recover from losses. As noted earlier in the discussion about the nature of recovery, a return to the status quo prior to the disaster is not possible. Moreover, the quality of the recovery process will determine whether affected individuals progress or regress. It is in this context that Brewster argues that the devastation wrought by disasters provides a unique opportunity for a community to examine a range of issues such as housing inequities, traffic problems and inadequate infrastructure. In addition, there may be opportunities for modernization of public facilities, beautification of the landscape and built environment, and even stimulation of the local economy (Brewster, 2005).

27. The Canberra Bushfire study (2007) showed that the negative effects of a disaster for some can continue for a significant period. Three years after the fire in which 4 people died and 500 homes were lost, a considerable number of people reported deterioration of their everyday lives and ongoing health and psychosocial problems related to the bushfire. In the presence of a high level of exposure to the fire, and losses it appears that a large proportion of bushfire affected individuals are still experiencing symptoms of post traumatic stress and psychological distress (Camilleri, 2007)

28. Floods, droughts, heat waves, and storms have always been part of human lives because they are a normal part of climate variability. The observed trends and projected Changes in global climate have the potential to alter patterns of these climatic hazards and extreme weather events. (Wilhelmi and Morss 2013)

29. This study presents a discriminate analysis-based method for prediction of agriculture drought disaster risk. . The results showed that the model's prediction accuracy Varied range between 40 and 82.4%. The accuracy of high drought disaster risk category was higher than low and no drought disaster risk category. (Zhang 2013)

30. It is shown that the monitoring and evaluation precision on drought were reduced significantly. This study presents a methodology for dynamic risk analysis and assessment of drought disaster to maize production in the northwest of Liaoning Province based on remote sensing data and GIS from the viewpoints of climatology, geography and disaster. (XiaoJing 2013)

31. Fire in forested areas can be regarded as an environmental disaster which is triggered by either natural forces or anthropogenic activities. Fires are one of the major Hazards in forested. In this study, Structural Fire Index, Fire Risk

Index, and a new index called Hybrid Fire Index were used to delineate fire risk in northeastern Iran that is subjected to frequent forest fire. Vegetation moisture, slope, aspect, elevation, distance from roads, and vicinity to settlements were used as the factors influencing accidental fire starts. (Hamed 2013)

32. The analysis of risk and its causes is a crucial prerequisite for the development of risk prevention and mitigation measures in the scope of disaster risk management. The Work shows how the assessment framework can be applied in practice to derive a geo data based Flood risk map at the scale of the administrative unit of a building block that can be used as a local decision-making tool. (Muller 2013)

33. This study describes the characteristics of the disaster-prone community's in-Infanta, Quezon and determines their level of vulnerabilities. The disaster-affected Communities consist of three barangays purposively selected based on their topographical characteristics -lowland, upland and coastal. (Asueroet 2012)

34. The paper explored how governmental policies influence human vulnerability to environmental hazards. The main objective was to examine how economic and political Processes impact on the choices households and communities make to mitigate flood hazards. The analysis shows the implementation of some development strategies, its Consequential environmental degradation and the marginalization of groups increased the impact of disasters. (Aboagye 2012)

35. Heat waves, defined as an interval of abnormally hot and humid weather, have become a prominent killer in recent years. The selection criteria for DRM districts were earthquake, flood and cyclone incidence; but subsequently, heat wave awareness also get intensive attention in these districts. Results suggest

the heat wave awareness programs may have complementary impacts. (Das and Smith 2012)

36. This paper starts from the concept of suitability of green space for earthquake resistance and hazardous reduction, analyzes the systematic and individual evaluation separately, covers from the entire urban green space pattern, connectivity and security Pattern to the safety, accessibility, survive and effective refuge area of individual green space, discusses the methodology of urban green space suitability analysis for earthquake Resistance and hazardous reduction by three levels: the administrative area, urban planning area and urban built-up area (WenJun 2012)

37. A model based on Watson's power law for the species-area relationship predicts that full global warming, projected up to the year 2050. Just how severely global warming would affect not only the number but the diversity of the surviving species is addressed by this approach, while at the same time giving indications for the post-disaster fate of the remaining species (extinction or recovery). (Neto 2012)

38. The objective of analyzing hazard and risk in an area is to utilize the result in selecting appropriate landslide risk reduction strategies. In this study, an attempt is made to highlight the uses of hazard and risk information in different landslide risk reduction strategies along a transportation corridor in Nigeria, India. (Jaywalk and Weston 2013)

39. In Nepal, landslides represent a major constraint on livelihood and development, causing high levels of economic loss and substantial casualties each year. The landslide and the debris flow caused widespread damage to life and property and destroyed valuable infrastructure in the area and the adjoining villages. The disaster was a result of a landslide triggered by heavy precipitation and stream undercutting the existing landslide. (Gurung 2013)

40. The paper presents a framework for the nation-wide assessment of natural hazards, vulnerability and risk for the Republic of Georgia. Economic losses for all past events were estimated, and historical vulnerability was estimated. Finally, the spatial distribution of general vulnerability was assessed, and the expected maximum economic loss was calculated as well as a multi-risk map was set-up. The presented method will contribute to a reduction of disaster losses in Georgia and will foster future efforts of harmonization of risk management strategies in the country. (Varazanashvili 2012)

41. This paper investigates on the problem of annually occurring floods in Santiago de Chile applying a framework for risk assessment, especially developed for the usage in an urban area. The work shows how the assessment framework can be applied in practice to derive a geo data-based flood risk map at the scale of the administrative unit of a building block that can be used as a local decision-making tool. (Muller 2013)

42. Climate change and natural disaster risk are closely linked and climate change threatens to heighten these impacts in many areas, both by changing the frequency and intensity of extreme events and by bringing changes in mean conditions that may alter the underlying vulnerability of populations to hazards. The paper examines the climate Change, disaster mitigation and preparedness nexus in context of India. (Raja sekhar, 2012)

43. Water-related disasters have increased considerably worldwide in recent years. This paper firstly presents preliminary definitions about the concepts of hazard, vulnerability, risk and damage/disaster, because there is a certain lack of uniformity in the use of terms, which sometimes causes confusion; thus definitions are offered, with special attention paid to flood problems. Then, risk analysis procedures are described, whichConsist of systematic actions in a cycle of preparedness, response and recovery, and would have to form part of integrated flood risk management. (Wrachien, 2011)

44. Traditional ecological knowledge represents experience acquired over thousands of years of direct human contact with the environment. Communities have evolved with then nature, its resources, its risks and natural processes as well which in certain conditions act as disasters due to their damaging impacts. Present paper reviews the concepts and
45. Associated ecological hypothesis, traditional knowledge framework for disaster management in Indian context and discusses cases from Rajasthan and Bundel khand to evolve recommendations for science and policies. (Gupta and Singh, 2011)

46. Since tribal groups have lived within their local environments since time immemorial it is obvious that they do possess a rich knowledge about nature. Such knowledge is a precious national resource that can facilitate the processes of disaster prevention, preparedness and response in cost-effective, participatory and sustainable ways. This paper explores the traditional knowledge on disaster management of the" Lepcha "tribal people of Sikkim. (Jha, 2011)

47. Drought is a slow-onset natural disaster that has widespread consequences. This research investigated the validity of the homogeneity assumption among Iranian farmers. More specifically, it examined whether farmers use different strategies to mitigate drought. This drought management approaches was discussed and recommendations made to improving drought mitigation and preparedness. (Marzieh 2010)

48. This article provides a broad overview of emergency management during disasters, including its organizational structure and the emergency management cycle.

49. It delineates Activity that small animal clinicians might engage in with regards to disaster mitigation, preparedness, response, and recovery. It also introduces such concepts as the incident command system (ICS) and the national incident management system (NIM). (Helen March 2009)

50. A case study estimating population potentially impacted by flood hazard in New York City compares the impacted population determined by CEDS with that derived by Centroid -containment method and filtered areal-weighting interpolation. Undercounting of impacted population could have serious implications for emergency management and Disaster planning (Maantay and Maroko January 2009)

51. Flood risk management in the Netherlands is on the eve of shifting primarily from prevention towards risk management, including disaster preparedness and response and citizen participation. This study explores Dutch households' perceived responsibility for taking private protection measures. (Terpstra and Gutteling December 2008)

52. This event has stimulated a debate about the role played by coastal ecosystems such as mangrove forests and coral reefs in protecting low-lying coastal areas. Greenbelts may only be considered as an economical (and multi-functional) means to provide relative hazard protection for material assets (e.g. infrastructure, agriculture).We recommend a more holistic view, with tsunami hazard mitigation being seen as one of several services provided by coastal ecosystems. Equally, the value of other ecosystem services may be seen within the frame of risk management as they foster social stability and, in case of emergency and robustness. (Cochard March 2008)

53. While there is often a heavy emphasis on disaster response, disaster preparedness and mitigation are, rightfully, receiving more attention. Examining, the state of preparedness in Indonesia; the main challenges remain: improving coordination between different organizations, creating a culture of disaster-risk management, implementing appropriate methods, and maintaining momentum on this issue in the future. (James 2008)

54. In 2005, the Commonwealth Heads of Government Meeting issued a call to action' for improving disaster management. With weather and climate-related hazards on the rise, coupled with their increasing impact on vulnerable people and economies, it has become critical to answer this call. This article explores how the Commonwealth, and indeed the international community as a whole, can learn from recent research in this area and take Steps to implement the Guidelines for the Domestic Facilitation and Regulation of International Disaster Relief and improve legal preparedness for disaster Response. (Bannon 2008)

55. Natural disasters are a threat to human lives and the world economy, and recent experiences have proven that the current emergency management systems have significant deficiencies. The objective of this research is to develop an Emergency Response Model (ERM) that can be used by offices of emergency preparedness to evaluate response capabilities, to assess the logistics challenges in the event of natural disaster. The first step to develop the ERM is to define the mechanisms and coordination that must be in place among the different emergency management agencies in the event of a natural disaster. (Tovia 2007)

56. Water and sanitation (WS) are inseparable and together they play major roles in the transmission of the pathogen of diarrheal disease. Here present WS-related experiences gained after Bangladesh's 1991 cyclone and the views of participants in a regional and a national (local) workshop on this matter held in Bangladesh. Major issues for research may include: An appropriate environmental preparedness plan; appropriate waste disposal technologies; appropriate water treatment methods; self- help activities during vulnerable periods; and health education related to WS in disaster situations. (Hoque December 1997)

57. Effects and geographic patterns of local hazards are important for helping individuals make educated decisions about how to respond to their threat. Un-

fortunately, it is often difficult to find comprehensive sources of information about local hazards. In this paper, discuss the development of an online hazards atlas for the state of South Carolina. Here designed this atlas to facilitate awareness about the causes and effects of hazards.(Battersby 2011)

58. The Pacific Rim is particularly vulnerable to natural disasters, thus to social and economic losses. The challenges posed by potential disasters in the Pacific Rim countries Require rapid action, and also an energetic risk-management strategy. It is expected that concerted action on risk management will help create an increased awareness of the economy-wide significance of natural disasters. (Krimmer May 2001).

1.9 Nature and Scope of the Study:

Disaster management has a very wide coverage. In terms of structure, functions and services etc. and is the one of the most burning problem in the whole world. It creates a lot of scope to examine all things from different angles. The availability of time and resources are much guided factors in any research work. Besides, this to maintain the depth of the study, it is highly essential for a researcher to define the scope i.e. the range or extent of study. So that the study work could be focused on specific issues and generate some productive results.

Rajasthan is a highly, frequently disaster prone state in the India. Every year Droughts, Floods, Road and Train accidents, Industrial and Technical disaster, landslides, chemical disaster and nuclear disaster etc. comes in the Rajasthan state. Administration set-up of any state of disaster management is so wider that it requires separate analysis of each unit. So the present study is limited to the Kota district, which has relevance with subject title. Kota district is situated at the cool of the Great River Chambal. There are different types of private, Government and co-operative Institutions are situated. The vulnerability of disaster in the Kota district is much more than other city of Rajasthan. So, taking into consideration this object Kota district has been selected for this research work.[vi]

Kota district is the most industrial city in the state. There are so many private and government institutions like KTPS, CLFL, IL, SAMCORE, RAPP etc.

are situated here. The proposed research work is limited to the study of KTPS and CFCL, as they selected by the stratified random sampling. The collect orate will be taken as a nodal agency. Other Industries are not included as they are not vulnerable to enuff. Although, Kota Barrage and Jawahar Sagar Dam are also not the part of study because Dam safety required a full flagged research study, which is not included in the scope.

1.10 Nature:

The proposed research will be analytical in nature. As no prior other research has been done in this area. So this work is selected for the research study. Description will be also the part of study, so this research work would include the natural consequences related to social science and science, technology etc. There for research work would be Inter-disciplinary in nature as they are interconnected with the Management, Environmental sciences, Health & Nursing, Geography, Economics Engineering, Information and Computer Science and Technology oriented etc.

The proposed research work will be microscopic in nature and strictly concentrates on only that part which has a concern with the disaster management in the Kota district.

1.11 Research Methodology and Design:

Research methodology is a way to systematically solve the research problem. In other words, it is a science of studying how research is done scientifically.We have used primary and secondary data in this proposed research work.

Secondary data would be collected from the books, magazines, published and unpublished thesis, articles published in national and International journals, presented papers, prior research, News paper clipping etc. besides this, reports of various national and International organization, official pamphlets, departmental publications, government records, statistics, various legal documents and acts, financial proposals, abstracts of work-shops, conferences and symposiums etc. would also be used for this purpose.

The primary data will be collect by the mode of questionnaire technique. There will be two questionnaires-

(1) First questionnaire- First questionnaire will be filled by the common peoples of the Kota city on random basis about awareness, preparedness, training, mitigation, rehabilitation, suggestions etc. dimensions.

(2)Second Questionnaire-The Government agencies related to disaster management would be considered for the purpose of collection for primary data. The office of collect orate will be the nodal for the whole Kota district; it would work as primary agency. Besides this, Nagar Nigam, Water resource department, Fire safety department, SDRF, Civil Safety, CMHO and Electricity Department would also take in to account considering; as they works as the stake holders in disaster Management due to their sensitivities and importance in this area. These seven organizations would construct separate strata for research point of view. Stratified random sampling would be used to collect primary data by mode of questionnaire technique. Primary data would be collected by the persons selected from these strata. The questionnaires would be filling up by the persons selected by these strata; Obtain data would be analyzed and generalized by the statistical technique to find out Mean range and Standard Deviations.

1.11 Chapterization

Chapter1: Research Design -

Research design describes whole conceptual structure of the study topic. It highlights the scope, objectives and nature of the study. A review of available existing literature on the subject has been examined and a preamble i.e. Introduction which highlights the entire area of the research work. This chapter also contains methodology, chapterization and references of all work.

Chapter 2: Disaster Management: Conceptual and legal frame work

This chapter describes the concept and legal aspects of the study. The main aim of this chapter is to position this study in terms of the concepts, perspective of the Interest within the relevant practical useable scene, in order to specify and justify the theoretical model and the legal framework of the disaster management. The concept of the disaster management is introduced with a description of citizen charter. The legal framework of the disaster management is divided at dif-

ferent three national, state and district levels. A full description of the disaster management organizations, their functions has been described with the legal rules and regulations. In the end of the chapter services provided by the disaster management centers has been described. This chapter also describes the International and National efforts done by the various Authors and Researchers. Chapter also includes the funding budgets to these organizations.

Chapter3: Disaster Management: National and State Scenario-

This chapter describes disaster management in India as a whole, right from its historical background (before and after Independence) to its organization structure including political and administrative level. This chapter highlights all aspects of the disaster management institutes at the National and State level, their present status including their organization set-up, staffing, allocation and utility of Budget, Infrastructure facilities, Training of Staff and other dimensions etc. at National and State level.

Chapte 4: Disaster Management in Kota district -

This chapter deals with the study of Disaster Management in the Kota district. The main aim of this chapter is to determine the factors that accounts for the complex working procedure and administrative set-up of these organization at Kota district level. This chapter highlights the brief history & geographical area covered by the Kota district. This chapter also includes organization set-up, staffing allocation and utility of budget, Infrastructure, Training of staff and dimensions etc. related to Kota district.

Chapter 5: Empirical analysis and Suggestions -

A statically analysis of primary data would be shown in this chapter. Tabulation, generalization, geographical representation, statics and analysis of primary data would be the part of this chapter.

This chapter also describes the summary, problems, suggestions, reforms, helping units, NGO's and other related institutions, which directly or indirectly influences these disaster management centers.

In the end a conclusion is given which describe suggestion for the further researches.

Chapter-6 Summary and Suggestions –

This Chapter describes the summary of the research and to find out the suggestions to improve the present status of the Institutions of Disaster Management.

Conclusion-

This chapter is consists of the study of research problem, the research topics various dimensions like Definition, effects, types, nature and scope of the study about the series of catastrophes and their types across the world in recent times have served as a reminder and brief knowledge. Then the researcher finds out the objective and justification of the study. Researcher also find out the earlier study on the topic by literature review about the topic and backdrop of these chapters following the overview which is an attempt to capture valuable and available information across sectors and departments with focus on disaster management. The questionnaires would be taken as a tools to collect the primary data as well as secondary data would be collected by the disaster related institutions it is hoped that the information will serve as a tool to improve the roles and capacities of all the stakeholders while facing the hazards, risks and the resultant disasters.

Refernce :

1. As per report, “Disaster Mitigation and Vulnerability Atlas of India, by Skull Foundation (2003-2010) http://www.bmtpc.org/disaster.html
2. WHO Regional Office for South East Asia 2010 – A report.
3. Rajasthan State Disaster Management (DM) Policy & Relief - A report (2010)
4. AJEDM, Rajib Shaw, Kyoto University, Japan & Ramasawamy R. Krishnamurthy, University of Madras, India, ISSN (print) : 1793-9240, vol. I, issue-2 (December,2009).
5. URL:http://www.blackwell.synergy.com/links/doi/101111/J.1541-1338,1990 tbo 1074.x/ enhancedabs, vol. 9(1990), issue-4/06, pp. 703-725.

6. Jagdish Kaur, Published in International Review of Psychiatry, vol. 18, issue-6, December, 2006, pp. 553-557,
7. Natural Hazards and Disaster Management: Vulnerability and Mitigation- by R B Singh
8. Disaster Management and Mitigation- by Prof R B Singh
9. Disaster Mitigation: Experiences And Reflections"-by Alka Dhameja and Pardeep Dhameja
10. Disaster Management: Disaster Management and Mitigation approaches in india- by Paritosh Srivastava
11. Management and Mitigation of Natural Disasters- by Rajan Kumar Sahoo
12. Disaster Mitigation and Management: Post-Tsunami Perspectives- by Jegadish P.Gandhi.
13. Disasters: Strengthening Community Mitigation and Preparedness-by Khanna B.K.
14. Disaster Management - By Mukesh Kapoor
15. Disaster Management- Global Challenges and Local Solutions, By Rajib Shaw and R. R. Krishnamurthy
16. Disaster Management (3 Vols.)- Manmade Disasters, By K. K. Singh and Lofty Aleya and Vinod Singh
17. Disaster Management and Economic Development by-G.K.Kapoor
18. Disaster Management and Strategies-Concept And Methods, Risk Reduction & Insurance, Experiences & Case Studies-Byashu Pasricha , Kiyanoush Ghalavand , and Jai Narain Sharma

Chapter- 2

Disaster Management: Conceptual and legal frame work

2.1 Concept

2.2 Meaning of disaster

2.3 Types of disasters

2.4 Vulnerability to hazards & disasters

2.5 Impact of disasters

2.6 Effects of disasters

2.7 Disaster management

2.8 Constitutional framework

2.9 Legal framework

2.10 Disaster management Act

2.11 Techno legal Framework

2.12 Role of Central Ministries and Departments

2.13 National Level Institutes

2.14 Conclusion

Chapter- 2

Disaster Management: Conceptual and legal frame work

2.1 Concept of Disaster -

Disasters occur rapidly, instantaneously and indiscriminately. These extreme events either natural or man-Induced exceeds the tolerable magnitude within or beyond certain time limits, make adjustment difficult, result in catastrophic losses of property ,income and life is paralyzed. These events which occur aggravate natural environmental process to cause disasters to human society such as sudden tectonic movements leading to earthquake and volcanic eruptions, continued dry conditions leading to prolonged draughts, floods, atmospheric disturbances, collision of celestial bodies etc. It may be mentioned that environmental disasters are always viewed in terms of human beings. The intensity of environmental disasters is weighed in terms of the quantum of damage done to the human society.

Hazardous environmental processes always create extreme events becomes disasters. They may become disasters only when they adversely affect human society. For example, a very strong tropical cyclone (typhoon, hurricane or tornado) becomes only extreme event when it occurs and dies in the midst of an ocean but it becomes disaster when if strike the inhabitant coasted areas and inflicts colossal loss to human property and life. Similarly, a volcanic eruption in inhabitant land or ocean is never disastrous but when in takes place in densely populated area, it becomes disaster. Generally, the environmental disasters are natural and hence, these are termed as natural disasters. In other words, the natural sudden physical process and events become disasters, when people live close to a potential danger.[vii]

For example, It an earthquake of more than 10 on Richter scale occurs in totally inhabitant area it is not a disaster at all but on earthquake event of lower intensity i.e. below 7 on Richter scale, occurs in heavily populated area, it becomes a disaster. It may be further pointed out that it is not the frequency which

makes any extreme events disastrous rather it is intensity, magnitude, dimension and the quantum of damage done by any event which makes it disastrous.The intensity of disasters is weighed in terms of the quantum of damage done to the human society. Hazardous environmental process always creates extreme events but not all the events become disaster. These may become disasters only when they adversely affect human society. For example, a very strong tropical cyclone (typhoon, hurricane or tornado) becomes only extreme "event" when it occurs and dies in the midst of an ocean but it become "disaster" colossal loss to human property and life[viii].

Generally, the environmental disasters are natural and hence, these are termed as "natural disasters". In other words, the natural sudden physical process and events become disasters, when people live close to potential dangers.

2.2 Meaning of Disaster -

A disaster is the impact of a natural or human – made hazard that negatively affect society or environment. The root of the word

-Disaster- comes from 'astrology': this implies that when the stars are in a bad position, a bad event will happen.

- Disaster – the word derivers from Middle French' desastre from Old Italian
- Disastro- from the Greek (dis.) "bad" + (aster), "Star".

DISASTER

A disaster is defined as a "Sudden calamitous event bringing great damage, loss or destruction.

It is thus an even that takes everyone by surprise. However, this is always not strictly true. Instances of people ignoring waning are aplenty. In contemporary academia, disasters are seen as the consequence of inappropriately managed risk. These risks are the product of hazards and vulnerability. Hazards that strike in areas with low vulnerability are not considered a disaster, all that is the case in inhabitant regions.

Some of the disasters that last just a few minutes but could have long lasting effects over a large time frame, over a wide geographical area or it could be confined to a small area. The Bhuj in Gujarat earthquake of 26th January 2001 lasted a few minutes about three to four minutes, but its aftershocks were felt over a year with minor after-shocks being recorded for more than one year. On the other hand, a leak from factory producing, say chlorine could affect the local workers only if the leak is not a big magnitude but restricted to a small area within the factory. Those affected could be saved if the leak is noticed in time. Such an event is called on as per the (HPC) High powered committee on disaster management which submitted its report in 2001, 'a disaster is an event triggered by natural or manmade causes, that leads to a sudden disruption of normally within society, causing widespread damage to life and property.

As per the disaster Management Act (2005) -

[2"]A disaster is a sudden calamitous event that seriously disrupts the functioning of a community or society and causes human materials and economic or environmental losses that exceed the community's or society's ability to cope using its own resources". Though often caused by nature, disasters can have human origins.

(Vulnerability + Hazard) / Capacity = DISASTER

A disaster occur when a hazard impacts on vulnerable people, the combination of hazards, vulnerability and inability to reduce the potential negative consequences of risk results in disaster.

2-Em-Dat-International Strategy For Disaster Reduction (ISDR) Emergency Events Database

The dictionary meaning of the terms " crisis" is an unstable or crucial time or state of affairs in which a decisive change is impending ; especially, one with the distinct possibility of a highly undesirable outcome" called an " accident" to distinguish it from a more serve accident that could spread death and destruction for and wide.

"**An accident can turn into a disaster"**

Sometimes the line dividing "an accident" and "a disaster" is blurred. What was assumed to be an accident could well turn out to be a disaster. For example, when the first underground blast in the metro railway station in London was noticed, it was assumed to be of a local nature. However, within minutes, after a series of blasts were triggered by co-ordinate actions by the terrorists who engineered the blasts, the magnitude of a stray " incident" assumed the horrendous proportion of a major disaster affecting London so as to justify the declaration of emergency and shutting down of the entire underground rail system immediately. Thus it is always advisable not to assume any unusual occurrence as a minor accident till such time it becomes clear that there is no danger of the incident escalating into full blown disaster, it is better to error the safer side than to get caught napping.

2.3 Types of Disaster -

Environmental disaster is normally divided into two broad categories on the basis of main causative factors viz.

A. Natural disasters and
B. Man- induced disasters

Natural disaster are further sub-divided into two categories -

E.g. (1) Planetary disasters and

(2) Extra-terrestrial or extra-planetary disasters

Planetary disasters again fall into two sub types viz.-

(a) Terrestrial or endogenous disasters and
(b) Atmospheric or exogenous disasters

Man-induced disasters may be divided into three sub-categories viz.-

(a) Physical man-induced disasters like-landslides, accelerated soil erosion,

(b) Chemical and nuclear disasters like- release of toxic chemical in the air, nuclear explosions, leakage of radioactive elements, and

(c) Biological disasters like sudden increase or decrease of population of species in a given habitat either due to increased nutrients or increase of toxic chemical elements.

A- Natural disasters -

A natural hazard has an element of an element of human involvement. A natural phenomenon that occurs in a populated area is a hazardous event. A hazardous event that causes unacceptably large numbers of fatalities and /or overwhelming property damage is a natural disaster.

Although, humans can do little or nothing to change the incidence or intensity of most natural phenomena, they have an important role to play in ensuring that natural events are not converted into disasters by their own actions. It is important to understand that human intervention can increase the frequency and severity of natural hazards.

A- Natural hazards are naturally occurring physical phenomena caused either by rapid or slow onset events which can be of following:-

(1) Geophysical Hazard- earthquakes, landslides, volcanic activity, sinkholes.
(2) Hydrological Hazards-Tsunamis, floods, maelstrom, limbic eruption
(3) Climatologically Hazards-extreme temperatures, drought and wildfires
(4) Meteorological Hazards-Cyclones storms/ wave surges or
(5) Biological Hazards-disease epidemics and insects / animal plagues.

B- Technological or man-made hazards- complex emergencies conflicts, famine, displaced populations, industrial accidents and transport accident.

1. Geophysical Hazards -

- **Earthquakes-** Earthquakes are result of forces deep within the earth's interior. Sudden break or release of stored energy that radiates seismic waves. At the surface, earthquakes may manifest themselves by a shaking or displacement of the ground and sometimes Tsunamis.

Avalanche- An avalanche is a geophysical hazard a slide of a large snow (or rock) mass down a mountain side, caused when a buildup of snow is released down a slope, it is one of the major danger faced in the mountains in winter. An avalanche is an example of a gravity current consisting of granular material. In an avalanche, lots of materials or mixtures of different types of materials fall on rapidly under the force of gravity.[ix]

- **Lehar-** A Lehar is a type of natural disaster closely related to a volcanic eruption, and involves a large amount of material, including mud, rock and ash sliding down the side of the volcano at a rapid pace. These flows can destroy entire towns in seconds and kill thousands of people.
- **Landslides and Mudflows** – A landslide is a disaster closely related to an avalanche, but instead of occurring with snow, it occurs involving actual elements of the ground, including rocks, trees, parts of houses and anything else which may happen to be swept up. Landslides can be caused by earthquakes, volcanic eruptions or general instability in the surrounding land. Mudslides or Mud flows are a special case of landslides in which heavy rainfall causes loose soil on steep terrain to collapse and slide downwards.
- **Volcanic Eruption –** A volcanic eruption is a point in which a range is active and releases its power and the eruptions come in many forms. They from daily small eruptions which occur in places like Kilauea in Hawaii or extremely infrequent super volcano eruptions (where the volcano expels at 1000 cubic km of materials) in places like lake Taupo, 26500 years ago or Yellowstone caldera, which has the potential to become a super volcano in the near geological future. Some volcanic eruptions form pyroclastic flows, which are high Temperature clouds of ash and steam that can trial down mountainsides at speed exceeding an airliner.

2. Hydrological Hazards -

- **Flood –** floods are the result of prolonged rainfall from a storm. Including thunderstorms, rapid melting of large amounts of snow or rivers which swell from excess precipitation upstream and cause widespread damage to

areas downstream, or less frequently the bursting of man-made dams or rivers. Tropical cyclones can result in extensive flooding and storm surge.

- **Limnic eruption** – Also referred to as a 'lake overturn', a limnic eruption is a rare type of natural disaster in which CO_2 (Carbon die oxide) suddenly erupts from live stock and humans. Such an eruption may also cause tsunamis in the lake as the rising CO_2 displaces water.

  Maelstrom – maelstroms are a large tidal whirlpool. The largest known maelstrom is 'Moskstraumen' of the Lofoten islands in Norway. Maelstroms can reach speeds of 20-40 km/hour.

- **Sieche** – A seiche is a standing wave in an enclosed or partially enclosed body of water. Sieches and Seiche-related phenomena have- been observed on lakes, reservoirs, bays and seas. The key requirement for formation of seiche, is that the body of water be atleast partially bounded allowing natural phenomena to form a standing wave.
- **Tsunami –** A tsunami is a wave of water caused by the displacement of a body of water. The word 'tsunami' comes from Japanese words 'tsu' meaning – ' harbor' and 'nami' meaning 'wave' (tsunami= harbor wave). Tsunami can be caused by undersea earthquakes as in the Dec. 2004 Indian ocean earthquake or by landslides such as the one which occurred at Latoya bay Alaska. A mega tsunami is an informal terms used to describe very large tsunamis.

3. Climatic and Atmospheric Hazards -

- **Drought –** A drought is an abnormally dry period when there is not enough water to support agricultural, urban or environmental water needs. Extended droughts can result in deaths by starvation or disease and can result in wildfires.
- **Blizzard –** A blizzard is a severe winter storm condition characterized by low temperature, strong winds and heavy blowing snow.
- **Hailstorm –** A hailstorm is a natural hazard where a thunderstorm produced numerous hailstones which damage the locating in which they fall.

Hailstorms can be especially devastating to farm fields, ruining crops and damaging equipments.

- **Heat wave** – a heat wave is hazard characterized by heat which in considered extreme and unusual in the area in which it occurs. Heat waves are rare and require specific combinations of weather events to take place and may include temperature inversions, katabolic winds or other phenomena.
- **Ice Age** – In an Ice age, the climate all over the world would change and places which were once considered habitable would then be too cold to permanently inhabit. A side effect of an ice age could possibly be a mine caused by a worldwide drought.

4. Meteorological Hazards -

- **Cyclonic storms –** Hurricane, tropical cyclone and typhoon are different name for the same phenomenon: a cyclonic storm system that comes off of the ocean and becomes a 'storm' The corioli's effect causes the storms to spin and a "hurricane" is declared when this spinning mass of storms attains a wind speed greater than 74 mph. 'Hurricane' is used for these phenomena in the Atlantic and eastern pacific oceans, 'tropical cyclone' in the Indian 'typhoon' in the western pacific.
- **Tornado – a** tornado is a natural disaster resulting from a thunderstorm. Tornadoes are violent, rotating columns of air which can blow at speeds between 50 and 300 mph. and possible higher. 'Waterspouts' are tornadoes occurring over tropical waters in light rain condition.
- **Wild Hazard –** A wildfire is an uncontrolled fire burning in wild land areas. Common causes included lighting and drought but wildfires may also be started by human negligence or arson.

5. Bio-spherical Hazards -

- **Epidemic –** An epidemic is an outbreak of a contractible disease that spreads at a rapid rate through a human population or other bearer A 'Pandemic' is an epidemic whose spread is global.

Famine – famine is a social and economic crisis that is commonly accompanied by wide spread malnutrition, starvation, epidemic disease and increased mortality[x].

6. Extra terrestrial – hazards -

- **Impact event** – An impact event is a natural hazard in which an extra-terrestrial piece of rock or other material colloids with the earth. The exact consequences of a direct earth impact would vary greatly with size of the colliding object, although in ease of medium to large impacts short term climate change and a general failure of agriculture.

  Solar Flare– a solar flare is a phenomenon where the sun suddenly releases a great amount of solar radiation much more than normal. If is theorized that these release of radiation could cause a widespread failure of communication technology across the globe.

Levels of Disasters -

The disaster management and its planning at various tiers must take into account the vulnerability of disaster-affected area, and the capacity of the authorities to deal with the situation. Using this approach, the High Power Committee on Disaster Management5, in its report of 2001, categorized disaster situations into three 'levels': L1, L2, and L3. The period of normalcy, L0, should be utilized for disaster risk reduction.

Level-L1: The level of disaster that can be managed within the capabilities and resources at the District level. However, the state authorities will remain in readiness to provide assistance if needed.

Level-L2: This signifies the disaster situations that require assistance and active mobilization of resources at the state level and deployment of state level agencies for disaster management. The central agencies must remain vigilant for immediate deployment if required by the state.

Level-L3: This corresponds to a nearly catastrophic situation or a very large-scale disaster that overwhelms the State and District authorities.

The categorization of disaster situations into levels L0 to L3 finds no mention in DM Act 2005.

Further, the DM Act does not have any provision for notifying any disaster as a national calamity' or a 'national disaster'.

2.4 Vulnerability to hazards and disasters -

Vulnerability refers the way a hazard or disaster will affect human life and property. Vulnerability to a given hazard depends on:-

- Proximity to a possible hazardous event
- Population density in the area proximal to the event.
- Scientific understanding of the hazard.
- Public education and awareness of the hazard
- Existence or non-existence of early–warning systems and lines of communication
- Availability and readiness of emergency infrastructure
- Construction styles and building codes
- Cultural factors that influence public response to warning

In general, less developed countries are more vulnerable to natural hazards than are industrialized countries, because of lack understanding, education infrastructure, and building codes etc poverty also plays a role. Poverty leads to poor building structure, increase population density and lack of communication and infrastructure.

Human intervention in natural processes can also increase vulnerability by:

- Development and habitation of land for example building on flood plain subject to floods sea cliffs subject to landslides, coastlines subject to hurricanes and floods or volcanic slopes subject to volcanic eruptions.
- Increase the severity or frequency of a natural disaster. For example, overgrazing or deforestation leading to more severe erosion (floods, landslides) min-

ing groundwater leading to subsidence, construction proved to be one of the worst industrial disasters anywhere in the world. Toxic gas (MIC) at was released due to utter negligence of the maintenance and operating staff of the MNC union carbide factory is Bhopal. Though it was first stated to be a mere' Accident' 'it' happened that the toxic was carried away for miles die to winds that engulfed those unsuspecting people who were fast asleep. They had no inkling as to what caused them to choke and die without an warning. A few managed to flee but the toxic fumes caught them and created serious health problems, some of whom are still suffering the after effects, as still no remedy is found to that the damage caused by the deadly cocktail of the gas that escaped from the union carbide plant. Thus a small factory accident became a killer accident that killed thousands and affected several thousand of persons over an extensive area near the factory.

2.5 Impacts of Disasters -

Hazardous process of all types can have primary, secondary and territory effects.

- Primary effects occur as a result of the process itself. For example water damage during a flood or collapse of buildings during an earthquake, landslide or hurricane.
- Secondary effects occur only because a primary effect has caused them. For example – fires ignited as a result of earthquakes, disruption of electrical power and water services as a result of an earthquake. Flood hurricane or flooding caused by a landslide into a lake or river.
- Territory effects are long- term effects that are set-off as a result of primary events.

Affluence can also play a role, since affluence often controls where habitation takes place. They also likely contribute to global warming, since it is the affluent societies that burn the most fossil fuels adding CO_2 to the atmosphere.

1. Psychosocial impact of disasters –

The psychosocial squeal can be intense and of long duration in the aftermath natural and technological disasters as well as terrorist attacks, post traumatic stress symptoms and full syndrome depression, anxiety, somatic complaints, and excessive alcohol use have been demonstrated consistently, particularly following large scale disasters. These psychological researches conducted at various intervals after extensive natural and man-made disaster. A disaster also poses a level of threat to life, Health, property or environment that negatively affects society or environment. But disasters in whatever intensity took place affected psychologically nearly each and every person of the country and children due to their vulnerability were and yet until now are worst victims of their disasters. Children are mostly susceptible to disaster suffering and it is noticeable in many complex psychological and behavioral symptoms.

2.6 Effects of disasters -

Natural disasters have become so common place that they hardly receive passing notice on the news unless these have been a large number of causalities. Volcanoes, mudslides, tsunamis and floods are just a few of the ways nature strikes. on a daily basis, Leaving behind destruction and heartache. Humans have learned to prepare of the possibility of tornadoes, earthquakes, hurricanes and wildfires but no amount of preparation can lessen the impact that natural disasters have on every aspect of society.

- **Physical destruction** -The biggest visible effect of natural disasters is the physical ruin they leave behind. Home vehicles and personal possessions are often destroyed within a short period of time, leaving families hammerless and shutting some businesses down permanently. Tornadoes destroy structures at whim, earthquakes can cause structural damage that might not be apparent at first glance and tsunamis and floods sweep homes off their foundations.
- **Emotional toll -**

Possessions are not hard to replace as many people keep insurance on their property and tangible gods. The emotional toll of natural disasters is much more

divesting. The death of loved one may be the worst case scenario but it is not the only lasting emotional effect victims experience whole communities may be displaced. Separating friends and neighbors; victims face anxiety and depression as they wonder if it could happen again. In extreme cases, they may experience post traumatic stress disorder.

- **Economic concerns -**

According to the national Hurricane center, hurricane Katrina cost the US $75 billion when it slammed in August 2005. That doesn't include the damage caused in the Florida counties of Miami-Dade and browed by the same storm. While destruction of this magnitude is not commonplace, even a minor storm can cause considerable damage. At the very last, the local economy must be able to absorb the cost f cleanup and repairs.

- **Indirect effects -**

While the visible effects of natural disasters are immediate and strongly felt, communities that surround ground zero can be indirectly affected by them as well. Natural disasters almost always lead to a disruption in utility services around the area impacted. This can mean life or death for those who rely on dialysis or oxygen to live. Medical assistance is also often slowed, as emergency crews must focus on the victims of the disasters banks and other businesses might be closed affecting a family's ability to withdraw money to pay bills and groceries.

- **Geographical effects -**

Geography plays a large role in how natural disaster affects an area. In rural or isolated communities, natural disasters can thrust families into a situation where they must do without modern conveniences like electric and running water. They may not be able to get to town to buy necessities and have to rely on what they have stocked up. Densely populated areas face their own unique problems from natural disasters. Hygiene becomes a concern, as people crowd into temporary relief centers and competes for limited resources.

2.6.8 Environment effects -

Humans aren't the only living things affected by natural disasters. As in the case humans, animals can be displaced from their homes. Sometimes they have no alternative but to leave the area and try to fit into a new habitat. Volcanoes, earthquake, floods, wildfires and mudslides often permanently alter an area's landscape, leading in some cases to the destruction of a local species. In case of certain specific crisis situations, which affect the national interest, a national level response is necessary. Such contingent situations may be terrorist incidents like hijacking of an aircraft, suicidal attacks, sabotage, attacks on important installations/ building or community symbols hostage crisis, threat or actual use of nuclear / chemical / biological weapons, war or war like situations, muting, migration/ infiltration/ break- down of important services like railway, chemical/ biological disasters and those relating to majors mines – mishaps, oil spills, cyber terrorism etc.

2.7 Disaster Management -

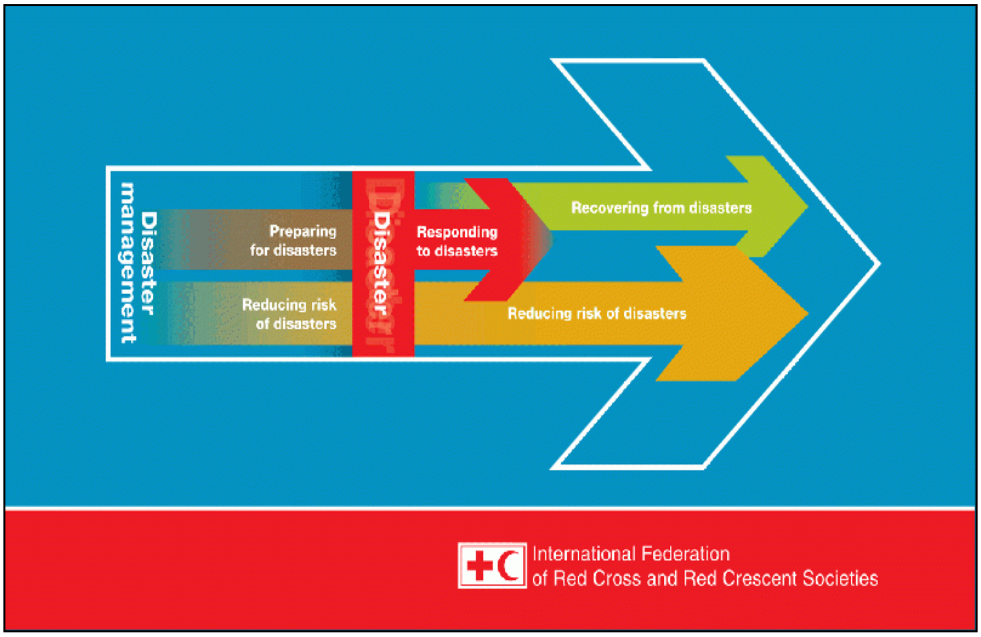
In the traditional disaster management approach, the focus was on emergency belief and immediate rehabilitation. Society deemed these measures sufficient as anything more was considered 'unaffordable' but a 'welfare state' entails wider responsibilities meaning thereby that in addition to the traditional responsibilities of relief and immediate rehabilitation, governments in conjunctions with the local bodies, the civil societies, voluntary organizations and corporate bodies. Address the factors leading to the crisis in a manner that ideally prevents their occurrence or at any rate, significantly reduces their ill effects.

It is also necessary to recognize that often a crisis does not emerge suddenly; it has a life cycle which may take days, months or even decades to develop depending on its causative factors. A crisis therefore, needs to be examined in terms of its management cycle that would enable us to anticipate the crisis, prevent and mitigate it to the extent possible and deal with the crisis situation as it emerges.

Disaster Management – An overview -

The International Federation of Red Cross & Red Crescent Societies defines disaster management as the organization and management of resources and responsibilities for dealing with all the humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters

Figure 2.1 Disaster Management Process



http://www.ifrc.org

- **History of crisis / emergency management -**

From human history Natural disasters and crises have been an integral part, right from the down of civilization. In the early era, Individuals and communities lead the response to overcome a crisis. However, with the emergence of the welfare state concept and so many other reasons like the 20th century trends of globalization, urbanization, large-scale mitigations of human population and climate changes, the nature of crises facing nations has increased both in magnitude and complexity.

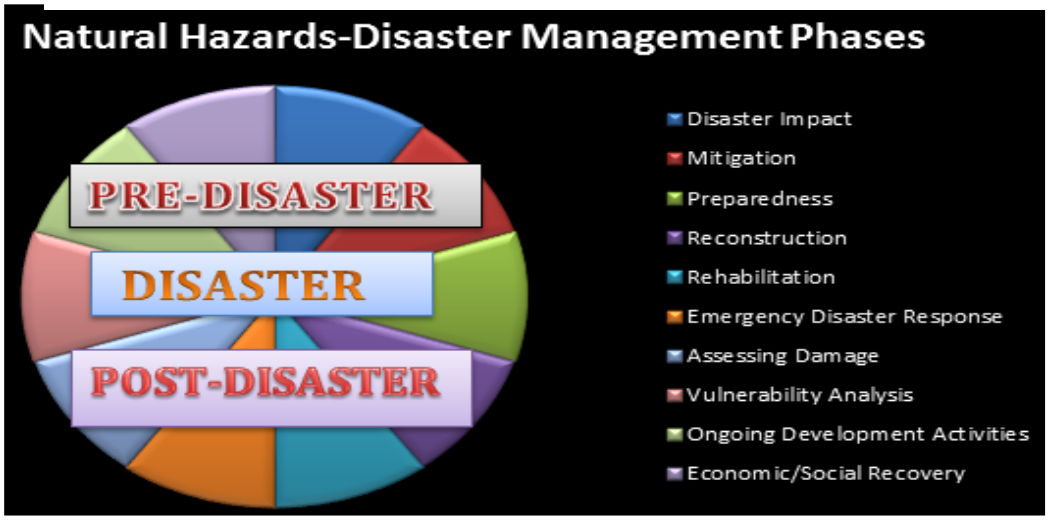
➢ **Different Phases of disaster management -**

Disaster Management is a strategic planning or procedure that is administered and employed to protect critical infrastructures from severe damages from natural or human made emergencies, calamities and catastrophic event occur. In the United States, Executive Order 13407 is established as policy for the United States to have an effective, reliable, integrated, flexible, and comprehensive system to alert and warn the general public, which is called "Integrated Public Alert and Warning System (IPAWS) (FEMA, 2011). In the later year of 2010, Europe started to develop a strategic National Disaster Management after so many natural catastrophes happened in the year of 2010. According to European Academy (2010), there are 725 extremely weather phenomena caused billions of Euro damage and thousands of people's life.

- Disaster management plans are multi-layered and are aimed to address such issues as floods, hurricanes, fires, bombings, and even mass failures of utilities or the rapid spread of disease (John, 2004).
- The disaster plan is likely to address such as important matters as relinquishing people from an impacted region, arranging temporary housing, food, and medical care (John, 2004).[xi]

Disaster phenomena may be divided broadly in to three phases – pre crisis, during crisis and post crisis i.e. preparedness, response, recovery and mitigating

Figures No. 2.2 Natural Hazards – Disaster Management Phases



Emergency Management phases include-

1. Disaster response -

UNISDR views Disaster Prevention, as the concept of engaging in activities which intend to prevent or avoid potential adverse impacts through action taken in advance, activities designed to provide protection from the occurrence of disasters. The HYOGO Framework was one such Global Plan for natural Disaster Risk Reduction, which was adopted in 2005 as a 10 year Global Plan, signed by agreement with 168 Governments which offered guiding principles, priorities for action, and practical means for achieving disaster resilience for vulnerable communities. Disaster preparedness activities embedded with risk reduction measures can prevent disaster situations and also result in saving maximum losses, lives and livelihoods during any disaster situation, enabling the affected population to get back to normally within a short time period .

2. Disaster Response *global trends* - Improvement of professional standards and guidelines as per WHO-

1. Greater emphasis on preparedness and mitigation programs as compared to relief and response operations
2. Focus on managing risks in advance of disasters
3. Shift from corporate donations of cash only to broader contribution including skills and resources
4. Integration of disaster preparedness into overall development objectives and programs
5. Greater involvement of the private sector and development banks
6. Development of NGO emergency units or rapid emergency response teams

3. Disaster recovery-

Vulnerability of communities often continues for long after the initial crisis is over. Disaster Recovery refers to those programs which go beyond the

provision of immediate relief to assist those who have suffered the full impact of a disaster and include the following activities:-

- Rebuilding Infrastructure e.g. Homes, Schools, Hospitals, Roads
- Health Care and Rehabilitation
- Development Activities e.g. building human resources for health
- Development Policies and Practices to avoid or mitigate similar situations in future.

4. Pre crisis mitigation-

Mitigation efforts attempt to prevent hazards from developing into disaster altogether or to reduce the effects of disasters when they occur. The mitigation phase focuses on long-term measures for reducing or eliminating risk. Mitigation measures can be structural or non- structural. Structural measures include legislation, land use planning (e.g. the designation of non essential land like parks to be used as flood zones) and insurance. Mitigation is most cost efficient method to reducing the impact of hazards.

5. Pre crisis: preparedness -

In the preparedness phase, emergency managers develop plans of actions for when the disaster strikes. Common preparedness measures include the:-

C. Communication plans with easily under stable terminology and chain of command.
D. Development and practice of multi-agency, co-ordination and incident command.
E. Proper maintenance and training of emergency services.
F. Development and exercise of emergency population warming methods combined with emergency shelters and evaluation plans.

Crisis can also be mitigated through various short term measures, which reduce or modify the scale and intensity of the threat or improve the durability and capacity of the elements at risk.

6. During Disasters – Response

When a crisis actually occurs, those affected by it requires a speedy response to alleviate and minimize suffering and losses. In this phase, certain 'primary activities' become indispensable. There are evacuation, search and rescue followed by provision of basic needs such as foods, clothing, shelters, medicines and other necessities essentials to bring the life of the affected community back to a degree of normally.

7. Post crisis-

- **Recovery:** This is the stage when efforts are made to achieve early recovery and reduce vulnerability and future risks. If comprises activity that encompass two overlapping phases of rehabilitation and reconstruction.
- **Rehabilitation:** Includes provisions of temporary public utilities, housing and interim measures to assist long terms recovery,
- **Reconstruction:** Includes construction of damaged infrastructure and habitats and enabling sustainable livelihood.

Table-2

THE FIRST SCHEDULE CALAMITIES

1. WATER AND CLIMATE RELATED CALAMITIES

1. Flood or drainage
2. Cyclone
3. Hurricane
4. Hailstorm
5. Heat wave
6. Cold wave
7. Drought
8. Corp failure
9. Sea erosion
10. Snow storm
11. Blizzard

12. Sand storm
13. Thunder
14. Cloud Burst
15. Famine

2. GEOLOGICAL RELATED CALAMITIES

1. Landslides, rock slides or mudflows
2. Earthquakes
3. Avalanche
4. Volcanic eruptions
5. River changing path

3. CHAMICAL, INDUSRIAL AND NUCLEAR RELATED CALIMITIES

1. Chemical and industrial disasters
2. Nuclear Disaster

4. ACCIDENT RELATED CALAMITIES -

1. Forest fires
2. Urban fires
3. Mine flooding or mine fires or mine collapse

1. Oil spill
2. Building collapse
3. Dam failures / dam bursts
4. Festival related disasters
5. Fire & electoral disasters
6. Air, road and train accidents
7. Boat capsizing
8. Village fire

5. BIOLOGICALLY RELATED CALAMITIES

1. Biological disasters and epidemics
2. Pest attacks
3. Cattle epidemics
4. Food poisoning

2.8 Constitutional Framework for Disaster Management in India Introduction -

Institutional arrangements for disaster management and legal frameworks are interlinked. Laws and regulations provide an enabling framework to the organizational structure and its participants. It is for this reason that laws provide for organizational structures at different levels as well as the roles, mandates and responsibilities of various institutions and individuals. Further, an Organizational structure without a legal foundation would be less effective. In the larger context, however, the overall system of governance, which includes policies, institutions, laws and values, influences the relative strengths and achievements of the agencies and individuals undertaking the activities of disaster management. Consequently, a review of law relating to disaster management would invariably involve an analysis of the organizational structures at different levels, their roles, functions and appropriateness for the tasks assigned or to be assigned. This is what the Task Force has kept in view while reviewing the DM Act, 2005.

Laws and institutions evolve over time and are influenced by the thoughts, ideas and events of the time. The DM Act, 2005, exemplifies this to a great extent, it is both interesting and useful to delve into some of the important developments and trends at the international and national level, which prepared the ground for and accelerated the process of the enactment of the Act. All the above mentioned initiatives were characterized by a considerable focus on legislation, policy and institutional arrangements as important ingredients of a holistic approach to disaster management. This chapter is sub- divided into two sections-

Section I:

- Briefly describes recent global trends in disaster management and various constitutional provisions for Disaster management in India.

Section II:

- Recounts the evolution of disaster management.
- Legislation in India – a fascinating story.

A. Constitutional Provisions for Disaster Management in India -

➢ **Constitutional perspectives -**

Constitution of India does not have any explicit provision on the subject of disaster management. Despite being one of the world's lengthiest constitutions, the non-inclusion of disaster management in the constitution may probably be explained by three interrelated reasons. Firstly, being the supreme law of the land, a constitution is usually a body of basic laws to outline the fundamental contours of a polity with elaborate provisions on fundamental rights and indicative division of legislative, administrative and financial competencies of different strata of governments. So, in such a scheme of things, the operative subjects like disaster management is not supposed to figure in the constitutional provision as they are left to the prudence and wisdom of the government of the day to evolve appropriate policy and administrative framework to deal with the issue in hand. Secondly, and more importantly, at the time of framing the constitution, disaster management was not considered such a significant subject as to merit the attention of the constitution makers, and find a place in the provisions of the constitution. Finally, the prevalence Of a number of colonial tools of disaster management such as Famine Code along with the existence of steel framed administrative machinery to conduct the rescue and relief operations in the times of disasters probably appeared sufficient for the national leaders to manage the disasters even in future as well. As a result, the subject of disaster management failed to secure a place in the elaborate scheme of division of vital subjects between the centre and states. The HPC and the Second ARC have examined the necessity of a specific entry relating to disaster management in the Constitution of India. In the **Seventh Schedule** of the Constitution, subjects that come under the legislative competence of the Union

and state governments are enumerated in the Union List and the State List, respectively. Subjects on whom both the Union and state governments have concurrent legislative jurisdictions are included in the Concurrent List. Disaster management was not mentioned specifically as a subject in any of the lists. According to the HPC, the only two entries in the State List that are somewhat related to the subject of disaster management are **entry 14 –** which deals with agriculture, including protection against pests and plant diseases – and **entry 17**, which deals with water, including water supply, drainage and embankments. The HPC strongly felt that this was grossly in adequate, and that disaster management needed a specific entry in the Seventh Schedule of the Constitution of India.

B. Indian Constitution and Natural Disaster -

Indian Constitution, the magna-cart of Fundamental Rights for Indians which guarantees to protection of life and security with the purpose of ensuring a welfare State. Not only the laws and regulations framed by the Central and State Governments have to be in conformity with the Constitutional provisions, but also the authorities have a duty under the Constitution to safeguard and protect the Fundamental Rights. The scope and applicability of these Fundamental Rights and the validity of the laws passed by the legislatures and the executive actions of the government are often the subject matter of various decisions by the Supreme Court of India The Supreme Court of India has given a wider interpretation to the scope of **Article 21**- to include the Right to have a clean and healthy environment. The scope of the Right to life has been further widened "Disaster Management" means all the aspects of planning, coordinating and implementing all measures which are necessary nor desirable to prevent , minimize, overcome or to stop the spread of a disaster upon the people or any property and includes all stages of rescue and immediate relief.

C. Third report of the Second ARC -

As mentioned in the page 34, a subject not specifically mentioned in any of the three lists of the Seventh Schedule of the Constitution comes under the Re-

siduary Power of the Union under **entry 97** of the Union List: "According to one view, Parliament therefore has the competence to legislate on the subject.

D. Entry 23 of the DM Act, 2005 -

The Parliament enacted the DM Act, 2005, by invoking entry 23, namely, "Social Security and Social Insurance; Employment and Unemployment" in the Concurrent List of the Constitution of India. This also has the advantage that that States can have their own legislation on disaster management as well.

E. Entry 23 of the Second ARC -

According to the Second ARC, all aspects of disaster management, including preparedness, early warning systems, rescue, relief and rehabilitation, are not covered by **entry 23,** of the Concurrent List. The term '**Disaster**' includes not only natural calamities but also industrial disasters, health related disasters (epidemics) and disasters caused by acts of terrorism. There are various entries in the three lists which deal with some or the other aspect of disaster management. For example, Public Order and Public Health are included in the State List. Entries 14 and 17 of the State List deal with agriculture and water, respectively. Environment and social security are included in the Concurrent List. Atomic energy and the railways are part of the Union List.

F. Disaster management requires a multidisciplinary and multi-agency approach. It requires coordination among Union, state and local governments on the one hand and several government departments and agencies on the other. In other words, vertical and horizontal linkages are essential. In order to achieve convergence and coherence among departments and agencies, and because of the holistic nature of disaster management which necessitates cutting across sectors, there is a need for a broadly uniform institutional framework. Keeping these aspects in view the Second ARC, like the HPC and the National Commission to Review the Working of the Constitution **(NCRCW**), has recommended that the subject of disaster management be included in the Concurrent List of the Constitution. Its recommendation was as follows:

2.9 Disaster Management Legal Framework -

Globally, a paradigm shift in the approach to disaster management, from relief and rehabilitation to prevention and mitigation within a holistic and comprehensive framework, occurred in the decade of the 1990s, observed by the UN as the International Decade for Natural Disaster Reduction (**IDNDR**). In 1994, the Yokohama Strategy and Plan of Action for a Safer World were adopted at the World Conference on Natural Disasters. In 1999, a United Nations General Assembly Resolution adopted the International Strategy for Disaster Reduction (ISDR) and created the Secretariat of the ISDR (**UNISDR**) with the objective of ensuring its implementation. In 2003 and 2004, the UNISDR carried out a review of the Yokohama Declaration. This review formed the basis for the Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters (**HFA**) which was adopted by the World Conference on Disaster Reduction held in 2005 and subsequently endorsed by the UN General Assembly.

1. Role of Disaster Management legislations-

It is asserts that "without a comprehensive and binding legal directive that obliges actors and agencies to take action, the natural inertia of bureaucracies means that non-specified essential tasks are unlikely to be undertaken". Law can be used to provide penalties and incentives by enforcing standards, to empower existing agencies or establish new bodies with new responsibilities, and to assign budget lines. The role of a legal framework in disaster management has been well recognized in the last two decades by policy makers, practitioners and analysts at the national and international level. The following statement from the **Global Assessment Report on Disaster Risk Reduction, 2011**, citing from various sources:

The role, relevance and value of legislation, is brought out succinctly in a how cites the following aspects from the literature on the subject:

• It provides a formal basis for disaster countermeasures generally, formally supporting plans, organizational arrangements, preparedness measures, response actions, and recovery and reconstruction programs.
• It allocates major responsibilities in legal form, which helps to secure their proper implementation.
• Legislation can be made to have a uniform national effect, thus ensuring that all levels of the national counter-disaster structure receive the full benefit of its support.
• It does not need to be complicated to be effective. It can provide common sense backing for common sense requirements.
• Legislation can provide a wide measure of protection for governments, organizations, and individuals who may be affected by a disaster.
• Disaster legislation can augment and supplement other legislations related to environment protection, economic development, etc.
Other key attributes of effective arrangements for disaster management listed by
• Clear mandate and roles, including line of command and coordination, within political units
• Integrated and comprehensive and hazard specific
• incorporated in the law of the land/constitution
• Sensitivity to indigenous customary law
• implementing rules and regulations
• Appropriate sanctions and enforcement mechanisms
• Recognition of collateral law, which may include mitigation and other aspects of DM components
• Explicit provision for financial support
• Sub-national legal instruments sensitive to local content
• Integration into national development framework and plan
• Community participation in the planning, implementing, monitoring and evaluation.

2. Disaster Management In India -

Legal framework constitutes the foundational pivot around which different aspects of an activity are interwoven. It is probably for this reason that in onstituting modern democratic political systems, it has been found essential to ordain that on the basis of a written Constitution. This enclosed the issues and activities that could not find place in the scheme of a written Constitution, For obvious reasons, have been provided a sound legal basis by enacting a framework law on the subject. In India, one such issue has been the management of disasters. Despite being one of the most disaster prone countries in the world, the subject of disaster management could not find a place in the Constitution of India for reasons explained later in the paper. In fact, for a fairly long period of time, disasters, both natural and manmade, had been found to be managed in the classical colonial mode of trial and error resulting into untold miseries for the people and massive loss of lives and Property. The lurking dangers of climate change and its colossal impact on the occurrence of natural disasters prompted the international community to go for a recasting of the disaster management system in all parts of the world. In such an overhaul of the disaster management systems, central place was afforded to the provision of a sound legal framework. In the wake of these persuasions, Indian Parliament enacted the Disaster Management Act in 2005 to provide for the legal framework in which the structures, functionaries and activities related to management of disasters should organize and operational zed in order to make the country disaster free.

3. Historically, measures to address problems of famine and to some extent floods have been the focus of disaster management in India. Some form of legal framework was introduced during the late 1870s. The first Famine Commission suggested the formulation of Famine Codes. It also suggested the establishment of agriculture departments in provinces with a view to improving agricultural production and taking preparedness measures for meeting situations of failure of rains. The 19th century witnessed the setting up of several Famine Commissions which developed Famine Codes. Even after Independence, disaster management efforts were limited to fighting natural calamities, particularly severe droughts resulting in famines or famine-like conditions. In some areas measures to mitigate

the effects of excess rains and floods were taken. States had their Relief Manuals containing norms and guidelines for such relief measures. In the 1970s, a comprehensive drought management programs focusing on mitigation was taken up through the **Drought Prone Areas Program (DPAP).**

After Independence, a Scarcity Relief Division was set up in the Ministry of Agriculture, Government of India, to deal with the problem of food scarcity. Subsequently, it was assigned work relating to various natural calamities. At a later stage, its nomenclature was changed to the Natural Disaster Management **(NDM**) Division. Thus the Ministry of Agriculture became the nodal Ministry for disaster management at the national level. In 1995, the National Centre for Disaster Management (**NCDM**) was established within the Indian Institute of Public Administration (IIPA). The NDM Division and the NCDM were expected to control the Disaster situations. As a result of IDNDR initiatives, and also because of the experiences of a number of major disasters (e.g., the 1993 Latur earthquake), the subject of disaster management received more urgent attention in India. The GoI constituted a High Powered Committee (**HPC**) on disaster management under the chairmanship of Sh. J.C. Pant in August, 1999. The HPC's mandate was to review existing arrangements for preparedness and mitigation of natural disasters and recommend measures for strengthening the organizational structure. The HPC was also asked to formulate a comprehensive model plan for natural disaster management at the national, state and district levels. Subsequently manmade disasters were also brought within its scope. The HPC submitted its final report in **October, 2001.**

4. The **HPC** undertook a series of consultations with a number of governmental and non-governmental entities, national and international agencies, and media organizations .The final report of the HPC displayed a vision to work towards a Disaster–free India by adhering to a culture of preparedness, quick response, strategic thinking and prevention. The HPC's recommendations spanned the Constitutional and legal framework, organizational structures and institutional mechanisms keeping in view the overall disaster management system of the country. After the 2001 Gujarat earthquake, the GoI constituted an All-Party National Com-

mittee headed by the Prime Minister. The HPC was converted into a Working Group of the National Committee. The Working Group submitted its report to the Prime Minister in June 2003. The Working Group, inter-alia, recommended a **National Disaster Management Policy** for adoption by the GoI.

5. The GoI set up the Second Administrative Reforms Commission (ARC) under the chairmanship of Sh. Veerappa Moilly in August, 2005 to prepare a detailed blueprint for revamping the public administration system. The ARC submitted its third report – ***Crisis Management: from Despair to Hope*** – in September, 2006. The report discussed at length various aspects of disaster management, including the legal and institutional framework. Further, it analyzed and commented upon important recommendations of the HPC and also on the provisions of the DM Act, 2005.

2.10 Disaster Management Act, 2005 -

Supreme Court has held in Vellore Citizens welfare Forum V. Union of India reported in (1996) Vol. 5 Supreme Court Case p. 647 as follows; "The Constitutional and statutory provisions protect a person's right to by the Supreme Court of India to include the Right to Sustainable Development. In Tihri Dam case involving construction of a dam across a river in the mountain ranges in the Himalayas, the Supreme Court of India has held that disaster management is part of the Right to Sustainable Development. Thus, the Constitution of India imposes a constitutional duty on the part of the Central and State Governments to formulate proper disaster management policies and programs a part of their efforts to attain sustainable development. This position emerged from their efforts to attain sustainable development. This position emerged from the Judiciary's tryst with several tragedies including the man-made disaster in Bhopal, 1984. Thousands of people were either killed or injured by the poisonous gas that emanated from the Union Carbide Chemical disaster tragedy causing death and serious injury to several thousands of helpless people in Bhopal had generated widespread public concern, increased the level of public awareness on man-made disasters, and brought to the force, the pressing need for framing proper policies to prevent and mitigate

such general public on the need to protect the environment and people from uncontrolled industrial activities, and to have programs and policies to rehabilitate the victims in the event of such manmade disasters. The Bhopal gas leak tragedy had also brought about the need to fresh air, clean water and pollution free environment. Our legal system having been founded on the British common law the right of a person to a pollution free environment is a part of the basic jurisprudence of the land. The right to sustainable development as part of clean environment has been recognized by the Supreme Court of India in several decisions

1. Triggered by the experience of the 1984, Bhopal gas disaster, the **Environment (Protection) Act, 1986**, was passed to ensure that developmental and industrial activities did not damage the environment or cause pollution. The Act prohibits a person operating an industry, operation or process from discharging or emitting any environmental pollutants in excess of the standards prescribed for this purposes. The Hazardous Wastes (Management and Handling) Rules, 1989, and the Hazardous Chemical Rules, 1989, were framed under the Act. However, it was only in 1996 that the Ministry of Environment and Forests published the rules on "Emergency Planning, Preparedness, and Response for Chemical Accidents".

2. The **Public Liability Insurance Act, 1991,** makes it the responsibility of the owner of a unit producing hazardous substance as defined in the Environment (Protection) Act, 1986, to provide immediate relief where death or injury to any person or damage to any property results from any accident to the extent in incited in the Schedule to the Act. The owner is required to have one or two insurance policies so that the liability for providing relief is covered by the policy.

3. There are a number of laws and codes at the state level on subjects relating to fire prevention. Acts and rules addressing disaster risk reduction issues in India are-

- The Indian Forest Act, 1927
- The Factories Act, 1948
- Civil Defense Act, 1968
- Water Act (Prevention and Control of Pollution), 1974

• Guidelines for diversion of Forest lands for non-forest Purpose under the Forest (Conservation), Act, 1980

• Air (Prevention and Control of Pollution) Act, 1981

• Environment (Protection) Act, 1986

• Factories Amendment Act, 1987

• The Hazardous Wastes (Management and Handling) Rules, 1989

• Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989

• Rules for the Manufacture, Use, Import, Export and Storage of Hazardous Micro-Organisms, Genetically Engineered Organisms or Cells, 1989.

• The Public Liability Insurance Act, 1991

• The Chemical Accidents (Emergency Planning, Preparedness, and Response) Rules, 1996

• Bio-medical Waste (Management and Handling) Rules, 1998

• Dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land Rules, 1999

• The Municipal Solid Waste (Management and Handling) Rules, 2000

• The Biological Diversity Act, 2002

• Scheduled Tribes and other Traditional Forest
Dwellers (Recognition of Forest Rights) Act, 2006
Hazardous Waste (Management, Handling and Tran's boundary Movement) Rules, 2008

• The Cultural Heritage Conservation Bill, 2010 (Draft)

• Mines and Minerals (Development and Regulation) Act, 2010

• The National Green Tribunal Act, 2010

• Wetlands (Conservation and Management) Rules, 2010

Besides this the States and UTs have their own laws.

4. The NCDM engaged Prof. S.S. Singh to study the legal framework of disaster management in select countries and to propose a draft Disaster Management Bill for India. Prof. Singh studied the laws of Australia, Britain, Canada, Cook Islands, Denmark, Japan, The Netherlands, Papua New Guinea, Trinidad and Tobago, and the United States of America. On the basis of his study, in **June 2000, Prof.**

Singh proposed a draft Disaster Management Bill for India with the following salient features:

• A National Council chaired by the Prime Minister, with Ministers of the relevant Ministries of Government of India; the Deputy Chairman, Planning Commission; Chief Ministers (by rotation) as Members; and the Secretary, Ministry of Agriculture, as Member Secretary.

• A National Authority on Disaster Management – NDMA – with the Agriculture Minister as Chairman of its Executive Committee and a few eminent persons and Secretaries of the relevant line departments as Members. A secretariat with full-time functionaries was also proposed.

• A State Council and SDMA at the state level; District Council and DDMA at the district level, respectively.

5. The HPC prepared a **National Calamity Management Act 2003** the draft of which was circulated to all States and the relevant Ministries of the Government of India for their comments. The proposed Act aimed at ensuring efficient and effective management of natural and other calamities by achieving greater co-ordination and responsiveness for the purpose of prevention and mitigation of disasters. The proposed National Calamity Management Act envisaged the formation of a National Centre for Calamity Management (NCCM) and also dwelt on the duties and functions of the Central Relief Commissioner, State Relief Commissioners and District Relief Commissioners. It also provided for a National Calamity Contingency Fund. There were provisions related to offences and penalties, too. Though not incorporated in the proposed Act, the HPC recommended the creation of a separate Ministry of Disaster Management. It also recommended a Cabinet Committee on Disaster Management and a National Council on Disaster Management with all parties being represented in it.

6. The HPC also prepared a Model **State Disaster Management Act** which could be adopted by the States to prepare their legislation on disaster management. The Model Act identified the principal authorities for disaster management – the state government, Standing Technical Committee, State Relief Commissioner and District Magistrate – and outlined their powers and responsibilities,

duties and functions. It also enumerated the duties of local bodies and other agencies such as State Police, Home Guard, Civil Defense, and Public Enterprises. It specifically mentioned the role of insurance as a mitigation measure. The Model Act also contained provisions regarding liabilities, offences and penalties. In both the draft Acts – the National Calamity Management Act and the State Disaster Management Act – there was an emphasis on capacity building and training of various stakeholders. Among others the HPC recommended the setting up of the NIDM for capacity building, and the creation of a separate department to deal with disaster management in the GoI.

7. As mentioned earlier, after the 2001 Gujarat earthquake, an All-Party **National Committee on Disaster Management** under the chairpersonship of the Prime Minister of India was constituted in **February 2001**. The HPC was converted into a Working Group under the overall supervision of the Vice-Chairperson of the National Committee on Disaster Management. The National Committee endorsed HPC's recommendations for the enactment of a central legislation on disaster management. However, at that point of time, the GoI took a view that instead of a central legislation, the States be advised to enact their respective state legislations. In a communication dated July 29, 2003 which was sent by the then Deputy Prime Minister to the Chief Ministers on the various measures to be taken, it was, *inter alia*, suggested that the state governments could enact their own State Disaster Management Act. However, in the aftermath of the 2004 Asian tsunami, it was decided that a central law on disaster management be enacted and a **National Disaster Management Authority** be constituted.

8. Even as the formulation and enactment of a Central law on disaster management was under consideration of the GoI, some States passed their own laws: The Gujarat State Disaster Management Act, 2003; the Bihar Disaster Management Act, 2004; the Uttar Pradesh Disaster Management Act, 2005; and the Uttaranchal Disaster Mitigation, Management and Prevention Act, 2005. The Bihar Act is based on the model recommended by the HPC. The Uttaranchal Act envisages the establishment of a Disaster Mitigation and Management Centre which would fo-

cus on disaster management, creating awareness, exchange of information; establishing and operation setup for an advance warning system in the region.

9. Thus, the national level legislation was the culmination of a process which started almost a decade earlier. Global initiatives, international interactions and national experience served as catalysts for moving towards creating a legal framework for disaster management. The 2001 Gujarat earthquake generated a sense of urgency, resulting in the Gujarat State Disaster Management Act, 2003 which was the first such Act in the country. The process at the national level was influenced by major disasters such as the 1999 Odisha super cyclone and the 2001 Gujarat earthquake. The 2004 Asian tsunami provided the final impetus for the enactment of the DM Act, 2005 on December 23, 2005.

2.11 Techno legal Framework -

Revision of Municipal Regulations In view of the construction boom and rapid urbanization, municipal regulations such as development control regulations, building bye – laws and structural safety features need to be revisited. These regulations will be reviewed periodically to identify safety gaps from seismic, flood, landslide and other disasters and suitable modification will be made to align them to the revised building codes of the Bureau of Indian Standards (BIS). Undesirable practices compromising safety during disasters, that tend to crop up from time to time, will need to be addressed in the regulations. The utilization of unsuitable areas for construction, without necessary safeguards further enhances vulnerability and needs to be guarded against through appropriate compliance mechanisms. Similarly, the introduction of suitable regulations for rural areas will also be emphasized. As per required, local bodies will be provided with suitable financial incentives for the reparation of appropriate regulations. This process will involve an all inclusive exercise involving due sensitization of governmental organizations at all levels, local authorities and the community at large to accrue maximum results thereof.

2.12 Role of the Nodal Departments -

For the various types of disasters, the nodal Ministry concerned will chart out detailed. Response Plans which will be integrated into the national response plan. The NEC may coordinate response in the event of any threatening disaster situation or disaster. The NEC will coordinate response in the event of any threatening disaster situation or disaster. While disaster specific guidelines will be formulated by NDMA, NEC may give directions to the concerned ministries/departments of the Government of India the State governments and the state authorities regarding measures to be taken

1. Role of State, District and Local authorities -

Section 23 of the **DM Act 2005**, provides that there shall be a DM plan for every State. It outlines the broad coverage of the plan as well as the requirements of consultation in the preparation of the State plans. It also provides for annual review and updating of the State plan, and to enjoin upon the State governments to make provisions for financing the ctivities to be carried out under the State plans. It provides for the departments of the State governments to draw up their own plans in accordance with the State plan. The state plans shall be prepared by the SEC in conformity with the guidelines to be issued on related matters by the SDMA having regard to the guidelines laid down in this regard by the NDMA, and after such consultation with local and district authorities and the people's representatives as the SEC may deem fit. The State plan prepared be SEC shall be approved by the SDMA. It is the primary responsibility of the State governments/SDMAs to monitor and assess any developing situation and keeps the NDMA and NEC apprised of the same. They will also be responsible to constantly evaluate their own capabilities to handle evaluate their own capabilities to handle that situation and project the anticipated requirements for the central resources well in time. Inter district authority is entrusted with the task of coordinating and monitoring the implementation of all the plans and policies mentioned in the Act. It is difficult to comprehend the practical implication of such a provision as there is always a high probability of contradiction in the provisions laid down in the plans and policies.

2. Role of Central Ministries and Departments -

As disaster management is a multidisciplinary process, all Central Ministries and Departments will have a key role in the field of disaster management. The nodal Ministries and Departments of the Government of India (i.e., the Ministries of Agriculture, Atomic Energy, Civil Aviation, Earth Sciences, Environment & Forests, Home Affairs, Health, Mines, Railways, Space, water Resources etc.) will continue to address specific disasters as assigned to them. National Crisis Management Committee (NCMC)

The NCMC, comprising high level officials of the Government of India headed by the Cabinet Secretary, will continue to deal with major crises which have serious or National ramifications. It will be 13 Institutional and Legal Arrangements supported by the Crisis Management Groups (CMG) of the Central nodal Ministries and assisted by NEC as may be necessary. The Secretary, NDMA may be a member of this Committee of state Governments.

The primary responsibility for disaster management rests with the States. The institutional mechanism put in place at the Centre, State and District levels will help the States manage disasters in an effective manner. The Act mandates the State Governments inter alia to take measures for preparation of Disaster Management Plans, integration of measures for prevention of disasters or mitigation into development plans, allocation of funds, establishment of early warning systems, and to assist the Central Government and other agencies in various aspects of Disaster Management. District Administration

At the District level, DDMAs will act as the District planning, coordinating and implementing body for disaster management and will take all measures for the purposes of disaster management in the District in accordance with the guidelines laid down by NDMA and SDMA. Management of Disasters Impacting more than one State.

At times, the impact of disasters occurring in one State may spread over to the areas of other States. Similarly, preventive measures in respect of certain disasters, such as floods, etc., may be required to be taken in one State, though the impact of their occurrence may affect another. The administrative hierarchy of the

country is organized into National, State and District level administrations. This presents some difficulties in respect of disasters impacting more than one State. Management of such situations calls for a coordinated approach, which can respond to a range of issues quite different from those that normally present themselves, before, during and after the event. NDMA will encourage identification of such situations and promote the establishment of mechanisms on the lines of Mutual Aid Agreement for coordinated strategies for dealing with them by the States, Central Ministries and Departments and other agencies concerned. Other constitutional arrangements.

3. Armed Forces -

Conceptually, the Armed Forces are called upon to assist the civil administration only when the situation is beyond their coping capability. In practice, however, the Armed Forces form an important part of the Government's response capacity and are immediate responders in all serious disaster situations. On account of their vast potential to meet any adverse challenge, speed of operational response and the resources and capabilities at their disposal, the Armed Forces have historically played a major role in emergency support functions. These include communication, search and rescue operations, health and medical facilities, and transportation, especially in the immediate aftermath of a disaster. Airlift, heli-lift and movement of assistance to neighboring countries primarily fall within the expertise and domain of the Armed Forces. The Armed Forces will participate in imparting training to trainers and DM managers, especially in CBRN aspects, heli-insertion, high-altitude rescue, waterman ship and training of paramedics. At the National level, the Chief of the Integrated Defense Staff to the Chairman Chiefs of Staff Committee has already been included in the NEC. Similarly, at the State and District levels, the local [xii]representatives of the Armed Forces may be included in their executive committees to ensure closer coordination and cohesion.

4. Central Paramilitary Forces

The Central Paramilitary Forces (CPMFs), which are also the Armed Forces of the Union, play a key role at the time of immediate response to disasters. Besides contributing to the NDRF, they will develop adequate disaster man-

agement capabilities within their own forces and respond to disasters which may occur in the areas where they are posted. The local representatives of the CPMFs may be co-opted/invited in the executive committee at the State level.

5. State Police Forces and Fire Services

The State Police Forces and the Fire Services are crucial immediate responders to disasters. The Police Forces will be trained and the Fire Services upgraded to acquire multi-hazard rescue capability.

6. Civil Defense and Home Guards

The mandate of the Civil Defense and the Home Guards will be redefined to assign an effective role in the field of disaster management. They will be deployed for community preparedness and public awareness. A culture of voluntary reporting to duty stations in the event of any disaster will be promoted.

7. State Disaster Response Force (SDRF)

States will be encouraged to create response capabilities from within their existing resources. To start with, each State may aim at equipping and training one battalion equivalent force. They will also include women members for looking after the needs of women and children. NDRF battalions and their training institutions will work in coordination to quick response to mitigate the intensity of disaster.

2.13 National Level Institutes -

National Disaster Management Authority (NDMA) –

The NDMA, as the apex body for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters. The guidelines will assist the Central Ministries, Departments and States to formulate their respective DM plans. It will approve the National Disaster Management Plans and DM plans of the Central Ministries/Departments. It will take such other measures, as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. Central Ministries/Departments and State Governments will extend necessary co-

operation and assistance to NDMA for carrying out its mandate. It will oversee the provision and application of funds for mitigation and preparedness measures. NDMA has the power to authorize the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. The general superintendence, direction and control of the National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and guidelines laid down by the NDMA.

2. Experience in major disasters in the last decade has clearly established the need for prepositioning of some essential reserves at crucial locations, including some for the high altitude areas. These reserves are intended to augment the resources at the State level. Mitigation reserves will be placed at the disposal of the NDRF for enhancing their emergency response capabilities for assisting the State Governments during a disaster or disaster-like situation. Existing Institutional Arrangements Cabinet Committee on Management of **Natural Calamities (CCMNC)** and the **Cabinet Committee on Security (CCS)**

3. CCMNC had been constituted to oversee all aspects relating to the management of natural calamities including assessment of the situation and identification of measures and programs considered necessary to reduce its impact, monitor and suggest long-term measures for prevention of such calamities formulate and recommend programs for public awareness for building up society's resilience to them. The CCS deals with issues related to defense of the country, law and order and internal security, policy matters concerning foreign affairs that have internal or external security implications, and economic and political issues impinging on National security, High Level Committee (HLC)

4. In the case of calamities of severe nature, Inter-Ministerial Central Teams are deputed to the affected States for assessment of damage caused by the calamity and the amount of relief assistance required. The Inter-Ministerial Group (IMG),

headed by the Union Home Secretary, scrutinizes the assessment made by the Central Teams and recommends the quantum of assistance to be provided to the States from the National Calamity Contingency Fund (NCCF). However, assessment of damages by IMG in respect of drought, hailstorm and pest attack will continue to be headed by the Secretary, Ministry of Agriculture and Cooperation. The HLC comprising the Finance Minister as Chairman and the Home Minister, Agriculture Minister, and Deputy Chairman of the Planning Commission as members approves the Central assistance to be provided to the affected States based on the recommendations of the IMG. The constitution and composition of HLC may vary from time to time. The Vice Chairman, NDMA will be a special invitee to the HLC. Central Government.

5. In accordance with the provisions of the Act, the Central Government will take all such measures, as it deems necessary or expedient, for the purpose of DM and will coordinate actions of all agencies. The Central Ministries and Departments will take into consideration the recommendations of the State Government Departments while deciding upon the various pre-disaster requirements and for deciding upon the measures for prevention and mitigation of disaster. It will ensure that the Central Ministries and Departments integrate measures for the prevention and mitigation of disasters into their developmental plans and projects, make appropriate allocation of funds for pre-disaster requirements and take necessary measures for preparedness and to effectively respond to any disaster situation or disaster. It will have the power to issue directions to NEC, State Governments/SDMAs, SECs or any of their officers or employees, to facilitate or assist in DM, and these bodies and officials shall be bound to comply with such directions. The Central Government will extend cooperation and assistance to the State Governments as required by them or otherwise deemed appropriate by it. It will take measures for the deployment of the Armed Forces for disaster management. The Central Government will also facilitate coordination with the UN Agencies, International Organization and Governments of Foreign Countries in the field of disaster management. The Ministry of External Affairs in coordination with the

Ministry of Home Affairs (MHA) will facilitate external coordination/cooperation.

Conclusion-

This chapter discusses the disaster meanings, types, vulnerability to hazards, and their impacts. Chapter also includes the study of disaster management and their different phases. There is a detail study of the constitutional framework and various aspects of the disaster. Chapter also encloses the recent global trends about law related to disaster and environment. Chapter also light on the legal and tecno legal framework of the disaster management. Here is also discussion about the Role of the Nodal and Other Central Ministries and Departments, role of State, district and local level authorities. Finally, discussion about the others groups which directly or indirectly affects the disaster management activities.

References:

1. https://es.scribd.com/.../Environmental-Hazards-Assessing-Risk-and-Reducing-Pg-157.
2. B.K. Reza, Global Publication, New Delhi, First Published, 2010, pp. 215
3. https://en.wikipedia.org/wiki/Natural_hazard
4. https://books.google.co.in/books?isbn=138708599Dr.V.Sharmila/ Predictive
5. Correlates Of The Knowledge Of Natural Hazards
6. https://www.iwapublishing.com/news/disaster-management
8. dgfasli.nic.in/policy/NPDM-101209.pdf
6. Earthquake & Natural Disasters-by Manik Kar
7. Management and Mitigation of Natural Disasters-by Rajan Kumar Sahoo and Tilottama Senapati
8. Management of Mana-Made Disasters-by S.L.Goel
9. A Manual on Disaster Management-by Parag Diwan
10. A Practical Guide To Disaster Management-BY Dr. A.K.Jain
11. Safety and Disaster Management-By O.P.Dutta
12.Disater Management. Indian National Science Academy. Orient Blackswan Gupta HK.2003

13. Coping with Catastrophe: A handbook of Disaster Management Rout ledge. Hodgkinson P.E. & Stewart M. 1991.
14. Disaster Management. Sharma VK. 2001-National Centre for Disaster Management, India
15. Beyond Building a Centre of Excellence For EO-Based Monitoring Of Natural Disasters. A GEO Workshop on Natural Disasters Mitigation and Earth Observations. Presentation- Kontoes, H. (2014)
16. NIDM publications 2008 to 2010.
17. SDRF Reports – 2015
18. India Disaster Report 2016
19. Disaster Resilient State Rajasthan – Dr. B.K.Soni, 2008

CHAPTER- 3

Disaster Management: National and State Scenario

3.1 Introduction

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3.3 Disaster Management: Indian Scenario

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Chapter- 3

Disaster Management: National and State Scenario

3.1. Introduction -

Disaster management stress that emergency circumstances is as much needs to be managed at different levels- National, State, District and local level. The Centre plays a supporting key role and provides immediate support when an emergency occurs. The center mobilizes supports in terms of provide emergency teams, supporting personnel, medical help, cranes specialized equipments operating facility depending on the scale of the disaster and the need of the suffering area. Active support to an affected state or district is to be provided only after the declaration of a national level disaster. The national response mechanism has to be prepared to go any imminent State or District disaster to scrutinize in order to provide immediate assistance whenever required. For this purpose national response approach has to be pre-defined in terms of process, linked handbooks and checklists that will have to be used during a disaster.

3.2 Disasters – Global Situations -

Disasters either natural or man-made are widespread throughout the world. Disasters always continue take place without warning and are perceived to be on an increase in their magnitude, complexity, and frequency, economic, fatal impacts. Hazards create threats to people and presume serious proportions in the under developed countries with dense population. During the second half of the 20^{th} century, more than 200 most terrible natural disasters occurred in the different parts of the world and claim lives of around 1.4 million people. Fatalities due to natural disasters are 20 times superior (as % of GDP) in the developing countries than in the developed one. Asia tops the list of fatalities due to natural disasters.

Figure No.3.1 Regional distribution of disasters by type

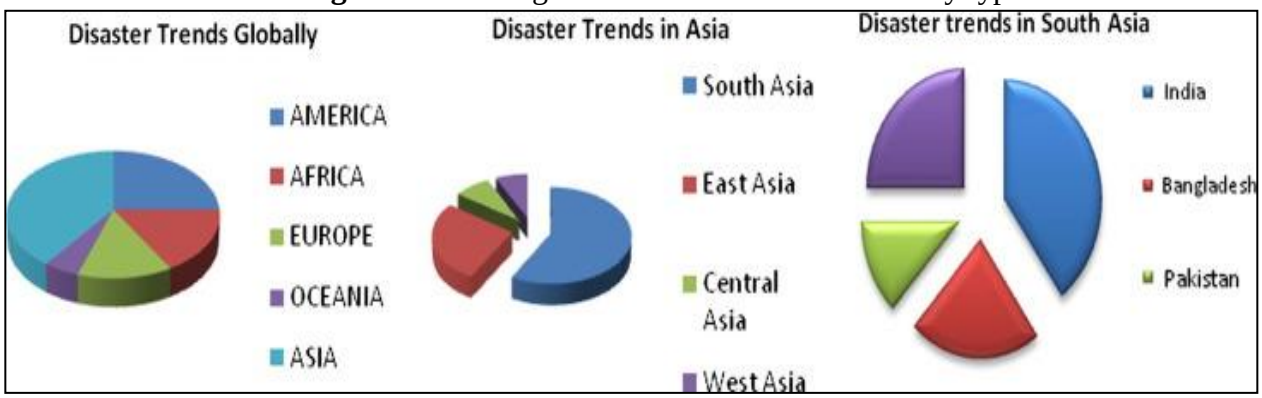
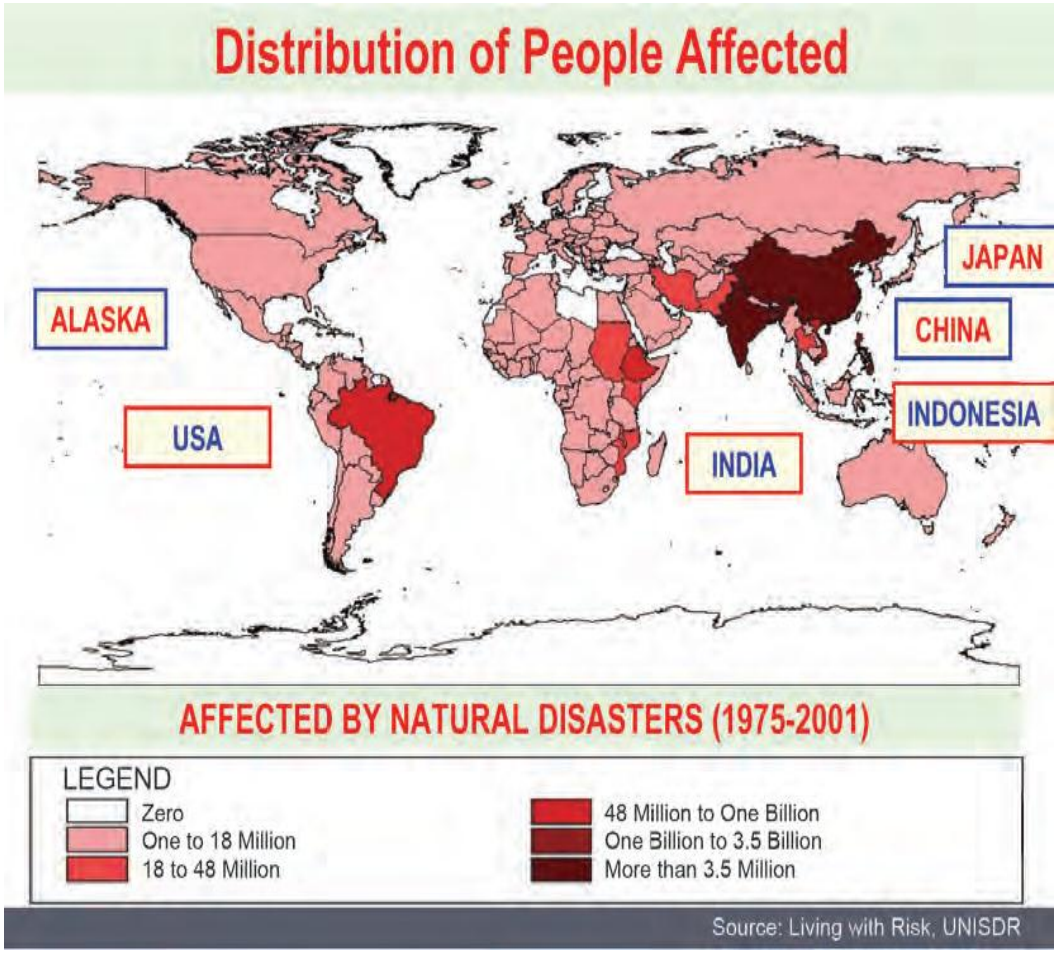


Figure No.3.2 Distribution of People Affected



Following figures shows the provincial distribution of disasters by type, as prepared by Centre for Research on Epidemiology of Disaster. There have been several natural and man-made disasters. Records of natural disasters can be traced by means back to 430 B.C. when the Typhus epidemic was report in Athens. Ten deadliest natural disasters recorded in the world are dated back to 1556 when an

earthquake in Shaanxi province of China occurred on 23rd January, 1556 and 8,30,000 sufferers were recorded.

Figure No. 3.3 Occurrence of Disasters Globally

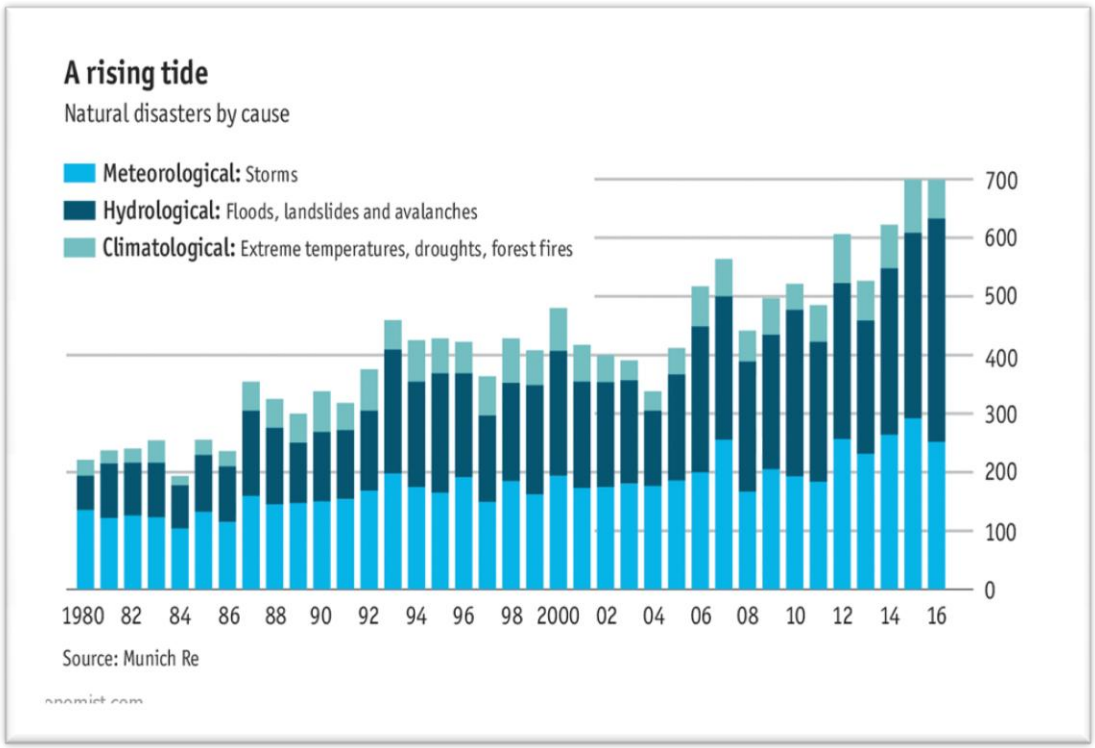
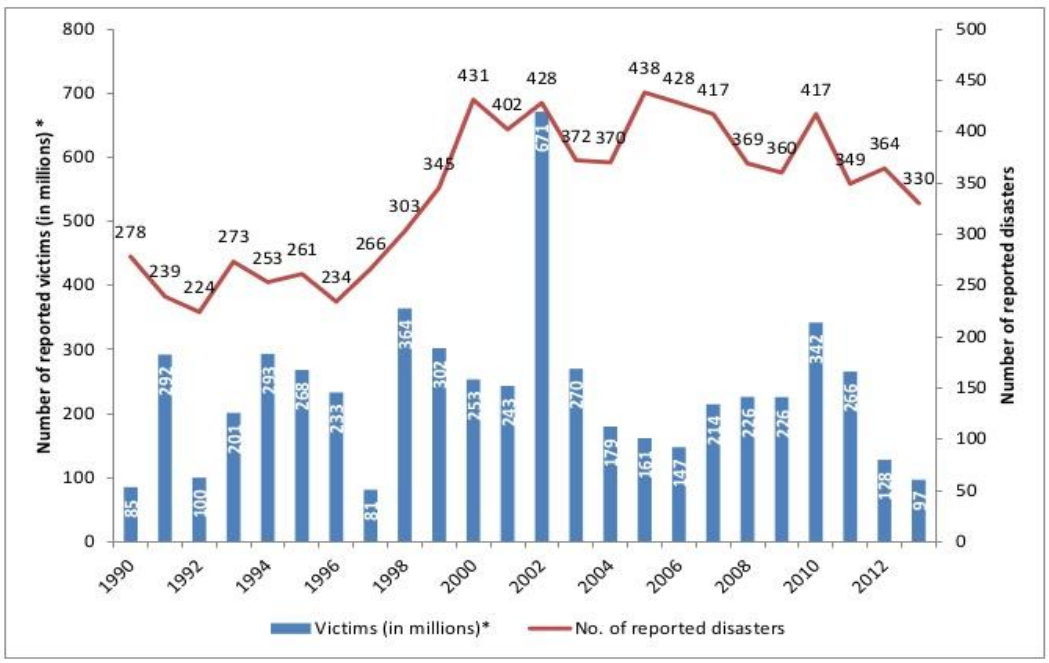


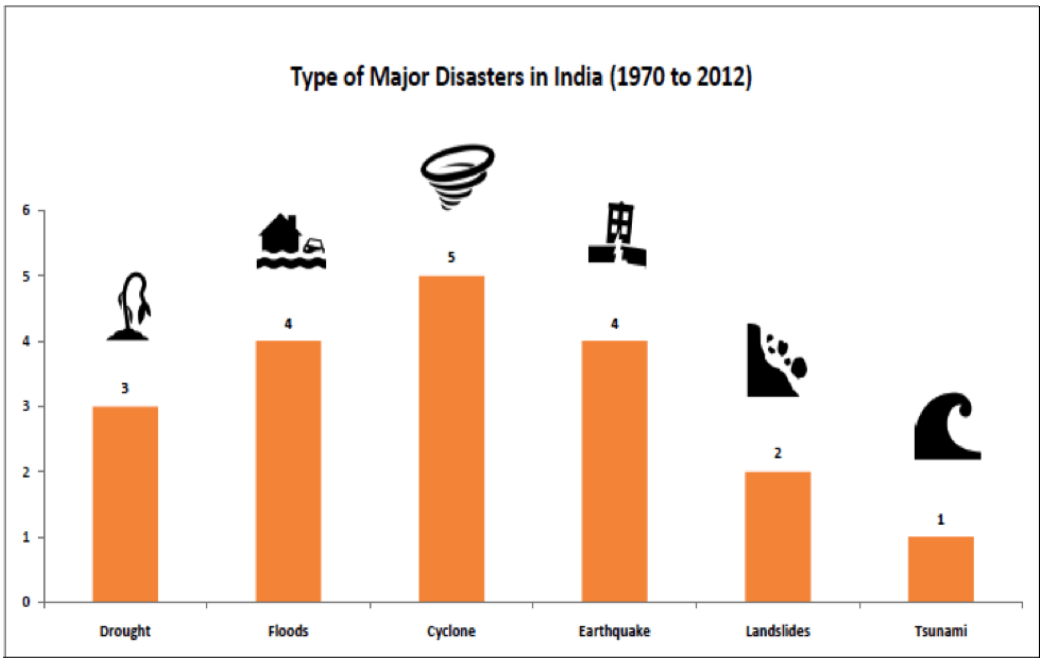
Figure No.3.4 Numbers of Deaths due to Disasters



3.3 Disaster Management: Indian Scenario -

Disasters interrupt progress and destroy the well-deserved fruits of scrupulous developmental efforts, often close to nations, in quest for progress, reverse by several decades. Thus, efficient management of disasters, rather than meager response to their incidence has, in recent times, received increased attention both within India and overseas. This is as much a result of the recognition of the rising frequency and intensity of disasters as it is an acknowledgement that good authority, in a compassionate and civilized society, needs to deal effectively with the overwhelming hazards impact of disasters.

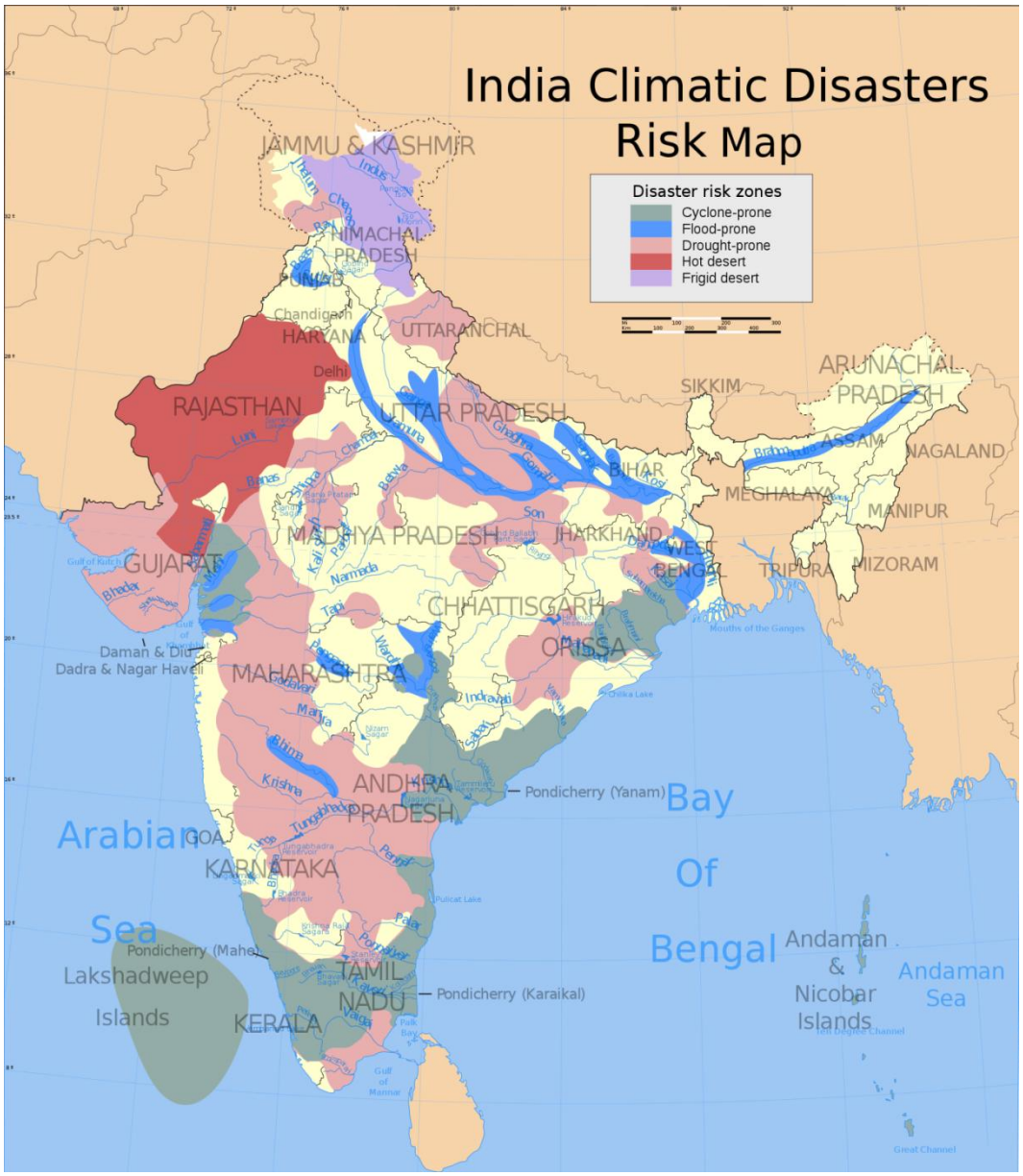
Figure No.3.5 Type of Major Disasters in India (1970 to 2012)



- **Natural Disasters in India (1900-2011) Statistical Analysis**

The occurrence of natural disasters speedily increased after 2002, out of 590disasters 27% (159) disasters strike ,including growing concentrations of population in insecure manner, unplanned urban settlement and exposed coastal area due to India's peninsula configuration, poverty, Illiteracy and changing risk patterns are placing more and more becoming disaster-prone and vulnerable. Absence of disaster Preparedness is also seen as a foremost reason for superior number and greater impact of natural disasters.

Figure No.3.6 India Climatic Disasters Risk Map



In India, the cyclone which occurred on 25th November, 1839 had a death toll of three lakh people. The Bhuj seismic activity of 2001 in Gujarat and the Super Cyclone of Orissa on 29th October, 1999 are still unmarked in the memory of most Indians. The most recent natural disaster of a cloud burst resulting in flash floods and mudflow in Leh and surrounding areas in the early hours of 6th August, 2010, caused severe damage in terms of human life as well as assets. There was a reported death toll of 196 persons, 65 lost persons, 3,661 smashed houses and 27,350hectares of the affected harvest area.

Figure No.3.7 Natural Disasters in India (1980-2010)

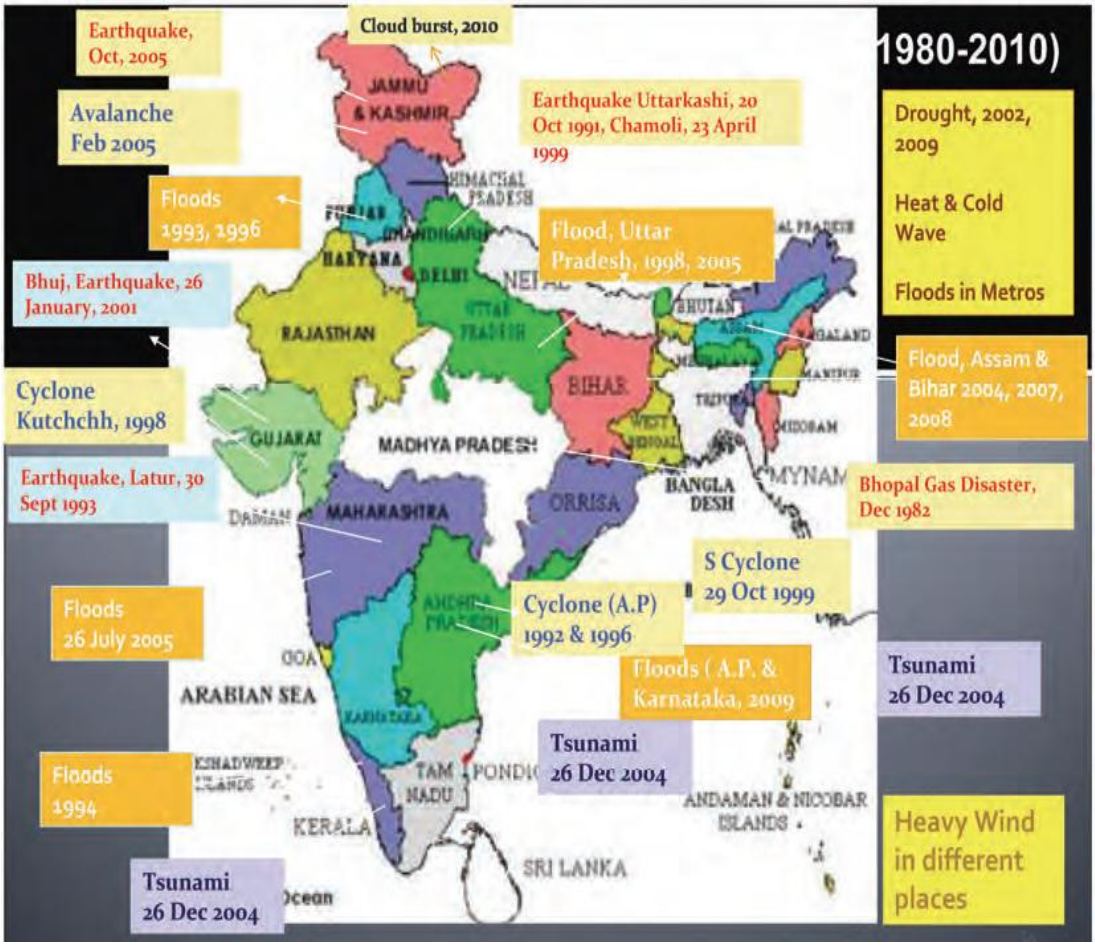


Figure No.3.8 Some Major Disasters In India

SOME MAJOR DISASTERS IN INDIA

S.NO	NAME OF EVENT	YEAR	STATE & AREA	FATALITIES
1	Drought	1972	Large part of the country	200 million people affected
2	Cyclone	1977	Andhra Pradesh	10,000 deaths hundreds of thousands homeless and 40,000 cattle deaths
3	Drought	1987	15 states	300 million people affected
4	Cyclone	1990	AndhraPradesh	967 people died, 435,000 acres of land affected
5	Latur earthquake	1993	Latur, Marath wada region of maharashtra	7,928 people died, 30,000 injuried
6	Cyclone	1996	Andhra pradesh	1,000 people died, 5,80,000 housed destroyed, Rs. 20.26 billion estimated damage
7	Orissa Super cyclone	1999	Orissa	Over 10,000 deaths
8	Gujarat Earthquake	2001	Rapar Bhuj, Bhachau, Anjar, Ahmedabad and surat in Gujarat state	13,805 deaths and 6.3 million people affected
9	Tsunami	2004	Coastline of tamilnadu, kerala, andhrapradesh, pondicherry and andaman and nicobar islands of india	10,749 deaths, 5,640 persons missing, 2.79 million people affected, 11,827 hectares of crops damages, 300,000 fisher folk lost their livelihood
10	Kashmir	2005	Mostly pakistan, partially kashmir	1400 deaths in kashmir (86,000 deaths in total)

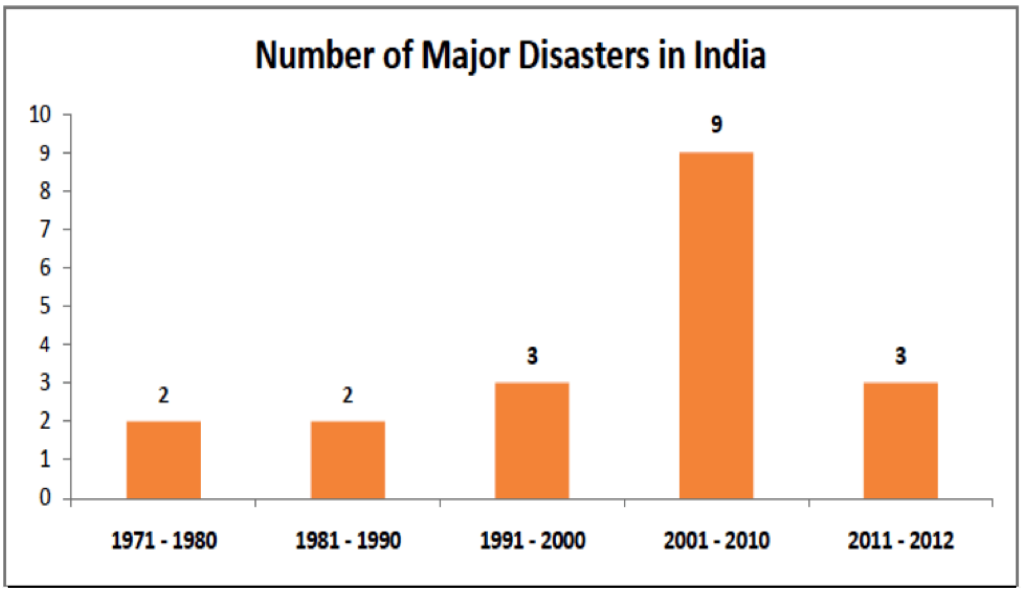
Source : http://www.ndma.gov.in/en/disaster-data-statistics.html

6

Table 3.1 Disaster Statistics in India

Disaster	**Number of Events**	**Number of people killed**	**Total Affected**	**Damage in (000 US$)**
Drought	14	42, 50, 320	106,18,41,000	24,41,122
Earthquake	26	78,094	2,79,19,695	51,02,700
Epidemic	68	45,43,874	4,21,473	NA
Extreme temperature	47	13.801	250	5,44,000
Insect infestation	235	60,188	79,86,54,220	3,41,45,188
Mass movement dry	1	45	0	0
Mass Move-ment wet	42	4762	38,39,116	54,500
Storm	154	1,64,179	9,32,94,512	1,10,51,900
Wildfire	2	6	0	2000
Total	**590**	**91,15,269**	**198,59,70,266**	**5,33,41,410**

Figure No. 3.9 Number of Major Disasters in India



Therefore, geographic circumstances, industrial growth, growing population density and unlawful tenant settlements have increased Mumbai's susceptibility to disasters. Fire and Industrial accident, floods, chemical, biological, and nuclear hazards, earthquake, cyclones, landslides, bomb blasts, violence, riots and tidal surge have been recognized as foremost hazards in India. In the nonexistence of concerned efforts to address root cause, disasters signify an increasingly serious hindrance to the achievement of the real growth of India. In the decade 1990-2000, an average of about 4344 people lost their life and about 30 million people were affected by disasters each year.

India due to its geo-climatic and socio-economic stipulation is prone to various disasters. During the previous thirty years' time duration the country has been strike by 431 major disasters resulting into giant loss to life and property. According to the prevention Web statistics, 143039 people were kill and about 150 crore were affected by various disasters in the country throughout these three decades. The disasters cause huge loss to property and other infrastructures costing more than US $ 4800 crore. The most severe disasters in the nation and their collision in term of people affected, life lost and financial damage is given following-

Figure No. 3.10 Economic Damage due to Natural Disasters (In Rs Crore)

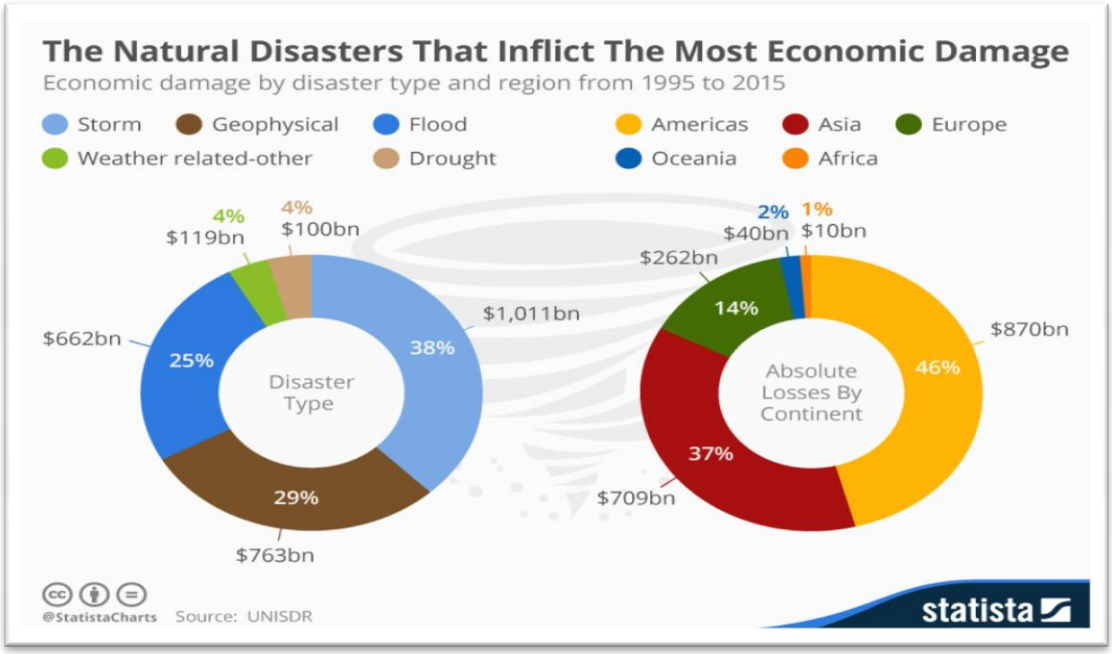
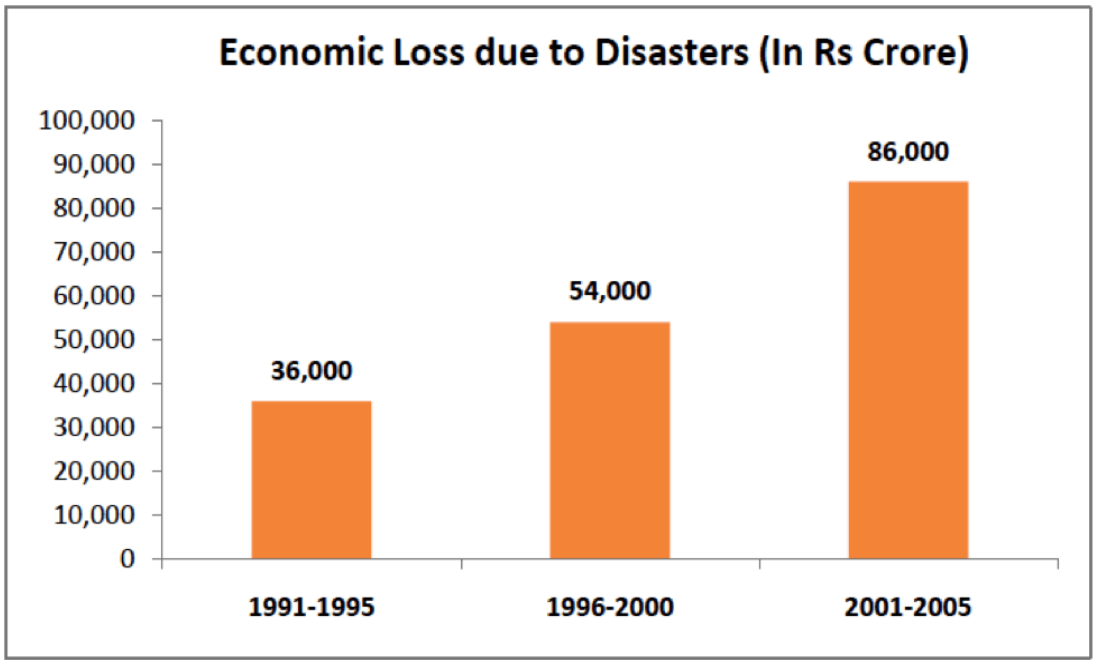


Figure No. 3.11 Economic Loss due to Disasters (In Rs Crore)



3.4 Vulnerability Profile of India -

1.7.1 India has been susceptible, in variable degrees, to a giant number of natural, as well as, human-made emergencies due to of its distinctive geo-climatic and socio-economic conditions. It is highly vulnerable to floods, droughts, cy-

clones, earthquakes, landslides, avalanches and forest fires. Out of 35 state and union territories in the country, 27 of them are disaster prone. Almost 58.6 % of the island is prone to earthquake of modest to very high intensity; over 40 million hectares (12 %) are prone to floods and stream erosion; of the 7,516 km long shoreline, close to 5,700 km is prone to cyclones and tsunamis; 68 % of the cultivable area is exposed to drought and mountainous area are at threat from landslides and avalanches.

3.5 Hazard Profile of India -

(1) India is one of the top ten hazard country of the world due to number of factor including natural and human induce and detrimental geo climatic conditions, peninsula configuration, topographic characteristic, environmental deprivation, people growth, urbanization, industrialization, non technical development practice etc. The factors either in original or by accelerate the strength and frequencies of disasters are accountable for heavy toll of human life and disrupting the existence supporting system in the nation. As far as the susceptibility to disaster is fretful, the five characteristic regions of the nation i.e. Himalayan region, the alluvial plains, the hilly part of the peninsula, and the coastal zone have their own specific problems. While on one hand the Himalayan region is prone to disasters like earthquake and landslide, the plain is affected by flood almost each year. The arid region of the nation is pretentious by droughts and famine while the coastal zone vulnerable to cyclones and storms.

(2) The natural geological features of the country are the basic reason for its augmented susceptibility. The tectonic features of the Himalayan section and contiguous alluvial plains make the region prone to seismic activity, landslide, water erosion etc. India is painstaking to be the stable portion, but intermittent earthquakes in the region show that tectonic activities are still going on within its vigor.

(3) The tectonic features, uniqueness of the Himalaya are prevalent in the alluvial plains of Indus, River Ganga and Brahmaputra too, as the rock lying below the alluvial pains is just addition of the Himalayan ranges only. Thus this region is also quite susceptible to seismic activities. As a result of various major river sys-

tems flowing from Himalaya and huge measure of residue brought by them, the area is also suffering from river channel siltation, resulting into recurrent floods, especially in the plains of U. P. and Bihar.

(4) The western part of the nation, including Rajasthan, Gujarat and a few parts of Maharashtra

Frequently Strike by drought circumstances due to Monsoon, situations also spreads in other parts of the India too. The annoyance in these force conditions over oceans, results into cyclones in coastal area. These tectonic actions going on the ocean bottom create the coastal region more prone to tsunami too.

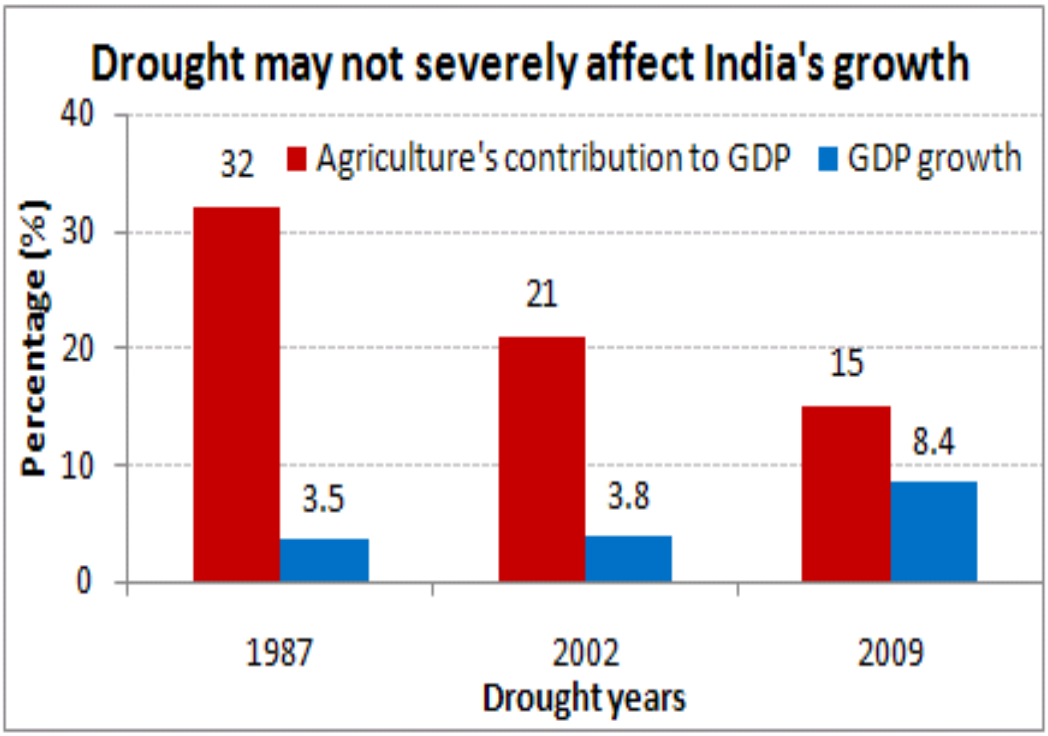
(5) The tremendous weather circumstances, massive quantity of ice and snow stored in the glaciers and other natural factor which make the nation become prone to an assortment forms of disasters.

(6) Besides the factors discuss in the earlier text, various human being induced actions like rising demographic pressure, deteriorating environmental situation are also make it vulnerable.

1. Droughts -

The prime reason of any drought is the shortage of average rainfall in particular area, the timing, allocation and strength of this deficiency in next of kin to existing reserves of water. An extended period of relatively dry climate leading to drought is a widely recognized as climatic glitch. Drought can be overwhelming as water stores dry up, crops fails to cultivate, animals begins to die, and starvation and ill health becomes prevalent The ecological affects of drought are Stalinization of soil and reserve groundwater declines, increased pollution of freshwater ecosystem and regional extermination of animal species. The facts of the drought over the years may be seen as follows-.

Figure No. 3.12 Drought may not severely affect India's Growth



2. Floods -

Flood is the over flow of Rivers that have always brought miseries to abundant people, with special to rural areas as compared to urban. Flood consequences the eruption of serious epidemics, specially malaria and cholera and others. India is the most flood prone nation in the world. The prime reasons for flood recline in the varying nature of eco systems in this nation, the monsoon, the extremely silted river system and the precipitous and highly erodible mountain, particularly those of the Himalayan ranges. The average rainfall in India is 1150 mm with considerable variation diagonally the country. The yearly rainfall at the side of the western coast , Western Ghats, Khasi hill, most of the Brahmaputra valley are amount to more than 2500 mm. The majority of the floods occurs during the monsoon period and is usually associated with tropical storms, vigorous monsoon situation and rupture monsoon situations. Around 23 of the 35 states and union territories of the nations suffer to floods and almoust 40 million hectares of land, roughly 12.5% of the nations' geographical region, is prone to floods. The Na-

tional Flood Control Program regularizes in 1954, from then the generous improvement has been recorded in the flood protection proceedings. By 1976, nearly 1/3 of the flood prone section had been afforded rational protection; significant skills have been gained in planning, execution and presentation of flood forewarning, protection and control events (CWC, 2007). The flood affected area and damages for the period 1953 to 2004 in nation as per Water Data Complete Book 2005 and Central Water Commission, 2007 are-

Figure No. – 3.13 Floods Statistics

THE WORST OF FLOODS

Year	People hit (mill)	Human lives lost	Total damage (Cr)
1977	49	11,316	1,202
1988	60	4,252	4,630
1979	20	3,637	614
1968	21	3,497	211
1978	70	3,396	1,455
2007	41	3,389	13,393
1998	47	2,889	8,861
2008	30	2,876	9,566
1993	30	2,864	3,283
2000	45	2,606	8,865

Source: Central Water Commission

(3) Tropical Cyclones -

The cyclone is the foremost natural disaster that affects the coastal region of India which is about 7516 km. It is nearly 10% of the world's tropical cyclones. About 71 % of this area is often states (Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Pondicherry, Andhra Pradesh, Orissa and West Bengal). The Andaman, Nicobar and Lakshadweep are also susceptible to cyclones. About 5-6 tropical cyclones averagely come in a year at Bay of Bengal and Arabian Sea. Whenever a cyclone move toward to the coastal region, danger of solemn loss or damage arise from severe winds increased, intense rainfall, storm surge and river floods are seen. The consequence of a storm gush is most pronounced in wide and shallow bays exposed to cyclones such as in the northern part of Bay of Bengal. The ratio is approximately 4:1in Bay of Bengal and Arabian Sea. The occurrence of cyclonic storms, with wind speeds between 65 Km/h to 117 Km/h and harsh cyclonic storm with wind speeds between 119 Km/h to 164km/h.

(4) Heat Wave -

Intense positive temperature departures from the normal maximum temperature result in a heat wave in the summer season. This rising maximum temperature in the pre-monsoon months often continues till June to July month, over the north-western parts of the India. Over the recent data Heat wave induced fatalities have rapidly increased. Unusually increased high temperatures were observed during April 2002 across the nation. On May 10, 2002, the maximum temperature at Gannavaram in Vijayawada 49°C (WMO-2003) was recorded. Increased minimum temperatures in summer month do not allow the necessary night-time cooling to counterbalance the high maximum temperature during a heat wave period.

(5) Fog and Cold Wave -

Cold waves are the Occurrences of tremendous low temperature dry cold winds from north Himalayan region to sub-continent region. The mountainous part of the nation and the adjacent plains, are subjective by transient disturbances in the mid latitude, westerlies which often have feeble frontal characteristics are known as western disturbances. The cold waves mainly affects the north region of 20°N in association with large amplitude trough cold wave conditions are from time to time reported from states like Maharashtra and Karnataka as well. Recently owing to decline of the air quality in urban area the deaths and discomfort from cold waves have been considerably increased. The maximum sufferers from cold wave and are from UP, Uttrakhand and Bihar and this could be due to underprivileged level of development, population density and lack of shelter houses to the outdoor workers and farmers. The Delhi NCR also facing the fog challenge in recent time.

(6) Hailstorm, Thunderstorm and Dust Storms -

In the transformation season of winter into spring, the temperature rises firstly in the southern parts of India, philanthropic rise to thunderstorms and inclement weather which are perilous in environment. While the southern part of the India is gratis from dust storms and hailstorms, such hazardous weather conditions affects the central, northeastern, north and northwestern parts of the nation. The

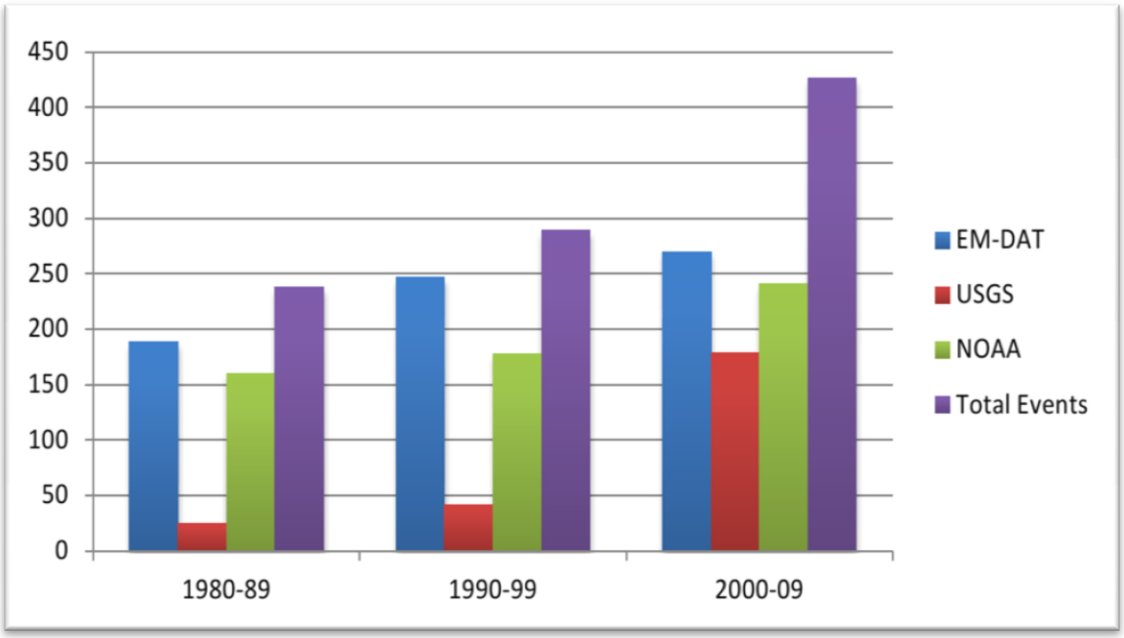
frequencies of hailstorm are in the Assam valley, hills of Uttarakhand, Jharkhand and Vidarbha in Maharashtra (Philip & Daniel 1976). Though, the thunderstorms also take place in Kolkata, Delhi, Jaipur and Ahmadabad. Tornadoes are infrequent in nation but some of them are quite overwhelming.

(7) Earthquakes –

Indian continent located on the margins of two continental plates which makes it very prone to seismic activity. Some of the most intense earthquakes of the world have occurred in nation. Earthquakes consequence in loss of about 50,000 lives each year. Earthquakes more than 5.5 Magnitude on the Richter scale are increasingly damaging to property and human being. Nevertheless, there are many factors that influence the spoil pattern. Enormous earthquakes generally take place near the junction of two tectonic plates like along the Himalayan mountain range, where the Indian plate goes beneath Eurasian plate. Providentially, none of these have occurred in any of the major city of the nations. As per the most recent seismic zoning map bring out by the Bureau of Indian Standard (BIS), over 65 percent of the nation is prone to earthquake of intensity of Modified Mercalli Intensity Scale VII (MSK) or more.

Primarily India country has been separated into four seismic zones according to the maximum intensity of Earthquake predictable of these, zone V is the most vigorous which comprise of entire Northeast India, the northern portion of Bihar, Uttarakhand, Himachal Pradesh, J&K, Gujarat and Andaman & Nicobar. India has extremely densely inhabited cities and the constructions in these cities are not seismic activity resistant. Regulatory mechanism are weak, thus any volcanic activity salient in one of these cities would turn into a major tragedy.

Figure No. 3.14 Earthquakes Statistics in India



Six major earthquakes have strike in different parts of India over duration of the most recent 15 years. The entire Himalayan Region is deliberate to be susceptible to high intensity earthquakes of a magnitude more than 8.0 on the Richter Scale, and in a comparatively short span of about 50 years, four such major earthquakes have occur in the section(Shillong, 1897 (M8.7); Kangra, 1905).

(8) Landslides -

Landslides comprise a major natural hazard in our nation, which accounts for significant loss of life and smash up to communication route, human settlements, agricultural. Landslides mainly influence the Himalayan region and the Western Ghats of India. Landslides are also frequent in the Nilgiri mountain range. It is predictable that 30 %of the world's landslides take place in the Himalayas region. The Himalayan Mountains, which is the youngest and dominating mountain in the world, is not a single long landmass but constitutes of a series of seven curvilinear parallel folds consecutively along a grand area for a total of 3400 kilometers. Owing to its distinctive nature, the Himalayas have a history of

landslides that has no comparison with any other mountain range in the world. Landslides are also common in western ghat. In the Nilgiris, in 1978 alone, extraordinary rains in the region trigger about 100 landslides which caused brutal damage to communication lines, tea gardens and other cultivated crops. Nilgirisvally is also called Avalanches Valley. Scientific observation in north Sikkim and Garhwal region in the Himalayas evidently reveal that there is a typical of two landslides per sq. km. The average rate of land loss is to the tuns of 120 meter per km / year and annual soil thrashing is about 2500 tons per sq km.

(9) Industrial and Chemical Disasters -

Industrial emergencies contain events that occur due to mishap or failure in industry or related activities. Disasters influence the industrial function, property and productivity. 'Chemical Disasters' or 'Industrial Disasters' are stipulations often used interchangeably but are actually a sub-category of the other. A chemical disaster may occur due to both, natural or human-made source, though, in view of growing chemical usage and industrial development globally, the predisaster prevention and mitigation of chemical (industrial) disasters is a serious apprehension. It is predictable that there are currently over 1949 Major calamity Hazards units in India moreover other small and medium–sized industries, all across the nation. **Industrial disaster:** Industrial disasters are disasters caused by chemical, mechanical, civil, electrical or other process failures due to accident, negligence or incompetence, in an industrial plant which may spill over to the areas outside the plant or within causing damage to life, property and environment.

Chemical disaster: Chemical disasters are incidence of emanation, fire or explosion involving one or more hazardous chemicals in the path of industrial activity (handling), storage, and transportation or due to natural events leading to serious effects inside or outside the installation likely to cause loss of life and property including adverse effects on the environment. "Chemical accident or emergency can result in extensive smash up to the surroundings with considerable human and financial.

(10) Tsunami -

Tsunamis and earthquakes occur after centuries of vigor build up inside the earth. A tsunami (in Japanese 'tsu' means, harbor and 'nami' means wave) is a sequence of water waves caused by the disarticulation of a large volume of a body of water, typically an ocean. In the Tamil language it is known as Aazhi Peralai. Seismicity generate tsunamis are result of abrupt twist of sea floor resulting vertical displacement of the overlying water. Earthquakes beneath the sea level, the water above the converted area are displaced from its equilibrium location. The release of force produces tsunami waves which have diminutive amplitude but a very long wavelength (often hundreds of kilometer long). It may be caused by non-seismic event also such as a landslide or collision of a meteor .The Tsunami of 26th December 2004, caused extensive damage to life and property in the states of Tamil Nadu, Kerala, Andhra Pradesh, UTs of Pondicherry and Andaman & Nicobar Islands (A & NI). The Tsunami had badly affected the fishermen community who not only lost their near and dear ones but also lost their means of source of revenue. An inhabitant of 26.63 lakhs in 1396 villages in five states and UTs was affected by this tragedy. Almost 9395 people lost their lives and 3964 citizens were report missing and feared dead. Most of the misplaced persons were from Andaman & Nicobar.

(11) Stampede -

The term stampede is an unexpected rush of people's crowd, usually resulting in many injuries and demise from suffocation and trampling. In stampede, the term mob is used to refer to a congregate, active, polarized cumulative people, which is basically assorted and complex. Its most salient features include homogeneity of thinking and action among its participant and their impetuous and irrational events.

Causes: Incidents of stampedes can take place in abundant socio-cultural situation. These stampede incidents can be categorize into the following types, where the causes and the impact are described in the event. Though the list is not comprehensive, it provides a fair idea about various types of situations where stampedes can arise.

(12) Nuclear Emergencies -

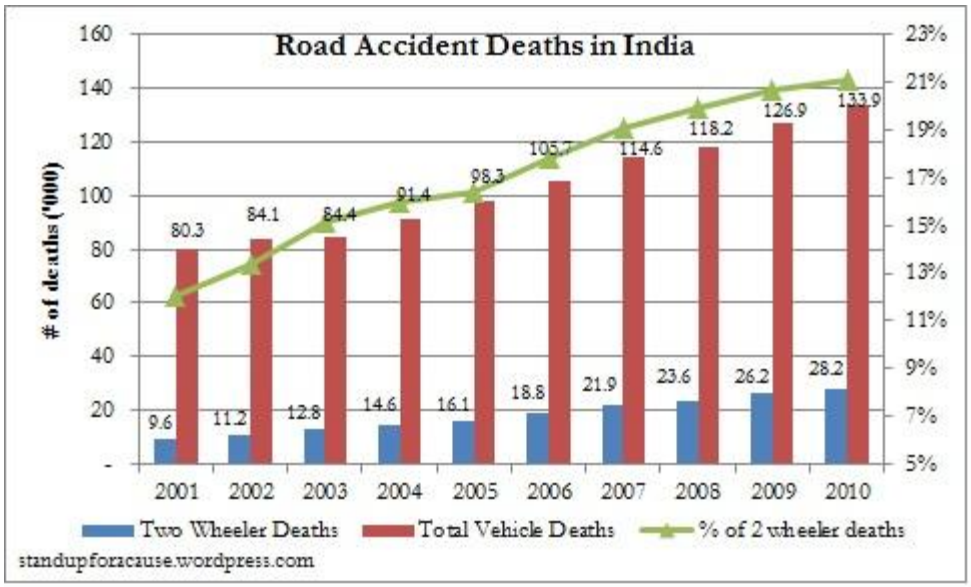
Nuclear emergency is due to a surprising release of radioactive material and radiation either in the operation of nuclear reactors, other nuclear events like explosion of a Radiological Dispersal Device (RDD), Improvised Nuclear Device (IND) and explosion of a nuclear weapon. It is accompanied with unexpected release of harmful radiations and radioactive materials or both together in to the atmosphere.

(13) Road Accidents -

The rapid growth of road transport has brought the challenge of addressing adverse factors like enhance in road accidents. Road accidents are a human calamity. It involves high human misery and economic costs in terms of premature deaths, injuries, loss of efficiency etc. Most deaths and injuries due to road accidents are undetectable to society. These are the hidden epidemic. In India, motor vehicles including two wheelers are growing at a more rapidly rate a then the economic and population growth. Global Status Report on Road Safety (WHO- 2009) has estimated that 1.2 million citizens die in the road accidents every year, and as many as 50 lacs others are injured. Over 90% of deaths occurred in low income and middle income country, which have only 48% of the world's registered vehicles. The trouble of road safety is acute in nation. In the 2008 4.8 lakh number of road accidents were faced, resulting in 1.2 lakh deaths and 5.2 lakh injured, many of them are disable permanently. Unhappily many of these fatalities are economically active.

Road accidents Profile: The percentage of fatal accidents in the total road accidents has consistently increased since 2001 as reflected in Table. The brutality of road accidents measured in terms of persons killed per 100 accidents is pragmatic to have increased from less than 20 in 2001 to 24.7 in 2008.

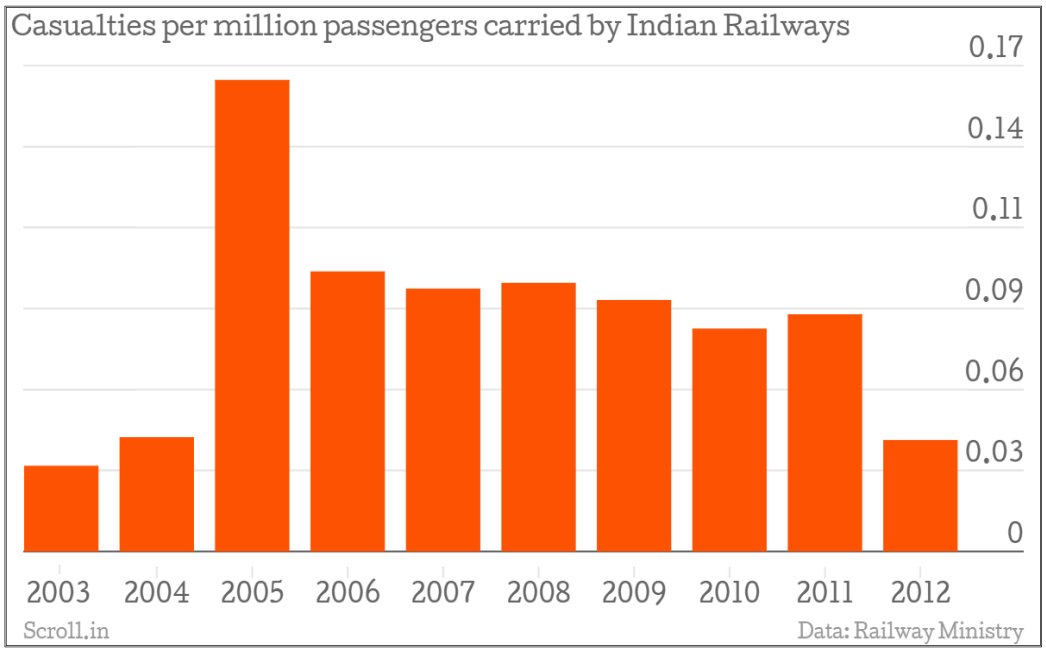
Figure No. -3.15 Road accident Deaths in India



(14) Train Accidents -

Ministry of Railways has adopted the following description on Railway Disaster: "Railway Disaster is a serious train accident or an untoward event of grave nature, either on railway premises or arising out of railway activity, due to natural or human-made causes, that may lead to loss of many lives and /or grievous injuries to a large number of people, and/or severe disruption of traffic etc, necessitating large scale help from other government/non-government and private organizations." The preparation of Disaster Management Plan on Indian railways and on the Zonal Railways in coordination with the different Departments of the Railway, other Central/State Govt. agencies, NGOs, private agencies, etc. has to be done by the Safety Department in the railway Board, on the Zonal Railway and Divisions. Railway Board has approved the nomination of GMs, AGMs or CSOs declaring an untoward incident as a Railway Disaster.

Figure No. 3.16 Train Accidents in India

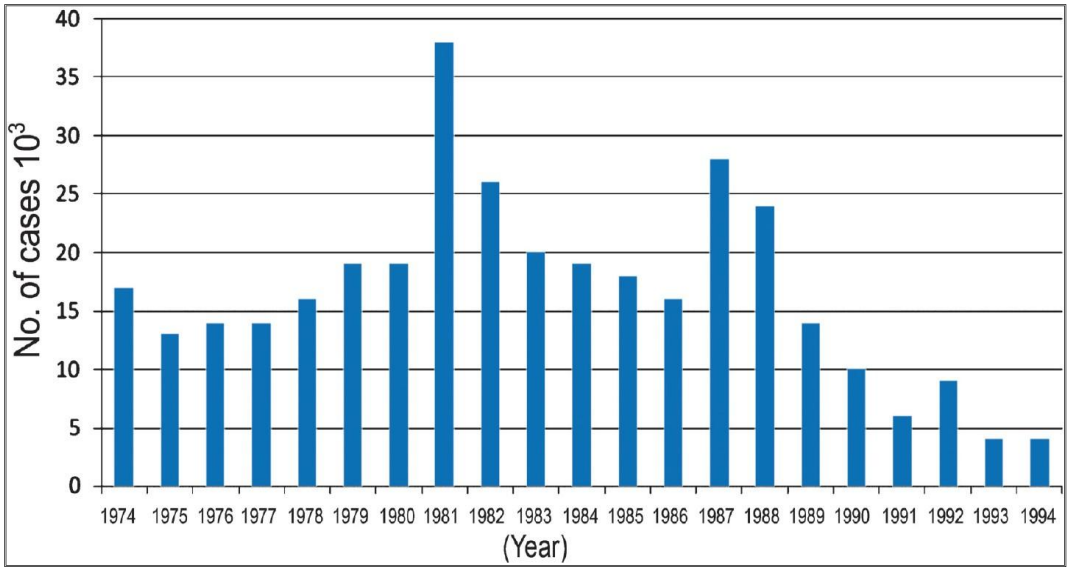


(15) Epidemics in India -

Communicable diseases are a most important public health problem in India. While many infectious diseases like tuberculosis and malaria are prevalent, some of them occasionally attain epidemic share. An epidemic refers to an increase in number of cases of an ailment in a community visibly in excess of what is normally expected in those inhabitants. Epidemics are health disasters which disrupt regular health services and are major drain on assets. Epidemics include viral infections disease (malaria, mengitis, measles, dengue, polio, typhoid fever etc.) and Bacterial infectious diseases (cholera, diarrhea etc.) The main reason for an epidemic is unhygienic drinking water, contamination of drinking water sources, lack of attentiveness about sanitation, unhygienic food, and overcrowding, biological situation. In addition to direct costs in epidemic control measures and treatment of sufferers, the indirect costs due to negative impact on domestic and international tourism and employment can be important. Several factors related to microorganisms, surroundings and host vulnerability contribute to the occurrence of epidemics. Because of prevalence of these factors in developing countries including India are frequently pretentious by epidemics which result in high morbidity, deaths, affect the public health and economy unfavorably. Outbreaks

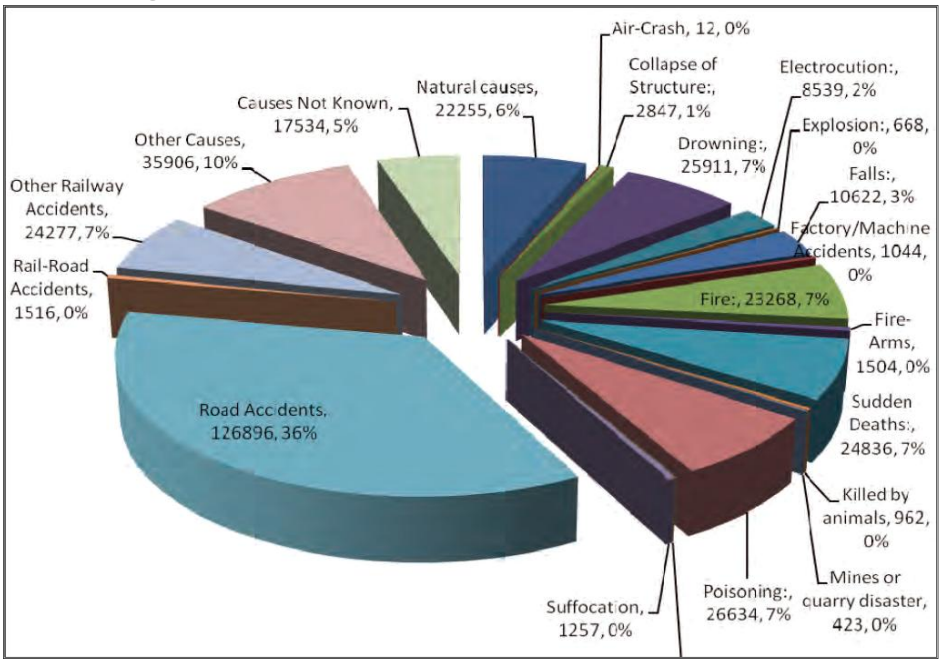
reported by States under the Integrated Disease Surveillance Project (IDSP) during the period 2008-2010.

Figure No. – 3.17 Epidemics in India



Analysis of deaths due to Accidents: Accidents both human-made and natural are among the two most significant reasons of pre-mature end to human lives, resulting from the accidents handicap partially or permanently many victims. These unfortunate sufferers are important families members as well as of the society. The loss due to accidents and suicides are take place at larger quantity. The deep and extensive impact of accidents and suicides make it incumbent upon society to make hard work at reducing the incidence of this phenomenon. Suitable interference measures can be devised after studying various facts of these phenomena. Detailed data is a sine qua non for any study. While individual disaster and event data maintained by the states and reported to the GOI may not exactly tally with the NCRB report as some are maintained calendar year wise and some financial year wise yet the NCRB collected data is a useful data for analysis. The accidental deaths are attributable to natural accidents such as cyclone, tornado, volcanic activity, flood, landslide and torrential rains, which are not attributable to nature. Example, explosion, fire, sudden deaths, stampede, traffic accidents etc.

Figure No. 3.18 Analysis of deaths due to Accidents



3.6. Evolution of Disaster Management in India

Disaster management in India has evolved starting an activity-based reactive setup to a proactive institutionalized configuration, from single faculty domain to a multi stakeholder setup, and from a relief based approach to a multi-dimensional pro-active holistic approach for reducing risk. The

Early stages of an institutional structure for disaster management can be traced to the British period subsequent the series of famines of 1900, 1905, 1907 & 1943, and the Bihar-Nepal earthquake of 1937.

1. Disaster Management during British Administration and Post Independence-

For the period of the British administration, relief departments were set up for emergencies. Such an activity-based setup with an immediate approach was functional only in the post- disaster scenarios. The policy was relief-oriented and actions included designing the relief Codes and initializing food for effort programs. Post-Independence, the task for managing emergencies continued to respite with the Relief Commissioners in each state, who functioned under The Central Relief commissioner, with their role restricted to delegation of relief material and money in the affected areas. Every five-year plan addressed flood disasters

under Irrigation, Command Area Development (CAD) and Flood Control. Anticipation of this stage, the disaster management configuration was activity-based, functioning under the Relief Departments.

2. Emergence of Institutional Arrangement in India -

A present eternal and institutionalized setup begin in the decade of 1990s with set up of a disaster Management unit under the Ministry of Agriculture, following the declaration of the decade of 1990 as the International Decade for Natural Disaster Reduction (IDNDR) by the UN General Assembly, after the following series of disasters such as Latur Earthquake (1993), Malpa Landslide (1994), Orissa Super Cyclone (1999) and Bhuj Earthquake (2001), a high powered Committee(HPC) under the Chairmanship of Mr. J.C. Pant, Secretary, and Ministry of Agriculture was constituted for representation up a systematic, comprehensive and holistic approach towards emergencies. There was a shift in the policy from relief centric approach to financial aid to a holistic one for addressing disaster management. Consequently, the disaster management division was shifted under the Ministry of Home Affairs in 200 -vide Cabinet Secretariat's Notification No. DOC.CD- 08/2002 dated 27/02/2002 and a hierarchical structure for disaster management evolved in India.

3. Organization and Structure of Disaster Management -

The Disaster Management Division is headed by Joint Secretary (DM) in MHA, who is assisted by three Directors, Under Secretaries, Section Officers, Technical Officer, Senior Economic Investigator consultants and other supporting staff. The upper echelon of the structure consists of Secretary (Border Management), Home Secretary, Minister of State in charge and the Home Minister.

4. Disaster Management Framework -

Shifting from relief and response mode, disaster management in India started to address the issues of early warning systems, forecasting and monitoring setup for weather related hazards. A structure for flow of information, in the form of warnings, alerts and updates about the oncoming vulnerability, also emerge within this framework. A multi stakeholder High powered committee group was setup by involving council from different ministries and departments. Some of these ministries were also designated as the nodal authorities for particular disas-

ters. Following a High Powered Committee Report on Disaster Management for concern of a separate institutional structure for addressing disasters and enactment of a suitable law for institutionalizing disaster management in the country, multi level associations between these ministries and the disaster management framework have emerged.

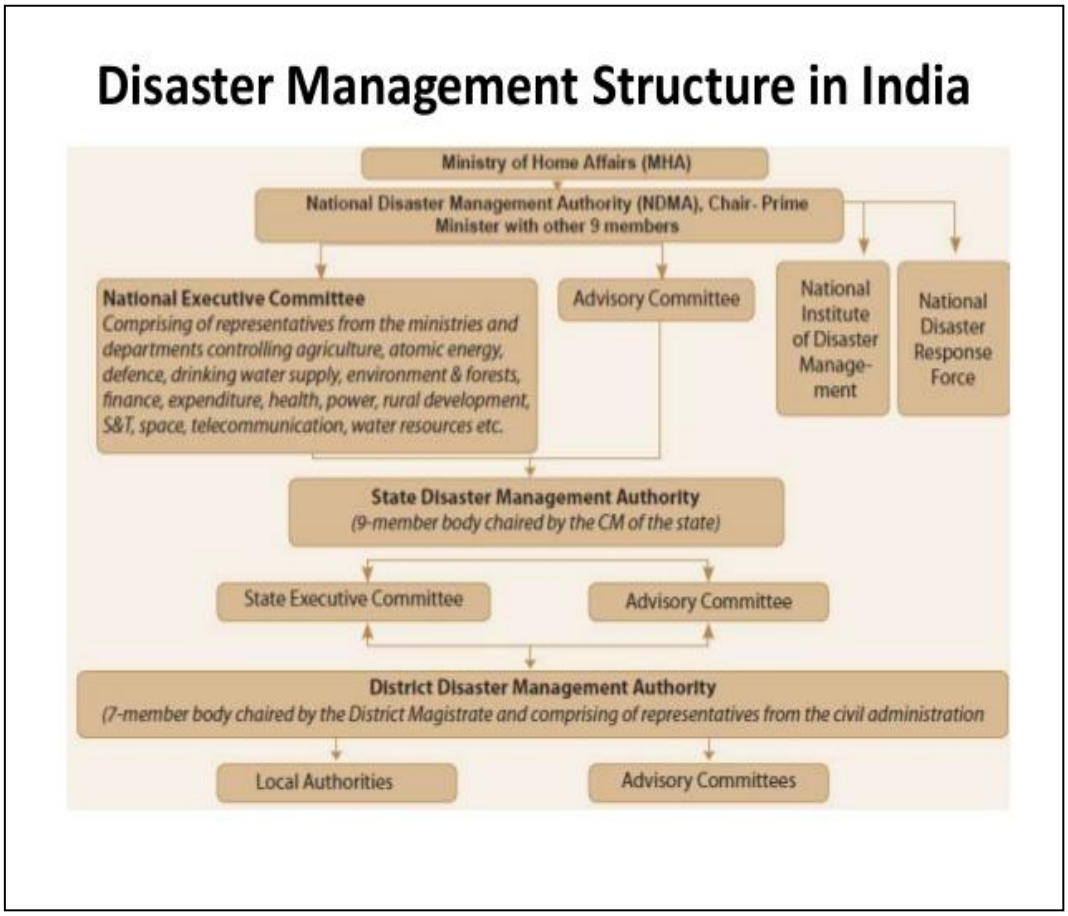
5. Present Structure for Disaster Management in India -

The institutional configuration for disaster management in India is in the state of transition. The new system, following the implementation of the Act is growing while the previous structure also continues. Thus, the two structures co-exist at present system. The National Disaster Management Authority (NDMA) has been established at the national level and the SDMA is set up at state and DDMA at district level are steadily being dignified. In addition to this, the National Crisis Management Committee (NCMC) part of the former setup also functions at the Centre level. The nodal ministries identified for different tragedy of function under the overall supervision of the Ministry of Home Affairs (Nodal ministry for disaster management). This makes the stakeholders interrelate at different levels within the disaster management framework. Within this transitional and developing setup, two distinct features of the institutional configuration for disaster management may be noticed.

(1) The structure is hierarchical and functions at four levels – centre, state, district and local. In both setups – one that existed prior to the implementation of the Act, and another that is being dignified post-implementation of the Act, there have existed institutionalized structures at the centre, state, district and local block levels. Each former level guides the actions and decision making at the next level in hierarchy.

(2) It is a multi-stakeholder arrangement, i.e., the structure draws involvement of various relevant ministries, government departments and administrative bodies.

Figure No. 3.19 Disaster Management Structure in India



In the present circumstance of human susceptibility to disasters, the all exposed group's economically and socially weaker segments of the populace, elderly persons, women, children and the differently disabled persons are exposed to higher risks. So, there is need a more holistic and coordinated hard work towards Disaster Management. To build a safe and disaster resilient India by developing a holistic, proactive, multi disaster oriented and technology driven strategy through a culture of prevention, mitigation, preparedness and response. A typical disaster management range constitutes six elements; the pre-disaster phase includes prevention, mitigation and preparedness, while the post-disaster phase includes response, rehabilitation, reconstruction and recovery. Legal and institutional framework binds all these elements together. Holistic and integrated approach will be evolved toward disaster management with emphasis on building strategic partnerships at assorted levels. The themes reinforcement the National policy is:

(1) Community based Disaster Management including last mile amalgamation of the policy, plans and execution.

(2) Capacity development in all spheres.

(3) Consolidation of past initiatives and superlative practices.

(4) Cooperation through agencies at national and international levels.

(5) Multi-sector synergy.

Taking into contemplation on 23 December, 2005, the Government of India took a important step by enacting the Disaster Management Act, 2005, which envisaged the creation of the National Disaster Management Authority (NDMA), headed by the Prime Minister, State Disaster Management Authorities (SDMAs) headed by the Chief Ministers, and District Disaster Management Authorities (DDMAs) headed by the Collector, District Magistrate or Deputy Commissioner as the case may be, to forefront and adopt a holistic and integrated approach to DM. There will be a paradigm shift, from the former relief-centric response to a proactive prevention, mitigation and preparedness-driven approach for conserving developmental gains and also to minimize losses of life, livelihoods and property and to improve Nation augmentation.

3.7 Objectives of the National policy -

The objectives of the national policy on disaster management are promoting an ethnicity of prevention, preparedness and resilience at all levels through acquaintance, innovation and education.

- Encouraging mitigation measures based on technology, traditional perception and environmental sustainability.
- Main streaming disaster management into the developmental planning process.
- Establishing institutional and techno-legal frameworks to create an enabling regulatory environment and a compliance government.
- Ensuring proficient mechanism for identification, assessment and monitoring of catastrophe risks.

- Developing contemporary forecasting and early warning systems backed by responsive and better communication with modern information technology support.
- Promoting a productive joint venture with the media to create awareness and causative towards capacity development.
- Ensuring competent response and relief with a compassionate approach towards the needs of the defenseless sections of the society.
- Undertaking reconstruction as an occasion to build disaster resilient structures and habitat to ensuring safer living.
- Promoting productive and proactive company with media in disaster management.

3.8 Institutional Arrangements Prior to the DM Act, 2005 -

The basic accountability of managing natural disasters and even man-made disasters was that of the concerned state government. The role of Government of India was only to plays a supportive, enabling and coordinating between centre and state. At the times of major disasters, the Indian Government supports the concerned State in terms of physical, medical, financial and human resources. Period after Post-independence, the Ministry of Agriculture assumed the role of a nodal ministry for the management of natural disasters. An Additional Secretary in the Department of Agriculture and Co-operation was designated as the Central Relief Commissioner to function as the co-coordinating agency at the national level for disaster management related activities.

The Natural Disaster Management (NDM) - Division of the Ministry of Agriculture, headed by a Joint Secretary, assisted the Central Relief Commissioner in the performance of his task. Then there were specific types of disasters for which other Ministries assumed a nodal role, e.g., the Ministry of Civil Aviation for air accidents; The list of nodal and support ministry was as follows:

Disaster	Nodal ministries
Natural disaster (except drought and civil strife)	Ministry of Home affairs
Drought	Ministry of Agriculture
Biological Disaster	Ministry of Health
Chemical Disaster	Ministry of Environment
Nuclear accidents and leakages	Department Of Atomic Energy
Railway accidents	Ministry of Railways
Air accidents	Ministry of Civil Aviation

Source – WHO Regional office

- At the apex operational level, the National Crisis Management Committee (**NCMC**) headed by the Cabinet Secretary and with the Secretaries of the appropriate Departments and Secretary to the Prime-Minister as Members, coordinates and guides the work of the Departments of the Government of India at a time of crisis. A Crisis Management Group (**CMG**) headed by the Central Relief Commissioner meets from time to time during natural calamities to co-ordinate at the central level and setup a bonding with state governments and other agencies for quick response and relief activities. Its members include senior officers from several [xiii] Ministries such as Finance, Defense, Food, Civil Supplies, Railways, Power, Urban Development, Rural Development, Health, Petroleum, Women and Child Development, Communication and Transport; it also comprises the Director General, Indian Meteorological Department (IMD), the Director General (Civil Defense), representatives of the Cabinet Secretariat as well as the Prime Minister's Office (PMO) and the Planning Commission, respectively. Resident Commissioners of States affected by a major natural calamity are brought on board the CMG during the period of crisis. Further in 1999, a High Level Committee (**HLC**) was constituted that was leaded by the Union Agriculture/Home Minister and comprising other Ministers,

including the Finance Minister and the Deputy Chairman, Planning Commission, takes decisions concerning financial support to States in the context of natural calamities. The HLC takes decisions after considering the recommendations of the Inter-Ministerial group (IMG) headed by the Agriculture Secretary/Home Secretary which considers the report of the Central Team's visit to the State concerned. According to the Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996, framed under the Environment (Protection) Act, 1986, the Government of India has to constitute a Central Crisis Group (**CCG**) the chairmanship of the Secretary, Ministry of Environment and Forests, for the management of chemical accidents.

- After the Gujarat earthquake of **2001**, an assessment was taken to transfer the subject of disaster management from the Ministry of Agriculture to the **MHA**. By the February, 2002 modification to the Government of India (Allocation of Business**)** Rules, **1961**, all work relating to disaster management (excluding drought and epidemic and the aforementioned emergencies or disasters specifically prearranged to other ministries) was transferred to the MHA. The actual transfer of work was took place in June 2002. The Ministry of Agriculture continues to remain in-charge of managing events related to the incidence of drought, pest attack, cold wave, fire and hailstorm. The Ministry was continues to have an Additional Secretary designated as Central Relief Commissioner. In the MHA the Disaster Management Division is headed by a Joint Secretary who is assisted by three Directors. The Secretary (Border Management) supervises the work of the DM Division.
- In 1999, The HPC which was constituted by the Government of India - recommends the creation of a separate Ministry of Disaster Management. It also recommends a National Council on Disaster Management. Even as it painstaking the HPC's recommendations, the Government of India advised State Governments to either set up a new Department of Disaster Management or re-designate the accessible Department looking after dis-

aster management as Department of Disaster Management. At the central level, the idea of setting up a National Emergency Management Authority (NEMA) to coordinate all measures relating to prevention, mitigation, preparedness, response and relief was contemplated. Proposed to be headed by an officer of the rank of Secretary/Special Secretary in the MHA under the supervision of the Home Secretary, it was to have the following as Members:-

- Special Secretaries/Additional Secretaries from the Ministries/Departments of Health, Water Resources, Environment and Forests, Agriculture, Railways, Atomic Energy, Chemicals, Science and Technology, Telecommunications, Defense, Urban Development and Poverty Alleviation ,Rural Development, the Defense Research and Development Organization (DRDO); Director General (Emergency Response and Civil Defense), and the IMD. Eventually, a decision was taken to set up the NDMA under the Chairpersonship of the Prime Minister. Probably the idea was to create an autonomous organization similar to that of FEMA in the USA. In practice, however, the NDMA is markedly different from FEMA in terms of its functions, reach and tasks assigned; the Latter has an elaborate field level organization and it implements various programs and schemes to Support and strengthen state and local level actions and initiatives.
- The overall coordination of disaster management vests with the Ministry of Home Affairs (MHA). The Cabinet Committee on Security (CCS) and the National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with regard to disaster management. The NDMA is the lead agency responsible for the preparation DM plans and the execution of DM functions at the national level it provides a schematic view of the basic institutional structure for DM at national level. The figure represents merely the institutional pathways for coordination, decision-making and communication for disaster management and does not imply any chain of command. In most cases, state governments will be carrying out disaster management with the central gov-

ernment playing a supporting role. The central agencies will participate only on the request from the state government. Within each state, there is a separate institutional framework for disaster management at the state-level. The DM Act of 2005 provides for the setting up of NDMA at national level. The High Powered Committee (HPC) was constituted in August 1999 to make recommendation for institutional reforms and preparation of Disaster Management Plans at the National, State and District levels at the behest of the Prime Minister by the Ministry of Agriculture.

3.9 Disaster Management Act, 2005 -

This disaster act provides for the effective management of disaster and for matters connected therewith or incidental thereto. It provides institutional mechanisms for drawing up and monitoring the implementation of the disaster management. The Act also ensures measures by the various wings of the Government for prevention and mitigation of disasters and prompts response to any disaster situation.

The Act provides for setting up of a National Disaster Management Authority (NDMA) under the Chairmanship of the Prime Minister, State Disaster Management Authorities (SDMAs) under the Chairmanship of the Chief Ministers, District Disaster Management Authorities (DDMAs) under the Chairmanship of Collectors/District Magistrates/Deputy Commissioners. The Act further provides for the constitution of different Executive Committee at national and state levels. Under its aegis, the National Institute of Disaster Management (NIDM) for capacity building and National Disaster Response Force (NDRF) for response purpose have been set up. It also mandates the concerned Ministries and Departments to draw up their own plans in accordance with the National Plan. The Act further contains the provisions for financial mechanisms such as creation of funds for response, National Disaster Mitigation Fund and similar funds at the state and district levels for the purpose of disaster management. The Act also provides specific roles to local bodies in disaster management.

A. Amendments- Further the enactment of 73rd and 74th Amendments to the constitution and emergence of local self- government, both rural and urban, as

important tiers of governance, the role of local authorities becomes very important. The DM Act, 2005 also envisages specific roles to be played by the local bodies in disaster management.

B. Legal - Institutional Framework: A legal institutional framework developed based on the provision of the Act across the country, in vertical and horizontal hierarchical and in the federal setup of country may be seen in the Figure 2.2 for appreciation of response mechanism which has been put in place.

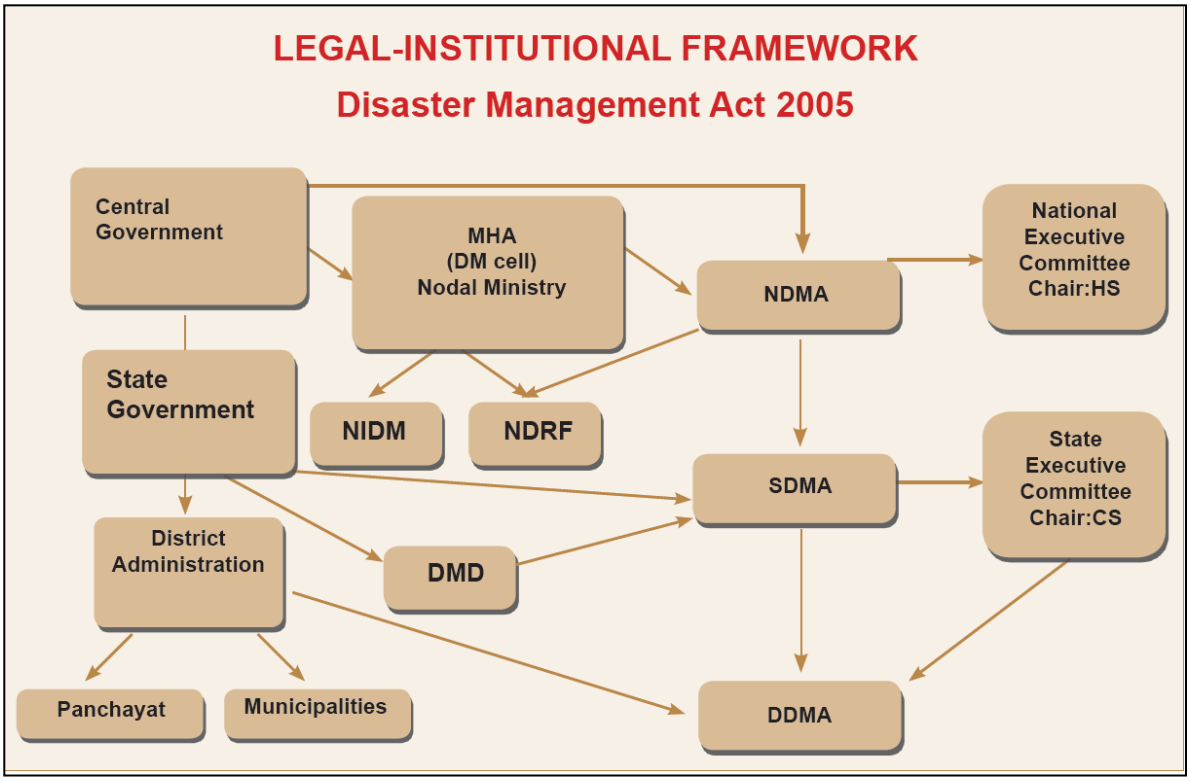
C. Institutional Arrangement Structures -Envisaged By the Dm Act, 2005 -

The DM Act, 2005, envisages four important institutional structures at the national level for disaster management:

1. The National Disaster Management Authority (NDMA),
2. The National Executive Committee (NEC),
3. The National Institute of Disaster Management (NIDM) and
4. The National Disaster Response Force (NDRF).

The Act lays down their structures, roles, responsibilities and functions. In addition, the Act also enumerates the measures to be undertaken by the MHA and other Ministries of the Government of India. In other words, the Ministries, too, are mandated by the Act to undertake certain activities relating to disaster management. The following sub-sections describe important aspects of the national level institutions.

Figure No. – 3.20 Legal Institutional Framework

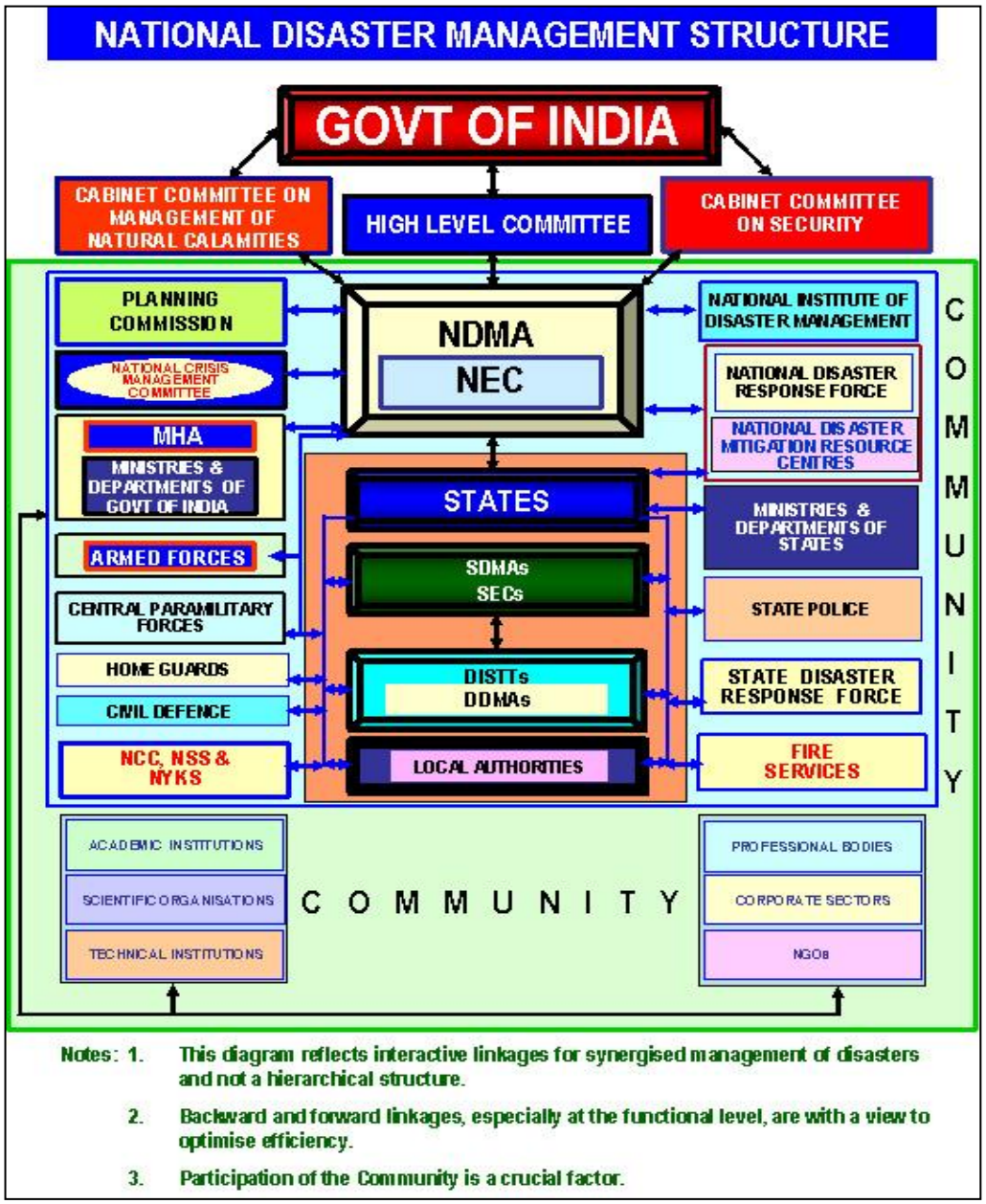


3.10 National Level Institutions –

(A) National Disaster Management Authority (NDMA) :

The National Disaster Management Authority (NDMA) was firstly constituted on May 30, 2005 underneath the Chairmanship of Prime Minister vide an administrative order. Following enactment of the Disaster Management Act, 2005, the NDMA was formally constituted in accordance with section-3 (1) of the Act on 27th September, 2006 with Prime Minister as its Chairperson and nine other members, and one such member to be designated as Vice-Chairperson.

Figure No. – 3.21 National Disaster Management Structure



- **Mandate of NDMA:** The NDMA has been mandate with lay down policies on disaster management and strategy which would be followed by different Ministries, Departments of the Government of India and State Government in taking measures for disaster risk reduction. It has also to laid down guidelines to be followed by the State Authorities in drawing up the State Plans and to take such measures for the management of disasters, Details of these responsi-bilities are given as under :-

(A) Lay down policies on emergency management.

(B) Approve the National Plan.

(C) Approve plans prepared by the Ministries or Departments of the Government of India in accordance with the National Plan.

(D) Lay down guidelines to be followed by the State Authorities in drawing up the State Plan.

(E) Lay down strategy to be followed by the different Ministries or Departments of the

Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects

(F) Synchronize the enforcement and implementation of the guiding principle and plan for disaster.

(G) Recommend stipulation of funds for the purpose of mitigation.

(H) Provide such hold up to other countries affected by major disasters as may be determined by the Central Government.

(I) take such other actions for the prevention, mitigation,

Preparedness and capacity building for dealing with the threatening disaster situation or disaster as it may consider necessary.

(J) Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management.

- **NDMA Composition:** Besides the nine members nominated by the Prime Minister, Chairperson of the Authority**,** the organizational arrangement consists of a Secretary and five Joint Secretaries including one Financial Advisor. There are 10 posts of Joint Advisors and Directors.
- **Formulation of National Disaster Management Authority-**

The Government of India established the NDMA in 2005, headed by the Prime Minister. Under the DM Act 2005, the NDMA, as the apex body for disaster management, shall have the responsibility for laying down the policy, plans, and strategy for disaster management for ensure timely and effective response to an emergency. NDMA is constituted under the Clause 14 of the Act, 31 Clauses 25 of the Act, and 32 Clause 42 of the Act 33 Clause 44 of the Act 34 Clause 46 of the DM Act. The guiding principle of NDMA will assist the Central Ministries,

Departments, and States to formulate their respective DM plans. It will approve the National Disaster Management Plans and DM plans of the Central Ministries and Departments. It will take such other actions, as it may consider necessary, for the prevention of disasters, or mitigation or preparedness and capacity building, for dealing with a threatening disaster situation or disaster. Central Ministries, Departments and State Governments will extend necessary cooperation and assistance to NDMA for carrying out its mandate. It will oversee the provision and application of funds for mitigation and preparedness measures an emergency. The general superintendence, direction, and control of the National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and strategy laid down by the NDMA. The NDMA has the mandate to deal with all types of disasters – natural or human-induced.

However, other crisis such as terrorism, law and order situations, hijacking, air accidents, CBRN weapon system, which require the close involvement of the security forces or intelligence agencies, and other incidents such as disasters port and harbor emergencies, forest fires, oilfield fires and oil spills will be handled by the National Crisis Management Committee (NCMC). However, NDMA may formulate guidelines and facilitate training and preparedness activities in respect of CBRN emergencies. As per the **Section 3** of the DM Act, 2005, provides for the setting up of a National Disaster Management Authority with the Prime Minister of India as Chairperson and other members – to be nominated by the Prime Minister – not exceeding nine. The Chairperson may designate one of the members as Vice-Chairperson.

• The NDMA was initially constituted on May 30, 2005, by a supervisory parliamentary, order when the Disaster Management Bill, 2005, was pending ratification. This was in the aftermath of the December 2004, Asian tsunami. Following the enactment of the DM Act, 2005, the NDMA was formally constituted in accordance with Section 3 (1) of the DM Act on September 27, 2006. At present the NDMA has nine members nominated by the Prime Minister. The organizational structure comprises a Secretary and five Joint Secretaries including one Financial Advisor.

• There are 10 posts of Joint Advisors and Directors, 14 Assistant Advisors, Under Secretaries and Assistant Financial Advisors along with support staff.

- **NDMA Secretariat -**

The NDMA Secretariat is comprises of One Secretary and five Divisions,-

(i) Policies, Plans, Capacity Building & Training, Public Relation & Awareness Generation,

(ii) Mitigation projects & procurement,

(iii) Operations, Communications and Rehabilitation & Recovery Division,

(iv) Administration and Co-ordination Division, and

(v) Finance and Accounts Division.

The NDMA Secretariat is headed by an administrator Secretary to the Government of India, keeping in view the intricacy of the tasks involved in management of different kinds of disasters and the needs for effective interface with various Central Ministries and Departments and State Governments. All the Divisions reports to the Secretary. The functions and the staffing pattern of the five Divisions are discussed in the following paragraphs-

(i) Policies, Plans, Capacity Building & Training, Public Relation & Awareness Generation Policies & Plans Division-

NDMA deals with all matter pertaining to the formulation of policies, strategy, and the formulation of policies, plans, guiding principle and approval of plans of all the Central Ministries and Departments. Main streaming disaster management in development campaign is also an important task of this division. As work involved in these fields is massive and requires a very enthusiastic endeavor by all the Ministries and Departments, this division works in a proactive manner with all the stakeholders. Capacity Building & Training Division deals with all the matters related to the Capacity Building, which is a major necessity in all fields i.e. technical, non-technical, structural and non-structural measures, community preparedness, and security services etc. This is more in that area of disaster management where training of the disaster management and the community at large is of extreme importance. It is very important that the States and the other Stakeholders like trade, Nuclear Installations etc. acquire skill and proficiency in run-

ning mock drills with a view to minimize losses. Public Relation & Awareness Generation Division deals with all matters where NDMA take escort in preparing the community and sensitizing all the stakeholders, the Ministries and Departments and States are intimately occupied as partners. This is done through the extensive exploitation of media, both electronic and print at both regional and national level. All other ingenious methods like publication of brochures, leaflets, posters, street plays, etc. are also be exploited The NDMA has been mandated to lay down policies, plans and guidelines for disaster management to ensure a timely and effective response to disasters. According to Section 6 (1) of the Act, some of the functions of the NDMA are to:

• lay down all the policies on disaster management.

• approve the National Plan for country.

• approve plans for implementation prepared by the Ministries or Departments of the Government of India in accordance with the National Plan.

• lay down strategy to be followed by the different Ministries or Departments of the Government of India for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects.

• organize the enforcement and implementation of the policy and plan for disaster management.

• lay down guidelines to be follow by the State Authorities in drawing up structure of the State Plan.

• recommend further provision of funds for the purpose of mitigation,

• take such other measures for the prevention of disaster, mitigation, preparedness and capacity building for dealing with the disaster threatening situation.

• lay down broad policies and guidelines for the operation of the National Institute of disaster management.

• provide such support to other countries exaggerated by major disasters as may be determined by the Central Government.

(ii) Mitigation Projects & Procurement –

This Division deals to take such measures as are necessary for prevention, preparedness and mitigation purposes. This requirement constitutes the core of the national vision and is also the most cost effective measure to minimize losses, both in terms of lives and property. Accordingly, NDMA is take up Risk Mitigation Projects at national level in conjunction with the Ministries and the States pertaining to disaster themes like Cyclones, Earthquakes, Floods, Landslides and failsafe Communication and IT plan etc. It guide and commission some specialized studies and projects like micro-zonation, Vulnerability Analysis, etc. It also supervises and monitors the blueprint and implementation of the mitigation projects to be undertaken by the Ministries themselves. NDMA is equipped with the requisite expertise and data to ensure professionalism in the formulation and execution of mitigation and preparedness projects.

(iii) Operations, Communications and Rehabilitation & Recovery Division -

(a)The Operations Centre Division-It provides 24hourly disaster specific information and data input facility and also direct the endeavor during the consequent stages of response. The Division is also assist to provide redundancy and physical separation to the Integrated Operations Centre at the MHA, so it is very essential particularly in cases of earthquakes and CBRN emergencies.

(b)Rehabilitation & Recovery Division- The task relates to lying down of minimum standards of relief, periodic review of standard of relief and also evolving solutions to produce temporary livelihood options for the consideration of the Government of India.

(iv) Administration and Coordination Division- This Division is accountable for all the aspects of Administration and Coordination functions, including Interface with the State and District Disaster Management Authorities, administrative association with the Central ministries and Departments, State Governments, etc, on disaster management related activities.

(v) Finance and Accounts Division- The Finance and Accounts Division deals with the work relating to maintenance of accounts, preparation of budget, financial scrutiny of proposals, etc. This Division is also supervising progress of expenditure and recommendation.

- **Financial Arrangements -**

In order to bring about a paradigm shift to covering prevention, preparedness and mitigation, efforts would be prepared to conventional prevention and mitigation measures into the developmental plans and programs by enlisting cooperation from all stakeholders. NDMA will also ensure mainstreaming of disaster risk reduction in the developmental schedule of all existing and new developmental programs and projects which shall integrate disaster resilient specifications in design and construction. The Planning Commission will give due priorities to these factors while allocating assets.

- **Legal-institutional framework -**

There are 14 Assistant Advisors, Under Secretaries and Assistant Financial Advisor and Duty Officer along with supporting staff, further, recruitment Rules have been notified as-

(a) National Disaster Management Authority-(Group C) posts Recruitment Rules, 2009.

(b) National Disaster Management Authority- (Group A) Recruitment Rules, 2009.

Under Section 7 (1) of DM Act an Advisory Committee with 12 Members has been constituted

During 2007,

- **National Executive Committee -**

A National Executive Committee is constituted under Section-8 of DM Act, 2005 to support the National Authority in the recital of its functions. NEC consists of Home Secretary as its Chairperson, ex-officio, with other Secretaries to the Government of India in the Ministries or Departments having administrative control of the agriculture, atomic energy, defense, drinking water supply, environment and forest, finance (expenditure), health, power, rural development science

and technology, telecommunication, space, urban development, water resources. The Chief of Integrated Defense Staff of the Chiefs of Staff Committee, ex-officio, is also its members. When it considers essential comprise one or more sub-committees for the efficient discharge of its functions. For the conduct of NEC Disaster Management National Executive Committee (Procedure and Allowances) Rules, 2006 has been issued which may be visited at www.mha.nic.in. NEC has been given the responsibility to act as the coordinating and monitoring organization for disaster management, to prepare a National Plan, scrutinize the execution of National Policy -vide section 10 of the DM Act.

3.11 State level Institutions -

- **State Disaster Management Authority (SDMA)**

The DM Act, 2005 provides for constitution of SDMAs and DDMAs in all the states and UTs. As per the information acknowledged from the states and UTs, except Gujarat and Daman & Diu, all the rest have constituted SDMAs under the DM Act, 2005. Gujarat has constituted its SDMA under its Gujarat State Disaster Management Act, 2003. Daman & Diu have also established SDMAs prior to enactment of DM Act 2005.

- **State Executive Committee (SEC)**

The Act envisages concern of State Executive Committee under Section 20 of the Act, headed by Chief Secretary of the state Government with four other Secretaries of such departments as the state Government may think. It has the liability for coordinating and monitoring the accomplishment of the National Policy, the National Plan and the State Plan as provided under section 22 of the Act.

3.12 District level Institutions -

- **District Disaster Management Authority (DDMA)**

Section 25 of the DM Act provides for creation of DDMA for every district of a state. The District Magistrate, District Collector or Deputy Commissioner heads the Authority as Chairperson besides an elected representative of the local authority as Co-Chairperson excluding the tribal areas where the Chief Executive Member of the District Council of Autonomous District is designated as Co-

Chairperson. Further in district, where Zila parishad exists, its Chairperson shall be the Co-Chairperson of DDMA. Other members of this authority include the CEO of the District Authority, Superintendant of Police, Chief Medical Officer of the District and other two district level officers are designated by the state Government.

The District Authority is liable for planning, coordination and implementation of disaster management and to take such actions for disaster management as provided in the strategy. The District Authority also has the power to inspect the constructions in any area in the district to enforce the security standards and also to assemble for relief measures and respond to the disaster at the district level.

- **Institutional Framework for Metropolitan Cities**

In the larger cities (population exceeding then 2.5 million), the recommendation of the second Administrative Reforms Commission has suggested that the Mayor, assisted by the Commissioner of the Municipal Corporation and the Police Commissioner to be directly accountable for Crisis Management. It has now been acknowledged by the Government.

3.13 Hierarchical Structure of Authority and Committee -

In this structure, National Disaster Management Authority is the clout for formulation of policy and strategy for all disaster management work in the nation. The state authorities further lay down the guiding principle for departments of the state and the districts falling in their standpoint jurisdictions. Correspondingly, district authorities direct the civil administration, departments and local authorities such as the municipalities, police department and civil administration. The State Executive Committees are responsible for execution of the tasks envisaged by the Government.

A. Institutional Framework at National level -

National level institutional framework is the extent of involvement of central agencies depends on the type, level, and administrative extend of the disaster. If the circumstances require the straight assistance from central government or the deployment of central agencies, the central government will provide all necessary shore up irrespective of the classification of the disaster.

(i) National Disaster Response and Mitigation Funds-

A National Disaster Response Fund may be constituted as mandated in the Act. The National Disaster Response Fund will be applied by the NEC towards meeting operating cost for emergency response, relief and rehabilitation, in harmony with the strategy lay down by the Central Government in consultation with the NDMA. The proposal for assimilation the National Calamity Contingency Fund (NCCF) with the National Disaster Response Fund shall be as suggested by the Finance Commission from timely. Correspondingly, as mandated by the Act, the National Disaster Mitigation Fund (NDMF) may be shaped for projects utterly for the intention of mitigation. The NDMF shall be applied by the NDMA and shall be as suggested by the Finance Commission from time to time.

(ii) Responsibilities of the Central Ministries and Departments

All Central Ministries and Departments will arrange their DM plans including the financial projections to sustain these plans. The necessary budgetary allocations will be made as part of the Five Year and Annual Plans of the State and district level provisions. It shall be the liability of the States to constitute the Disaster Mitigation and Response Funds at the State as well as District levels. The Modalities for the claim of these funds will be worked out in harmony with the provisions of the Act.

(iii) Mitigation Projects -

The guidelines on a variety of disasters will form the base for the formulation of plans for mitigation projects at the National, State and District level. Central Ministries and Departments as well as the State Governments will identify Mitigation Projects for implementation. The National level mitigation projects will be duly prioritized and approved in consultation with NDMA.

(iv) Techno-Financial Regime -

Considering that the assistance provided by the Government for rescue, relief, rehabilitation and reconstruction needs cannot compensate for massive losses on account of disasters, new financial tools such as calamity risk financing, risk insurance, catastrophe bonds, micro-finance and insurance etc., will be promoted with innovative economic incentives to cover such losses of individuals, communities and the corporate sector. In this regard, the Environmental Relief Fund under the Public Liability Insurance Act, 1991, enacted for providing relief to chemical accident sufferers is significance mentioning. Some financial practices such as disaster risk insurance, micro-finance and micro-insurance, warranty on newly constructed houses and structures and linking safe manufacture with home loans will be considered for acceptance.

(v) Finance and Accounts Division -

The Finance and Accounts Division deals with the work concerning to maintenance of accounts, preparation of budget, financial scrutiny of proposals etc. This Division is also monitor progress of expenditure and advice NDMA on all matters falling within its delegated financial powers, etc. The Authority discharges its functions in accord with the rules, regulations, instructions, manuals etc. issued by the Govt. of India, on all matters falling within its delegated financial powers etc.

(vi) National Institute Disaster Management (NIDM) -

As per the requirements of the Chapter-VII of the DM Act, Government of India constituted the National Institute of Disaster Management (NIDM) under an Act of Parliament with the goal of being the foremost institute for capacity development for disaster management in India and the province. The vision of NIDM is to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness. NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation, and policy advocacy in the field of disaster management. The NIDM has built strategic partnerships with assorted ministries and departments of the central, state, and local governments, academic, research and technical organizations in India and abroad and other bi-lateral and multi-lateral international agencies. It provides technical support to the state governments through the Disaster Man-

agement Centers (DMCs) in the Administrative Training Institutes (ATIs) of the States and Union Territories. Presently it is supporting as many as 30 such centers,6 of them are being developed as Centers of Excellence in the specialized areas of risk management – flood, seismic activity, cyclone, drought, landslides, and industrial disasters.

(a) Background: International decade for Natural Disaster Reduction (IDNDR), a national Centre for Disaster Management was established at the Indian Institute for Public Administration (IIPA) in 1995. The Centre was upgraded and designated as the National Institute of Disaster management (NIDM) on 16th October 2003. It has now achieved the status of a statutory organization under the Disaster Management Act, 2005. Section-42 of Chapter-VII of the Disaster Management Act, 2005 entrusts the institute with several responsibilities, to develop training modules, undertake research and documentation in disaster management, organize training programs, undertake and organize study courses, conferences, lectures and seminars to promote and institutionalize disaster management, undertake and provide for publication of journals, research papers and books etc.

(b) Management Structure: The Union Home Minister is the President of this organization, it was constitute on 23rd February, 2007 and has a general body of forty two members comprising of secretaries of various ministries, departments of the Union Government and heads of national level scientific, research and technical organizations. In terms of Section-42(4) of the Disaster Management Act, 2005 vide order dated 3rd May, 2007, the Government also constituted a 14 member Governing Body which may be seen in the management structure.

(c) Organizational Structure – NIDM is headed by an Executive Director along with the faculty and staff. The organizational structure may be seen as-

The Institute has four academic divisions-

(1) Geo-Hazard Division.

(2) Hydro-met Hazard Division.

(3)Policy Planning and Cross Cutting Issues Division.

(4) Response Division.

A. Location and Facilities:

Located centrally at the Indraprastha Estate on the Mahatma Gandhi Road, within the campus of the IIPA, the institute is equipped with state-of-the-art amenities of training and research on disaster management. It has fully air conditioned training and conference halls, a well stocked library, GIS laboratory, computer centre, and a video conference hall. The institute also provides Boarding and lodging facilities for participants of its programs.

B. National Disaster Response Force (NDRF) -

The NDRF has been constituted as per the Chapter-VIII of the DM Act 2005, as a specialist response force that can be deployed in a threatening disaster situation or disaster. As per the DM Act, the general superintendence, direction and control of the NDRF shall be vested and exercised by the NDMA. The command and supervision of the NDRF shall vest with the Director General appointed by the Government of India. The NDRF will arrange its battalions at different locations as necessary for effective response. NDRF units will maintain close liaison with the designated State Governments and will be available to them in the event of any serious threatening disaster situation. The NDRF is equipped and trained to respond to situations arising out of natural disasters and CBRN emergencies. The NDRF units will also instruct basic training to all the stakeholders identified by the State Governments in their respective locations. Further, a National Academy will be set up to provide training for trainers in disaster management and to meet related National and International commitments. Experience in major disasters has clearly shown the need for pre-positioning of some response forces to augment the resources at the State level at crucial locations including some in high altitude regions.

- **Policies -**

Section 44 (1) of the Act- provides for the constitution of a National Disaster Response Force for the intention of specialist response to an imminent disaster situation or in the consequences of a disaster.

Section 44 (1) of the Act- Facilitates that the NDRF is meant to provide a specialist response In the event of a disaster, response functions are performed not only by the community but also by the police, central armed police forces and armed forces.

Section 45 of the Act- the General superintendence, direction and control of the Force is vested in and exercised by the NDMA.

- **Organization -**

The Director General of the NDRF is to be appointed by the Central Government. The experience of disasters in recent times brought forth the realization that search and rescue activities require specialized equipment, training and capability which may not be available at all times even with the existing forces. The objective of the NDRF is to develop specialized skills and capabilities for rescue operations.

The initial constitution of the NDRF was accomplished by an up-gradation or conversion of eight battalions of the central armed police forces – two battalions each from the Border Security Force (BSF), the Indo-Tibetan Border Police (ITBP), the Central Industrial Security Force (CISF), and the Central Reserve Police Force (CRPF). The intention was to develop them as a specialist force. At present, the NDRF comprises 10 battalions.

C. National Crisis Management Committee (NCMC)

NDMA may though formulate guidelines and facilitate training and preparedness actions in respect of CBRN emergencies. Cross – cutting themes like medical preparedness, psycho – social care and trauma, community based disaster preparedness, information and communication technology, training, preparedness, awarenes, invention etc., for natural and man – made disaster will also engage the attention of NDMA in partnership will also engage the attention of NDMA in partnership with the stakeholders concerned. Resources available with the disaster management authorities at all levels, which are capable of discharging emergency support functions, will be made available to the nodal Ministries/Agencies dealing with the emergencies at times of impending disasters.

D. National Executive Committee (NEC)-

The NEC comprises the Union Home Secretary as Chairperson, and the Secretaries to the Government of India, in the Ministries or Departments of Agriculture, Atomic Energy, defense, Drinking Water Supply, Finance (Expenditure), Health,

Power, Telecommunication Rural Development, Science & Technology, Space, Environment and Forests Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways, and the Secretary, NDMA will be special invitees to the meetings of the NEC. The NEC is the executive committee of the NDMA, and is mandated to assist the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Governmental. The NEC is to synchronize the response in the event of any threatening disaster situation or disaster. The NEC will prepare the National Plan for Disaster Management base on the National Plan for Disaster Management based on the National Policy on Disaster Management. The NEC will keep an eye on the implementation of guidelines issued by NDMA. It will also perform such other functions as may be prescribed by the Central Government in consultation with the NDMA. The SEC will also provide information to the NDMA relating to different aspects of DM the NEC, constituted to assist the NDMA in the performance of its functions, and is headed by the Home Secretary as its Chairperson, ex- officio. The NEC's Members comprise the Union Secretaries of the Ministries or Departments with administrative control of Agriculture, Atomic Energy, Defense ,Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunication, Urban Development and Water Resources. The Chief of Integrated Defense Staff of the Chiefs of Staff Committee is also an Ex-officio Member of the NEC. The Chairperson of the NEC can call upon any other officer of the Central Government or State Government to take part in any meeting. The NEC may constitute one or more sub-committees for the efficient discharge of its functions.

According to **Section 10 (1) of the Act** the NEC has two broad functions. It is required to assist the NDMA in the discharge of its functions and implements its policies and plans as well as ensures the compliance of directions issued by the Central Government for the purpose of disaster management in the country. More

specifically, Section 10(2) of the Act enumerates the following functions of the NEC, which are to-

(1) Act as the coordinating and monitoring body for disaster management.

(2) Prepare the National Plan to be approved by the National Authority.

(3) Coordinate and monitor the implementation of the National Policy.

(4) Lay down guidelines for preparing disaster management plans by different Ministries or Departments of the Government of India and the State Authorities.

(5) Provide necessary technical assistance to the State Governments and the State Authorities for preparing their disaster management plans in accordance with the guidelines laid down by the National Authority.

(6) Monitor the implementation of the National Plan and the plans prepared by the Ministries or Departments of the Government of India

(7) Monitor the implementation of the guidelines laid down by the National Authority for integrating of measures for prevention of disasters and mitigation by the Ministries or Departments in their development plans and projects

(8) Monitor, coordinate and give directions regarding the mitigation and preparedness measures to be taken by different Ministries or Departments and agencies of the Government

(9) Evaluate the preparedness at all governmental levels for the purpose of responding to any threatening disaster situation or disaster and give direction, where necessary, for enhancing such preparedness

(8) Plan and coordinate specialized training programs for disaster management for different levels of officers, employees and voluntary rescue workers

(10) Coordinate response in the event of any threatening disaster situation or disaster

(11) Lay down guidelines for, or give directions to, the concerned Ministries or Departments of the Government of India, the State Governments and the State Authorities regarding measures to be taken by them in response to any threatening disaster situation or disaster.

(12) require any department or agency of the Government to make available to the National Authority or State Authorities such men or material resources as are available with it for the purpose of emergency response, rescue and relief

(13) Advise, assist and coordinate the activities of the Ministries or Departments of the Government of India, State Authorities, statutory bodies other governmental or non-governmental organizations and others engaged in disastermanagement.

(14) Provide necessary technical assistance or give advice to the State Authorities and District Authorities for carrying out their functions under this Act

(15) Promote general education and awareness in relation to disaster management

(16) Perform such other functions as the National Authority may require it to perform

E. National Institute of Disaster Management (NIDM)

Section 42**,** of the Dm act 2005 provides for the establishment of the NIDM, its structure and functions. As mentioned earlier, a National Centre for Disaster Management was established at the Indian Institute of Public Administration (IIPA) in 1995. It was upgraded and designated as the National Institute of Disaster Management (NIDM) on October 16, 2003. The NIDM attained the status of a statutory organization in Pursuance of the DM Act, 2005.

F. Policies-

As per Section 42 (8) - of the Act, the NIDM's brief is to function within the broad policies and guidelines lay down by the NDMA. It is responsible for planning and promoting training and research in the area of disaster management, documentation and development of a national level information base relating to disaster management policies, prevention mechanisms and mitigation measures.

Section 42(9) -of the Act enumerates the following specific functions of the NIDM,

- **Functions of the NIDM are as follows-**

(1) Develop training modules, undertake research and documentation in disaster management and organize training programs.

(2) Formulate and implement a comprehensive human resource development plan covering all aspects of disaster management.

(3) Provide assistance in national level policy formulation.

(4) Provide required assistance to the training and research institutes for development of training and research programs for stakeholders including Government functionaries and undertake training of faculty members of the State level training institutes.

(5) provide assistance to the State Governments and State training institutes in the formulation of State level policies, strategies, disaster management framework and any other assistance as may be required by the State Governments or State training institutes for capacity-building of stakeholders, Government including its functionaries, civil society members, corporate sector and people's elected representatives .

(6) Develop educational materials for disaster management including academic and professional courses.

(7) Promote awareness among stakeholders including college or school teachers and students, technical personnel and others associated with multi-hazard mitigation, preparedness and response measures.

(8) Undertake, organize and facilitate study courses, conferences, lectures, seminars with and outside the country to promote the aforesaid objects.

(9) Undertake and provide for publication of journals, research papers and books and establish and maintain libraries in furtherance of the aforesaid objects.

(9) do all such other lawful things as are conducive or incidental to the attainment of the above objects.

(10) Undertake any other functions as may be assigned to it by the Central Government.

2. Institutional Arrangements at State Level -

As per the DM Act of 2005, each state in India, Government of India established its own institutional framework for disaster management. Among other things, the DM Act, mandates that each State Government take strategy for the preparation of state DM plans, integration of measures for prevention of disasters or mitigation into state development plans, allocation of funds, and establish EWS. The State Government also assists the Central Government and central

agencies in an assortment of aspects of DM. Each state has prepared their State Disaster Management Plan respectively. The DM Act mandates the setting of a State Disaster Management Authority with the Chief Minister as the ex officio Chairperson. Similar system will function in each Union Territory with Lieutenant Governor as the Chairperson. At the district level, District Disaster Management Authority (DDMA), the District Collector, District Magistrate, the Deputy Commissioner will be responsible for overall harmonization of the disaster management efforts and planning. Detailed DMP will be developed, subject to periodic review and revision, at the of state, district, towns and blocks levels.

- **Roles, Responsibilities and Functions of Ministries -**

An important characteristic of the DM Act, 2005, is that it specifically mentions the responsibilities and functions of the Ministries of the Government of India. Section 35(2) enumerates the responsibilities of the Central Government. The expression 'Central Government' is defined in Section 2 (c) as the Ministry or Department of the Government of India with administrative control of Disaster Management. In other words, the MHA is mandated by the Act to perform the following functions-

(1) Coordination of actions of the Ministries or Departments of the Government of India, State Governments, National Authority, State Authorities, governmental and non-governmental Organizations in relation to disaster management.

(2) Guarantee the integration of measures for prevention of disasters and mitigation by Ministries or Departments of the Government of India into their development plans and projects.

(3) Ensure appropriate allocation of funds for prevention of disaster, mitigation, capacity building and preparedness by the Ministries or Departments of the Government of India.

(4) Ensure that Ministries or Departments of the Government of India take necessary measures

for preparedness to promptly and effectively respond to any threatening disaster situation.

(5) Cooperation and assistance to State Governments, as requested by them or otherwise deemed appropriate by it.

(6) Deployment of naval, military and air forces, other armed forces of the Union or any other civilian personnel as may be required for the purpose of this Act.
(7) Coordination with the United Nations agencies, international organizations and governments of foreign countries for the purposes of this Act.
(8)Establish institutions for research, training and developmental programs in the field of disaster management.
(9) Such other matters as it deems necessary or expedient for the purpose of securing effective Implementation of the provisions of this Act.

Section 37 mandates that every Ministry or Department of the Government of India shall prepare disaster Management Plan specifying the aspects mentioned in that section. The same section also envisages that every Ministry or Department of the Government of India shall make provisions for the financing of activities specified in its Disaster Management Plan.

- **State Disaster Management Authority (SDMA)**

As per provisions in Chapter-III of the DM Act, each State Government established a State Disaster Management Authority (SDMA) or its equivalent authority under the chairmanship of the Chief Minister. In case of other UTs, the Lieutenant Governor or the other Administrator shall be the Chairperson of that Authority. For the UT of Delhi, the Lieutenant Governor and the Chief Minister shall be the Chairperson and Vice-Chairperson correspondingly of the State Authority. In the case of a UT having Legislative Assembly, except the UT of Delhi, the Chief Minister shall be the Chairperson of the Authority established under this section. The SDMA will lay down policies and plans for DM in the State. It will, inter alia approve the State Plan in accordance with the strategy laid down by the NDMA, coordinate the implementation of the State Plan, recommend stipulation of funds for mitigation and preparedness measures and review the developmental plans of the different Departments of the State to ensure the integration of prevention, preparedness and mitigation Measures. The State Government shall constitute a State Executive Committee (SEC) to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government. The SEC will coordinate and monitor the implementation of the National

Policy, the national plan and the state plan. The SEC will also provide information to the NDMA relating to different aspects of DM.

3. District Level -

- **District Disaster Management Authority (DDMA)**

As per provisions in Chapter-IV of the DM Act, each State Government shall establish a District Disaster Management Authority for every district in the State with such name as may be specified in that notification. The DDMA will be headed by the District Collector, Deputy Commissioner, and District Magistrate with the elected representative of the local authority as the Co-Chairperson. The State Government shall appoint an administrator not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner, as the case may be, of the district to be the Chief Executive Officer of the District Authority. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance with the guidelines laid down by the NDMA and SDMA. It will prepare the DM plan for the District and monitor the implementation of the all relevant national, state, and district policies and plans. The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness, response and rehabilitation measures lay down by the NDMA and SDMA.

- **Disaster Management Acts of different states -**

Disaster management legislation of the states is established as per the Central legislation in India. While the central government was in the process of consultation and deliberations for finalizing its disaster management act, the state of Gujarat pioneered to get the Gujarat State Disaster Management (GSDMA) Act, 2003 enacted in the same year to provide for them. The trigger for enactment of the Gujarat Act came from the colossal loss of life and property in the wake of the Bhuj earthquake of 2001. The remarkable Endeavour of Gujarat was followed by Bihar to enact the Bihar Disaster Management Act, 2004. These attempts on the part of major disaster prone states place a sequel effect for other likewise states to follow the suit. Afterward, the states of Uttaranchal and Uttar Pradesh also passed

their respective disaster management acts in 2005, along with the passage of the central legislation on the subject. Despite the existence of central legislation as the foremost law on disaster management in India, It is valuable to have a significant scrutiny of the state legislations to get the novelty and Given the pioneering nature of Gujarat State Disaster Management Act, which was quite predictable, that it would set the broad contours of disaster management in the country to be followed by all Other enactments. Consequently, apart from the fine and standard provisions, the omissions of The Act is also borrowed by a few state legislations. In this context, a notable oversight of the Gujarat Act seems to be its definition of the concept of disaster management. Continuing with The colonial policy of relief centric perspective of disaster management, the Act defines disaster Management as a continuous and integrated process of planning and implementing of measures With a view to:

(i) mitigating or reducing the risk of disasters;

(ii) mitigating the severity or Consequences of disasters;

(iii) capacity-building;

(iv) emergency preparedness;

(v) assessing the Effects of disasters;

(vi) Providing emergency relief and rescue; and

3.14 Disaster Management: Rajasthan Scenario -

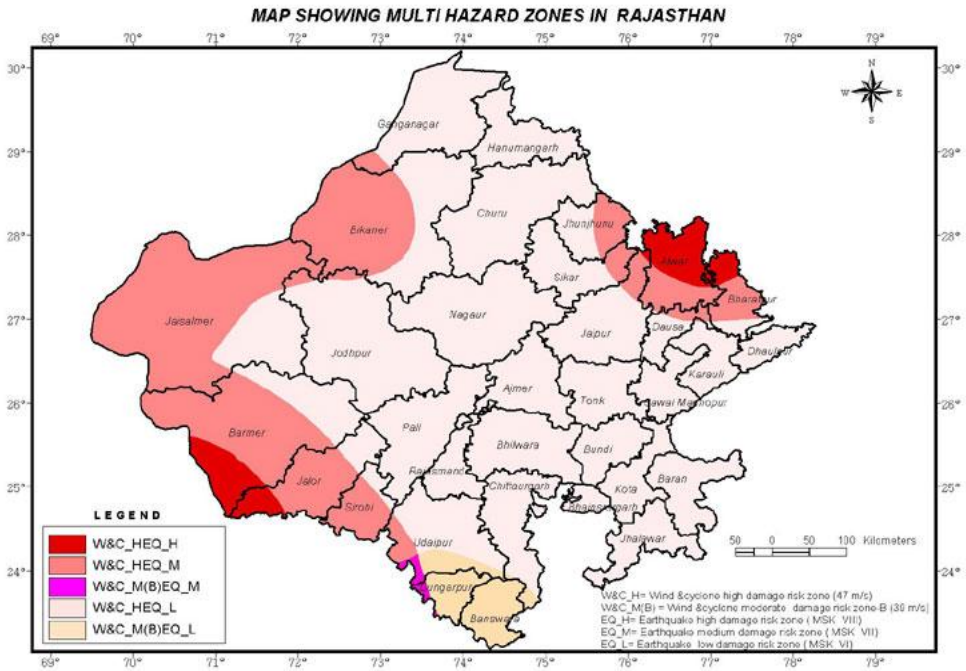
Preface In 2005, Government of India passed the Disaster Management Act and the National Disaster Management Authority was set up, under the chairmanship of the Prime Minister, which made it mandatory for all the states in the country to draw their respective Disaster Plans for better preparedness and response. To fulfill the principles of the Disaster Management Act, Government of Rajasthan started streamlining its disaster management preparedness and mitigation strategy by drawing its own plan keeping in view the unique requirements of the state and addressing its own issues with a hands-on user friendly approach. The entire document has been divided into three parts. Part-I comprises of ten chapters which gives theoretical and practical solutions to the overall subject of

disaster management in the context of the state. In other words, with global warming being a reality different types of disasters occurs which in turn create new situations and there by require a new response mechanism. Therefore, it is important that the document needs to be periodically reviewed and updated as per the need of the hour. To finally sum-up the state arrangements State Disaster Management Authority serves as guideline for the state government machinery and other stakeholders for better co-ordination, planning and execution in both pre and post disaster situations. However, it needs to be noted that it gives written guidelines to respond to a particular situation, while emphasis needs to be laid on basic awareness training vertically and horizontally across departments and also at the community level to create a "culture of preparedness and safety."

Rajasthan- (Literally, "Land of Kings")

Rajasthan is India's largest state about 342,239 square km (10.4%) of India's total area. It is located on the northern-western side of the country. The Great Indian Thar desert, shares a border with the Pakistan in northwest and Sindh to the west. Elsewhere it is bordered by five other Indian states: Gujarat to the south, Punjab to the north; Haryana and Uttar Pradesh to the northeast; Madhya Pradesh to the southeast.

Figure No- 3.22 Map Showing Multi Hazard Zones in Rajasthan



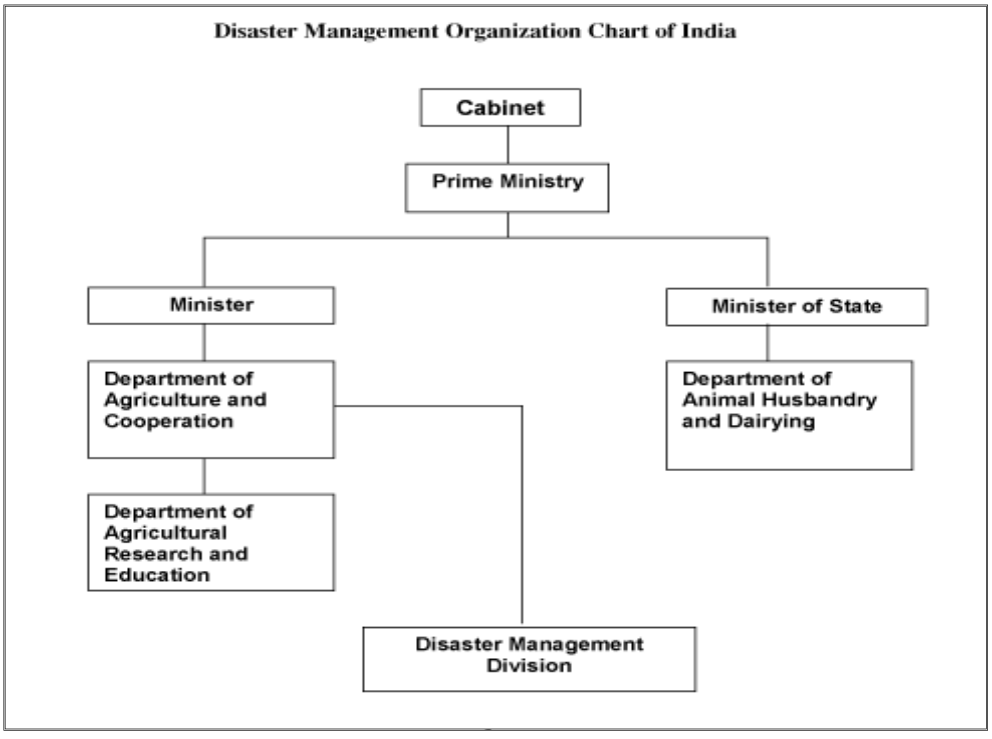
Disclaimer: This map was collated based on the data/information compiled by the Ministry of Urban Development and Poverty Alleviation, UNDP has not verified the accuracy of information of the Map.Sources:IS1893 (Part 1): 2002 , BMTPC, India

Introduction -

The impacts of disasters are important especially, in case of developing nations in terms of recovery therefore, both pre disaster efforts in terms of preparedness, capacity building, and awareness along with an efficient response mechanism, recovery and reconstruction would lessen the loss of lives and property. Rajasthan State is vulnerable, in varying degrees, to a large number of natural as well as man-made disasters. Rajasthan is one of the most drought prone states, due to its average low rainfall coupled with erratic behavior of Monsoons. The state has also faced some major disasters earlier, like the floods in Barmer (2006), IOC Depot Fire, at Jaipur (2009), the stampede at Jodhpur (2008), the serial bomb blasts in Jaipur (2008), and the collapse of Chambal bridge at Kota (2009) etc. Further, some parts of the state fall under seismic zones III and IV. Looking at the large proportion of economically and socially weak sections that make up the total population of the state, vulnerability to disasters in the state is also very high. **Vision**

The vision of the SDMA is in parlance with the DM Act 2005. The plan visualizes a holistic, pro-active, multi-disaster, multi-sector, multi-stakeholders, technology driven, participatory, dynamic process to build Rajasthan a safe and disaster resilient State.

Figure No. 3.23 Disaster Management State Organization Chart



Rajasthan State Disaster Management Authority (SDMA)

As per section 23 of the DM Act 2005, it is mandatory for the state to formulate a State Disaster Management Plan. The components of DM Act, 2005 envisaged a holistic, proactive and people centric approach, adopted towards disaster management which emphasis to ensure the facilitated planning, preparedness, mitigation, operational coordination and community participation. The Act provides for annual review and timely updating of the State Plan. The State Government would make provisions for financing the activities to be carried out under the State Plan. It is also obligatory for the departments of State Government to draw up their own plans in accordance with the State Plan. The objectives of SDMA are:

- Promoting a culture of prevention and preparedness, priority at each level.
- Ensuring that community is the important stakeholder in the management process.
- Encouraging mitigation measures based on environment sustainability and state-of-the-art technology.
- Mainstreaming management concerns into the developmental and planning process.
- Putting in place an institutional techno-legal streamlined framework for the creation of an enabling regulatory environment and a compliance regime.
- Promoting a partnership with the media to create awareness and to contribute towards capacity development.
- Undertaking recovery to bring back the community to a better and safer level than the pre-disaster stage.

- HISTORY-

The Rajasthan state was formed on 30 March 1949 when Rajputana, the name adopted by the Government for its dependent provinces in the region was merged into the India. Its capital and largest city is jaipur, Jodhpur and Kota.The first mention of the name "Rajasthan" appears in the 1829 publication- “Annals and Antiquities of Rajasthan or the Central and Western Rajpoot States of India”

while the earliest known record of Rajputana″ as a name for the region is in George Thomas's 1800 memoir Military Memories. John Keya, in his book India: A History stated that "Rajputana" was coined by the British in 1829.

- **Administrative set-up-**

Rajasthan is divided into 33 districts within seven divisions:

- **Economy-**

Rajasthan's economy is primarily agricultural; it is among the largest producers of Edible oils in India and the second largest producer of oil seeds. Wheat and Barley are cultivated over large areas, pulses, sugarcane, and oilseeds, Cotton and tobacco are the state's cash crops. Rajasthan is also the biggest wool-producing state in India and the main opium producer and consumer. There are mainly two crop seasons. The water for irrigation comes from wells and tanks. The Indira Gandhi Canal irrigates northwestern Rajasthan. The main industries are mineral based, agriculture based, and textile based. Rajasthan is the second largest producer of polyester fiber in India. Rajasthan is pre eminent in quarrying and mining in India. The state is the second largest source of cement in India. It has rich salt deposits at sambhar, copper mines at khetri, jhunjhunu, and zinc mines at Dariba, Zawar mines and Rampura Agucha (opencast) near Bhilwara. Dimensional stone mining is also undertaken in Rajasthan. Jodhpur sandstone is mostly used in monuments, important buildings and residential buildings. Jodhpur leads in Handicraft and Guar Gum industry. Rajasthan is also a part of the Mumbai-Delhi Industrial corridor is set to benefit economically. The State gets 39% of the DMIC, with major districts of Jaipur, Alwar, Kota and Bhilwara benefiting.

- **Crude oil and Mineral stones -**

Rajasthan is earning Rs. 150 million (approx. US$2.5 million) per day as revenue from the crude oil sector. This earning is expected to reach ₹250 million per day in 2013 (which is an increase of ₹100 million or more than 66 percent). The government of India has given permission to extract 300,000 barrels of crude per day from Barmer region which is now 175,000 barrels per day. Once this limit

is achieved Rajasthan will become a leader in Crude extraction in Country. Bombay High leads with a production of 250,000 barrels crude per day. Once the limit of 300,000 barrels per day is reached, the overall production of the country will increase by 15 percent. Cairn India is doing the work of exploration and extraction of crude oil in Rajasthan.

Rajasthan also has reserves of low-silica limestone.

- **Agriculture -**

Rajasthan is the largest producer of barley, mustard, pearl millet, coriander, fenugreek and guar in India. Bhamashah Mandi in Kota district is the Asia's largest mandi or market of coriander. Rajasthan produces over 72% of guar of the world and 60% of India's barley. Rajasthan is major producer of aloe vera, amla, oranges leading producer of maize, groundnut. Rajasthan is 2nd in production of cumin, gram and 3rd in seed spices. Rajasthan government had initiated olive cultivation with technical support from Israel country. The current production of olives in the state is around 100-110 tons annually. Rajasthan is India's second largest producer of milk. Rajasthan has 13800 dairy co-operative societies.

- **Demographics -**

According to latest census 2011 of India, Rajasthan has a total population of 68,548,437. As for religion, Rajasthan's residents are mainly Hindus, who account for 88.49% of the population. Sikhs 1.27% , Muslim 9.07%, and Janis 0.91% make up of the total population.

- **Language-**

Hindi is the official and the most widely spoken language in the state (90.97% of the population as per the 2001 census), followed - Bhili (4.60%), Punjabi (2.01%), and Urdu (1.17%).

- **Education -**

During recent years, Rajasthan has worked on improving education. The state government has been making sustained efforts to raise the education standard. Ra-

jasthan produces 30% CA's of India. Native of Rajasthan are topping in IAS, IIT JEE, competitions.

- LITERACY -

In recent decades, the literacy rate of Rajasthan has increased significantly. In 1991, the state's literacy rate was only 38.55% (54.99% male and 20.44% female). In 2001, the literacy rate increased to 60.41% (75.70% male and 43.85% female). This was the highest leap in the percentage of literacy recorded in India (the rise in female literacy being 23%).[46] At the Census 2011, Rajasthan had a literacy rate of 67.06% (80.51% male and 52.66% female). Although Rajasthan's literacy rate is below the national average of 74.04% and although its female literacy rate is the lowest in the country, the state has been praised for its efforts and achievements in raising literacy rates.

In rural areas of Rajasthan, the literacy rate is 76.16% for males and 45.8% for females. This has been debated across all the party level except BJP, when the governor of Rajasthan set a minimum educational qualification for the village panchayat elections.

In Rajasthan, Jodhpur and Kota are major education hubs. Kota is known for its quality education in preparation for competitive exams, coaching for medical and engineering exams.

Rajasthan State Disaster Management Authority (SDMA) -

As per section 23 of the DM Act 2005, Rajasthan state mandatorily established an authority for the state to formulate a State Disaster Management Plan (SDMP). The components of DM Act, 2005 envisaged a holistic, practical and people centric approach, adopted towards disaster management which emphasis to ensure the facilitated planning, preparedness, mitigation, operational coordination and community participation. The Act also provides the provisions for annual review and timely updating of the State Plan. The State Government makes provisions for financing the actions to be carried out under the State management Plan. It is also mandatory for the prominent departments of State Government to draw

up their own emergency plans in harmony with the State Plan. The objectives of SDMA are:

(1) Promoting a culture of prevention and preparedness, priority at each level,
(2) Ensuring that community is the important stakeholder in the management process.
(3) Encouraging mitigation measures based on environment sustainability and state-of-the-art technology.
(4) Mainstreaming management concerns into the developmental and planning process.
(5) Putting in place an institutional techno-legal streamlined framework for the creation of an enabling regulatory environment and a compliance regime.
(6) Promoting a partnership with the media to create awareness and to contribute towards capacity development.
(7) Undertaking recovery to bring back the community to a better and safer level than the pre-disaster stage.

3.15 Conclusion:

This chapter discusses the disaster vulnerability and history of the disasters. It also describes the disaster and their types, intensities and the affected peoples. Chapter also describes the disaster management scenario at national level, and the national level institutions like NDMA, NIDM, NDRF etc. and their organization, structure, policies and their functions relatively. Similarly, Chapter also describe the disaster management scenario at state level, institutions SDMA and all the features of this institutions and the other states level institutions like Gujarat state disaster management authority, Uttrakhand state disaster management authority etc. to find out the Disaster management scenarios at national and state level.

Reference:

1. https://www.unisdr.org/2005/mdgs-drr/national-reports/india-report.pdf

2. Civil-Military Relations in Emergency Management: Federal, State, and Local Emergency Management Programs Are Now Part of the Nation's Defense and SecurityBy Sylves, Richard TThe Public Manager, Vol. 38, No. 3, Fall 2009
3. Emergency Relief OperationsBy Kevin M. CahillFordham University Press, 2003
4. The Current Situation of Sudden Natural Disaster Emergency Management of Our GovernmentBy Qi, ZuoCanadian Social Science, Vol. 9, No. 3, May 1, 20
5. Disaster Mental Health Services: A Primer for PractitionersBy Diane Myers; David F. WeeBrunner-Routledge, 2005
6. World Trade Center Recovery: A Challenge to Traditional Disaster Management. (Article)By Howard, Melissa M.; Buck, Richard AThe Public Manager, Vol. 31, No. 1, Spring 2002
7. *Natural Hazards, People's Vulnerability and Disasters*? By Khurshid Alam
8. *A Crack in the Edge of the World: America and the Great California Earthquake of 1906*.- Simon Winchester
9. Disaster Management Act, 2005
10. National Disaster Management Authority Report, 2009
11. National Disaster Response force Report-2010
12. India Disaster Maps and Statics2016
13. National Disaster Management Policy – 2009
14. National Institution Report- 2015
15. Report of the CAG and Performance Audit of Disaster Properness in India 2013, Report no. 5
16. Rajasthan Statistic 2011 - A report of Niti Aayog
17. Directorate of Economics and statics Rajasthan 2015
18. Report of water resource department 2015

Chapter- 4

Disaster Management in Kota

4.1 Introduction

4.2 District Disaster Management Plan

4.3 Kota District Profile

4.4 Administrative Setup of Kota District

4.5 Disaster Profile of Kota District

4.6 Stake Holder Departments

4.7 Conclusion

Chapter- 4

Disaster Management in Kota

4.1 Introduction -

The national disaster management authority act 2005, envisaged the development of comprehensive Plans at various different levels. The district has the most important role in controlling and managing the disasters. Disasters results partial or full damages, economic and ecological disruptions destruction of property, environment, loss of human and animal lives and breakdown of essential services. As a part of the preparedness the district, towards reducing the risks and impacts of disaster at district and local level, the district collector or district magistrate play an important role. Government of Rajasthan has formulated a District Disaster Management Authority (DDMA) to support and strengthen the efforts of district administrations. Every district is expected to evolve its own district disaster management plan (DDMP). These local level plans are expected that they will better work towards preparedness, mitigation, response, rehabilitation and definitely would increase the effectiveness of the disaster administrative institutions. A district disaster management Authority makes a plan to prepare itself for quick response, early preparedness, planned coordinated arrangements for risk-reductions for minimizing the adverse impacts of disasters .Disaster plan encapsulates a series of intended actions towards ensuring preparedness and mitigation. The disaster management requires robust and extensive resources and manpower to reduce the risks and hazards in the early wake of disasters. Now the focus of disaster management has shifted from responsive and relief measures to prevention and early preparedness. This paradigm shifted approach of managing emergencies majorly reduces the chances of damage and losses caused by them. Disaster preparedness activities embedded with risk reduction measures. They can prevent hazardous situations and also result in saving many lives and livelihoods during any disaster situation and enable the affected populations to bounce back to normal within a short time period.

The administration of Kota district in Rajasthan in 2010 formulated a District Disaster Management Plan focusing on strengthening of arrangements for prevention of disasters and bringing about better preparedness. The collaboration of different departments sought to bring about comprehensive preparedness to deal with emergencies in all key stages like, pre disaster, during disaster and post disasters. The process undertaken to this effect entails planning at all relevant levels keeping in view all forms of potential vulnerabilities and vulnerable people. It seeks to work towards holistic, coordinated disaster preparedness with various Government and non-government agencies. The preparation of the plan has used a customized data which enables a scenario-based planning for enhancing the district responsiveness to disasters. The main stay of the new approach is to facilitate the process of preparation of District Disaster Management Authority (DDMA)is to more strong and gives strength to these institutions, In Kota district of Rajasthan by integrating roles of various local institutions and its stakeholders.

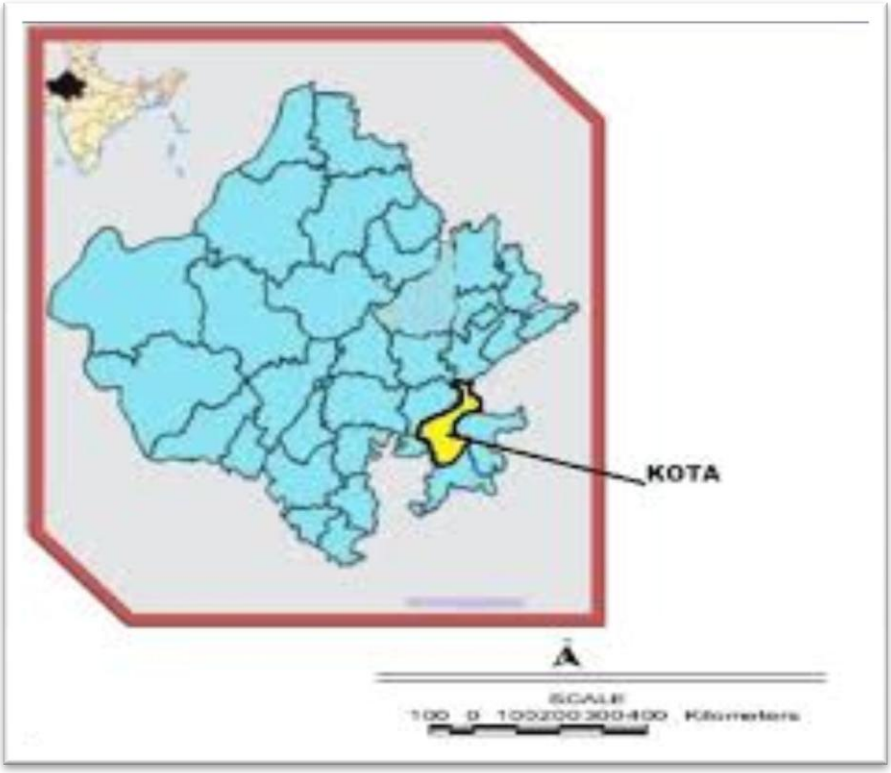
4.2 District Disaster Management Plan (DDMP) -

- **OBJECTIVE** -

The objective of a District Disaster Management Plan (DDMP) is to localize a Disaster and contain its effect to the greatest extent so as to minimize its impact on life, environment and property. Response to any disaster, in the absence of a well-defined plan, would be arbitrary, leading to overemphasis of some actions and absence of other critical actions. A formal plan for Managing Disaster is therefore necessary. The Disaster management plan has a strong preparedness focus which aims at reducing our vulnerability to disasters and at the same time, it includes a plan of action/response mechanism for dealing with earthquakes, floods, cyclones, epidemics, industrial and chemical accidents, road accidents and fires.Developing and maintaining SOPs are the responsibility of parties with designated prime or supporting tasks assigned by this plan.Keeping in view all the possible aspects of the aforesaid problem in mind and to keep the Administration prepared in all possible ways to respond properly to various Disaster situations with minimum delay, possible Disaster situations have been identified and the

component plans have also been identified & mentioned in detail in this document.

Figure No. 4.1 Kota District



4.3 Kota District profile -

Kota city is a famous education center point of the nation for its engineering and medical entrance competitive examination. The city is known as various names such as Education City of India and Coaching Capital of India; because it is famous for its thriving coaching culture. It has renowned for its IIT JEE preparation as well as medical exams preparation. It is now the hub of educational institutions, Not many cities witness such influx of thousands students every year and this has earned good revenue turnover. It is the third most populous city in Rajasthan, lies alongside the banks of River Chambal which is both its beauty as well as a lifeline, being the source of water supply to the city and a site of scenic beauty itself. Locals and tourists alike visit the river shores for watching crocodiles, sighting birds and for boat riding in general. “The city is also known

for the trade Centre for an area in which millet, wheat, rice, pulses, coriander, and oilseeds are grown. It has industries include cotton and oilseed milling, textile weaving, distilling, dairy, manufacture of metal handcrafts, fertilizers, chemicals and engineering equipments. Kota city is also known for Kota Dorian saris, Kota stone and sand stones. Kota Dorian skin suitable natural fabric, known for its delicate, translucent thread weaving pattern, thus giving the textile its name. Similarly, Kota stone is the sturdy and dark Green eponymous stone also comes from the city and is traded inside and outside the country for building projects of all kinds. Apart from a flourishing industrial scene, the city also offers a glimpse of history in the form of palaces and a flash of nature in the form of various gardens, the most famous being Chambal garden. Kota is also known for its palaces and gardens, and the 46th most populated city in the country, Apart from the several monuments that reflect the glory of the town, it serves as the authoritative central command for Kota city and also for Kota Division and is home to Asia's biggest manufacturer of fertilizer.

It is also considered to be the second most livable city in Rajasthan after Jaipur and is becoming an industrial hub with numerous power plants in and around the city. Kota has also contributed to the rich fabric heritage of India with its trademark.

- **District Highlights- as per 2011 census -**

1. The city is particularly connected by all means of rail and road to all other noteworthy urban areas inside Rajasthan and furthermore outside the state. The city is furthermore connected through air, albeit chartered flights are available.

2. The city is surrounded by five power stations within its 50 km range.

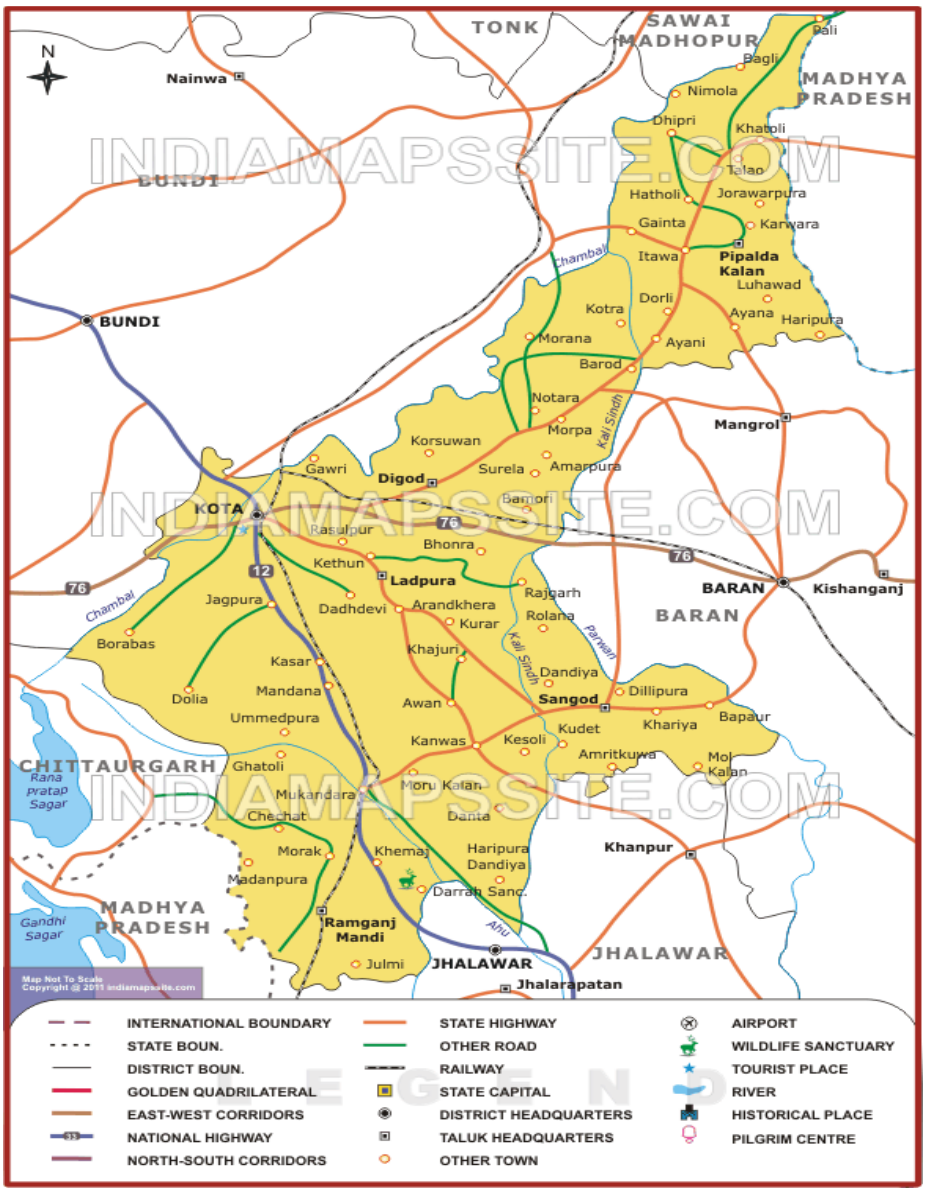
3. It is one of the industrial hubs in northern India.

4. Kota is the primary Indian city other than Thiruvanantha puram that gets a steady 24-hour water supply.

5. In The Earlier Decade The City Has Risen As A Notable Coaching Place For Planning For Competitive Exams. The Education Center Has Transformed Into A

Significant Supporter To The City's Economy. Kota Is Predominantly Implied As The Coaching Capital Of The Nation.

Figure No. 4.2 Map Of Kota City



4.3.1 History -

The city of Kota is very widely known as Hadoti, the land of the Hadas. The history of the city dates back to the 12th century A.D. when the Hada Chieftain, Rao Deva, conquered the territory and founded Bundi and Hadoti. Later, in the early 17th century AD during the reign of the Mughal Emperor Jahangir, the ruler of Bundi -RaoRatan Singh, gave the smaller principality of Kota to his son, Madho Singh. Since then Kota became a hallmark of the Rajput gallantry and culture. The south-eastern region of Rajasthan known as Hadoti comprises of Bundi, Baran, Jhalawar and Kota is a treasure of history dating back to several centuries. Prehistoric caves, paintings, formidable forts and the mighty Chambal River hurtling from the Vindhyas are dotted in the region. When Jait Singh of Bundi defeated the Bhil Chieftain Koteya in a battle, he raised the first battlement or the 'Garh' (fort) over his severed head. The Independent state of Kota became a reality in 1631 when RaoMadho Singh, the second son of RaoRatan of Bundi was made the ruler, by the Mughal Emperor Shah Jahan. Soon Kota outgrew its parent state to become bigger in the area, richer in revenue and more powerful. Maharao Bhim Singh played a pivotal role in Kota's history, having held a 'Mansab' of five thousand and being the first in his dynasty to have the title of Maharao. Kota is situated on the banks of Chambal River and is rapidly emerging as an important industrial centre. It boasts of Asia's largest fertilizer plant, precision instrument unit and atomic power station nearby. Surprisingly unexplored, the Kota region of Rajasthan has some splendid treasures for the tourist to take home memories of. Its impregnable fortresses, sprawling palaces, exquisitely wrought palaces and lovely waterways act as a magnificent foil to its exotic wildlife and delicate fresco Paintings. .Situated on the banks of the Chambal River, at an important juncture of the trade route between Delhi and Gujarat, Kota is Rajasthan's Fifth Largest City. This Bustling, sprawling city is also called the industrial capital of the state. The tentacles of the modern world have the city in its grip with the Chambal Valley Project giving it a major position on the state's industrial map. Chemicals, fertilizers, synthetic fibers, tricot and sophisticated instruments, industry's mainstay, have helped in pushing this ancient city into the forefront of modernization. Yet

memories of its ancient links linger strongly. Present day Kota owes its foundations to a Kotya Bhil warrior who 800 years ago built a small fortification at Akelgarh and put up a protective mud-wall around it all the way to Retwali. In 1580RaoMadho Singh had strengthened both the fortification and the wall. In time to come, Kota acquired the Hallmark of Raj put power as well as culture.

Since Kota had been dominated by several powerful dynasties of the bygone era, hence the cultural arena and the social scenario of the place reflect the rich imprints of those rulers. From the majestic palaces, the exotic fortresses to the splashing waterways and the magnificent interiors of the forts, Kota is a storehouse of incredible historic treasures. From the 12th century AD to the present day, Kota has completed an eventful journey which had been ornamented with a host of prehistoric and historic events. As a dwelling place of a tribal community, Kota is an insignificant location spot of Rajasthan, But with the gradual passage of time, the city of Kota emerged as a notable, Educational and business zone of the state. History of Kota enumerates the interesting part of the city which speaks of a heritage which is more than 800 years old.

4.3.2 Geography -

Kota city is located in southern- western part of Rajasthan state. It is the 3rd largest city of the Rajasthan state after Jaipur and Jodhpur. Kota district is bounded on the north direction by Bundi District, on the east by Baran District, on the south by Jhalawar District, and on the west by Chittorgarh District. The cartographic coordinates- longitude and latitude are 25.18°N 75.83°E. It covers an area of 527 km^2.It has an average elevation of 271 meter's (889 ft.). The district is bound on the north and North West –Swai madhopur, Tonk and Bundi districts. The great Chambal River separates these districts from Kota district, forming the natural boundary. City lies along the banks of the Chambal River on a high sloping table-land forming a part of the Malwa Plateau. The general slope of the city is towards the north. The comparatively rocky, barren and elevated land in southern part of city descends towards a plain agricultural land in the north. The Mukandara hills run from southeast to northwest axis of the town. Kota city has fer-

tile land and greenery with irrigation facilities through its Chambal river canals. The two main canals; called as left main canal (towards Bundi district) and right main canal (towards Baran district) originate from the reservoir, created by Kota Barrage Dam. Kota has a semi-arid climate with high temperatures throughout the year. Summers are long, hot and dry, starting in late March and lasting till the end of June month. The temperatures average above 40 °C in May and June and frequently exceed 45 °C with temperatures as high as 48.4 °C also been recorded. The monsoon season follows with comparatively lower temperatures, but higher humidity and frequent, torrential downpours. The monsoons subside in October and temperatures rise again. The average annual rainfall in the Kota district is 660.6 mm. Most of the rainfall can be attributed to the southwest monsoon which has its beginning around the last week of June and may last till mid-September. Pre-monsoon showers begin towards the middle of June with post-monsoon rains occasionally occurring in October. The winter is largely dry, although some rainfall does occur as a result of the Western Disturbance passing over the region. The brief, mild winter starts in late November and lasts until the last week of February.

Climate- As per the climatic vision Kota district is dense and dry. The lowest temperature is 7.6°C and highest temperature is 47.7°C.The average temperature of the district is 27.1°C and average humidity is 42%. A temperature varies between 26.7 °C (max) to 12 °C (min).The average rainfall of Kota district is 80.87 cm and actual rain fall is 59.75cm.

4.3.3 Demography of Kota District -

- Kota district ranks 16th in terms of population, 24th in terms of area; and 7th in terms of population density.
- Kota district has five tehsils,
- Kota district has 874 villages, out of them 805 villages are inhabited And 69 villages are uninhabited. In Kota district 15 new villages and 1 New census town have created as compared to 2001 Census.
- Kota district consists 39.7 percent rural and 60.3 percent urban Population whereas the State percent of rural and urban population is 75.1 And 24.9 respectively.
- The sex ratio of Kota district is 911 is lower than the State sex ratio

(928).

- The literacy rate in Kota district is 76.6 percent which is higher than The State Average (66.1 percent) and it ranks 1st among the other districts of the state. Gender Gap of the literacy rate is 20.4 percent in the district.
- The economy of Kota district is mainly dependent on other workers (59.9 percent).
- Work participation rate (WPR) of Kota district has recorded 38.4 percent and gender gap in WPR is 29.4 percent points.
- In Kota district among the workers the percentage of cultivators, agricultural laborers, workers in household industry and other workers (category of workers) are 18.7, 18.0, 3.4 and 59.9 percent respectively.

The sex proportion was 895 and 12.14% were under six years old. The population of Kota from the year 2012-16, it has been noticed that there has been an increase of 1.1 Million in the past 5 years. Therefore, it has been seen that every year the population increases by 0.22 Million. Hence, the population of Kota in 2017 is forecasted to be 2.3 Million + 0.22 Million = 2.52 Million. So, the population of Kota in the year 2017 as per estimated data = 2.52 Million Predicting the 2018 population of Kota is 2.744 Million (estimated)

Population Total Persons 6, 85, 48,437 19, 51,014

1. Males 3, 55, 50,997 10, 21,161 2. Females 3, 29, 97,440 9, 29,853

3. Rural Persons 5, 15, 00,352 7, 74,410 4. Males 2, 66, 41,747 4, 01,331

5. Females 2, 48, 58,605 3, 73,079

Table No. 4.1 Demography of Kota District

S. No.	Head	Unit	Reference Year	Details
1.	Male	No.	2001	827128
2.	Female	No.	2001	741397
3.	Total	No.	2001	1568525
4.	Rural	No.	2001	729948

5.	Urban	No.	2001	838577
6.	SC	No.	2001	300555
7.	ST	No.	2001	151969
8.	Density	Per Sq. Km	2001	288
9.	No. of Family	Lakhs	2001	2.80
10.	BPL Family	Lakhs	2009	0.24137

Table – 4.2 Population as per 2011

S.No.	Head	Unit	Reference Year	Details
1.	Male	No.	2011	1021161
2.	Female	No.	2011	929853
3.	Total	No.	2011	1951014
4.	Rural	No.	2011	774410
5.	Urban	No.	2011	1176604
6.	SC	No.	2011	405408
7.	ST	No.	2011	183816
8.	Density	Per Sq. Km	2011	374
9.	No. of Family	Lakhs	2011	3.95
10.	BPL Family	Lakhs	2009	0.24137

Source - Kota District Census

- **Population of Kota** -

As per 2011 Census of India, Kota had a population of 1,001,694. Talking about population, in order to check out the population of Kota in 2017, we need to have a look at the population of the past 5 years. They are as per the following:

2012 –1.2 Million

2013 –1.4 Million

2014 –1.8 Million

2015 –2.1 Million

2016 – 2.3 Million

- **Population Density and Growth of Kota -**

The population density of the city is 374 persons per square kilometer. It has been encountering high growth rate of populace as of late and of the explanations behind that is the vast number of understudies to the city from various parts of the nation for either coaching or taking admission in a portion of the outstanding institutes of the city. Aside from this, the number of inhabitants is growing at a consistent rate and it is expected that the rate of population is – 2.52 Million. According to 2011 Census of India, Kota City had a population of 1,001,694, of which male and female are 528,601 and 473,093 respectively. The provisional results of census 2011 reported city's population as 1,001,365.The urban agglomeration of Kota consists of city only. The sex ratio was 895 and 12.14% were less than six years of age. The effective literacy rate was 82.80%, with male literacy at 89.49% and female literacy at 75.33%.The proficiency rate of the city was 82.80%, with males at 89.49% and female at 75.33%. As demonstrated by 2011 enlistment, Hinduism is the significant religion in the Kota city with around 80.5% of the masses following it. Muslims consists of (15.9%) followed by Jain (2.1%), Sikhs (0.9%). Muslims form large minorities (15.9%) followed Government institutions and courts.

- **Literacy rate** -The literacy rate was 82.80%, with male education at 89.49% and female education at 75.33%. Hadoti, a lingo of Rajasthani is generally spoken in Kota with Marwari, Hindi and English being alternate languages. As indicated by 2011 registration, Hinduism is the major religion in the city honed by around 80.5% of the populace. Muslims frame huge minorities (15.9%) followed by Jains (2.2%), Christians (0.4%), Sikhs (0.9%) and others (0.18%).
- **Governmental institutions in Kota include**:

(1) Municipal Corporation

(2) District Collect orate

(3) Office of the Divisional Commissioner

(4) Rajasthan Housing Board

(5) Command Area Development (CAD)

(6) Urban Improvement Trust (UIT)

(7) Office of the Superintendent of Police,

(8) Inspector General of Police and the Income Tax commissioner of Kota range.

(9) Office of the Divisional Railway Manager, Kota Division, West Central Railway

(10)Office of Deputy Commissioner of central excise and service tax

Its clientele includes public sector entities such as the Indian Railways, BSNL and VSNL.

4.3.4 Economy -

The city is the trade Centre for an area in which cotton, millet, wheat, coriander and oilseeds are grown; industries include cotton and oilseed milling, textile weaving, distilling, dairying, and the manufacture of metal handcrafts. Kota also has an extensive industry of stone-polishing of a stone called Kota Stone, used for the floor and walls of residential and business buildings. Since last 15 years Kota has emerged as an Education hub of the country as producing excellent results in IIT-JEE and medical entrance exams. There are thousands of students comes every year in Kota city to take admission in all India medical and engineering exams the big source of revenue in Kota city is the coaching, hostels food mess and related business.

- **Kota Dorian saris -**

Kota Sari with Gota Patti embroidery .Kota is known for the fine translucent muslins called Masuria Malmal. Originally, such saris were called Masuria because they were woven in Mysore. The weavers were subsequently brought to Kota by Rao Kishore Singh who was a general in the Mughal army. The weavers were brought to Kota in the late 17th and early 18th centuries, and the saris came to be known as 'Kota-Masuria'. Kota saris are popularly known as 'Masuria' in

Kota and Kotadoria outside the state. 'Doria' means thread. Weaving in Kota was started by Maharana Bhimdeo in the 18th century. Maharaja Bhim Singh of Kota brought some weavers from the Deccan in the early 18th Century and the craft blossomed under the royal patronage. The warp and weft use a combination of threads creating a fine chequered pattern (Khat) where the cotton portion provides firmness while the silk lends a gossamer finish to the fabric.

The Kota saris like most traditional piece of work had started becoming lost before designer Vidhi Singhania moved to Kota and started working with the workers to revive its market. Many textile shops in the city sell different varieties of Kota Dorian. These saris have become one of the trademarks of the city.

- **Kota stone -**

The fine-grained variety of limestone quarried from Kota district is known as Kota stone, with rich greenish-blue and brown colours. Kota stone are tough, non water-absorbent, non-slip, and non-porous. The varieties include Kota Blue Natural, Kota Blue Honed, Kota Blue Polished, Kota Blue Cobbles, Kota Brown Natural and Kota Brown Polished.

- **Industries**

Kota is one of the industrial hubs in northern India, with chemical, cement, engineering and power plants based there. The total number of industrial units in the district in 2010-11 stood at 12908 with 705 registered units.[38] The district power plants show annual growth of 15-20 % due to their strategic locations.

- **Power plants -**

Kota is surrounded by five power stations within its 50 km radius.
Kota Super Thermal Power Plant – thermal
Rajasthan Atomic Power Station in Rawatbhatha Chittorgarh district (65 km from Kota) – nuclear
NTPC Anta Gas Power Plant in Antah Baran district (50 km) -Gas

Jawahar Sagar Power Plant – hydro
Kalisindh Thermal Power Station (in Jhalrapatan, Jhalawar) – thermal

- CONSTITUENCIES -

There are six Rajasthan legislative assembly of Kota-

(1) Piplda	(2)Sangod	(3) Kota North
(4) Kota South	(5)Ladpura	(6) Ramganjmandi

4.4 Administrative Setup of Kota District -

Kota District is Divisional Commissioner Head Quarter District. District Collector is head of the district for revenue, Law and order related matters. District Collector & District Magistrate is the head of Kota District Administration. For administration and development, the district is divided in Sub- Divisions and tehsils (sub-districts). The District Kota has 06 sub-divisions. Each of the sub-divisions is headed by a Sub-divisional Officer (SDOs) / Magistrates, the officers are responsible for implementation of law and order matters in their respective sub-divisions.

There are 06 Tehsil headquarters in Kota district and each one has a Tehsildar as an administrative officer who works in accordance with the Land Record System to serve for the rural farmers and land holders and is responsible for maintaining the revenue matters in their respective tehsils. For the purpose of the implementation of rural development projects/ Schemes under Panchayati Raj System, the district is divided in the 5 Panchayat Samitis (Blocks). Block Development Officer (BDO) or Vikas Adhikari is the Controlling Officer of each of the Panchayat Samiti to serve as extension and developmental executive at block level.There are 4 statutory towns - Ramganj,Kaithoon, Kota (M Corp) and Sangod in the Kota district.

Total No. 4.3 Numbers of villages as per 2011 census

Name of panchyat samitee	Residential	Non-residential	Total
Ladpura	115	46	161
Sultanpur	160	11	171
Itawa	164	10	174
Khirabad	150	18	168
Sangod	202	16	218
Total	**791**	**101**	**892**

Table No. 4.4 Rural and urban Population-

S.N.	**Tehsil**	**2001**			**2011**		
		Rural	**Urban**	**Total**	**Rural**	**Urban**	**Total**
1	Ladpura	144691	723522	868213	117838	1025954	1149792
2	Piplda	155646	--------	155646	168734	-------	168734
3	Digod	150587	--------	150587	168734		168734
4	Ramganjmang mandi	132073	96406	228479	231120	41328	272448
5	Sangod	146951	18649	165600	164394	21846	186240
	Total	729948	838577	1568525	861886	108928	1951014

Source – Kota District Census

Table No. 4.5 Administrative Setup for Kota district

Sr. No	Head	No.	Details
1	Additional District Collector	3	Additional District Collector(ADM.) Additional District Collector(Ceiling) Additional District Collector(City)
2.	Subdivision	6	Kota, Digod, Itawa, Sangod, Kanwas & Ramganjmandi,
3.	Tehsil	6	Ladpura,Digod,Pipalda,Sangod, Ramganjmandi & Kanwas
4.	Subtehsil	4	Mandana, Sultanpur, Khatauli & Chechat
5.	I.L.R. Circle	52	
6.	Patwar Circle	207	
7.	Revenue Village	953	
8.	Panchayat Samiti	5	Ladpura,Sultanpur,Itawa,Sangod & Khairabad
9.	Gram Panchayat	156	
10.	Nagar Nigam	1	Nagar Nigam Kota
11.	Nagarpalika	4	Kaithoon, Sangod, Itawa & Ramganjmandi
12.	Assembly Area	6	Kota (North). Kota(South), Ladpura, Sangod, Pipalda, Ramganjmandi

4.5 Disaster profile of Kota District -

The perception about disaster and its management has undergone a new era following the enactment of the Disaster Management Act, 2005. The definition of disaster is now all encompassing, which includes not only the events emanating from natural and man-made causes, but even those events which are caused by accident or negligence. There was a long felt need to capture information about all such events occurring across the sectors and efforts made to mitigate them in the country and to collate them at one place in a global perspective. This research work has been an effort towards realizing this thought.

Kota is one of the fastest growing cities in country. Rapid urbanization and industrialization has led to immense pressure on resources and has resulted consequences of disaster in Kota district.

The main disasters comes in the Kota District are-

(1) Flood- Flooding may occur as an overflow of water, water bodies, such as river or lake in which the water overtops or breaks levees resulting in some of that water escaping its usual boundary. Flooding is the common natural disaster and also very common in many places where heavy rainfall occur. There is no acute flooding problem in this district. **Table No. 4.6 Kota Flood Statics**

Year	Average Annual Rainfall	Departure from Average Rainfall	Percentage of Departure	Category of Flood
1981	714.91	191.33	36.54	Moderate Flood
1982	792.08	268.50	51.28	Severe Flood
1983	693.18	169.60	32.39	Moderate Flood
1984	679.28	155.70	29.74	Moderate Flood
1986	747.52	223.94	42.77	Moderate Flood
2000	660.48	136.91	26.15	Moderate Flood
2001	893.74	370.16	70.70	Severe Flood
2003	702.03	178.46	34.08	Moderate Flood
2004	689.15	165.58	31.62	Moderate Flood
2006	818.55	294.97	56.34	Severe Flood
2007	660.33	136.75	26.12	Moderate Flood
2008	692.81	169.23	32.32	Moderate Flood
2009	449.21	113.24	19.18	Sever flood

2010	550.2	120,68	21.9	Moderate flood
2011	1060	312.18	60.8	Sever flood
2012	615	132.91	25.24	Moderate flood
2013	618	1267	64.18	Sever flood

Department of Water Resource, Jaipur

- Flood Problem in Kota Year Average Annual Rainfall Departure from Average Rainfall Percentage of Departure Category of flood.

The table shows in 2006, 2011 and 2013 district have very heavy rainfall, in 2006 average annual rainfall was 818.55mm and percentage of water departure was 56.34%. In 2011 average annual rainfall was 1060mm and percentage of water departure was 60.8 %. In 2013 average annual rainfall was 1267.12 mm and percentage of water departure was 64.18%. All three years suffered from severe floods.

- **Flood Prone Area of Kota District-**

(1) Kota Nagar Nigam flood flowing areas under Chambal River are - Sanjay nagar, Harizan basti, Nayapura, Bapu nagar, Kansuwa, Adarsh nagar, Gumanpura, Pritmpura, Shivpura and Bajrang basti in Kota district.

(2) Ramganj Mandi - Chchat, Khiarabad,Chandrapura, Pawali, Pipalda, Mohanpura

(3)Sangod- Kalisind, parvan Mahatma Gandhi circle, sangod town, kailashpura, hingi road

(4) Ladpura - Allania, kawal nagar, kaithon, arjunpura, notana, nawa nohar, and jawlpura

- **Impact of Flood**-

Socio – Economic Issues: The biggest threat after flood was curbing the spread of diseases like Diarrhea, Dysentery, Malaria, skin infections, Jaundice, Typhoid and Cholera. Another major problem was that the road, electricity and communication network were totally damaged. Also the rotting carcasses of the thousands of animals had created the fears of

water-borne diseases. The incidents of snake bite had increased as the floodwaters forced them and the other rodents on to surface.

The river-floods occur mostly due to silting of the river bed due to which the capacity of rivers of containing water reduces significantly or due to heavy rains in areas with poor drainage. In case of a silted bed the confluence zone too gets congested and the waters tend to enter back into the tributary. For effective flood management system the Disaster Management and Relief Department works on multiple points so that both relief and rescue works can be done effectively. The management relates to flood preparedness, flood forecasting and warning, flood control and management, relief and rescue management, assistance and rehabilitation of sufferers.

(2) Drought -

Drought is an extended time when a region receives or deficiency in its water supply, whether atmospheric, surface or ground water. Generally this occurs when a region receives constantly below average precipitation. The Kota district has alternate drought year during 1987 and 1989 and consecutive drought year during 1997, 1998 and 1999.

- The moderate drought year are 1987, 1993, 1999, 2002 and 2005 with average rainfall 97.4, 28.2, 34.7, 25.5 and 26.7% below average respectively.
- The severe drought years are 1989, 1997, 1998, with average annual rainfall is and below the average by 52.6, 55.8 and 76.3 percent respectively.

Rajasthan, the largest state has 10.41% total area containing 5% of total population of the country but just 1% water resources. The western part of the Aravalli falls in the arid region comprising of the Thar Desert region. The state has low and erratic rainfall making the region vulnerable to drought.

Table No. 4.7 Drought affected Villages

Sr. No.	Sam vat	Year	affected villages	Sr. No.	Sam vat	Year	affected villages
1-	2048	1992	194	12-	2059	2003	165
2-	2049	1993	-	13-	2060	2004	-
3	2050	1994	-	14-	2061	2005	-
4-	2051	1995	-	15-	2062	2006	726
5-	2052	1996	-	16-	2063	2007	-
6-	2053	1997	-	17-	2064	2008½	-
7-	2054	1998	-				
8-	2055	1999	-				
9-	2056	2000	-				
10-	2057	2001	24				

Table No. 4.8 Drought effected Tehsils

Sr. No	Tehsil name	Spoil crop in %		Total effected villages
		50-74%	More then75%	
1.	Ladpura	138	34	172
2-	Piplda	-	-	-
3-	Sangod	216	02	218
4-	Digod	10	161	171
5-	Ramganjmandi	165	-	165

Source-Disaster management centre, Jaipur

(**3) Industrial and chemical disaster-**

The existing industries the traffic volume within the town along the highways and burning of fossil fuel and fire wood in residential area are probable source of pollution in the district. There are fifteen industrial states in Kota district. According to pollution of industries, ministry of environment and forest government of India had divided three categories of polluting industries. Red category Heavily polluting industries are include in red category like sugar, fertilizer, pesticides, thermal power plant, tyre and tubes glass and oil refineries etc. Orange category Cotton spinning and weaving, automobile, servicing, floor mill, hotels and restaurants, fish processing and stone crushes are including in orange category industries. Green category Very low polluting industries are including in green category industries like flour mills, Dal mills, ice cream, ice making, handloom weaving, sports goods, bakery product. This study show that all the industries of study area are in red category industries means vulnerable to disasters.

(4) Bridge Collapse- In 2009 under Construction Bridge collapsed in the Chambal river of Kota district. Approximately 28 people got dead due to poor engineering and construction.

(5) Fire – Fire is most common in the Kota city due to dense area. Narrow streets and not approaching the fire brigade at the accidental spot its became dangerous.

(6) Earthquake- Earthquakes over 5.5 magnitudes on the Richter scale are progressively damaging to property and human life. However, there are many other factors that influence the damage pattern. Massive earthquakes generally occur near the junction of two tectonic plates, e.g., along the Himalayan range, where the Indian plate goes below Eurasian plate. The Indian sub- continent situated on the boundaries of two continental plates is very prone to earthquakes. Some of the most intense earthquakes of the world have occurred in India. Earthquake of magnitude 5 and above is likely to cause deaths and injuries to human beings, destroy urbanized and rural areas and damage all kinds of properties - both private and public. Kota is prone to earthquakes due to its plateau structure and it is comes in a seismic zone.

Preparedness planning in Kota District –

Table No. 4.9 Kota District Important phone Numbers

S.N.	Post name	office	Residence	Mobile number
1	District collector Kota	2451200 2323883	2451100] 2451044	9413311133] 9928888788
2	Superintendent of Police- Kota City	2350700	2350701	9414347400
3	Superintendent of Police- Rural	2350601	2350602	9414068642
4	Commandant RAC-second	2350771	2350772	9414020635
5	Additional District collector(ADM.)	2325341	2328069	9414043200
6	Additional District Collector(City)	2323165	2321017	9214006163
7	Sub District magistrate (Related DM)			
8	District Ration Officer	2323874	2322910	9829217400
9	CEO Nagar Nigam, Kota	2502293	2470604	9414334030
10	Sub Controller, Civil safety, Kota	2327861 2320299		9414136536

11	Chief Fire safety officer, Nagar Nigam, Kota	101] 2323101	2401928	9829063227] 9413275350
12	C.M.H.O. Kota	2329259	2391123	9413364763
13	Superintendent M.B.S. Hospital, Kota	2450123 2331323	2323230	9413353230] 9413352040
14	Sub Superintendent Police(Traffic)	2350729	2350730	9829054476
15	Development Officer (Related DM)			
16	Tehsildar (Related DM)			
17	District Information and Public relation Officer, Kota	2450102	2372681	9413350242
18	Collect rate Control Room	2323557	1077	
19	Police Control Room	2350777	100	
20	Fire Safety Control Room	2472355	101	
21	Ambulance	108		
22	Toll Free Number	18001806101		

- **Disaster preparedness teams-**

Although the Disaster management Kota has been prepared a plan to mitigate the disasters In Kota District zone to face different types of disasters consti-

tuted a response and relief team in following officer's leadership which is as follows-

SR. NO.	Officers	Designation
1	Additional District Collector	Nodal Officer
2	Chief Fire safety officer	Relief/Escape Officer
3	Assistant Chief Fire safety officer	Co -Officer
4	Nagar Nigam Fire Safety Officers	15 employees
5	RAC SDRF rescue team	45 Police Officers
6	Civil Defense	10 Officers
7	Home Guards	10 Officers
8	Police	20 Officers

Natural or manmade disaster relief force team has these important equipments-

Sr. NO.	Equipments	Available Units
1	Inflatable lighting mask	02 units
2	Hydraulic cutter	02 units
3	Spenders	02 units
4	Lifting Hard bags	02 units
5	Diving suits	06 units
6	Body search units	02 units
7	Under water light	06 units
8	Diamond chain saw	02 units

9	Rescue ram	02sets
10	Inflatable boat	02 units
11	Fire entry suit	04 units
12	Helmet	50 units
13	Gloves-rubber/ Cotton	50Pairs
14	Face masks	70Pairs
15	Gum boots	50Pairs
16	Handy tools	02 sets
17	Statures (Cloth Folding)	06 units
18	Dragon Light	10units
19	Gas cutter	02sets
20	Rope rocket	02units
21	Wireless sets	10units
22	Circular saw	01unit
23	Rope ladder	02unit
24	Mega phone	04units
25	Power hammer	01unit
26	Life jacket	50units
27	Lifebuoy	25 pairs
28	Air Pressure	01unit
29	Breathing apparatus sets	04unit

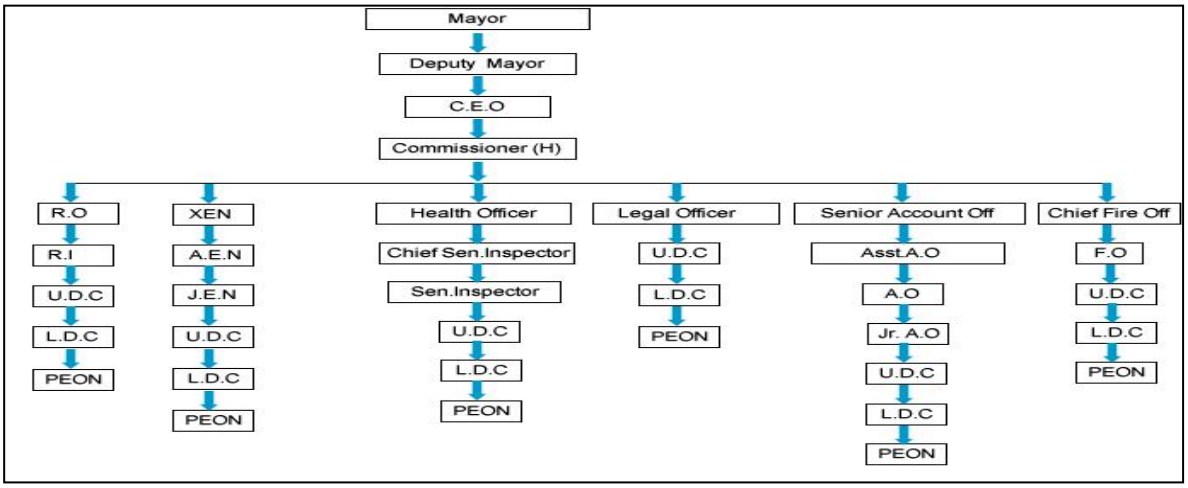
30	Pickup van	01
31	Dead body vehicle	02

4.6 Stake holder Departments -

4.6.1 Nagar Nigam department Kota-

Nagar Nigam Kota comes under municipal corporation directorate to look after day to day functioning of all urban bodies. Nagar Nigam is also referred to as a Municipal Corporation. It is is an urban local body that administers a city of population 100,000 or more. It is responsible for necessary community services like health centers, educational institutes, and housing and property tax is their duty to govern the particular city. Every city has a Nagar Nigam, to help people and solve their problem. Nagar Nigam is established under a certain act and then are fully responsible for the city's administration.

Table No. 4.9 Nagar Nigam Administrative Set Up



- **Responsibilities -**

• Construction and maintenance of public parks, gardens, libraries, museums, rest houses, leper homes, orphanages and rescue homes for women

• Planting and maintenance of roadside and other trees.

• Housing for low income groups.

• Conducting various surveys.

• Organizing public receptions, public exhibitions, public entertainment; provision of transport facilities.

- Supply of pure and wholesome water.
- Construction and maintenance of public streets.
- Lighting and watering of public streets.
- Cleaning of public streets, places and sewers.
- Regulation of offensive, dangerous or obnoxious trades and callings or practices.
- Maintenance or support of public hospitals; establishment and maintenance of primary schools.
- Registration of births and deaths; removing obstructions and projections in public streets, bridges and other places and naming streets and numbering houses.

4.6.2 Directorate General Fire Services, Civil & Home Guards -

- **Home Guards-**

It is a voluntary force services to assist the police in controlling civil disturbance and communal riots. Subsequently, the concept of the voluntary citizen's force was adopted by states of India in 1946. The central Government advised to the States and Union Territories to merge their existing voluntary organizations into one uniform voluntary force known as Home Guards. The Home Guards works as voluntary services to serve as an auxiliary help to the police in the maintenance of internal security situations, law and order and also help the community from any kind of disasters such as a tsunami, fire, cyclone, earthquake, epidemic etc. They help in the maintenance of essential services, assist the administration in protecting weaker sections, participate in socio-economic and welfare activities communal harmony, and perform duties under the department civil.

Home Guards are of two types – rural and urban. In border States, Border Wing Home Guards (BWHG) have been raised, which serve as an auxiliary to the Border Security Force. The total strength of Home Guards in the country is 5, 73,793 against which the raised strength is 433803.The organization is spread over in all States and Union Territories except in Kerala.

- **Battalions**-Thare are Fifteen Border Wing Home Guards Battalions have been established in the border States -Punjab (6) Rajasthan (4), Gujarat (2) and one each Battalion for Meghalaya, Tripura and West Bengal to serve

as an auxiliary to Border Security Force (BSF) for preventing infiltration on the international border and coastal areas, guarding of VA/VPs and lines of communication in vulnerable area at the time of external aggression

- **Rules and regulations-** Home Guards are established under the Home Guards Act, 1946 and as per the Rules of the States/Union Territories. The Ministry of Home Affairs formulates the policy and planning in respect of role, raising, training, equipping, establishment and other important matters of Home Guards Organization .Expenditure on Home Guards is generally shared between Centre and State Government in the ratio 25% by the Centre and 75% by the State Government for raising, training and equipping on reimbursement basis.
- **Recruitment**-They are recruited from amongst all classes of people and walks of life, who give their voluntary spare time to the organization for betterment of the community. The amenities and facilities given to Home Guards include free uniform, duty allowances and award for gallantry, distinguished and meritorious services. Members of Home Guards with three years' service in the organization are trained in policing, in maintenance of law and order, prevention of crime, disasters, border patrolling, , flood relief, fire-fighting, election duties and other social welfare activities as per needed.
- **Budget**-.For the current year 2017-18 out of the budgetary provision of Rs.25.00 crore, Rs. 11.38 crore has been reimbursed to the States. The the sharing pattern between the Centre and States in the ratio of 50:50

4.6.3 Fire services-

The Ministry of Home Affairs has been assisting the State Governments to increase the fire fighting capabilities. Fire Service in India is the prominent institutions for extinguishing fire and protecting life and property in case of fire emergency. The fire service immediate responds to hazardous material incidents, advanced emergency medical situations, high risk rescue, confined space rescue, trench and collapse operations, underwater rescue and more. In case of any emer-

gency coordinated rescue and search efforts are held to saving lives and property. The mobilization and deployment of armed forces for rescue and relief delays in response time which is critical for the survival of disaster victims. That districts and States have their own arrangements for carrying out search and rescue operations immediately after a disaster. Enhancement of search and rescue capabilities of the State and districts for quick response will save lives. This can be achieved with the minimum of additional cost by developing the Fire Services as multi hazard response units.

- **Finance-** These measures have helped in the creation and establishment of some basic firefighting capabilities in the States-

- As per the 10th Finance Commissions during the plan period1995-2000 allocated Rs. 80 crore and11th Finance Commissions (2000-2025) Rs 201 crore for the development of Fire Services in the States, especially in all District Headquarters and also for town having a population of 50,000 and above.
- National Disaster Management Authority (NDMA) projected a requirement of Rs. 7000 crore to the 13th Finance Commission for revamping Fire and Emergency Services in the country. The Commission recognizing the need to restructure Fire and Emergency Services across the urban and rural areas of the country recommended that a portion of the grants provided to the urban local bodies be spent on revamping of Fire Services within their respective jurisdiction.
- The 13th Finance commission also recommended the allocation of Rs. 87519 crore to the local bodies. The States were made eligible to draw down its share only if they complied with nine conditions.
- The Scheme for 'Strengthening of Fire & Emergency Services in the Country' (2009-13): The Government had approved a Scheme on 22.10.2009 for 'Strengthening of Fire & Emergency Services' at a total outlay of Rs. 200 crore, which mainly involved capital expenditure for procurement of equipments worth Rs. 178.12 crore and training, advertising, monitoring and evaluation amounting to Rs. 21.88 crore. Rs. 176.56 crore was released to the States during 2009-2013.
- The Scheme for 'Modernization of Fire and Emergency Services in the Country' (2014-2016): In addition, the Government of India has launched a new scheme on

Modernization of Fire and Emergency Services for a total outlay of Rs. 75 crore on 29th October, 2014. Rs. 30 crore was released during 2014-15 to the States. The scheme has since been subsumed in the State Plan Funds w. e. f. 1st April, 2015 and hence no budget provision has been made during 2015-16 to the States. However, Rs. 04 crore to two Union Territories with legislature during 2015-16 has been released.

The Fire services are not well organized in India. In recent years, the requirements for fire safety cover have increased manifold whereas the development of Fire Service has not made much headway. The setting up of Industrial Plants at a fast pace with extensive use of hazardous materials and the construction of larger and taller buildings have multiplied the problems of fire fighting. The fire hazards are no longer confined to big cities and manufacturing centers only. Vast quantities of hazardous commodities are daily moved by different modes of transport all across the country posing complicated fire rescue problems. If the objective of ensuring safety of life and property in urban and rural areas is to be achieved, then a complete over-hauling of fire service organization is called for. The fire services need to be organized properly with adequate infrastructure and equipment for keeping pace with advancement of technology and economic growth.

4.6.4 Civil Safety Department-

Civil safety department is related to the series of efforts to protect the citizens of the city from sudden emergencies and military attacks. It uses the principles of an emergency operations like- prevention, mitigation, preparation, response, evacuation and recovery. Programs of these departments are initially discussed at least as early as the 1920s and were implemented in some countries during the 1930s as the threat of war and aerial bombardment grew. It became widespread after the threat of nuclear weapons was realized. The services are established to deal with immediate emergency conditions to protect the public and restore vital services and facilities that have been destroyed by the disasters. The Civil Policy of the Government of India, till the declaration of Emergency in 1962, was confined to making the States and Union Territories conscious of the

need of civil protection measures and to ask them to keep ready civil protection paper plans for major cities and towns under the then Emergency Relief Organization (ERO) Scheme. The Chinese aggression in 1962 and the Indo- Pak conflict in 1965 led to a considerable re-thinking about the policy and scope of Civil.

- **Role -**

The objectives of civil safety department are to minimize the loss of property, to save the life, maintain continuity of production and to keep high up the morale of the people. During times of war and emergencies, the civil safety organization has the vital role of guarding the hinterland, supporting the Armed forces, mobilizing the citizens and helping civil administration. The concept of Civil over the years has shifted from management of damage against conventional weapons to also include threat perceptions against Nuclear weapons, Biological & Chemical Warfare and natural and man-made disasters.

- ACT AND POLICY -

The Civil safety Act, 1968 (Act 27 of 1968) was passed by Parliament in May 1968. The Act is applicable throughout the country. The Act extends to the whole of India and provides for among other things measures not amounting to actual combat, for affording protection to any person, property, place or thing in India or any part of the territory thereof against any hostile attack, whether from air, land, sea or other places, or for depriving any such attack of the whole or part of its effects, whether such measures are taken before, during, at or after the time of such attack. It also authorized the raising of Civil Corps and for making Rules and Regulations for Civil. The additional role in disaster management will be enacted by the Civil Personnel before, during and after emergencies arising out of calamities/ disasters, whether natural or man-made. Civil towns have been converted into districts and categorization of the districts in respect of State/ Union Territory is appended herewith 100 Multi Hazard Prone Districts Civil activities are restricted to 259 categorized towns spread over 36 States/Union Territories.

- ORGANIZATION -

Civil is primarily organized on voluntary basis except for a small nucleus of paid staff and establishment which is augmented during emergencies. The present target of civil volunteers is 14.11 lac. Civil is primarily organized on voluntary basis except for a small nucleus of paid staff and establishment which is augmented during emergencies. However, Duty/Training allowance is admissible to the C.D. Volunteers. These volunteers are administered and trained by Deputy Controllers, Medical Officers and C. D. Instructors which are full time paid posts.

- CENTRAL BUDGETARY ASSISTANCE-

To help the State Governments, the Central Government reimburses 50% of the expenditure incurred by the State Government on the authorized items of Civil for raising, training and equipping of Civil Services etc for North- Eastern States excluding Assam and 25% for other States including Assam in the form of grants-in-aid, some part of the expenditure incurred on the authorized items of Civil Defense for raising, training and equipping for Civil.

Every year, these grants-in-aid are released in the form of reimbursement share of expenditure while setting, the quarterly claims submitted by the State Governments. As such, the budgetary provision of 10 Crore for reimbursement to State Governments has been made for the year 2017-18. A centrally sponsored scheme was launched by Government of India at a cost of `100 Crores in 2009 for revamping of Civil Defense Setup in the country during 11th plan.

- TRAINING -

Apart from carrying out training and rehearsal/ demonstration of Civil Defense measures during peace time, Civil Defense volunteers are also deployed, on a voluntary basis, in various constructive and nation building activities, which include providing assistance to the administration in undertaking social and welfare services and in the prevention/mitigation of natural/man-made disasters as well as in post- disaster response and relief operations. Civil Defense training is conduct-

ed by the State Governments/UT Administrations in three tiers, i.e. at the Local/Town/district level, State level and National level. The training of master trainers and specialized training is conducted at the National Civil Defense College, Nagpur and team/leadership training is conduct at State Civil Defense Training Institutes. Training of the volunteers in Civil Defense Organization is conducted at local/town levels by trained trainers in the form of short-term training programmers.

4.6.5 State Disaster Relief Force (SDRF) -

As per the recommendations of the fourteenth finance commission (FFC) on financing of expenditure on Immediate relief During natural disasters the government of India emergency expert group was setup. The Government of India approved the list, items and norms for assistance the National Disaster Relief Force (SDRF). It will be effective from 15, April,2015.

4.7 Conclusion -

Chapter four is the study of key research area Kota district which is selected as a whole. It describes the vulnerability, geo-climatic and vulnerability of the disasters in the Kota district. In doing so, researcher also study the Kota district collect rate office, which works as a district disaster management authority (DDMA) and all disaster related departments like Nagar Nigam,Water Resources ,Civil Defense, Fire Station, CMHO and SDRF departments were selected.

Reference –

1. Disaster Management: Future Challenges and Opportunities -Jagbir Singh
2. Introduction to International Disaster Management 3rd Edition by Damon P. Coppola (Author)
3. Disaster Management 1. S.C. Sharma, Disaster Management, Khanna Publishing 2 R. Nishith, Singh AK, Disaster Management in India, New Royal Co. 3. Mukesh Kapoor, Disaster Management, Saraubh Publishing House

4. Disaster Management-Harsh K. Gupta, Universities Press, 2003
5. Disaster Management - By Mukesh Kapoor
6. Disaster Management- Global Challenges and Local Solutions, By Rajib Shaw and R. R. Krishnamurthy
7. Disaster Management (3 Vols.)- Manmade Disasters, By K. K. Singh and Lofty Aleya and Vinod Singh
8. Disaster Management and Economic Development by-G.K.Kapoor
9. Disaster Management and Strategies-Concept And Methods, Risk Reduction & Insurance, Experiences & Case Studies-Byashu Pasricha , Kiyanoush Ghalavand , and Jai Narain Sharma
10. Earthquake & Natural Disasters-by Manik Kar
11. Management and Mitigation of Natural Disasters-by Rajan Kumar Sahoo and Tilottama Senapati.
12. District wise statics – 2012, Niti Aayog
13. Kota at a Glance – 2015 by sub director economics and statics kota.
14. SDMP- Disaster Management and Relief Department, Rajasthan Government- A report on properness 2011
15. An Integrated Disaster management – A case study of kota district 2015

Chapter – 5

Empirical Analysis

5.1 Introduction

5.2 Research Methodology

5.2.1 Define the whole

5.2.2 Sampling

5.2.3 Data Collection

5.2.4 Tabulation of data

5.2.5 Data analysis

5.2.6 Data Interpretation

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5.4 Conclusion

Chapter – 5

Empirical Analysis

5.1 Introduction -

Disaster Management is such a conceptual and active subject matter, which is not self regulatory control by any particular institution or groups of people. It is a combination and co-ordination between various groups or organizations which all together works in case of an emergency. India is very vulnerable to due to its geo-climatic structure. So, it is the primary necessity of the time that these institutions: which are related to disaster management should be taken into consideration in such a way, so that their relations and their roles could be better utilized in an emergency.

Empirical study has been shown to be an important tool for forecasting data analysis and data interpretation. Several factors significantly impact the accuracy of data analysis. These factors include selection of input variables, data collection methods and data analysis methods. In this chapter, sampling, the data collection methods data analysis and statics methods are examined by researcher.

5.2 Research Methodology -

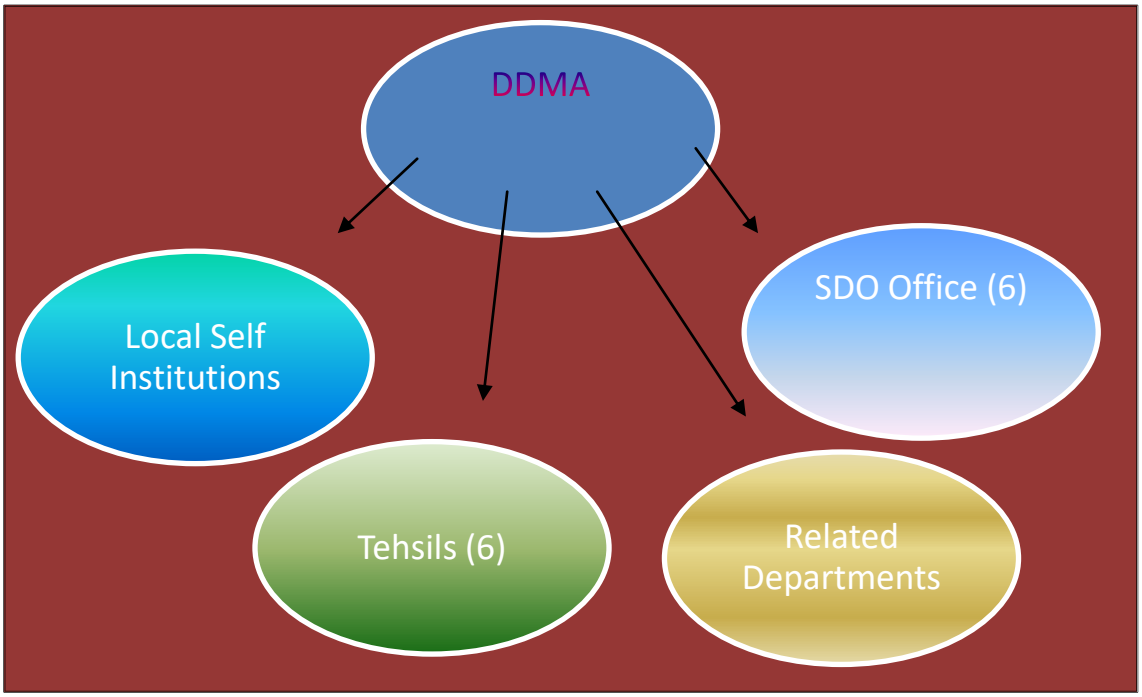
Research Methodology chapter of a research describes research methods, approaches and designs in detail highlighting those used throughout the study, justifying my choice through describing advantages and disadvantages of each approach and design taking into account their practical applicability to our research. Firstly, the methodology should be the most appropriate to achieve objectives of the research. Secondly, it should be made possible to replicate the methodology used in other researches of the same nature.

5.2.1 Define the Whole –

The institutions related to disaster management in Kota district are the part of whole. Kota district collector office is the nodal agency, which acts as the District Disaster Management Authority (DDMA).Kota district collector office is

the primary institution for disaster management in Kota district and also responsible for the planning ,effective execution , mitigation ,coordination and post disaster management activities. Besides district disaster management authority other stake holders are as follows-

Figure No. 5.1 District Disaster Management Authority (DDMA)



5.2.2 Sampling -

The researcher used sampling method to recruit the required number of respondents for both the quantitative and qualitative part of the research. The researcher takes two questionnaire made up of 100 participants for the quantitative part of the research. One questionnaire was filled by the citizens of the Kota city to finding their awareness, training, problem, suggestions, and their views about the present disaster management institutions. Second questionnaire was filled by the Government officials of the various stakeholders related to disaster management in Kota district. Respondents were filled questionnaire for the qualitative part of the study. Secondary sources such as books, articles, journals, internet, and other pertinent documents were also used for conducting this study.

➢ Sampling collection and Numbers -

For data collection, Kota district has been selected as a nodal agency. Besides this Kota city various stakeholders Government Departments- Nagar Nigam, Civil Safety Departments, Water Resources, Department, Fire Service Department, Chief medical health Officer (CMHO), State Disaster Response Force (SDRF), were selected for data sampling. These samples were selected on behalf of selection of samples at each level. Kota collect rate office was selected as a nodal agency. So, all 28 employees related to Disaster Management were selected as respondents and stake holders of various Government Departments were selected on "Stratified Random sampling ".Criteria on which sampling were selected is described in following table-

(A) Kota Collect rate level (Nodal Agency)

Kota District Collect rate Office is the centre nodal agency for all kind of disasters. So the office employees related to disaster management were selected for filling the questionnaire.

Table No. 5. 1

Kota Disaster Management Authority

Posts Included in sampling	Kota Collector	S.D.O Office	Collect rate office employees	Total
	01	06	21	28

Sampling of Government Departments has been selected as stakeholders for Disaster Management in Kota district. Selected employees of Government Departments were selected by "Stratified Random Sampling". In Kota City Six Departments related to Disaster Management were selected for filling this questionnaire. The sample selection criteria of candidates at each stakeholders department is as follows-

Table No. -5.2

Govt. Departments related to Disaster Management (As Stakeholders)

S.No.	Name of Govt. Department	Total NO. of employee	Employee selected in sampling(every one person on 02 persons)	Total no. of respondents
1	Nagar Nig ram(1)	18	9	**86**
2	Nagar palika (4)	20	10	
3	Tehsil (6)	20	10	
4	SDRF	15	7	
5	Civil Safety	12	06	
6	Fire Station	18	09	
7	CMHO	32	16	
8	Water Resources	18	9	
9	Electricity	20	10	
	Total	**173**	**86**	

Table No. -5.3 Panchyat Samiti Sampling Criteria

Sr.no.	Name of Panchyat samiti	Total candidates number	Selected candidates in sampling(01 member selected on every 02 members)	Total selected members for sampling
1	Ladpura	6	3	**20**
2	sultanpur	8	4	
3	Itawa	8	4	
4	Sangod	10	5	
5	Khairabad	8	4	
	Total	**40**	**20**	

The 86 respondents were selected for filling the questionnaire. Thus 28 respondents of Kota Collect rate office and 86 respondents of stakeholder's total **114 (28+86=114)** were selected for filling the questionnaire -1.

So far as, the data collected by these respondents were calculated by statics analysis in following manner-

(1) At first, the data calculated by respondents were collected and tabulated.

(2) Selecting a sample following things were taken into consideration-

- Departments related to disasters were selected.
- From every two persons, one respondent was selected.
- Kota district level status on disaster management was evaluated on five point scale –policy, management, training, planning, problems and satisfaction variables.
- For Data analysis following formula was used-

5.2.3 Data Collection -

1. Primary data collection -

The primary data was collected at the local level by using field questionnaire that gives first hand information required for this research. Questionnaire collected for primary data has been put on" Annexure-1".Open ended and close ended both questionnaire were selected in this questionnaire. This questionnaire has covers all the questions regarding planning, progress report, quality, satisfaction, transparency, problems and efficacy .The investigator obtained informed consent prior to the respondents. The participants were asked to complete a brief demographic scheduled questionnaire. This was related to information pertaining to their name, age, gender, education, designation, the problems status of disaster management in their organization and finding their solutions as they think. The quantitative data was collected using a questionnaire developed by the investigator for the study. The questionnaire contained 29 questions pertaining to the availability of institutional mechanisms in the management of a disaster, people's awareness and perception about the role of local levels in the management of a disaster, and the level of community participation in dealing with a disaster. For the qualitative research, two questionnaires were prepared by the researcher. The questionnaires contained questions specifically related to the problems encountered by the people and significant employees in managing the disaster situation. The questionnaires were filled in English by the respondents and lasted for 15 to 30 minutes. All the questionnaires were taken for analysis.

(II) Research tools and techniques -

(i) Mean -

The mean value characterizes the "central tendency" or "location" of the data. Although the mean is the value most likely to be observed, many of the actual values are different than the mean. When assaying control materials, it is obvious that technologists will not achieve the mean value each and every time a control is analyzed. The values observed will show a dispersion or distribution about the mean, and this distribution needs to be characterized to set a range of acceptable control values.

Formula X= $\underline{€ f x}$

X= Arithmetic mean

€ = Addition of frequencies and values

N = number of frequencies

(ii) Standard Deviation (S. D.) –

The standard deviation is a statistic that measures the dispersion of a dataset relative to its mean and is calculated as the square root of the variance. The standard deviation measures the variability and consistency of the data sample. A useful property of the standard deviation is that, unlike the variance, it is expressed in the same units as the data. In statistical data analysis, less variation is often better.

Formula S.D. = $$\sigma = \sqrt{\frac{\sum x^2}{N} - \bar{x}^2}$$

$\sum$ = "the sum of ..."

n = number of pieces of data (population)

$n-1$ = number of pieces of data (sample)

$\bar{x}$ = mean (average) of data

x_i = each of the values in the data

$x_1, x_2, x_3, x_4, \ldots x_n$ (as i goes from 1 to n)

(iii) Degrees of freedom -

The "n-1" term in the above expression represents the degrees of freedom (df). Loosely interpreted, the term "degrees of freedom" indicates how much freedom or independence there is within a group of numbers.

2. Secondary Data Sources -

In this present research secondary data collected from books, journals, magazines, reports, articles, blogs, news papers, internet and other related sources. The researcher also carried out field visits for data collection by t6he annual reports, minutes, conducted individual and group meetings and interaction with various stakeholders during the study period. The meetings were conducted in various places of Kota district

5.3 Data Analysis -

Data analysis is considered to be important step and heart of any research in the research work. Data analysis entails that the analyst break down data into constituent parts to obtain answers to research questions and to test hypotheses. After collection of data with the help of relevant tools and techniques, the next logical step, is to analyze and interpret data with a view to arriving at empirical solution to the problem. This chapter focuses on the analysis and interpretation of data collected for this study and the presentation of data is systematically linked to the format of the questionnaire attached .Methodology chapter of a thesis explores about the methods used for data analysis. You have to explain in a brief manner how you are going to analyze the primary data you will collect employing the methods explained in this chapter. There are differences between qualitative data analysis and quantitative data analysis. In qualitative researches using interviews, focus groups, experiments etc. data analysis is going to involve identifying common patterns within the responses and critically analyzing them in order to achieve research aims and objectives. Data analysis for quantitative studies, on the other hand, involves critical analysis and interpretation of figures and numbers, and attempts to find rationale behind the emergence of main findings. Comparisons of primary research findings to the findings of the literature review are critically important for both types of studies – qualitative and quantitative. Data analysis methods in the absence of primary data collection can involve discussing

common patterns, as well as, controversies within secondary data directly related to the research area.

The study has been undertaken to find the present status of the Disaster Management Institutions at Kota District level. At District level Institutions Kota Collect rate is a nodal agency to coordinate all the all activities. This nodal agency has impact on Disaster related different issues like disaster mitigations, preparedness, rehabilitation etc. various factors has been taken in into consideration but the area of the study is specified from Kota collect rate to the all district level Institutions related to disaster weather in disaster mitigation ,preparedness, and rehabilitation to overcome any disaster.

5.4 Tabulation of Data -

1. Questionnaire -1-

The questionnaire –1 was filled by the people of the community by the researcher on random basis. The first questionnaire sought to identify the subjects who have the awareness about the disaster and its management

Dimensions enable the researcher to identify the different areas of thesis objectives to find out the present status of these institutes related to disaster management. The questionnaire was based on five point licker scale.

Response rate-Total number of 100 Questionnaires was distributed, besides this only 87 questionnaires were received the response rate of questionnaire was 87% (87/100). **(N=87)** These rest 87 questionnaire were used to analysis and interpretive the respondent's view. Data gathered through the questionnaire s was subjected to further frequency counts for mean and standard deviation (S.D.).The respondents for each individual's questions were added together to find and filter the Mean range and Standard Deviation range. These findings were then presented in tabular form -

Table No. 5.4 Tabulation of Questionnaire 1

S.No.	Mean	Standard Deviation
1	2.488372	0.94239
2	2.604651	1.009124
3	2.348837	1.165862
4	2.325581	1.212114
5	2.325581	1.212114
6	1.883721	1.010749
7	1.848837	0.861154
8	2.00	0.982194
9	2.093023	1.144068
10	2.127907	1.135487
11	2.337209	1.069474
12	2.453488	0.953717
13	2.209302	0.947024
14	1.976744	1.040099
15	2.05814	1.088492
16	1.883721	0.803208
17	2.523256	1.103222
18	3.093023	1.279962
19	3.953488	1.115737
20	3.546512	1.325381
21	3.162791	0.905674
22	2.965116	1.011088
23	2.162791	1.061192
24	2.348837	1.0712
25	2.639535	1.115799
26	2.186047	1.269661
27	2.581395	1.111069
28	2.44186	1.394144
29	2.94186	1.021586

- **Mean Score range-** We have made a score range of mean. Then the researcher analysis the present status of disaster management institutions findings as per score range-

Table No. 5.5 Tabulation of mean range

S. No.	Range	Scoring
1	4.51-5.00	Best
2	3.51-4.50	Good
3	2.51-3.50	Average
4	1.51-2.50	Below average
5	1.00-1.50	Poor

- **Standard Deviation** As per the findings of Standard Deviations researcher find out the present status of the disaster management institutions status.

2. Questionnaire -2

The Questionnaire-2 was filled by the selected Government officials on stratified random basis. The questionnaire sought to identify the current status of these stake holders, which is involved in the disaster management institutions. It enables the study to identify the different areas of thesis objectives to find out the present status of these institutes related to disaster management. The questionnaire was based on five point licker scale.

Response rate-Total number of 114 Questionnaires was distributed, only 93 questionnaires were received the response rate of questionnaire was 81.57% (93/114). **(N=93)**

The rest 93 questionnaire were used to analysis and interpretive the respondent's view. Data gathered through the questionnaire s was subjected to further frequency counts for mean and standard deviation (S.D.).The respondents for each individual's questions were added together to find and filter the Mean range and Standard Deviation range. These findings were then presented in tabular form-

Table No. 5.6 Tabulation of Questionnaire 2

S. No.	Mean	Standard Deviation
1	2.505376	0.880016
2	3.129032	1.055275
3	2.365591	0.734032
4	2.462366	0.787941
5	3.129032	0.823906
6	3.311828	0.9666
7	3.344086	0.972386
8	3.655914	0.814203
9	2.548387	0.81449
10	3.333333	0.900885
11	3.064516	1.14973
12	2.344086	1.10993
13	2.505376	1.109481
14	2.311828	1.215645

15	2.731183	1.033565
16	2.139785	1.128595
17	2.655914	0.938253
18	2.83871	1.066183
19	3.236559	0.799427
20	2.698925	1.029826
21	2.741935	0.988007
22	2.397849	0.957122
23	2.569892	0.713196
24	3.731183	1.044028
25	2.784946	0.8828
26	3.096774	0.944832
27	2.602151	0.957122
28	3.204301	0.915556
29	3.784946	1.159549
30	3.290323	1.247438

5.2.5 Data Analysis -

The quantitative data collected was further entered for analysis. Initially, all the data were checked and analyzed for missing data. Subsequently, descriptive statistics were computed to identify frequencies and percentages for the study variables. The entire questionnaire was transcribed and analyzed using statically methods .Standard Deviation and mean formula analysis was used to identify significant association between study variables. Significant themes and subthemes were extracted during the coding process. The respondents were detailed about the purpose of the study. The objectives of the study were made clear before the data collection, keeping in view that it will not raise any hope or expectation of help. Confidentiality was maintained with regard to the details enumerated from the respondents. The information gathered was be used only for the research and the academic purpose.

This chapter presents the data collected from the respondents collect rate staff (DDMA) and all stake holders and also community questionnaires. The questionnaire is divided in two types-

(1) **Questionnaire-1.** Filled by people of community random base on random basis.

(2) **Questionnaire-2**. Filled by the Government Officials on stratified random basis**.**

Justification of the Study -

The research study revealed the nature of the participation of the local government in the disaster management activities and the level of community participation obtained during and after the disasters. The findings of the study contributed to understand the enormous requirement of both local government and local community in the management of the disasters. The study results will positively affect the various aspects of the disaster management program in the country including disaster preparedness, planning, response, mitigation and post disaster recovery efforts.

5.2.6 Data Interpretation and Conclusions-

- **Data Interpretation**- It refers to the implementation of measures through which data is reviewed for the purpose of arriving at an inference. Data can be obtained from multiple sources e.g. data from running of industries, census population data etc. Interpreting data requires analyzing data to infer information from it in order to answer questions. Data can be provided in a number of formats like Bars, tables, line graphs, pie graphs-

(I) BAR GRAPHS -

A bar graph or bar chart represents explicit data with rectangular bars. The heights and lengths of these bar graphs are proportional to the values of data they represent. There are two types of bar graph, one is called horizontal bar graph and other is called vertical bar graph. The important thing to remember is that the longer the bar, the greater its value. Bar graphs made up of two axis, one is called x- axis and other is called y- axis. In a horizontal bar graph, y-axis shows the data categories and x- axis shows the scale. In vertical bar graph, x-axis shows the data categories and y-axis shows the scale. In a nutshell, we can compare easily different sets of data between different groups with the help of bar graph.

(II) TABLES:

In tables, data is described in the form of rows and columns. In Data Interpretations table's questions, we are required to read data from table/tables analyze the data and answer the questions asked on the basis of the given data.

➢ **Questionnaire Interpretations -**

(i) Interpretations of the Questionnaire -1

This Questionnaire was filled up by the peoples on random basis by the peoples, in which the respondents answer the questions on the five point licker scale.

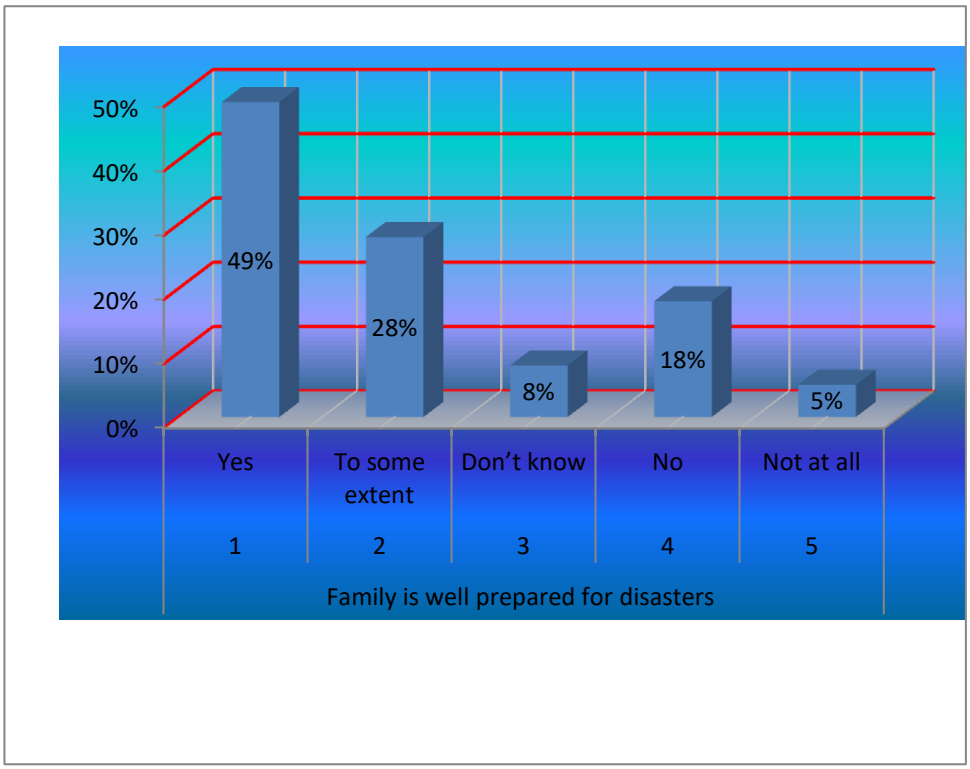
Q.1	Do you think that your family is relatively well-prepared to face a disaster such as an earthquake, tornado, cyclones, winter storm, fire, and flood and other such emergencies?

Ans.-

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
49%	28%	8%	18%	5%

Explanation- In this question we try to found out awareness level of the peoples about disasters in the people among the community. We had found out that mean was **2.488372** in mean score range, which shows that its status is below average. The standard deviation which is **0.94239**.

Figure No. 5.2 Family is well prepared for disasters



To know the disaster awareness level ,researcher ask the question in questionnaire to 87 respondents that his family is relatively safe disaster points of view and-

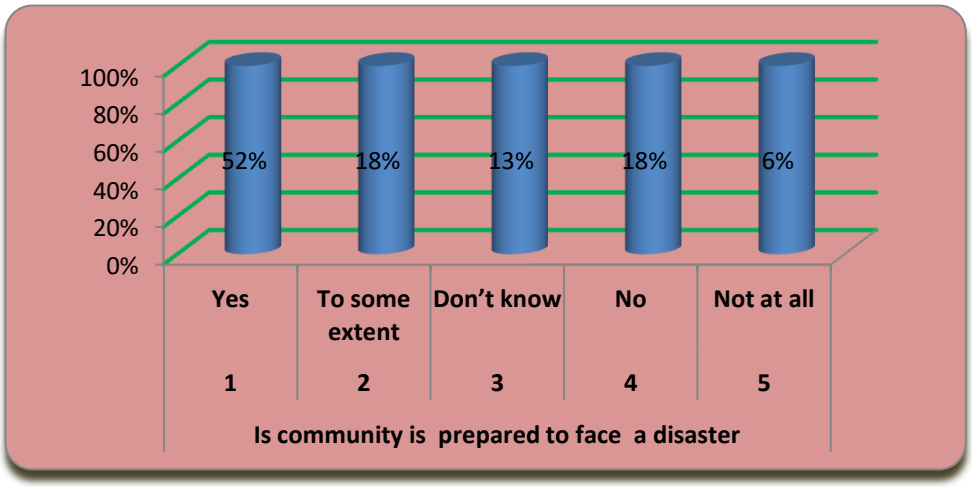
(1) 49% respondents tell that they are safe, due to Governments institutions establishment in this regard.
(2) 28% respondents tell that they think they will face the disasters any way.
(3) 08% respondents tell that they still don't know how to overcome these emergencies.
(4) 18 % respondents tell that they will perhaps not face these emergencies effectively.
(5) 5% respondents tell that they are not in present condition to face emergencies.

Q.2	Do you believe that the community you live in is relatively well- prepared for a disaster ?

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
52%	18%	13%	18%	6%

Explanation- In this question we try to found out the awareness level of the community towards disasters in the people. We had found out that mean was **2.604651** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation which is **1.009124**.

Figure No. 5.3 Is community is well prepared for a disaster



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

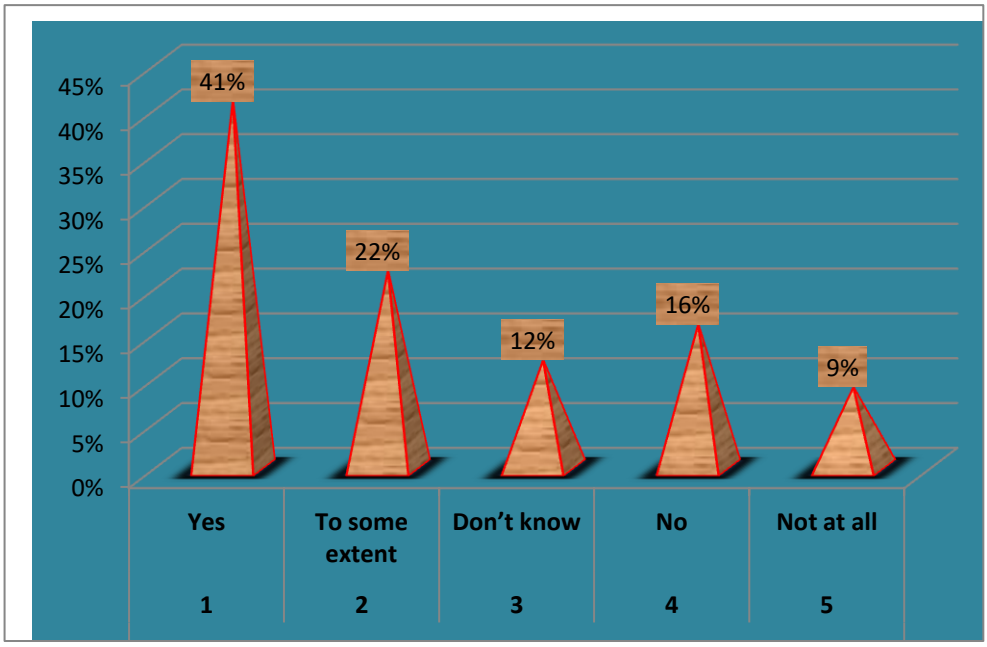
(1) 52% respondents tell that they are safe, due to Governments institutions and various religious and Ngo's help in this regard.
(2) 18% respondents tell that they think they will face the disasters any way.
(3) 13% respondents tell that they still don't know how to overcome these emergencies.
(4) 18 % respondents tell No that they will perhaps face these emergencies effectively.
(5) 06% respondents tell that they are not in such conditions to effectively face a disaster.

Q.3	Have you ever discussed disaster preparedness topic with your family?

Ans

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
41%	22%	12%	16%	9%

Figure No.5.4 Discussed preparedness with Family



Explanation- In this question we try to found out the awareness status of the family about disaster management with the people among the community. Our results show that mean was**2.348837** in mean score range, which shows that its status is below average. Similarly, we also found out the standard deviation which is**1.165862.**

To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 41% respondents tell that they are safe, due to Governments institutions and various religious and Ngo's help in this regard.
(2) 22% respondents tell that they think they will face the disasters any way.
(3) 13% respondents tell that they still don't know how to overcome these emergencies.
(4) 12 % respondents tell No that they will perhaps face these emergencies effectively.
(5) 09% respondents tell that they are not in such conditions to effectively face a disaster.

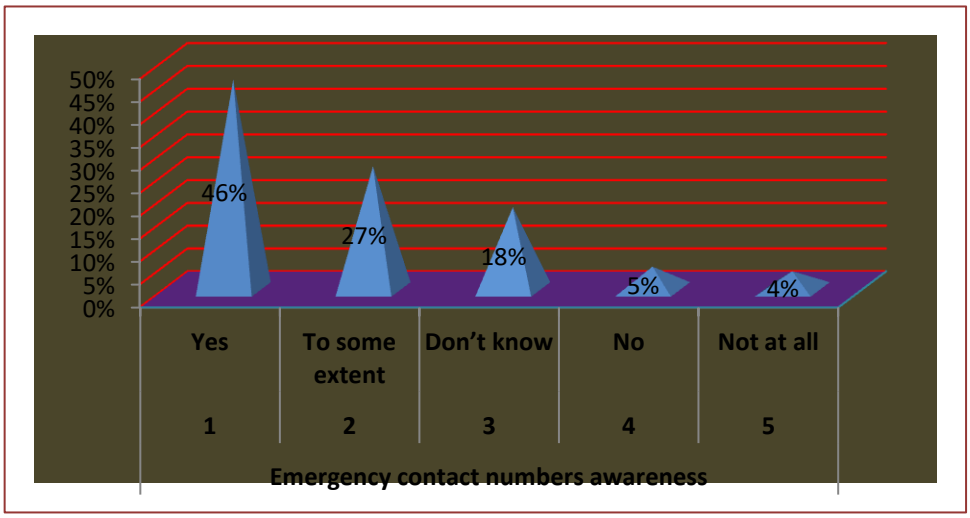
Q.4	Do all members of your family know how and who to call for help in such an emergencies? (Call 100, 101, 102, 0108 etc.)

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
46%	27%	18%	5%	4%

Explanation- In this question we also try to found out the awareness status of the family members about the emergencies with the peoples among the community. We had found out that mean is **2.325581** in mean score range, which shows that its status is below average. The standard deviation is **1.212114**.

Figure No. 5.5 Emergency contact number awareness



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 46% respondents tell that they know the emergency help number of Governments institutions and Ngo's contact help in this regard.

(2) 27% respondents tell that they think they will contact these emergency numbers any way.

(3) 18% respondents tell that they still don't know these emergencies contact numbers

(4) 5 % respondents tell No that they don't know these emergencies contacts.

(5) 04% respondents tell that they have no knowledge about these emergency numbers.

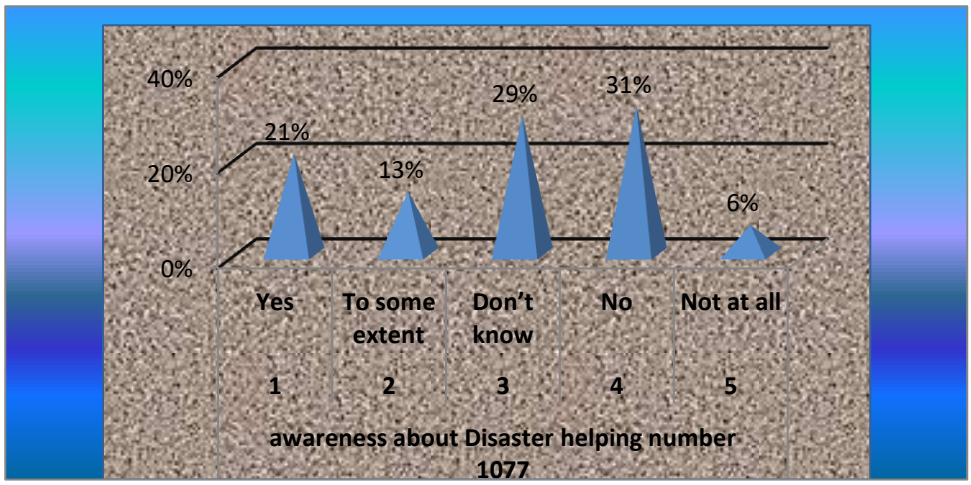
Q.5	Do you aware about the disaster helping phone number 1077?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
21%	13%	29%	31%	06%

Explanation- In this question we try to found out the awareness status of the peoples about the helping phone numbers in an emergency. We had found out that mean is**2.325581** in mean score range, which shows that its status is below average. The standard deviation was **1.212114**.

Figure- 5.6 Awareness about Disaster helping number 1077



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 21% respondents tell that they know the emergency help number of Governments institutions.
(2) 13% respondents tell that they will contact this emergency numbers any way.
(3) 29% respondents tell that they still don't know this emergencies contact numbers
(4) 31 % respondents tell No that they don't know these emergencies contacts.
(5) 06% respondents tell that they don't have any knowledge about this emergency numbers.

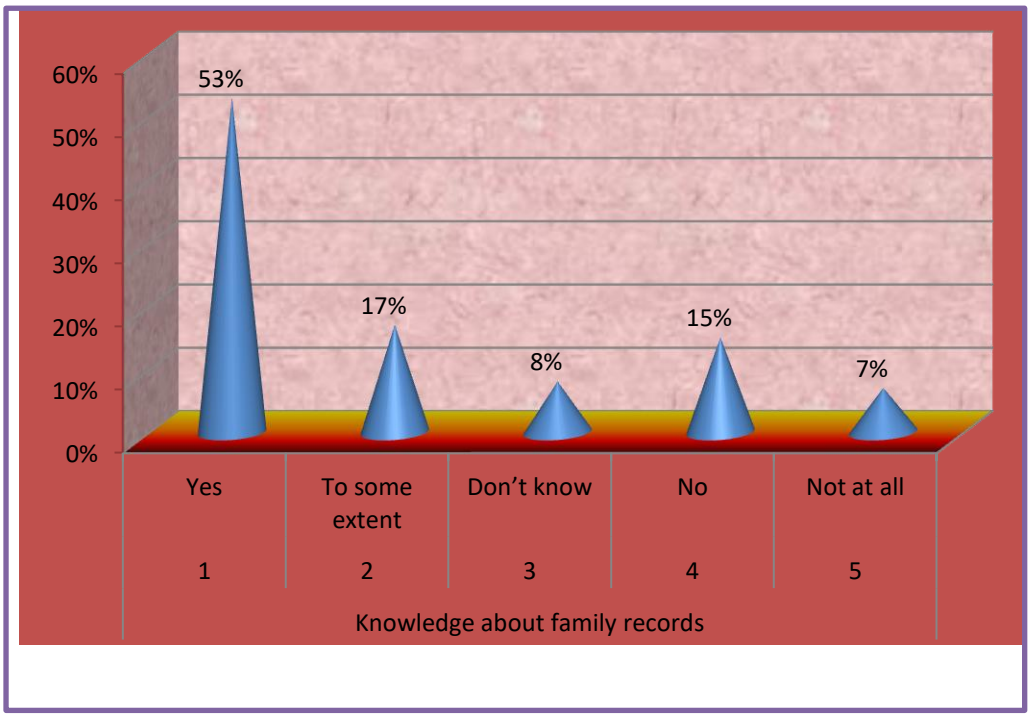
Q.6	Do you and your family know where your family records are? (Valuable papers–Aadhar card, pan card, voter ID cards, bank pass books, birth certificates, passports, insurance papers, household inventory, etc.)

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
53%	17%	08%	15%	07%

Explanation- In this question we also try to found out about the awareness status of important documents of the family in an emergency. We had found out that mean was**1.883721** in mean score range, which shows that its status is below average. Similarly, we also found out the standard deviation**1.010749.**

Figure- 5.7 Family Know Where Your Family Records



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 53% respondents tell that where their family records are.

(2) 17% respondents tell that they will find their family records any way.

(3) 08% respondents tell that they still don't know where are their important documents are held.

(4) 15 % respondents tell No that they don't know about these family records.

(5) 07% respondents tell that they are neither no or knowledge about this emergency numbers.

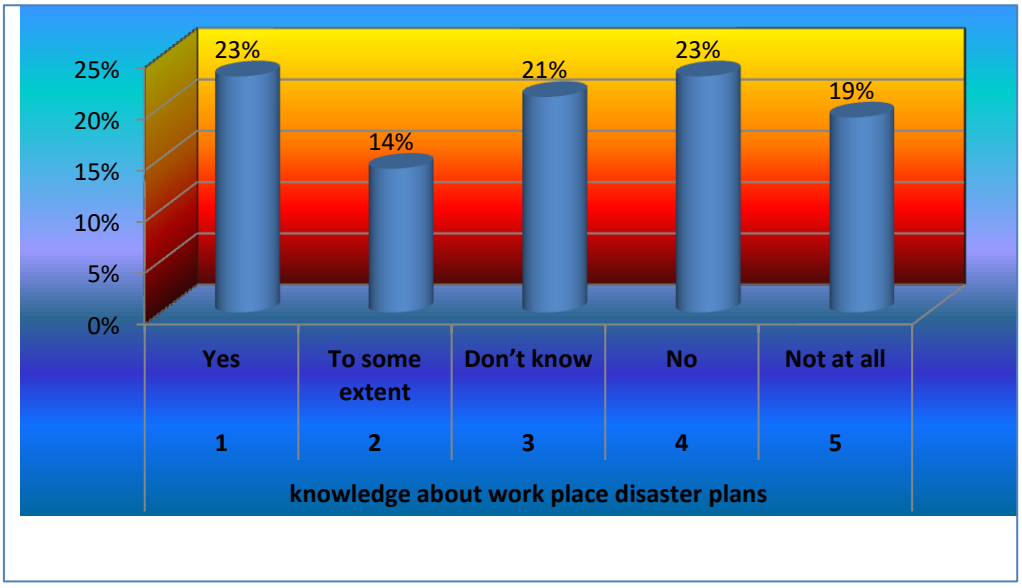
Q.7	Do you know about disaster plans at your workplace or at your children's school or day care, etc.?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
23%	14%	21%	23%	19%

Explanation- In this question we also try to found out the awareness of the disaster plans with the peoples among the community. We had found out that mean was**2.00** mean score range, which shows that its status is below average. Similarly, we found out the standard deviation **0.982194.**

Figure No. 5.8 Knowledge about disaster plans



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they know about the disaster plans of their work place and their children's school.
(2) 14% respondents tell that they will find out knowledge about these plans any way.
(3) 21% respondents tell that they still don't know about these disaster plans knowledge
(4) 23 % respondents tell No that they don't know about these plans.
(5) 19% respondents tell that they are neither know or knowledge about this emergency plans.

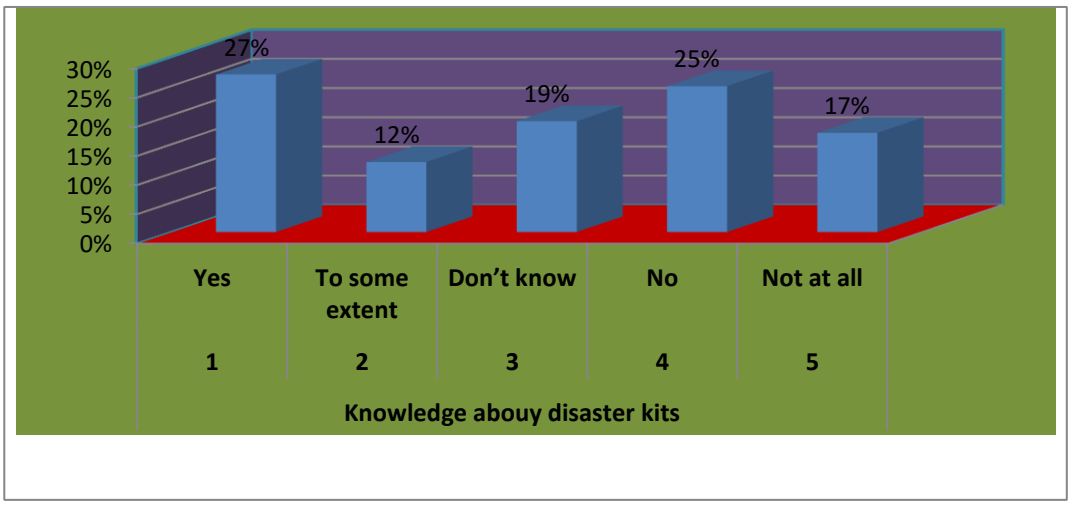
Q.8	Do you have or knowledge about a whole Family Disaster Supply Kit?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
27%	12%	19%	25%	17%

Explanation- In this question we also try to found out the preparedness level of the peoples among the community about disasters. We had found out that mean was**1.848837** in mean score range, which shows that its status was below average. Similarly, we also found out the standard deviation **0.861154**.

Figure-5.9 **Knowledge about disaster kits**



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 27% respondents tell that they know about the disaster supply kits.
(2) 12% respondents tell that they will find out knowledge and acquire these kits any way.
(3) 19% respondents tell that they still don't knowledge about these disaster kits.
(4) 25 % respondents tell that they don't know about these kits.
(5) 17% respondents tell that they have no knowledge about this type of disaster kits.

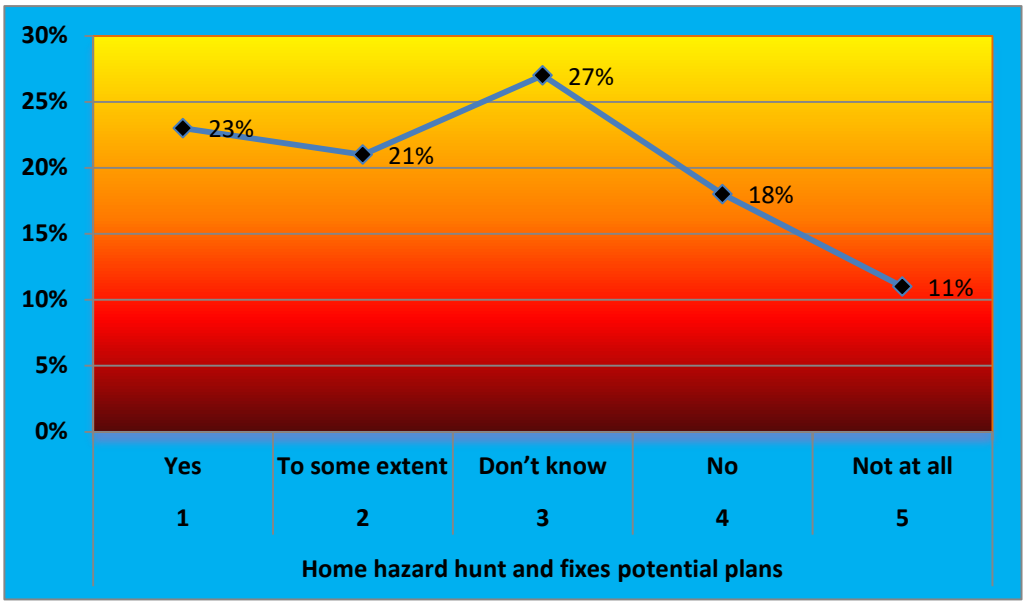
Q.9	Have you conducted a home hazard hunt and fixed potential hazards plan at home?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
23%	21%	27%	18%	11%

Explanation- In this question we also try to found out the hazard plan preparedness level of the peoples among the community. We had found out that mean is **2.093023** in mean score range, which shows that its status was below average. The standard deviation is **1.144068**.

Figure No.5.10 Home hazard hunt and fixed potential plan



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have conducted a home hazard hunt and fixed potential hazards plan at home.
(2) 21% respondents tell that they will find out knowledge about these hazard plans any way.
(3) 27% respondents tell that they still don't knowledge about these disaster plans.
(4) 18 % respondents tell that they don't know about these hazard plans.
(5) 11% respondents tell that they have no knowledge about this type of disaster hunts plans.

Q.10	Do you have Insurance for each member of Family?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
23%	21%	27%	18%	11%

Explanation- In this question we also try to found out the preparedness level of the disaster management in the people among the community. We had found out that mean is**2.127907** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation**1.135487**.

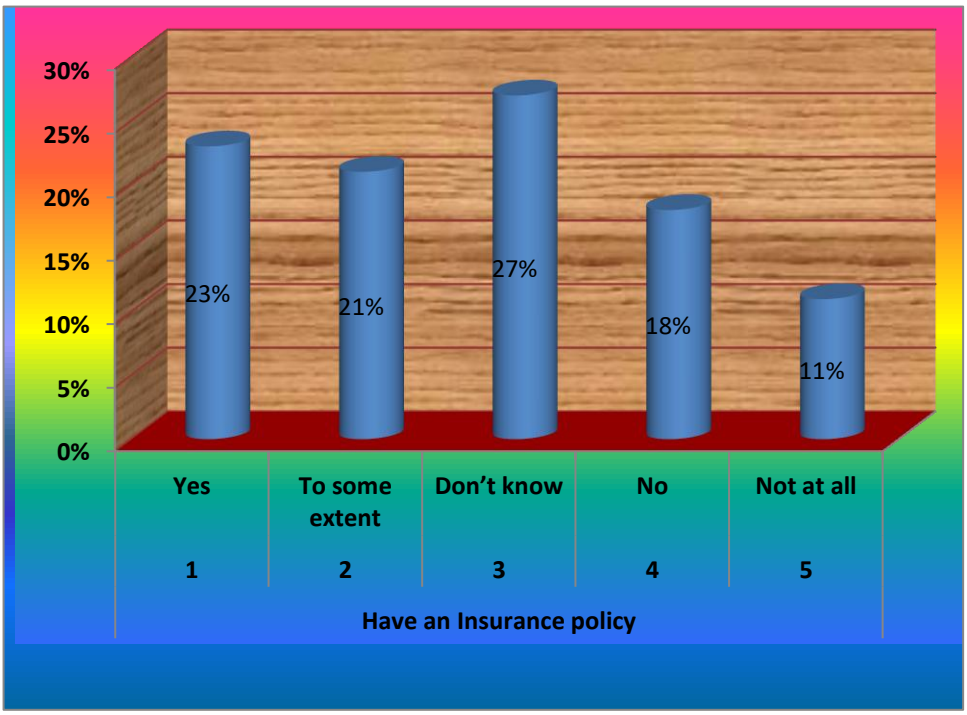
To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have taken an Insurance policy.
(2) 21% respondents tell that they have taken a policy but they have group policy.
(3) 27% respondents tell that they still don't knowledge about these disaster policies.

(4) 18 % respondents tell that they don't know about these Insurance plans.

(5) 11% respondents tell that they have no knowledge about this type of disaster insurance plans.

Figure No. 5.11 Have an Insurance plan



Q.11	Do you have operational smoke detectors and carbon monoxide detectors?

Ans.

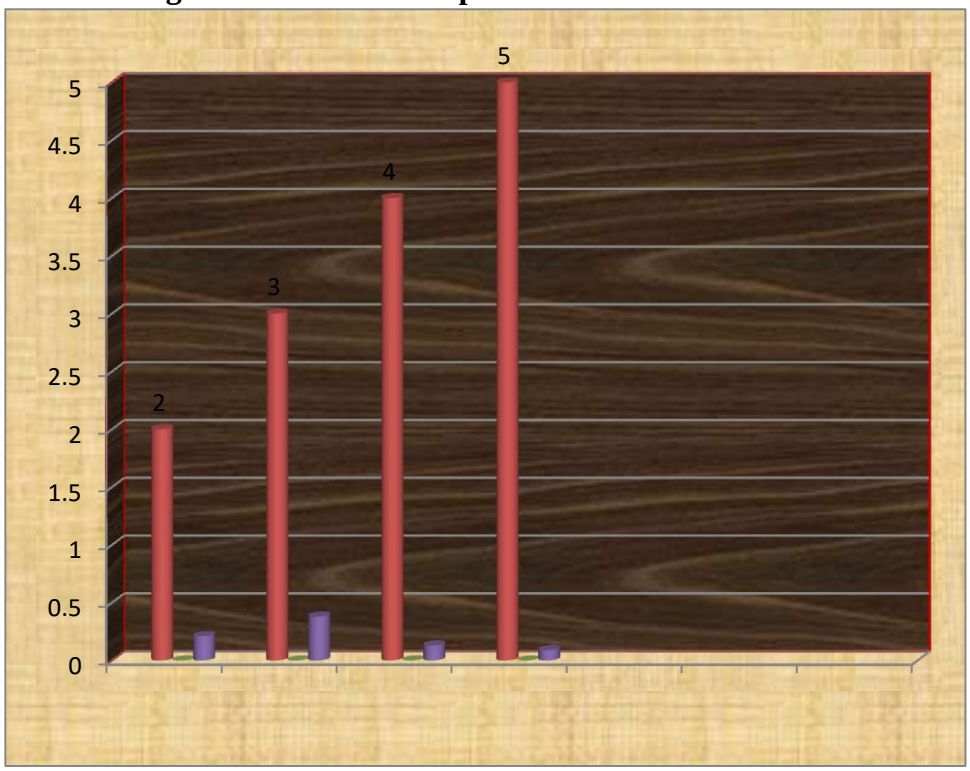
1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
19%	21%	38%	13%	09%

Explanation- In this question we also try to found out the preparedness level of the peoples among the community. We had found out that mean is**2.337209** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation which is**1.069474**.

To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 19% respondents tell that they have knowledge to operate operational smoke detectors and carbon monoxide detectors.
(2) 21% respondents tell that they have but they have no knowledge to operate operational smoke detectors and carbon monoxide detectors.
(3) 38% respondents tell that they don't know about these types of detectors.
(4) 13% respondents tell that they have no knowledge about these disaster helping detectors.
(5) 09% respondents tell that they have no knowledge about this type of disaster insurance plans.

Figure No. 5.12 Have operational smoke detectors



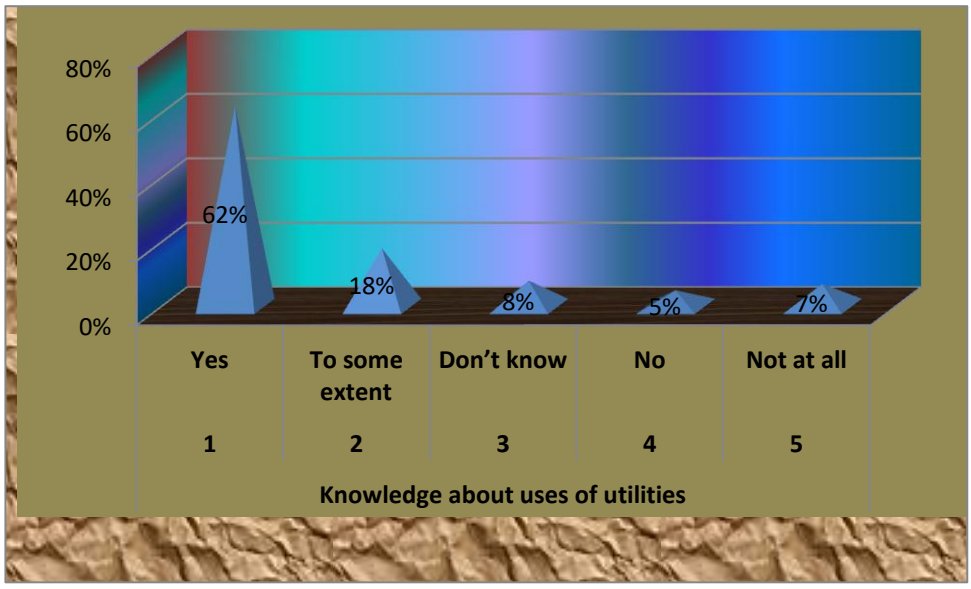
Q.12	Do your all family members know how to turn off all utilities (gas, electricity, water, etc.)?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
62%	18%	08%	05%	07%

Explanation- In this question we also try to found out the awareness level of family about the disasters. We had found out that mean is **2.453488**in mean score range, which shows that its status is below average. The standard deviation is **0.95.**

Figure-12 Knowledge About Uses Of Utilities



To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 62% respondents tell that they have knowledge to turn off all utilities (gas, electricity, water, etc.)

(2) 18% respondents tell that they have but they have no knowledge to know how to turn off all utilities.

(3) 08% respondents tell that they don't know about these utilities.

(4) 05% respondents tell that they have no knowledge about these utilities.

(5) 07% respondents tell that they have no knowledge about uses of this type of utilities.

Q.13	How do you rate the present disaster management system ?

Ans.

1	2	3	4	5
Better	Good	Average	Below	Poor
09%	22%	33%	23%	13%

Explanation- In this question we try to found out the response level of the peoples about present disaster management. We had found out that mean is**2.209302** in mean score range, which shows that its status is below average. We also found out the standard deviation **0.947024**.

To know the disaster awareness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 09% respondents tell that they think that the present disaster management system is better than they think.

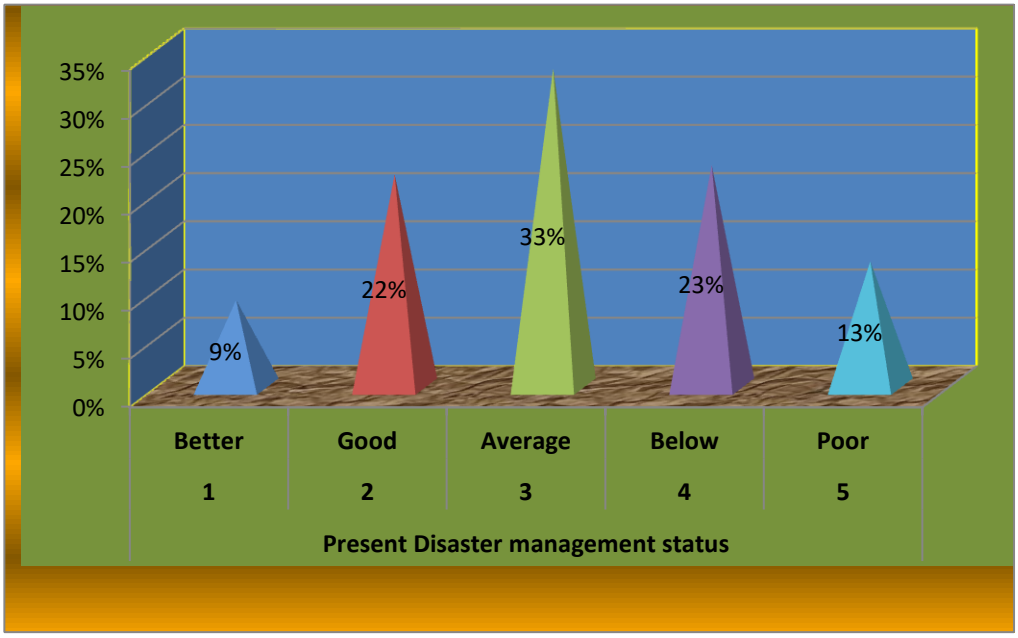
(2) 22% respondents tell that they that the present disaster management system is good.

(3) 33% respondents tell that they that the present disaster management system is average.

(4) 23% respondents tell that they that the present disaster management system is below average.

(5) 13% respondents tell that the present disaster management system is poor and needs to be improved.

Figure-13 Present Disaster Management Status



Q.14	Do you know where your family will meet outside your home in case of an emergency?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
42%	13%	21%	11%	13%

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is **1.976744**in mean score range, which shows that its status is below average. Similarly, the standard deviation is **1.04009**.

To know the disaster awareness level, researcher ask the question in question-naire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 42% respondents tell that they know where their family will meet outside your home in case of an emergency.

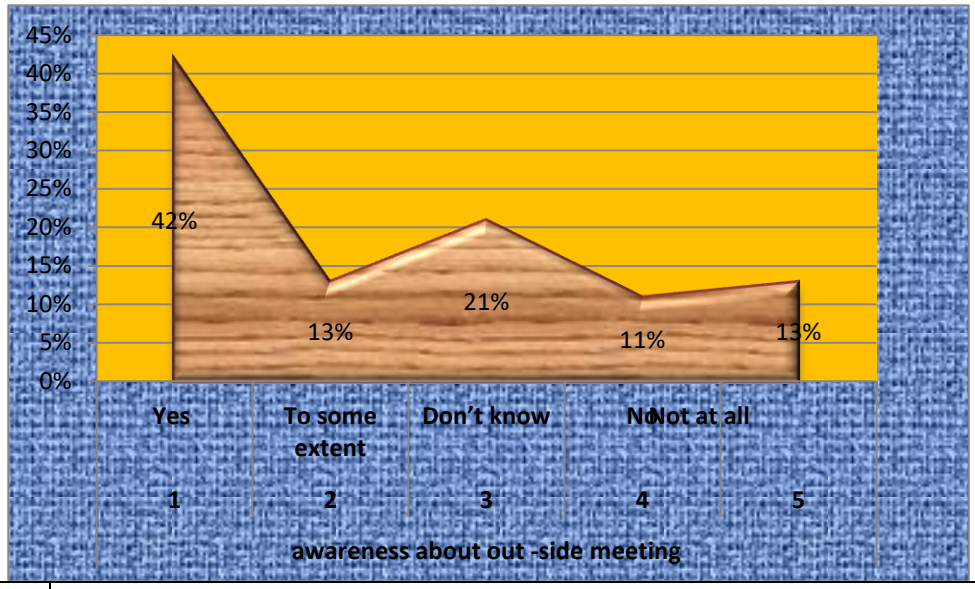
(2) 22% respondents tell that have idea where their family will meet outside your home in case of an emergency.

(3) 33% respondents tell that they don't know what to do in such emergency.

(4) 23% respondents tell that they have not discussion with family about this matter.

(5) 13% respondents tell that they neither talk with family and no idea what to do in such an emergency.

Figure-5.14 Awareness About Out- Side Meeting



Q.15	Do you know or have at least two exits from every room in your house in case of an emergency?

Ans.

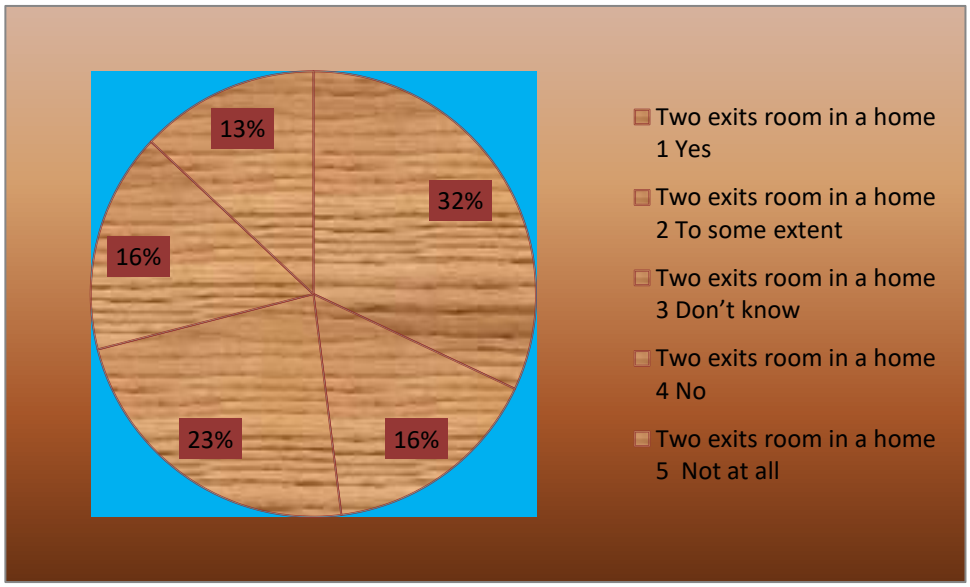
1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
32%	16%	23%	16%	13%

Explanation- In this question we found out the existing house structure of the disasters in the peoples in the community. We had found out that mean **2.05814** in mean score range, which shows that its status is below average. The standard deviation is **1.088492**

To know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 32% respondents tell that they know and have at least two exits from every room in your house in case of an emergency.
(2) 16% respondents tell that they that have idea where their family will meet outside your home in case of an emergency.
(3) 23% respondents tell that they t don't know what to do in such emergency.
(4) 16% respondents tell that they have not discussion with their family about this matter.
(5) 13% respondents tell that neither talks with family and no idea what to do in such an emergency.

Figure-5.15 Two exits in a home



Q.16	Have you ever take training in First-Aid? (Within the last 3years)

Ans.

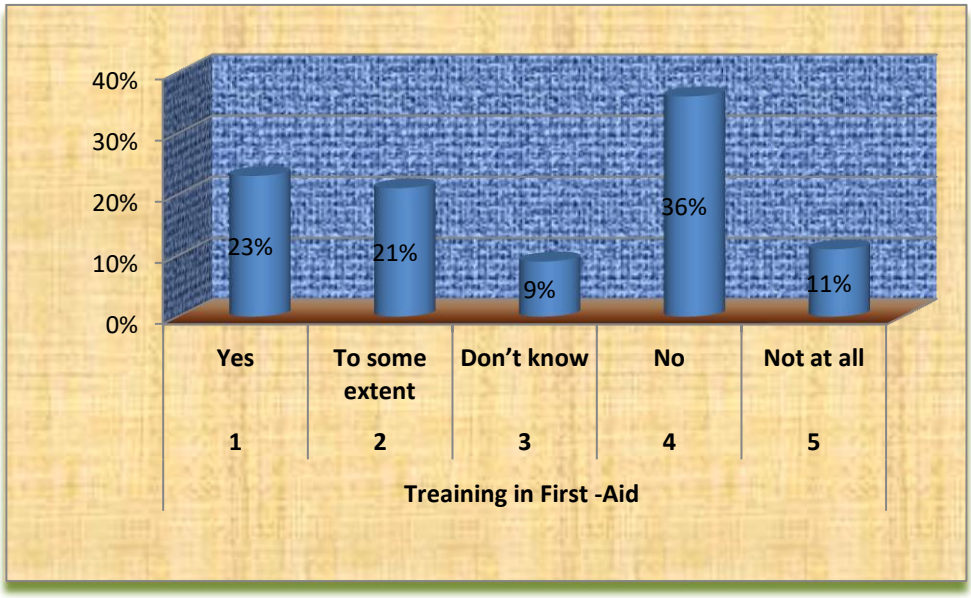
1	2	3	4	5
Yes	To some extent	Don’t know	No	Not at all
23%	21%	09%	36%	11%

Explanation- In this question we try to found out the training status the peoples in the community. We had found out that mean is**1.883721** in mean score range, which shows that its status is below average. The standard deviation is **0.803208**.

To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have taken training in First-Aid within the last 3years.
(2) 21% respondents tell that they that have taken training but before 3-5 years in First-Aid.
(3) 09% respondents tell that don’t know about these training as they have new postings
(4) 36% respondents tell that they have not taken any training with in past years.
(5) 11% respondents tell that they have not taken any training and no idea about these trainings.

Figure No- 5.16 Training in first -Aid



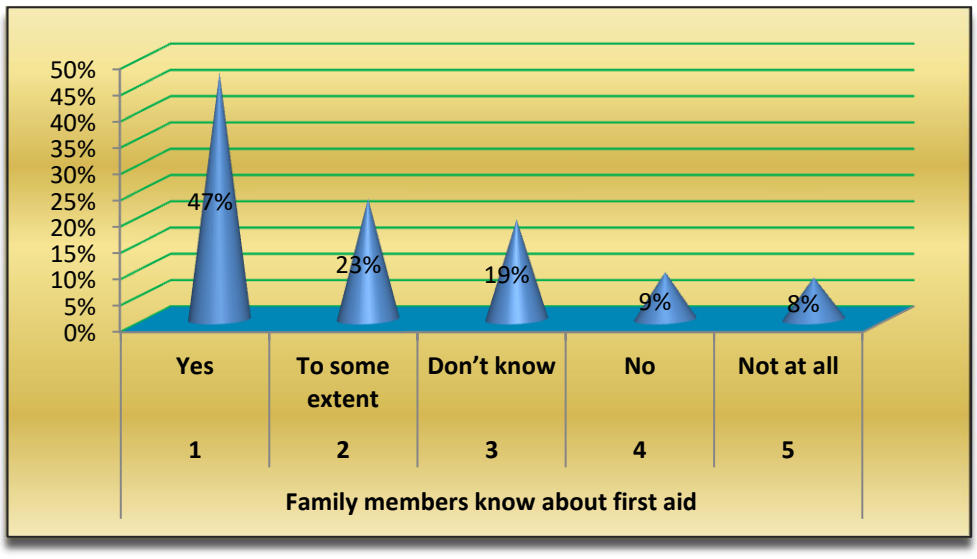
Q.17	Are all responsible family members having knowledge about First-Aid?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
47%	23%	19%	09%	08%

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is**2.523256** in mean score range, which shows that its status is below average. The standard deviation is **1.103222**.

Figure No. 5.17 Family Members Know About First Aid



To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have taken training in First-Aid within the last 3years.
(2) 21% respondents tell that they that have taken training but before 3-5 years in First-Aid.
(3) 09% respondents tell that don't know about these training as they have new postings
(4) 36% respondents tell that they have not taken any training with in past years.
(5) 11% respondents tell that they have not taken any training and no idea about these trainings.

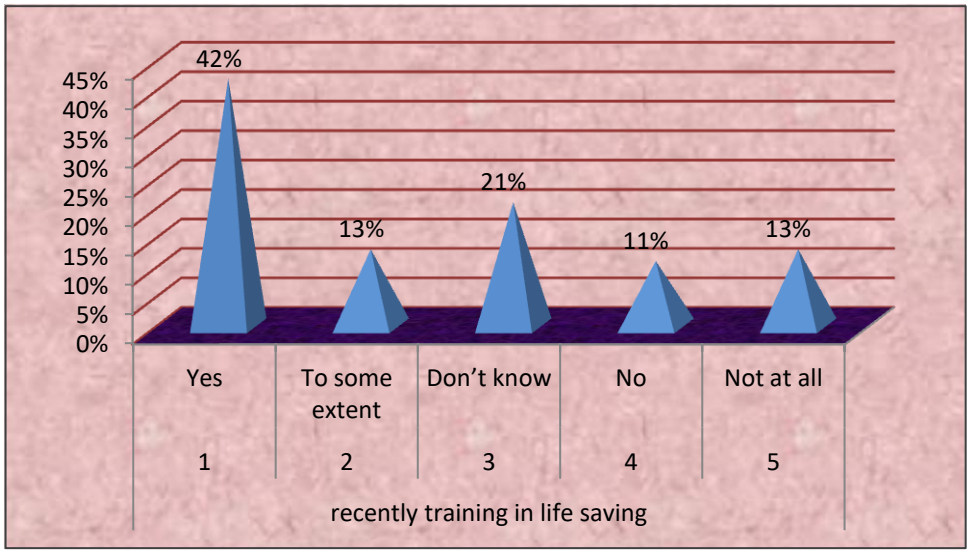
Q.18	Have you got any recently training in life saving within the last 3 years?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
42%	13%	21%	11%	13%

Explanation- In this question we try to found out the life saving training level of the peoples in the community. We had found out that mean is**3.093023** in mean score range, which shows that its status is average. The standard deviation is **1.279962**.

Figure No. 5.18 Recently Training In Life Savings



To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have taken training in First-Aid within the last 3years.
(2) 21% respondents tell that they that have taken training but before 3-5 years in First-Aid.
(3) 09% respondents tell that don't know about these training as they have new postings
(4) 36% respondents tell that they have not taken any training with in past years.
(5) 11% respondents tell that they have not taken any training and no idea about these trainings.

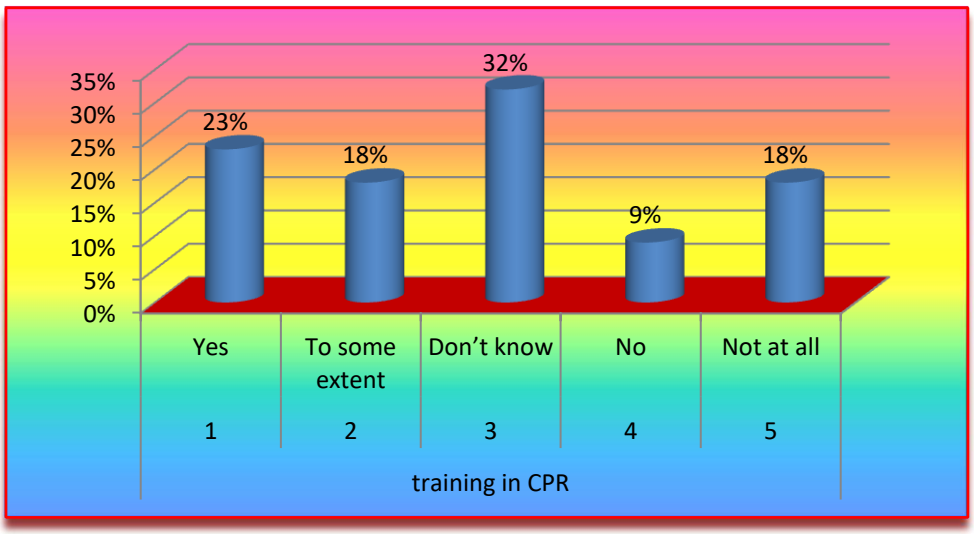
Q.19	Are you and responsible family members currently trained in CPR (Cardio Pulmonary Resuscitation)?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
23%	18%	32%	09%	18%

Explanation- In this question we try to found out the family members training status of the peoples in the community. We had found out that mean is **3.953488** in mean score range, which shows that its status is good. Similarly, we also find out the standard deviation **1.115737.**

Figure No. 5.19 Training in CPR



To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 23% respondents tell that they have taken training in life saving within the last 3years.
(2) 18% respondents tell that they that have taken training but before 3-5 years in First-Aid.
(3) 32% respondents tell that don't know about these trainings.
(4) 09% respondents tell that they have not taken any training with in past years.
(5) 18% respondents tell that they have not taken any training and no idea about these trainings.

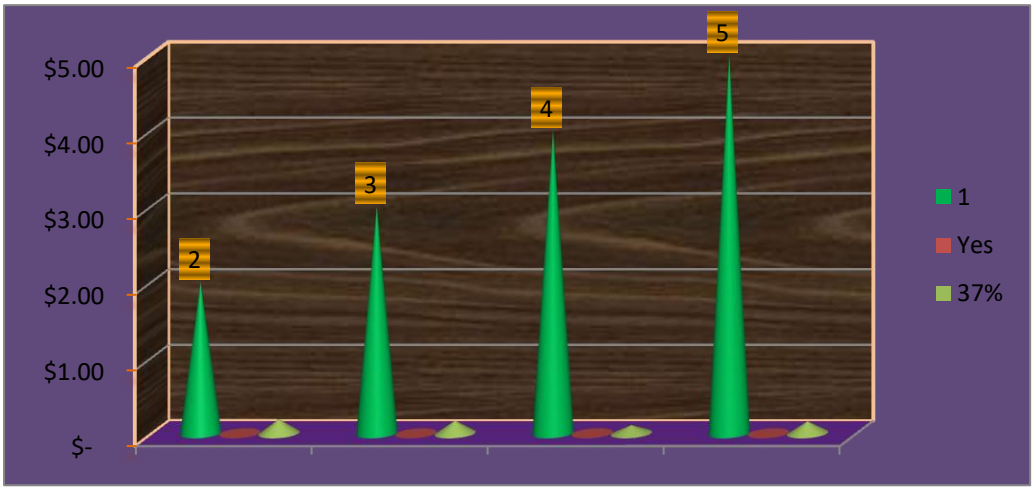
Q.20	Have you any list or idea the about actual cash value of every item in your home?

Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
37%	19%	17%	11%	16%

Explanation- In this question we also try to find out the response level of the peoples. We had found out that mean is**3.546512** in mean score range, which shows that its status is good. We also find out the standard deviation **1.325381**.

Figure No. 5.20 Actual Cash Value In Home



To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 37% respondents tell that yes they have any list of actual cash value of every items in your home
(2) 19% respondents tell that have idea the actual cash value of items in your home.
(3) 17% respondents tell that they don't have any list or idea of the actual cash value of every item in your home.
(4) 11% respondents tell that they have no Idea about the actual cash value of the goods at home.
(5) 16% respondents tell that they have not any list and even not think about this matter.

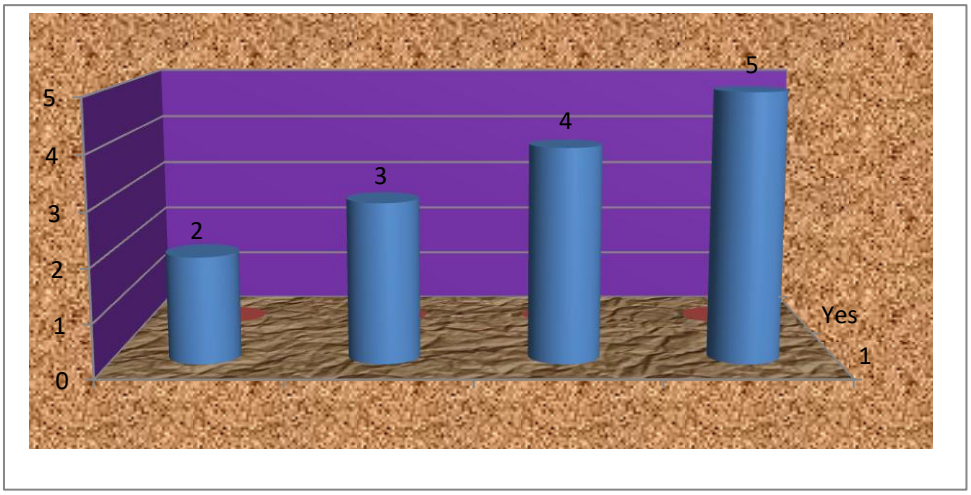
Q.21	Some family members have special needs, for example the elderly, mobility impaired or sick. Do you have any plan for making sure these members will be safe during a disaster?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
21%	17%	19%	24%	19%

Explanation- In this question we try to found out the response level of the peoples among the community. We had found out that mean is **3.162791** in mean score range, which shows that its status is good. The standard deviation is **0.905674.**

FIGURE NO. 5.21 PLAN FOR SPECIAL NEEDS FAMILY



MEMBERS

To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 21% respondents tell that yes they have plan for making sure these members will be safe during a disaster

(2) 17% respondents tell that have idea for making sure these members will be safe during a disaster.

(3) 19% respondents tell that they don't have any idea or any plan for making sure these members will be safe during a disaster.

(4) 24% respondents tell that they have no Idea and any plan for making sure these members will be safe during a disaster.

(5) 19% respondents tell that they have not any idea or plan for making sure about these members.

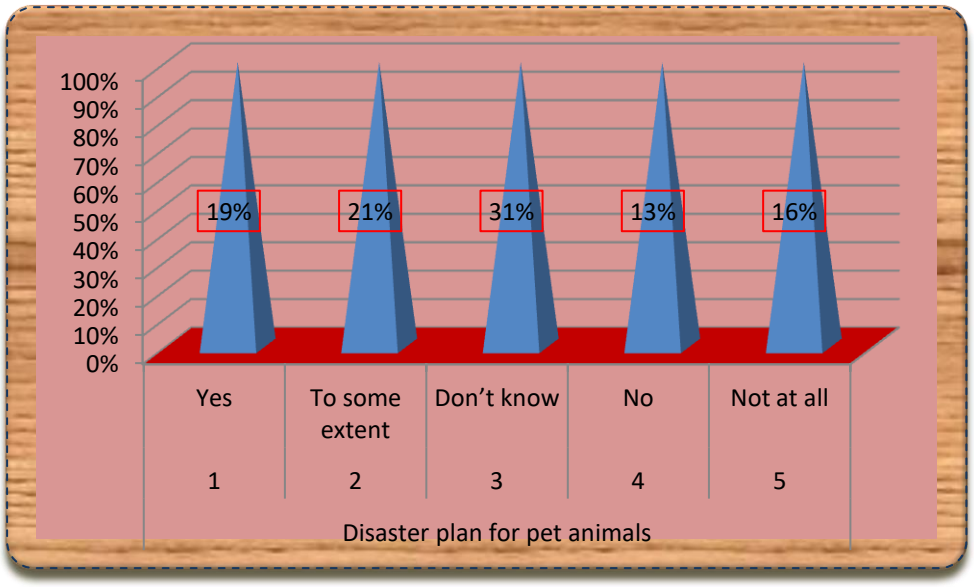
Q.22	Do you have a plan for any emergency for your pets and animals?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
19%	21%	31%	13%	16%

Explanation- In this question we try to found out the preparedness level of the peoples among the community. We had found out that mean is**2.965116** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.011088**.

Figure No. 5.22 Plan For Pet Animals



To know the training level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 19% respondents tell that yes they have plan for any emergency for pets and animals

(2) 21% respondents tell that have idea for any emergency for pets and animals

(3) 31% respondents tell that they don't have any idea or any plan for their pets.

(4) 13% respondents tell that they have no Idea and any plan for their pets.

(5) 16% respondents tell that they have not any idea or plan for their pets.

Q.23	Do you have a charged ABC fire extinguisher in your colony for any fire emergencies?

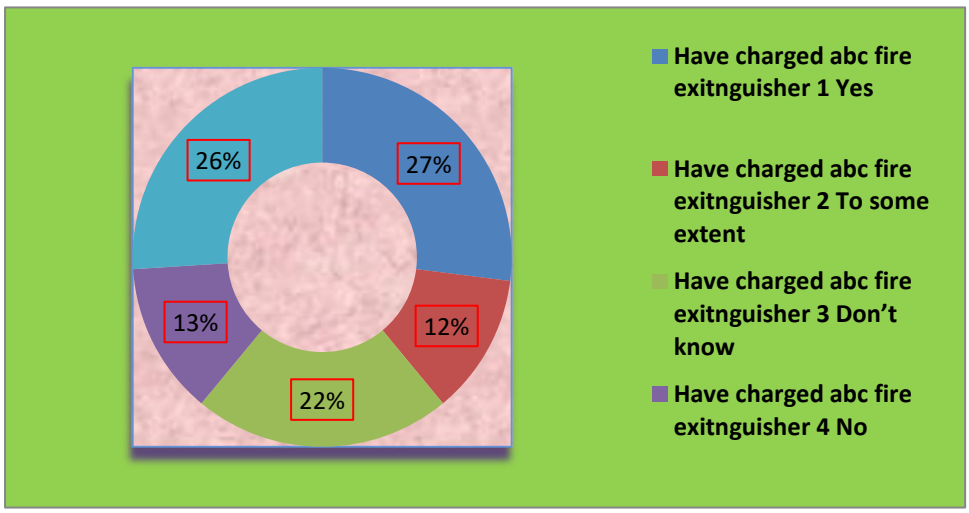
Ans .

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
27%	12%	22%	13%	26%

Explanation- In this question we try to found out the resources level of the people among the community to face an emergency. We had found out that mean is**2.162791** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.061192.**

Figure No. 5.23 Have a charged ABC fire Extinguisher

To



know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 27% respondents tell that yes they have a charged ABC fire extinguisher.
(2) 12% respondents tell that they will arrange at emergency.
(3) 22% respondents tell that they don't have any list or idea of the actual cash value of every item in your home.
(4) 13% respondents tell that they have no Idea about charged ABC fire extinguisher.
(5) 26% respondents tell that they have not and even they not think about this matter.
(6)

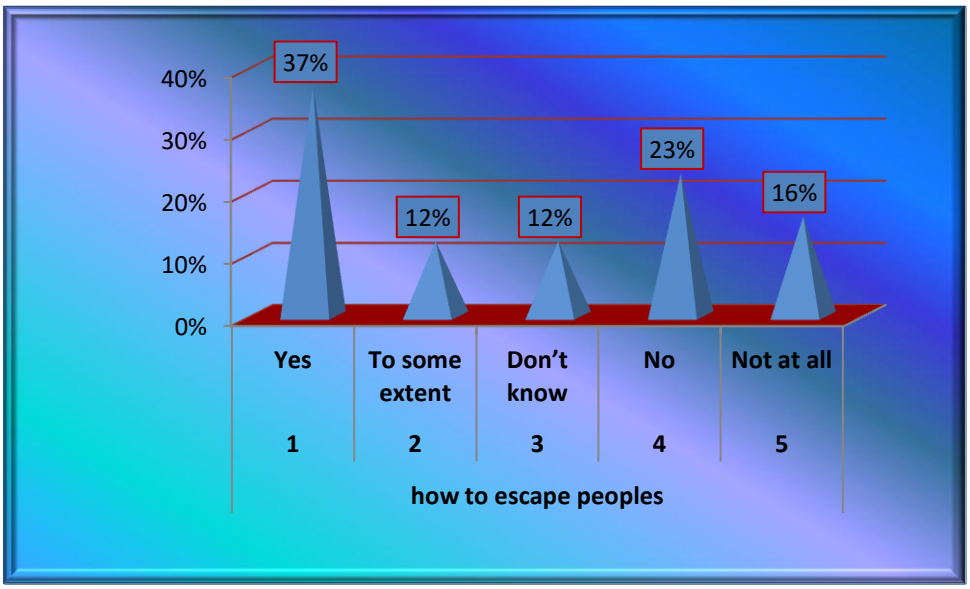
Q.24	Do you attained training how to escape peoples in a disaster? (within 3 years)

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
37%	12%	12%	23%	16%

Explanation- In this question we try to find out the awareness of the disaster management in the people among the community. We had found out that mean is**2.348837** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.0712**.

Figure No. 5.24 How To Escape Peoples



To know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 37% respondents tell that yes they have attained a training within 3 years how to escape peoples in a disaster.

(2) 12% respondents tell that they have attained training how to escape peoples in a disaster within 3-5 years.

(3) 12% respondents tell that they don't know about any training of this type.

(4) 23% respondents tell that they have not attained any training of this type.

(5) 16% respondents tell that they have not attained any mock test and even they don't know about this training, because they have newly joined the organization.

Q.25	Have you ever practiced an emergency mock drill within the past years?

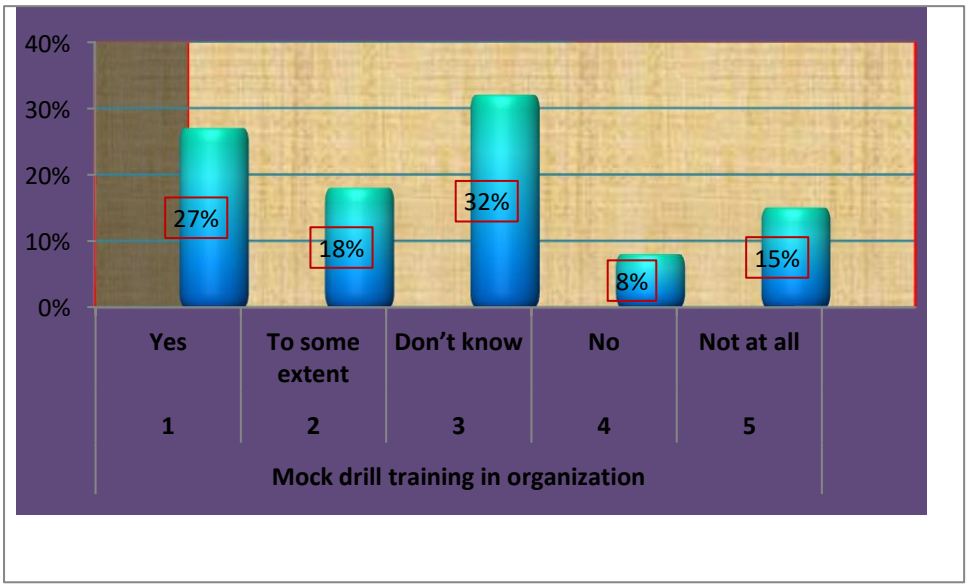
Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
27%	18%	32%	08%	15%

Explanation- In this question we also try to find out the practice level of the peoples among the community. We had found out that mean is**2.639535** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.115799**.

Figure-5.25 Mock Drill Training

To



know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 27% respondents tell that yes they have attained mock drill trainings within 3 years.

(2) 18% respondents tell that they have attained mock drill training how to escape peoples in a disaster within 3-5 years.

(3) 32% respondents tell that they don't know about any training of this type.

(4) 08% respondents tell that they have not attained any training of this type.

(5) 15% respondents tell that they have not attained any mock test and even they don't know about this training, because they have newly joined the organization.

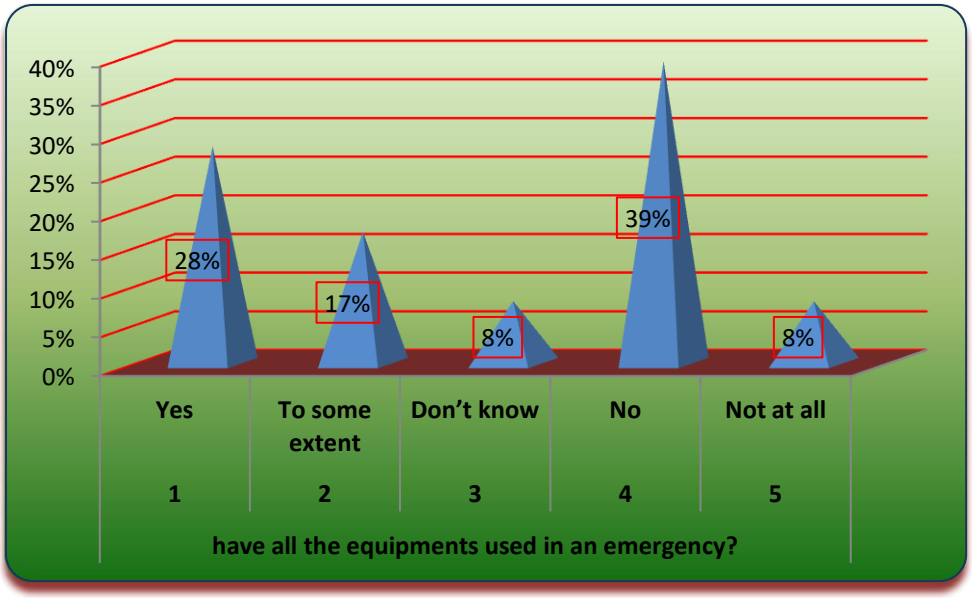
Q.26	Do you have the equipments to face an emergency?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
28 %	17%	08%	39%	08%

Explanation- In this question we try to find out the response level of the disaster management in the people among the community. We had found out that mean is**2.186047** in mean score range, which shows that its status is average. We also find out the standard deviation**1.269661**.

Figure No. 5.26 Has All The Equipments Used In An Emergency



To know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 28% respondents tell that yes they have 17% respondents tell that they have all the equipments used in an emergency.

(2) 17% respondents tell that they have many of equipments used in an emergency.

(3) 08% respondents tell that they don't know whether they have all the equipments.

(4) 39% respondents say that they have not all the equipments.

(5) While 08% respondents tell that there available equipments are also not in active position.

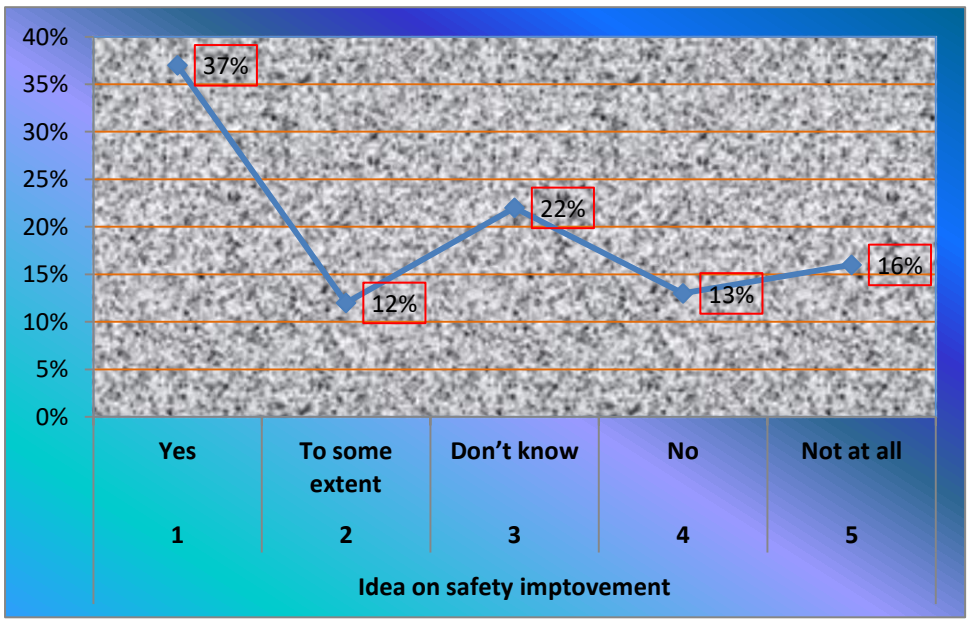
Q.27	Have you any idea on safety, which may be further developed and implemented for mitigation purpose?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
37%	12%	22%	13%	16%

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is**2.581395** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.111069**.

Figure No. 5.27 Idea On Safety Development



To know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 37% respondents tell that yes they have attained a training within 3 years how to escape peoples in a disaster.

(2) 12% respondents tell that they have attained training how to escape peoples in a disaster within 3-5 years.

(3) 22% respondents tell that they don't know about any training of this type.

(4) 13% respondents tell that they have not attained any training of this type.

(5) 16% respondents tell that they have not attained any mock test and even they don't know about this training, because they have newly joined the organization.

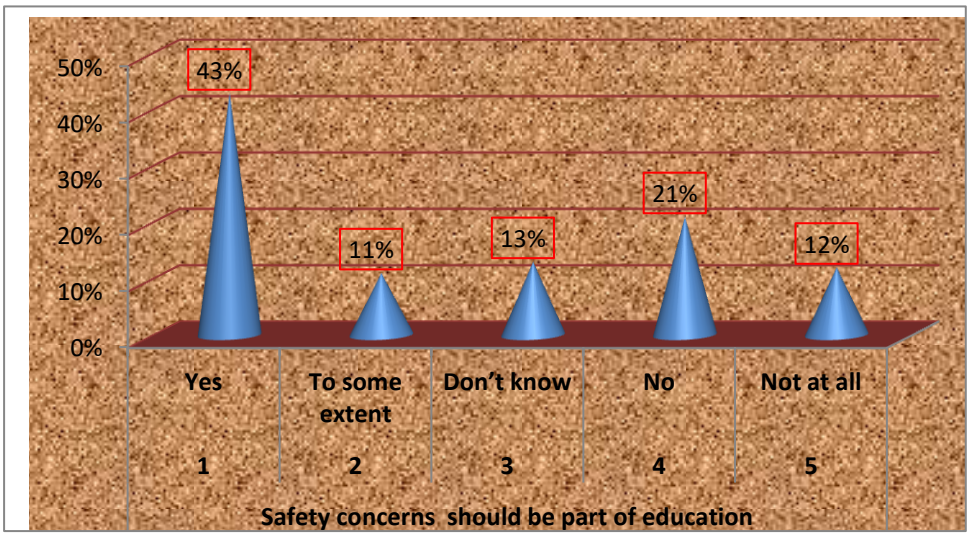
Q.28	Do you think that safety concerns are built into the extra/ co-curricular activities of our students in schools, colleges, professional institutes and universities?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
43%	11%	13%	21%	12%

Answer and explanation- In this question we try to find out the safety awareness level of the peoples among the community. We had found out that mean is**2.44186** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.394144**.

Figure-5.28 Safety Concern Should Be Part Of Education



To know the preparedness level, researcher ask the question in questionnaire to 87 respondents that his family is relatively sate disaster points of view and-

(1) 43% respondents tell that the safety concern should be part of education.

(2) 11% respondents tell that they safety concerns are important to mitigate the emergencies.

(3) 13% respondents tell that they don't know about this matter.

(4) 21% respondents tell that safety concerns are not enough to mitigate the disaster frequency

(5) 12% respondents tell that only safety concerns cannot mitigate an emergency.

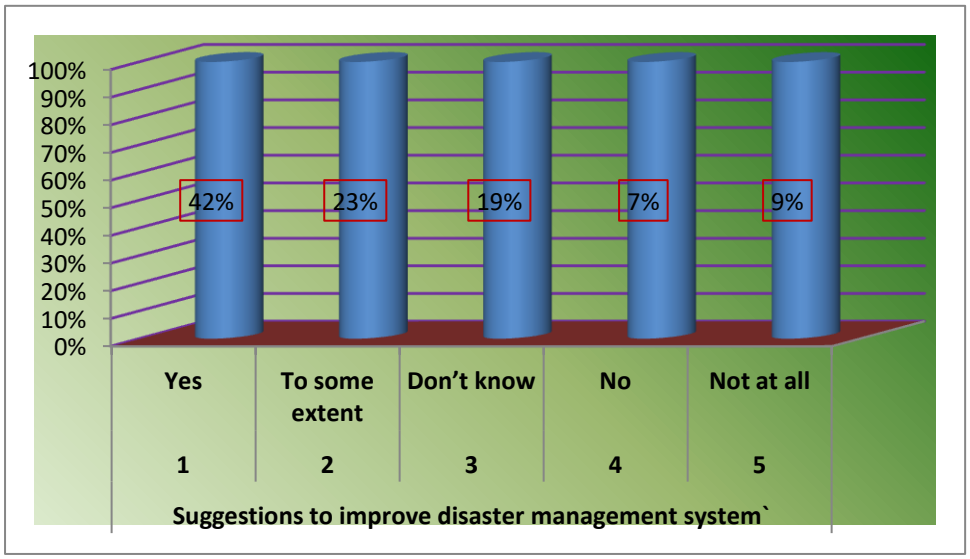
Q.29	What suggestions would you like to give to improve present disaster management system?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
42%	23%	19%	07%	09%

Explanation- In this question we also try to find out the response level of the disaster management in the people among the community. We had found out that mean is**2.94186** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.021586**.

Figure No. 5.29 Suggestions To Improve Disaster Management



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 28% respondents tell that yes they have 17% respondents tell that they have all the equipments used in an emergency.

(2) 17% respondents tell that they have many of equipments used in an emergency.

(3) 08% respondents tell that they don't know whether they have all the equipments.

(4) 39% respondents say that they have not all the equipments.

(5) While 08% respondents tell that there available equipments are also not in active position.

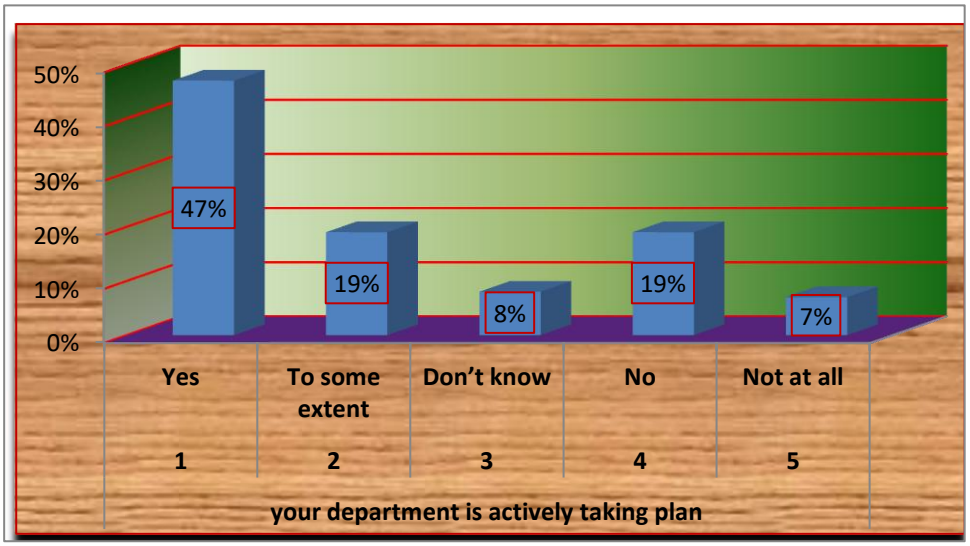
Q.1	Is your organization actively taking steps towards disaster management plan?

Ans.

1	2	3	4	5
Yes	To some extent	Don't know	No	Not at all
47%	19%	08%	19%	07%

Explanation- In this question we try to found out the policies status of the disaster management within the organization. We had find out that mean is in **2.505376** mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation which is**0.880016.**

Figure No. 5.30 Your Department Is Actively Taking Plans



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 47% respondents tell that yes they are actively taking steps towards disaster management plan
(2) 19% respondents tell that they have Government guidelines about the disaster management and timely they get massages from disaster authorities.
(3) 08% respondents say that don't know about actively taking steps towards disaster management plan.
(4) 19% respondents tell that they have not any specific disaster plan they work only government guidelines.
(5) 07% respondents tell that they have neither self disaster plan nor government guidelines are clear about this topic.

Q.2	Is there a comprehensive policy or plan or related legislation governing on disaster management in your department, and how regularly the disaster management policy is updated?

Ans.

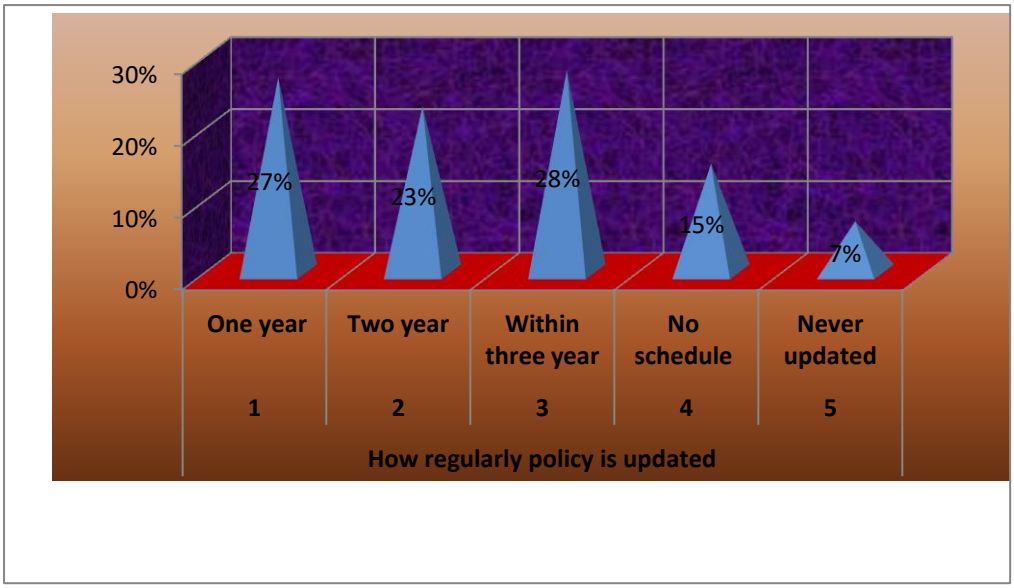
1	2	3	4	5
One year	Two year	Within three year	No schedule	Never updated
27%	23%	28%	15%	07%

Explanation- In this question we try to found out the planning level of the disaster management. We had find out that mean is**3.129032** in mean score range, which shows that its status is above average. We also find out the standard deviation which is**1.055275.**

(a) 58% respondents says yes that they have policy or panning while **42%** says that there is not specific planning for their own organization**.**

(**b)How regularly policy is updated**?

Figure No. 5.31 How Regularly Policy Is Updated



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 27% respondents tell that yes they are actively taking steps towards disaster management plan

(2) 23% respondents tell that they have Government guidelines about the disaster management and timely they get massages from disaster authorities.

(3) 28% respondents say that don't know about actively taking steps towards disaster management plan.

(4) 15% respondents tell that they have not any specific disaster plan they work only government guidelines.

(5) 07% respondents tell that they have neither self disaster plan nor government guidelines are clear about this topic.

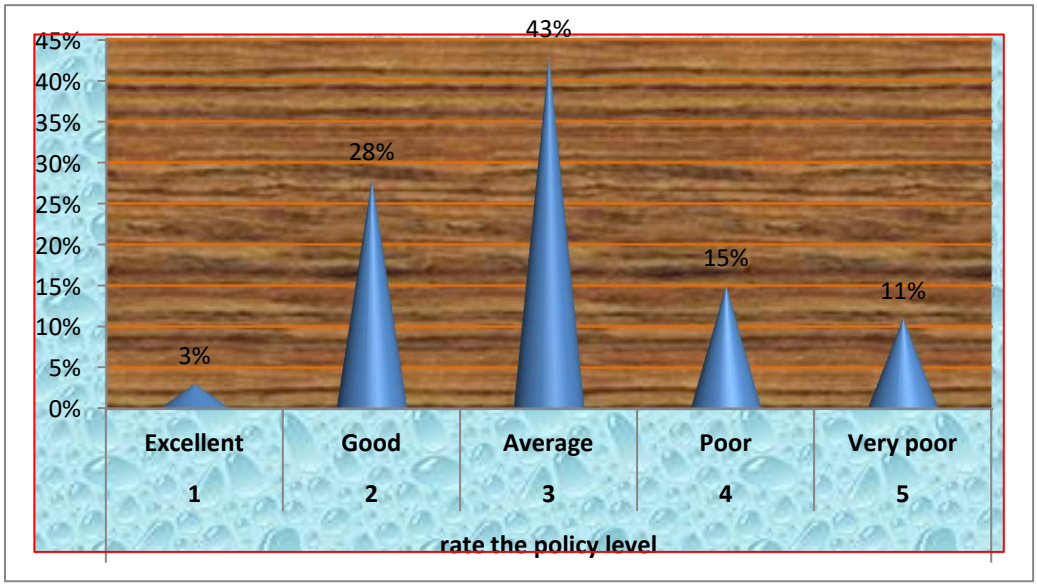
Q.3	How do you rate the level of policy implementation of disasters in your organization?

Ans.

1	2	3	4	5
Excellent	Good	Average	Poor	Very poor
03%	28%	43%	15%	11%

Explanation- In this question we try to found out the policy implementation level of the emergency management in the organization. We had found out that mean is**2.365591** in mean score range, which shows that its status is average. The standard deviation is **0.734032**.

Figure-5.32 Rate The Policy Level



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 03% respondents tell that level of policy implementation of disasters in the organization is excellent.

(2) 28% respondents tell that level of policy implementation of disasters in the organization is good.

(3) 43% respondents say that level of policy implementation of disasters in the organization is average.

(4) 15% respondents tell that level of policy implementation of disasters in the organization is poor, and needs to be improve,

(5) 11% respondents tell that level of policy implementation of disasters in the organization is very poor, and is in undeveloped phase

Q.4	(a)Is there any trained special team or persons for the disaster management in your organization? (b) Management is taking any pro- active actions towards disaster mitigation process?

Ans.

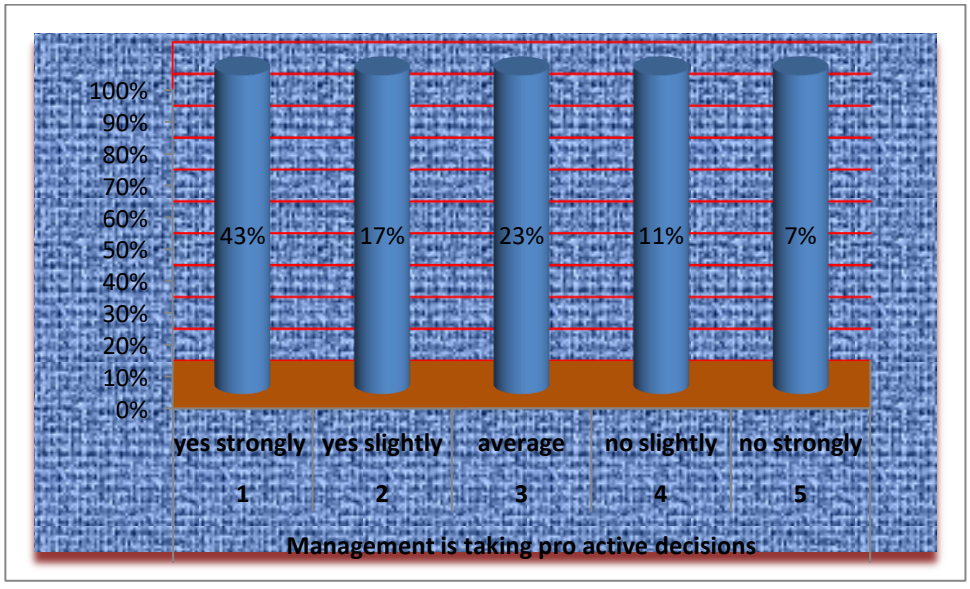
1	2	3	4	5
yes strongly	yes slightly	average	no slightly	no strongly
43%	17%	23%	11%	07%

Explanation- In this question we try to found out the awareness status of the people among the community. We had find out that mean is in**2.462366** mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **0.787941**.

(a) 57% respondents say yes that have special teams or persons, while 43% respondents say that they have not any special persons or teams.

(b) Management is taking any pro- active actions towards disaster mitigation process?

Figure No. 5.33 Management Is Taking Pro Active Decisions



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 03% respondents tell that level of policy implementation of disasters in the organization is excellent.
(2) 28% respondents tell that level of policy implementation of disasters in the organization is good.
(3) 43% respondents say that level of policy implementation of disasters in the organization is average.
(4) 15% respondents tell that level of policy implementation of disasters in the organization is poor, and needs to be improve,
(5) 11% respondents tell that level of policy implementation of disasters in the organization is very poor, and is in undeveloped phase.

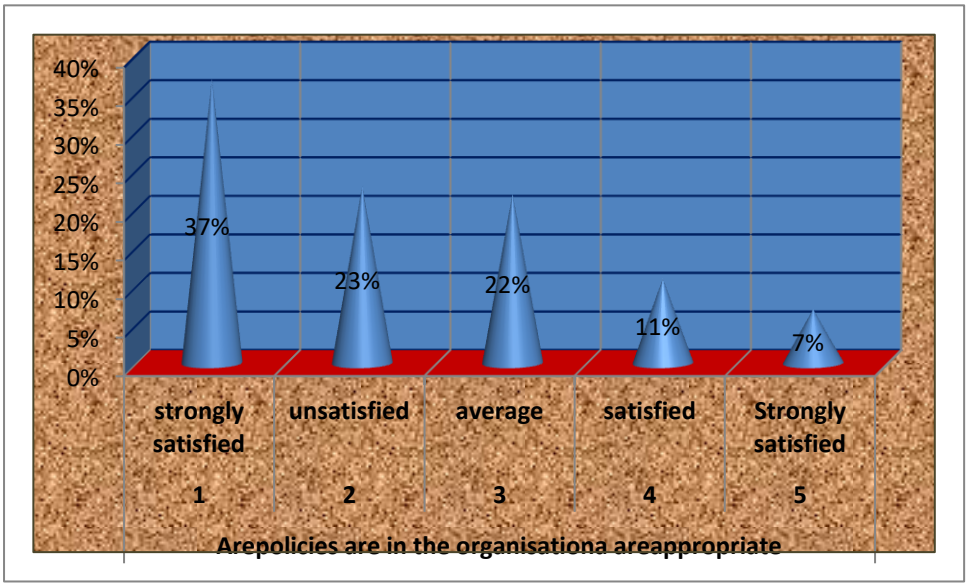
Q.5	Are the policies used in the organization working appropriately to ensure the disaster mitigation process?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satisfied
37%	23%	22%	11%	07%

Explanation- This question tries to found out the policy awareness level of the people. We had find out that mean is**3.129032** in mean score range, which shows that its status is average. The standard deviation is 0.823906.

Figure No. 5.34 Are Policies Are In The Organizational Are Appropriate



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 37% respondents tell that the policies used in the organization working appropriately.
(2) 23% respondents tell that the policies used in the organization are not working appropriately and needs to improve.
(3) 22% respondents tell that the policies are average but if system improves the policies that would be better.
(4) 11% respondents tell that then policies in the organizations are satisfied.
(5) 07% respondents tell that present policies are well and they are strongly satisfied.

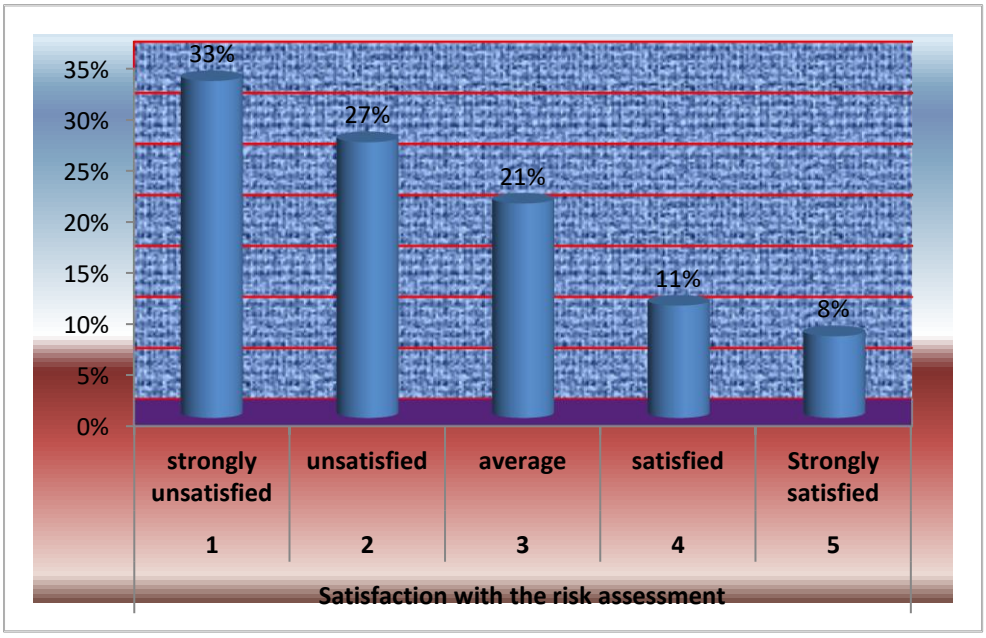
Q.6	Are you satisfied with the alignment and accountability with the process of risk assessment?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satisfied
33%	27%	21%	11%	08%

Explanation- This question tries to found out the satisfaction of the risk assessment of the disaster management with the people among the community. We had find out that mean is **3.311828**in mean score range, which shows that its status is average. The standard deviation is **0.9666**.

Figure No. 5.35 Satisfaction With The Risk Assessment



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 33% respondents tell that they are satisfied with the alignment and accountability of risk assessment.

(2) 27% respondents tell that they are unsatisfied with the process of risk assessment.

(3) 21% respondents tell that they are average with the alignment and accountability with the process of risk assessment.

(4) 11% respondents tell that they are strongly satisfied with the alignment and accountability with the process of risk assessment

(5) 08%respondents tell that they are strongly satisfied with the alignment and accountability with the process of risk assessment.

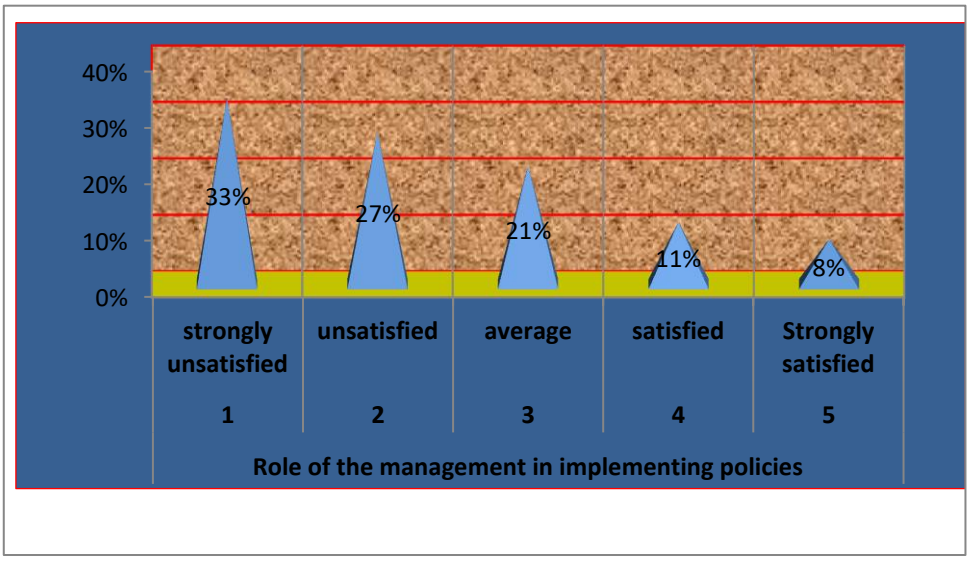
Q.7	What do you rate the role of management in implementing the policies in your organization?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satisfied
05%	07%	29%	21%	38%

Explanation- This question tries to found out the policy implementation status of the disaster management. We had find out that mean is**3.344086** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation which is**0.972386**.

Figure No. 5.36 Role of Management In Implementing Policies



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 05% respondents tell that they are strongly unsatisfied with the implementing policies in the organization.
(2) 07% respondents tell that they are unsatisfied with the implementing policies in the organization.
(3) 29% respondents tell average in implementing policies in the organization.
(4) 21% respondents tell that they are satisfied with the implementing policies in the organization.
(5) 38% respondents tell that they are satisfied in the implementing policies in the organization.

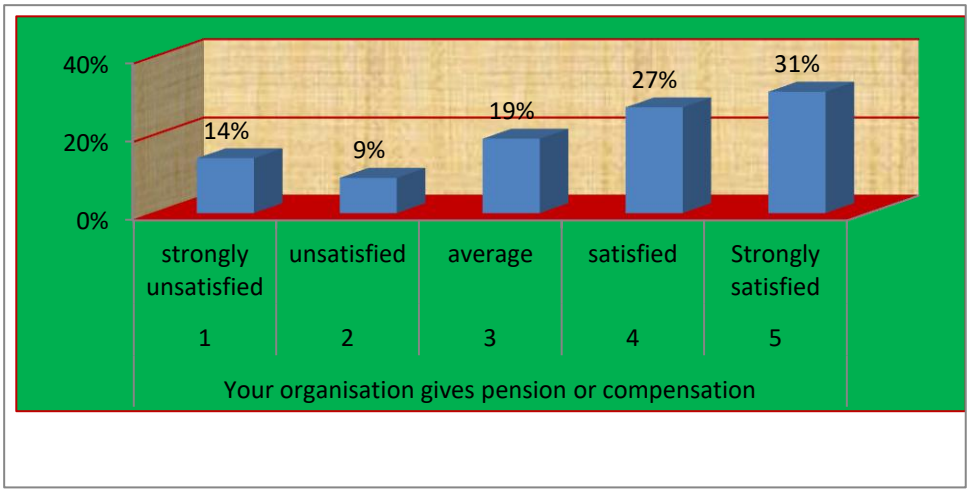
Q.8	Does your organization compensates or gives pension to the victims of the Disaster?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satisfied
14%	09%	19%	27%	31%

Explanation- In this question we also try to found out the post disaster management status. We had find out that mean is **3.655914** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation which is**0.814203**.

Figure No. 5.37 Your Organization Gives Pension Or Compensation



To know the suggestions, researcher ask the question in questionnaire to respondents that his family is relatively safe from disaster points of view -

(1) 14% respondents tell that they are strongly unsatisfied with the organization compensates or gives pension to the victims of the disaster.
(2) 09% respondents tell that they are unsatisfied with the organization compensates or gives pension to the victims of the disaster.
(3) 19% respondents tell average in your organization compensates or gives pension to the victims of the disaster.
(4) 27% respondents tell that they are satisfied with the organization compensates and gives pension to the victims of the disaster.
(5) 31% respondents tell that they are satisfied with the organization compensates and gives pension to the victims of the disaster.

Q.9	Have you ever perceived any barriers to working in alliance with the disaster management in organization?

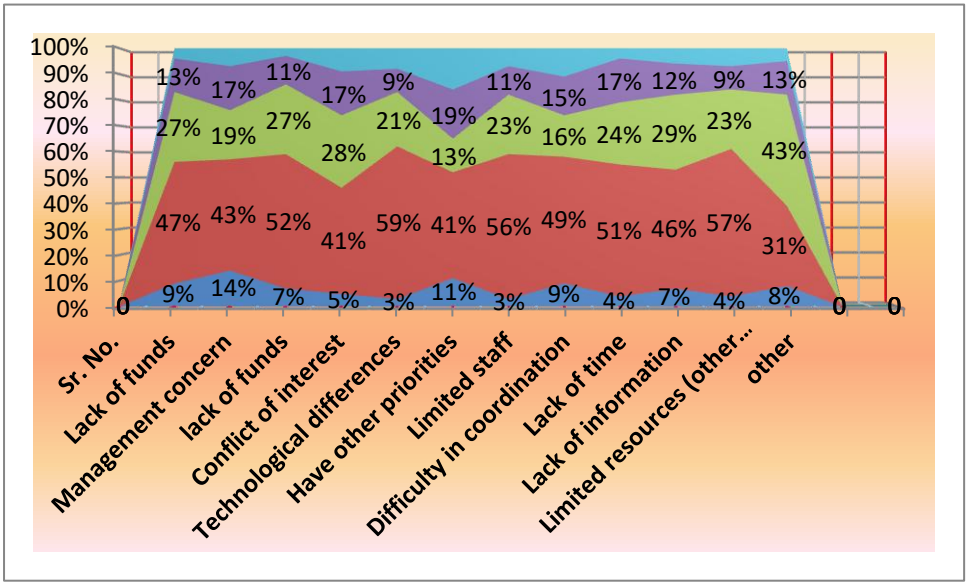
Ans.

Barriers	Does not apply (1)	A major barrier(2)	A moderate barrier(3)	A minor barrier(3)	Not considered a barrier(4)
Lack of funds	09%	47%	27%	13%	04%
Management concern	14%	43%	19%	17%	07%
lack of funds	07%	52%	27%	11%	03%
Conflict of interest	05%	41%	28%	17%	09%
Technological differences	03%	59%	21%	09%	08%
Have other priorities	11%	41%	13%	19%	16%
Limited staff	03%	56%	23%	11%	07%
Difficulty in coordination	09%	49%	16%	15%	11%
Lack of time	04%	51%	24%	17%	04%
Lack of information	07%	46%	29%	12%	06%
Limited resources (other than fund)	04%	57%	23%	09%	07%
other	08%	31%	43%	13%	05%

Explanation- In this question we also try to found out the barriers of the disaster management wit in the organization. We had find out that mean is**2.548387** in

mean score range, which shows that its status is average. Similarly, we also find out the standard deviation**0.81449**.

Figure-5. 39 Perceived The Barriers In The Organization



Q.10	Do you find co-ordination between all your sections inside and outside your department?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satis-fied
37%	23%	12%	17%	11%

Explanation- In this question we also try to found out the coordination level of the disaster management. We had find out that mean is **3.333333** in mean score range, which shows that its status is average. The standard deviation is **0.900885**.

To know the suggestions, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 37% respondents tell that they are strongly unsatisfied with the co-ordination between all sections inside and outside the department with the co-ordination between all sections inside and outside the department.

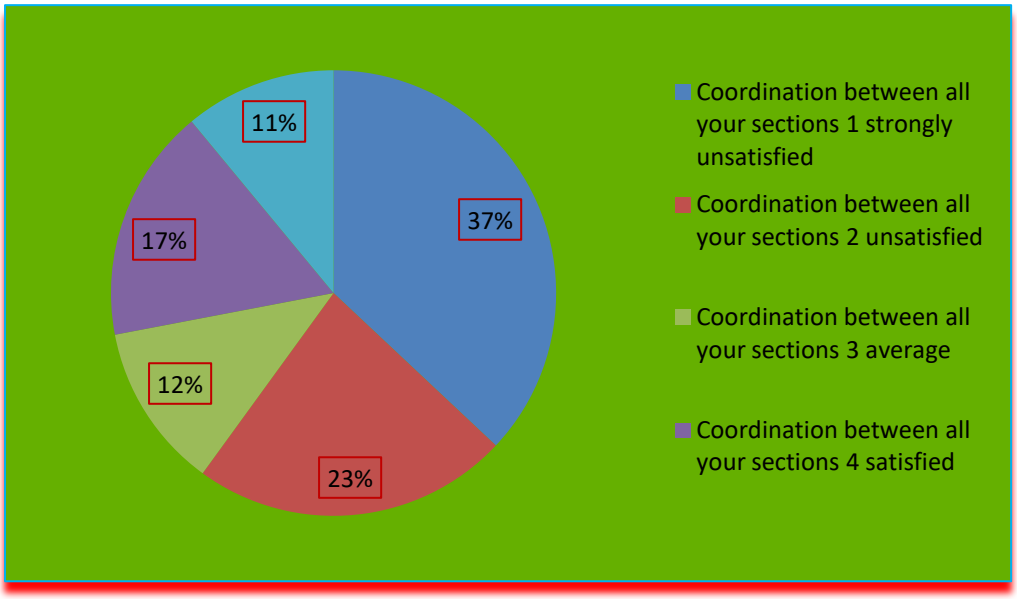
(2) 23% respondents tell that they are unsatisfied with the organization.

(3) 12% respondents tell average in the organization with the co-ordination between all sections inside and outside the department

(4) 17% respondents tell that they are satisfied with the coordination.

(5) 11% respondents tell that they are strongly satisfied with the coordination issue.

Figure No. 5.39 Coordination between all your sections



Q.11	Is your organization actively taking steps towards disaster preparedness plan?

Ans.

1	2	3	4	5
strongly unsatisfied	unsatisfied	average	satisfied	Strongly satisfied
04%	23%	12%	24%	37%

Explanation- In this question we also try to found out the preparedness plan status of the disaster management. We had found out that mean is **3.064516** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.14973**.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 04% respondents tell that they are strongly unsatisfied with the actively taking steps towards disaster preparedness plan.

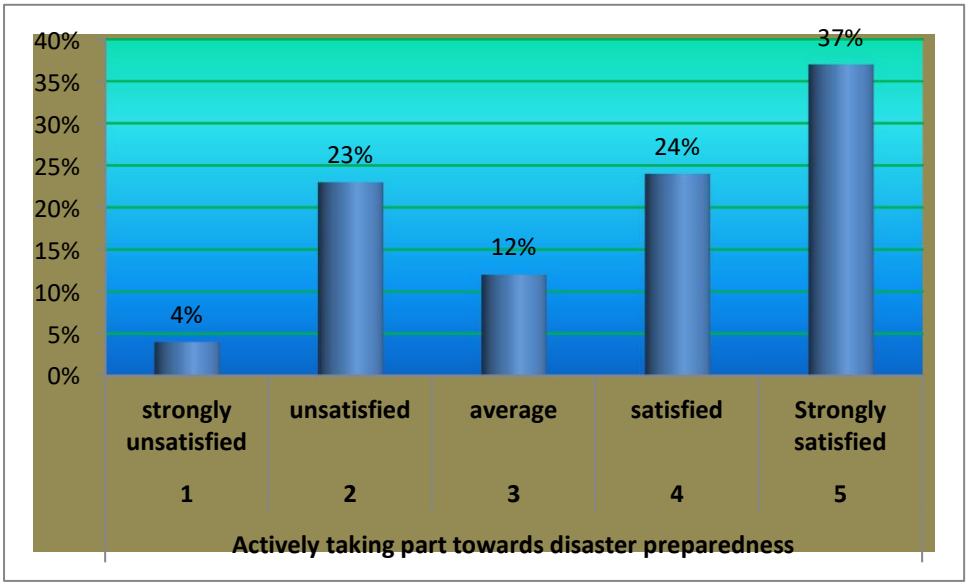
(2) 23% respondents tell that they are unsatisfied with the recent planning activities.

(3) 12% respondents tell average in the organization with actively taking steps towards disaster preparedness plan

(4) 24% respondents tell that they are satisfied with the actively taking steps towards disaster preparedness plan?

(5) 37% respondents tell that they are strongly satisfied with the taking plans.

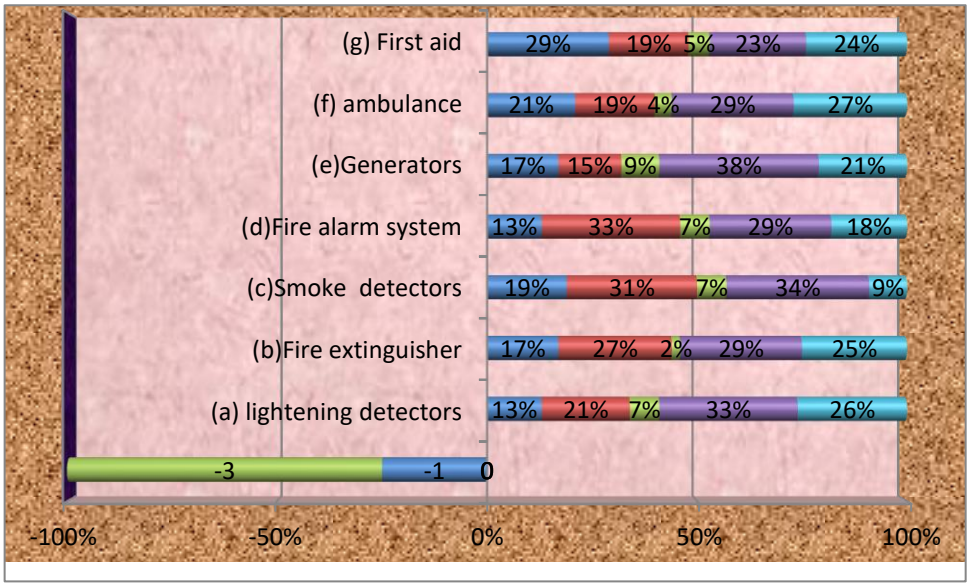
Figure No. 5.40 Actively Taking Parts Towards Disaster Preparedness



Q.12	What specific equipments are available/not available for preparedness measures in your organization?

Explanation- In this question we also try to found out the equipments availability in the organization. We had found out that mean is**2.344086** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.10993**.

Figure no. 5.41 Availability of Equipments



Q.13	Is there any team for vulnerability and hazard risk assessment to affected area?

Ans.

1	2	3	4	5
Yes strongly	Yes slightly	Average	No slightly	No Strongly
44%	13%	08%	16%	19%

Explanation- This question tries to found out the vulnerability assessment level of the disaster management. We had find out that mean is**2.505376** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation**1.109481.**

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 44% respondents tell that they are strongly satisfied with availability of team for risk assessment.

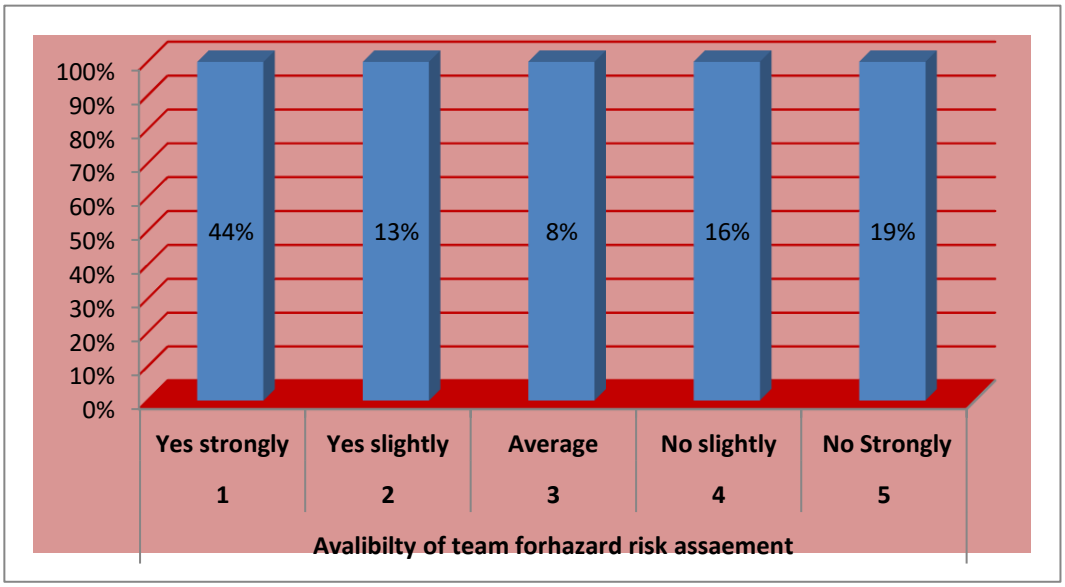
(2) 13% respondents tell that they are slightly satisfied with the availability of team for risk assessment.

(3) 08% respondents tell average with availability of team for risk assessment.

(4) 16% respondents tell that they are not satisfied with the availability of team for risk assessment.

(5) 19%respondents tell that they are strongly not satisfied with the availability of team for risk assessment.

Figure-5.42 Vulnerability And Hazard Risk Assessment



Q.14	Are there any efforts done for early disaster re-covery?	Mean	S.D.
		2.311828	1.215645

Ans.

1	2	3	4	5
Yes strongly	Yes slightly	Average	No slightly	No Strongly
47%	17%	19%	08%	09%

Explanation- In this question we also try to found out the disaster rehabilitation status of the disaster management. We had found out that mean is **2.311828** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.215645**.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 47% respondents tell that they are strongly satisfied with availability of team for early recovery.

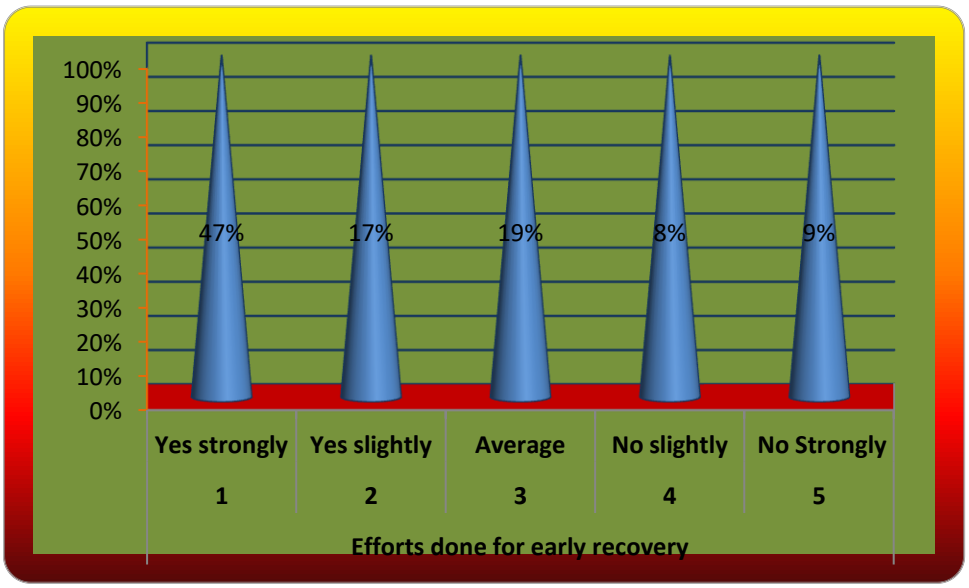
(2) 17% respondents tell that they are slightly satisfied with the availability of team for early recovery.

(3) 19% respondents tell average with availability of team for early recovery.

(4) 08% respondents tell that they are not satisfied with the availability of team for early recovery.

(5) 09% respondents tell that they are strongly not satisfied with the availability of team for early recovery.

Figure No. 5.43 Efforts Done For Early Recovery



Q.15	Is there any precautionary work done by your organization to mitigate emergency conditions?

Ans.

1	2	3	4	5
Yes strongly	Yes slightly	Average	No slightly	No Strongly
49%	06%	19%	18%	08%

Explanation- In this question we also try to found out the awareness of the disaster management with the people among the community. We had find out that mean is**2.731183** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.033565**.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 49% respondents tell that they are strongly satisfied with the work done by organization to mitigate emergency conditions.

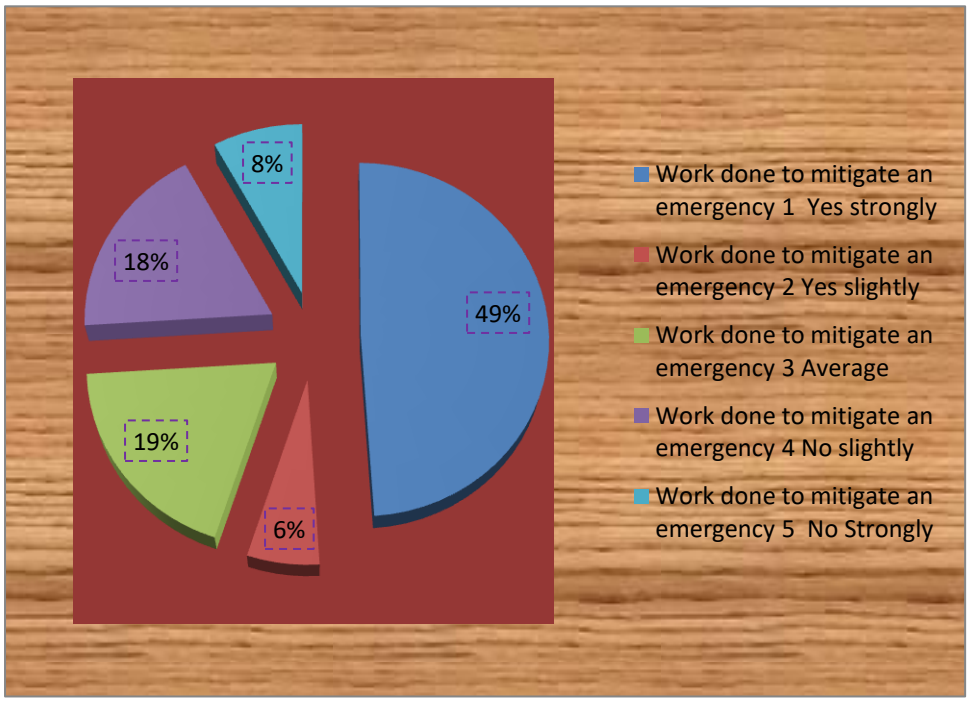
(2) 06% respondents tell that they are slightly satisfied with the work done by organization to mitigate emergency conditions.

(3) 19% respondents tell average with availability of team work done by organization to mitigate emergency conditions.

(4) 18% respondents tell that they are not satisfied with the availability of work done by organization to mitigate emergency conditions.

(5) 08% respondents tell that they are strongly not satisfied with the work done by organization to mitigate emergency conditions.

Figure No-5.44 Work Done To Mitigate An Emergency



Q.16	Find the identified areas very prone to which of the government should more focus in your organization?

Ans.

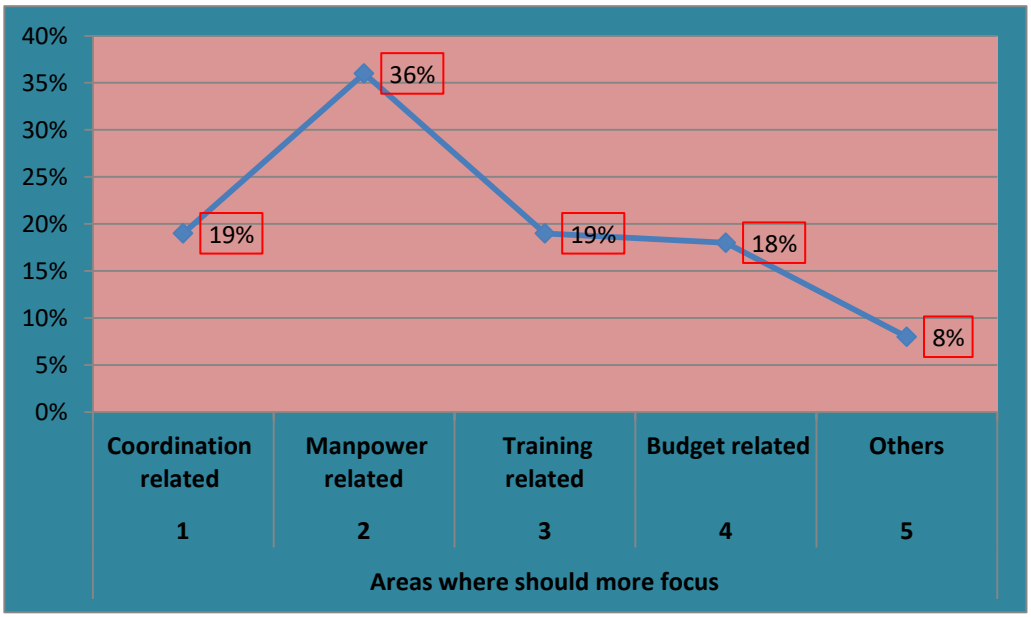
1	2	3	4	5
Coordination related	Manpower related	Training related	Budget related	Others
19%	36%	19%	18%	08%

Explanation- In this question we also try to found out the awareness of the disaster management. We had found out that mean is**2.139785** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **1.128595**.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 19% respondents tell that government should more focus on coordination.
(2) 36% respondents tell that government should more focus on manpower.
(3) 19% respondents tell government should more focus on training.
(4) 18% respondents tell that government should more focus on budget
(5) 08% respondents tell that government should more focus on other factors such as new equipments, modern technology, planning etc.

Figure No. 5.45 Areas Where Should More Focus



Q.17	Do you have any emergency toll free number?

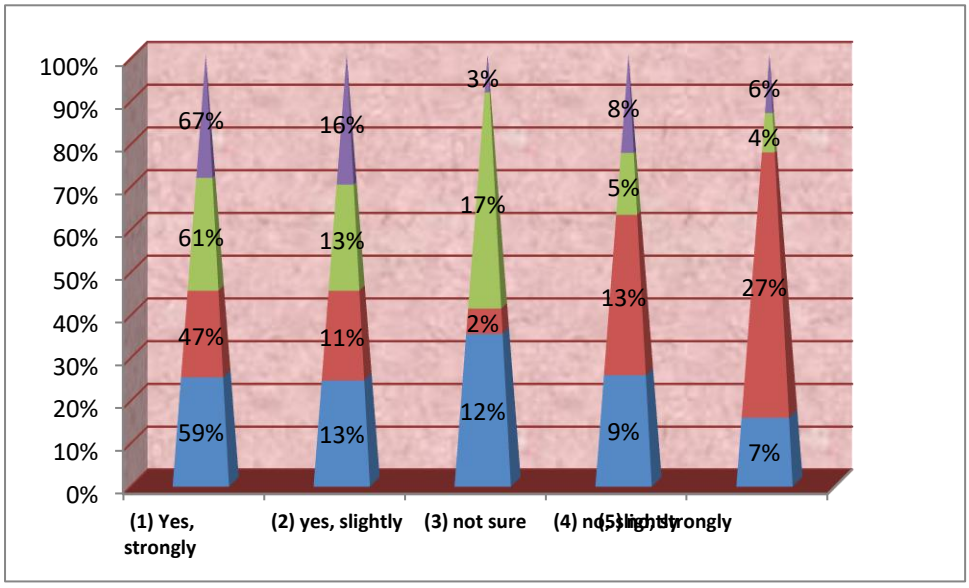
Ans.

Sr. No.	Questions	(1) Yes, strongly	(2) yes, slightly	(3) not sure	(4) no, slightly	(5) no, strongly
1	(a) Is community aware about this number?	59%	13%	12%	09%	07%
2	(b) Have you ever dial this toll free number?	47%	11%	02%	13%	27%
3	(c) Is it works properly?	61%	13%	17%	05%	04%
4	(d) Is it found effec-tive?	67%	16%	03%	08%	06%
5	other	Usually contact number not remains in active condition.				

Explanation- In this question we also try to found out the toll free number awareness of the disaster management. We had found out that mean is**2.655914** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **0.938253**.

53% respondents tell that they have toll free number while **47%** says they have not toll free numbers

Figure No. 5.47 Emergency Toll Free Number And Its Status



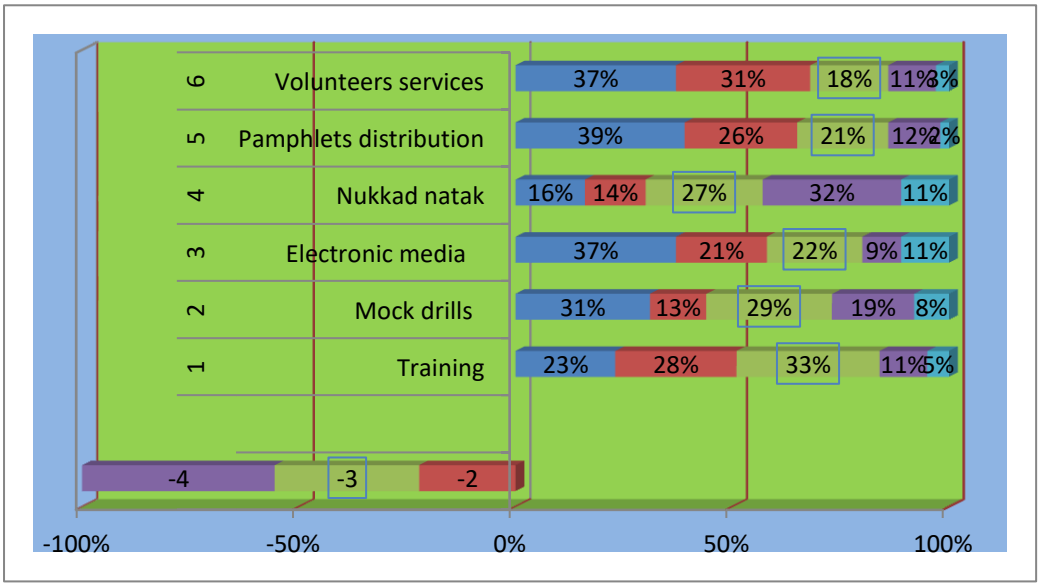
Q.18	What efforts or programs are oriented by your organization for disaster awareness for community?	Mean	S.D.
		2.83871	1.066183

Ans.

Sr. No.	Programs	Within one year (1)	Within two year (2)	Within three years (3)	Within five years (4)	Not held yet (5)
1	Training	23%	28%	33%	11%	05%
2	Mock drills	31%	13%	29%	19%	08%
3	Electronic media	37%	21%	22%	09%	11%
4	Nukkad natak	16%	14%	27%	32%	11%
5	Pamphlets distribution	39%	26%	21%	12%	2%
6	Volunteers services	37%	31%	18%	11%	03%

Explanation- In this question we also try to found out the disaster awareness program status of the organization. We had found out that mean is **2.83871** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.066183**.

Figure No 5.47 Disaster Awareness Program Status



Q.19	What is the disaster management schedule training plan frequency for community by your organization?

Ans.

1	2	3	4	5
Within 01 Year	Within 02 year	Within 03 year	Within 5years	Not fixed
29%	16%	27%	21%	07%

Explanation- In this question we also try to found out the training level of the disaster management. We had found out that mean is **3.236559** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **0.799427**.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 29% respondents tell that the training schedule is within one year.

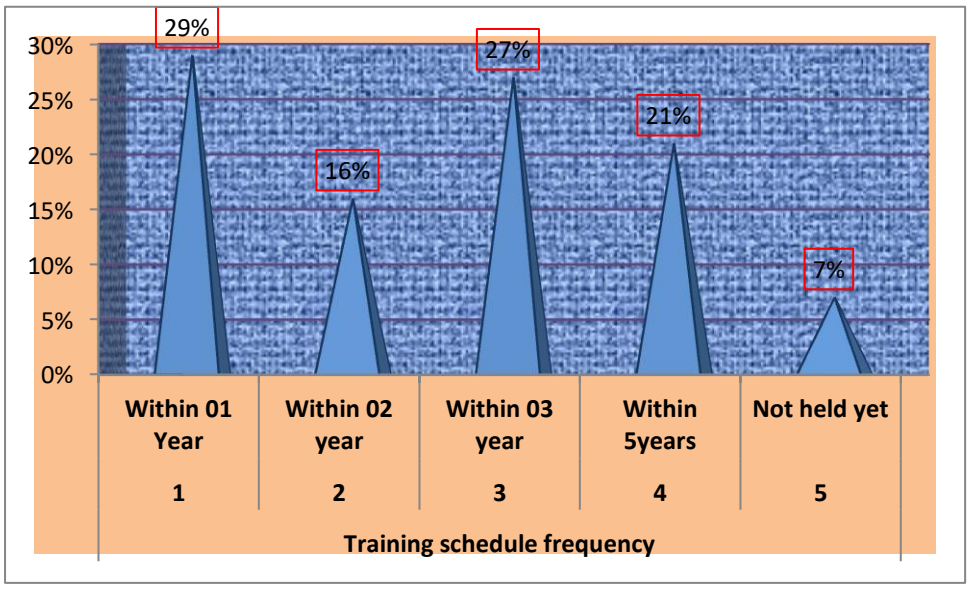
(2) 16% respondents tell that the training schedule is within two year.

(3) 27% respondents tell that the training schedule is within three year.

(4) 21% respondents tell that 0 the training schedule is within five year.

(5) 7% respondents tell that the training schedule is not fixed.

Figure No. 5.48 Training Schedule Frequency For Community



Q.20	Is there any training given by your organization for employees, then what was the frequency?

Ans.

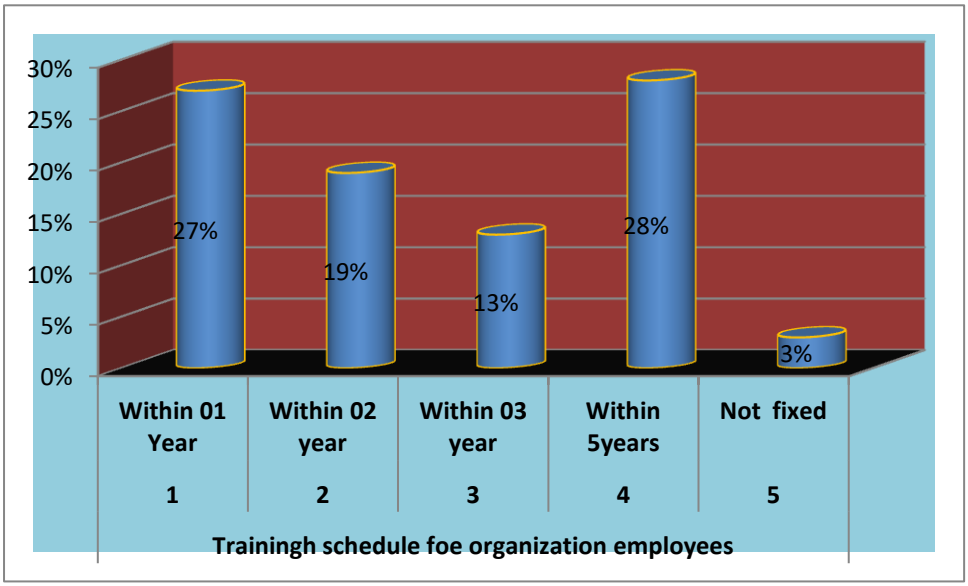
1	2	3	4	5
Within 01 Year	Within 02 year	Within 03 year	Within 5years	Not fixed
27%	19%	13%	28%	03%

Explanation- In this question we also try to found out the effective training status of the disaster management. We had found out that mean is**2.698925** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.029826**.

To know the training level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 27% respondents tell that the training schedule is within one year.
(2) 19% respondents tell that the training schedule is within two year.
(3) 13% respondents tell that the training schedule is within three year.
(4) 28% respondents tell that 0 the training schedule is within five year.
(5) 03% respondents tell that the training schedule is not fixed.

Figure No. 5.49 Training Schedule For Organization Employees



Q.21	The training program held for by your organization was it effective?

Ans.

1	2	3	4	5
Yes strong-ly	Yes but Needs to improvement	Average	No slightly	No Strongly
39%	16%	24%	13%	08%

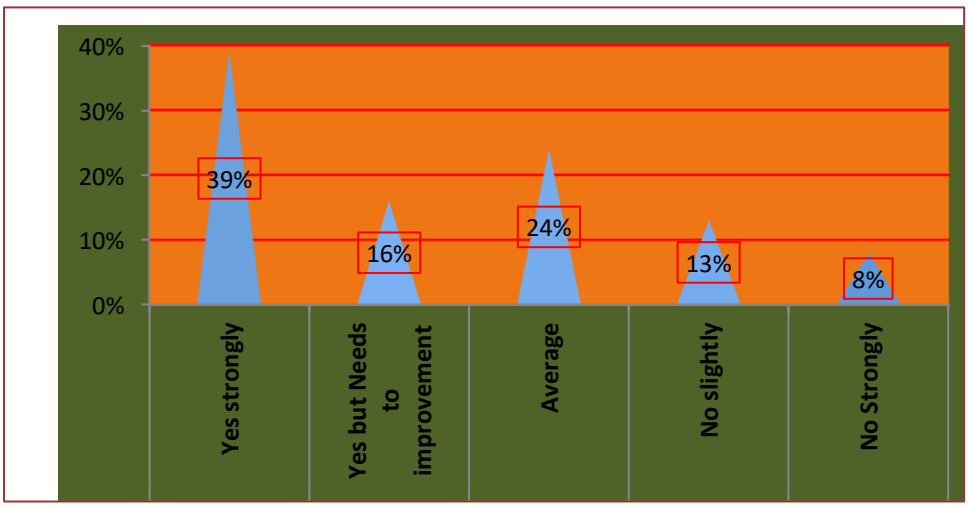
Answer and explanation- In this question we also try to found out the training level of the disaster management. We had found out that mean is **2.741935**in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **0.988007**.

(a) 53% respondents say Yes, 38%respondents says No, 09%respondents don't fill the questionnaire.

To know the preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 39% respondents tell that they are strongly satisfied with the effectiveness of trainings.
(2) 16% respondents tell that they are slightly satisfied with the effectiveness of trainings.
(3) 24% respondents tell average with effectiveness of trainings effectiveness of trainings.
(4) 13% respondents tell that they are not satisfied with effectiveness of trainings.
(5) 08% respondents tell that they are strongly not satisfied with the effectiveness of trainings.

Figure No. 5.50 Effectiveness of Trainings



Q.22	Did you find the challenges regarding disaster preparedness in your organization?

Ans.

1	2	3	4	5
Yes strongly	Yes slightly	Average	No slightly	No Strongly
53%	13%	29%	02%	03%

Explanation- In this question we also try to found out the resources status of the disaster management. We had found out that mean is **2.397849** in mean score range, which shows that its status is below average. Similarly, we also find out the standard deviation **0.957122**.

To know the disaster preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 53% respondents tell that they are strongly satisfied with the challenges in disaster preparedness.

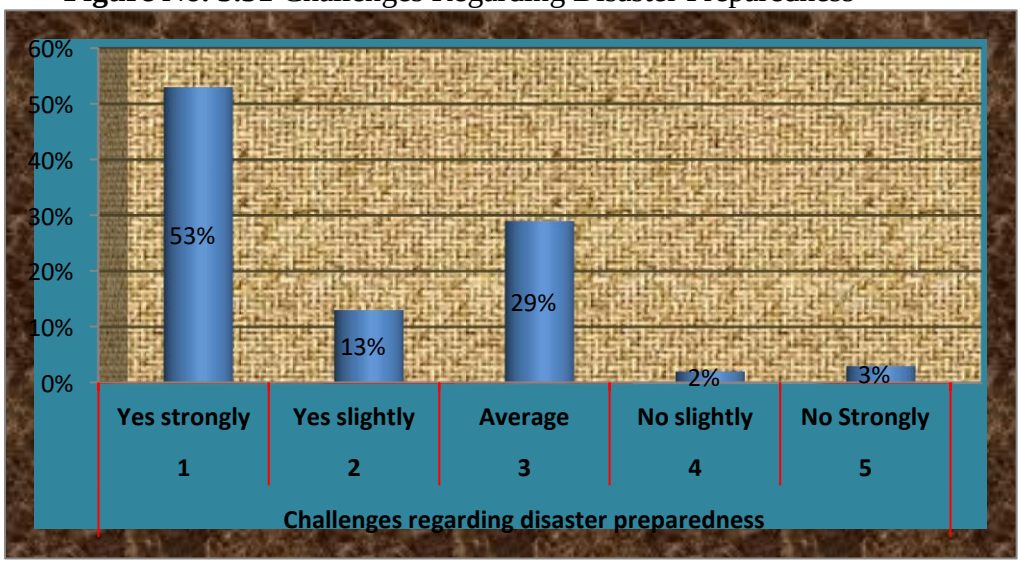
(2) 13% respondents tell that they are slightly satisfied with the challenges in preparedness.

(3) 29% respondents tell average with the challenges in disaster preparedness.

(4) 02% respondents tell that they are not satisfied with the challenges in disaster preparedness.

(5) 03% respondents tell that they are strongly not satisfied with the challenges in preparedness.

Figure No. 5.51 Challenges Regarding Disaster Preparedness



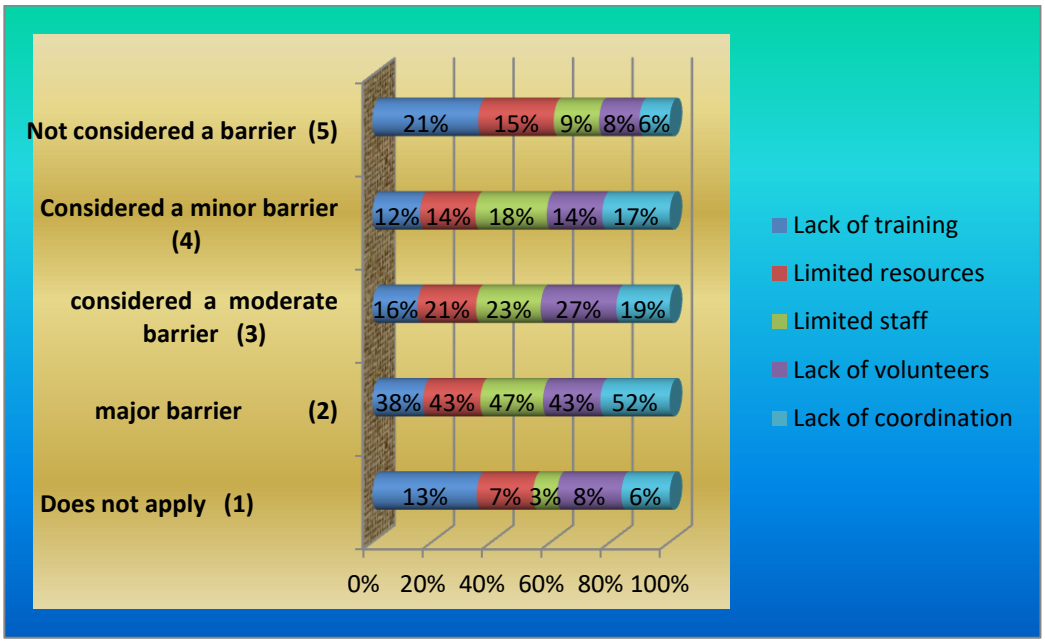
Q.23	Have you perceived following problems in disaster managements?

Ans.

Sr. No.	Does not apply (1)	major barrier (2)	considered a moderate barrier (3)	Considered a minor barrier (4)	Not considered a barrier (5)
Lack of training	13%	38%	16%	12%	21%
Limited resources	07%	43%	21%	14%	15%
Limited staff	03%	47%	23%	18%	09%
Lack of volunteers	08%	43%	27%	14%	08%
Lack of coordination	06%	52%	19%	17%	06%
Lack of budget	06%	57%	24%	16%	03%

Explanation- In this question we also try to found out the problems in disaster management. We had found out that mean is **2.569892** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation is **0.713196**.

Figure No. 5.52 Problems In Disaster Management



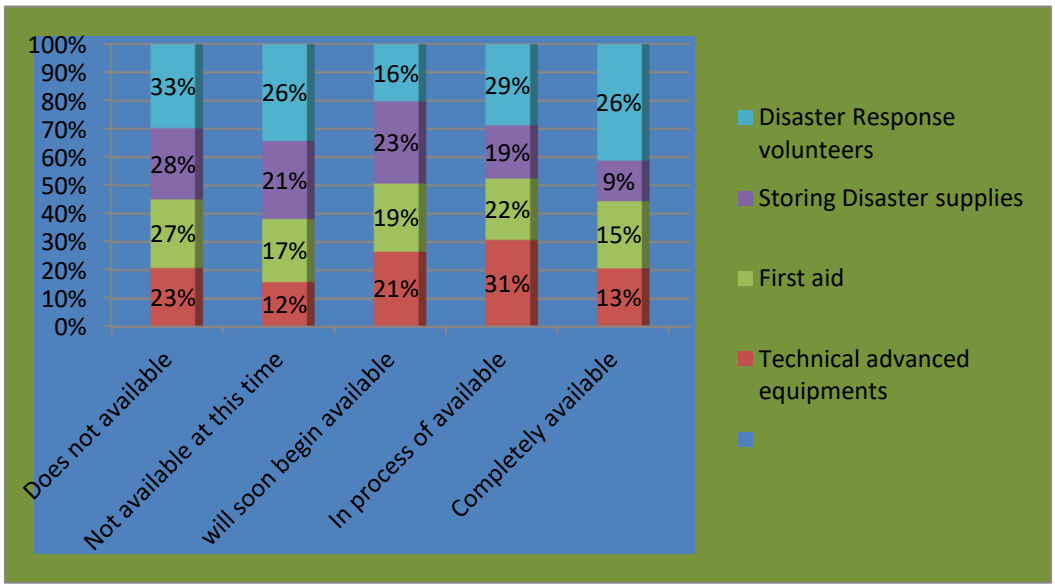
Q.24	Please rate on five points your congregation's level in relation to the following items

Ans.

Facilities	Does not available	Not available at this time	will soon begin available	In process of available	Completely available
Technical advanced equipments	23%	12%	21%	31%	13%
First aid	27%	17%	19%	22%	15%
Storing Disaster supplies	28%	21%	23%	19%	09%
Disaster Response volunteers	33%	26%	16%	29%	26%

Explanation- In this question we also try to found out the awareness of the disaster management. We had found out that mean is**3.731183** in mean score range, which shows that its status is good. Similarly, we also find out the standard deviation **1.044028**.

Figure No. 5.53 Find The Congregation's Level



Q.25	Did you think that technology contributed towards better management in emergency at your organization?

Ans.

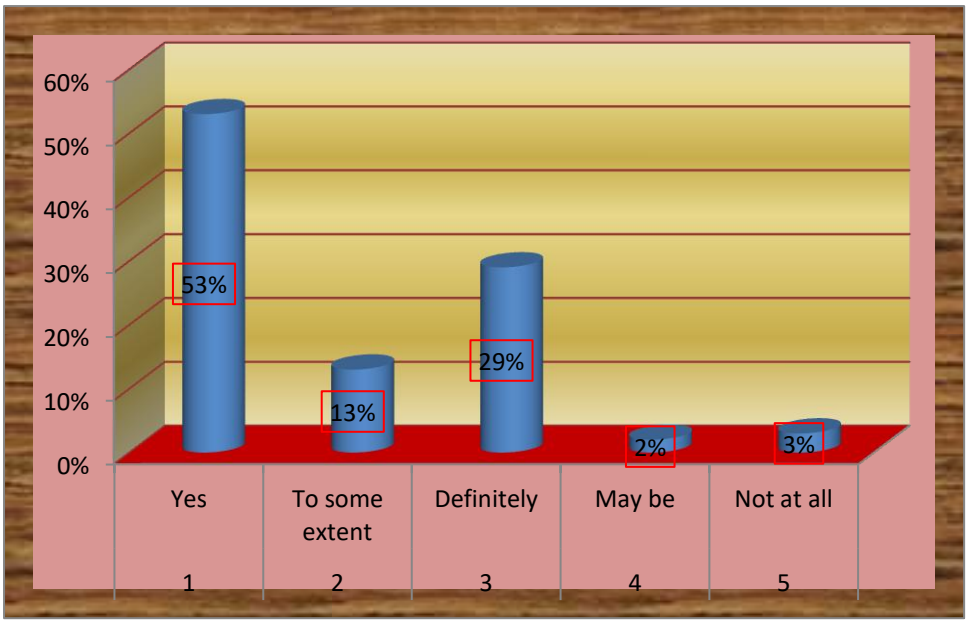
1	2	3	4	5
Yes	To some extent	Definitely	May be	Not at all
53%	13%	29%	02%	03%

Explanation- In this question we also try to found out the modernization in disaster management. We had found out that mean is**2.784946** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **0.8828**.

To know the disaster preparedness level, researcher ask the question in questionnaire to respondents from disaster points of view -

(1) 53% respondents tell that they are strongly satisfied with the technology contributions.
(2) 13% respondents tell that they are slightly satisfied with the technology contributions
(3) 29% respondents tell average with the challenges in technology contributions
(4) 02% respondents tell that they are not satisfied with the technology contributions
(5) 03% respondents tell that they are strongly not satisfied with the technology contributions in preparedness.

Figure No. 5.54 Technology Contribution Better Management



Q.26	Is there any information management system for early disaster response management? If yes, then what is the mode of earlier information?

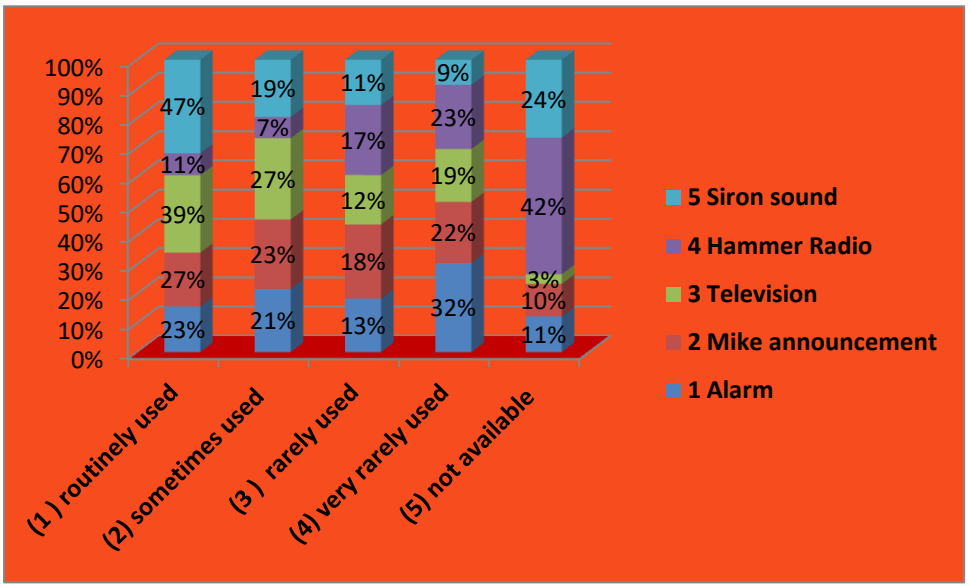
Ans.

Sr. no.	Type of Information system	(1) routinely used	(2) sometimes used	(3) rarely used	(4) very rarely used	(5) not available
1	Alarm	23%	21%	13%	32%	11%
2	Mike announcement	27%	23%	18%	22%	10%
3	Television	39%	27%	12%	19%	03%
4	Hammer Radio	11%	07%	17%	23%	42%
5	Siron sound	47%	19%	11%	09%	24%

Explanation- In this question we also try to found out the information management status of the disaster management. We had found out that mean is **3.096774** in mean score range, which shows that its status is good. Similarly, we also find out the standard deviation **0.944832.**

(a) 63% respondents say yes while 28% say no.

Figure No. 5.55 Information Management System



Q.27	Is there any kind of change or other support needed at your organization ?

Ans.

1	2	3	4	5
Trainings improving	manpower improving	Budget improving	advanced equipments	coordination improving
27%	23%	15%	11%	07%

Explanation- In this question we also try to found out the suggestions of the disaster management. We had found out that mean is **2.602151** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation 0.95712.

To know the suggestions status researcher ask the question to respondents that what type of support they needs -

(1) 27% respondents tell that yes they needs to improve the training sessions quality by practical methods and their frequency,

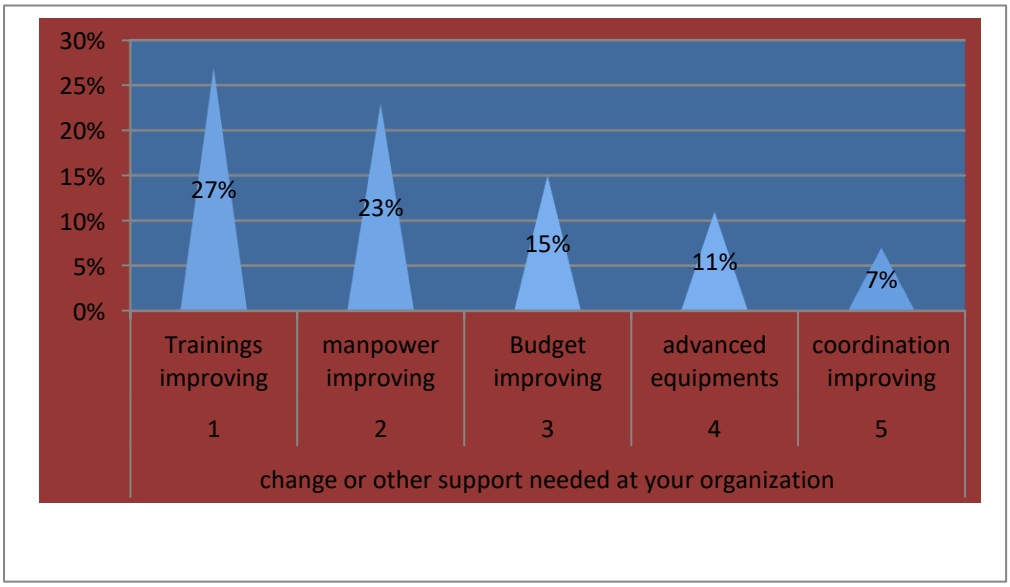
(2) 23% respondents tell that they need to improve the manpower in the organizations.

(3)28% respondents say that wants to improve the budget for better management of disaster management.

(4) 15% respondents tell that they want to improve the advanced equipments and their trainings to operate these equipments.

(5)07% respondents tell that they want to improve the coordination between the different departments.

Figure No. 5.56 Change Or Other Support Needed In The Organization



Q.28	Do you find any possible solutions for early recovery of disasters?

Ans.

1	2	3	4	5
unsatisfied	Below average	average	satisfied	Above average
37%	23%	22%	09%	09%

Explanation- In this question we also try to found out the early recovery suggestions of the disaster management. We had found out that mean is**3.204301** in

mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **0.915556**.

To know the suggestions level researcher ask the question to respondents that what will they rate the level of policy implementation of disasters in their organization-

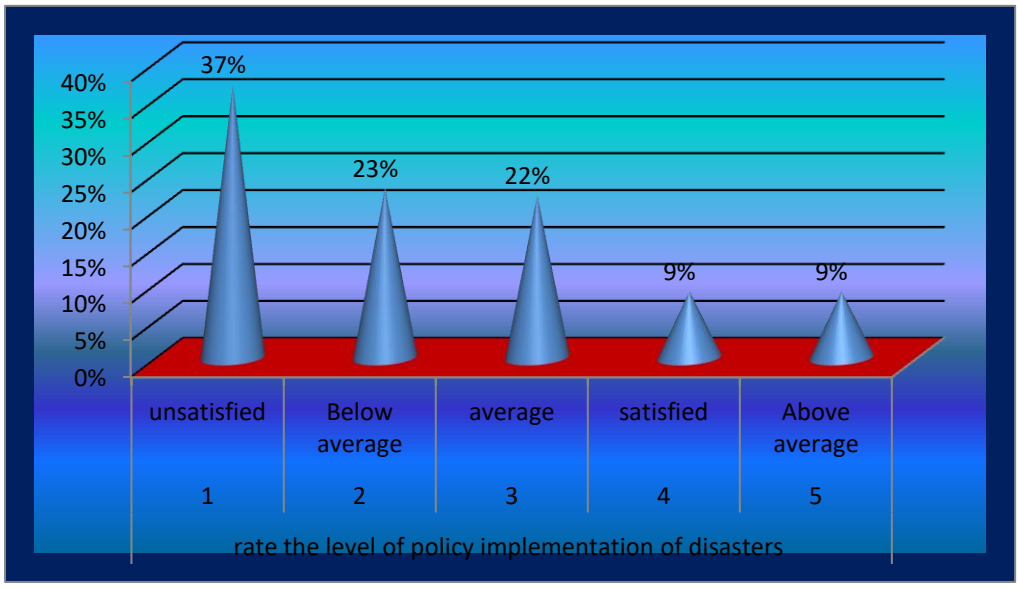
(1) 37% respondents tell that level of policy implementation of disasters is average.
(2) 23% respondents tell that level of policy implementation of disasters is below average.

(3)22% respondents say that wants to improve the budget for better management of disaster management.

(4) 09% respondents tell that they want to improve the advanced equipments and their trainings to operate these equipments.

(5)09% respondents tell that they want to improve the coordination between the different departments.

Figure No. 5.57 Possible Solutions For Early Recovery Of Disasters



Q.29	If you would like to provide any additional information related to barriers in working with your organization?

Ans.

1	2	3	4	5
coordination	Less manpower	Less budget	Less equipments	other
31%	27%	21%	13%	08%

Explanation- In this question we also try to found out the barriers levels of the disaster management. We had found out that mean is **3.784946** in mean score range, which shows that its status is good. Similarly, we also find out the standard deviation **1.159549**.

To know the suggestions researcher ask the question to respondents that could any additional information related to barriers in working with your organization-

(1)31% respondents tell that lack of coordination is the main barrier in the organization.

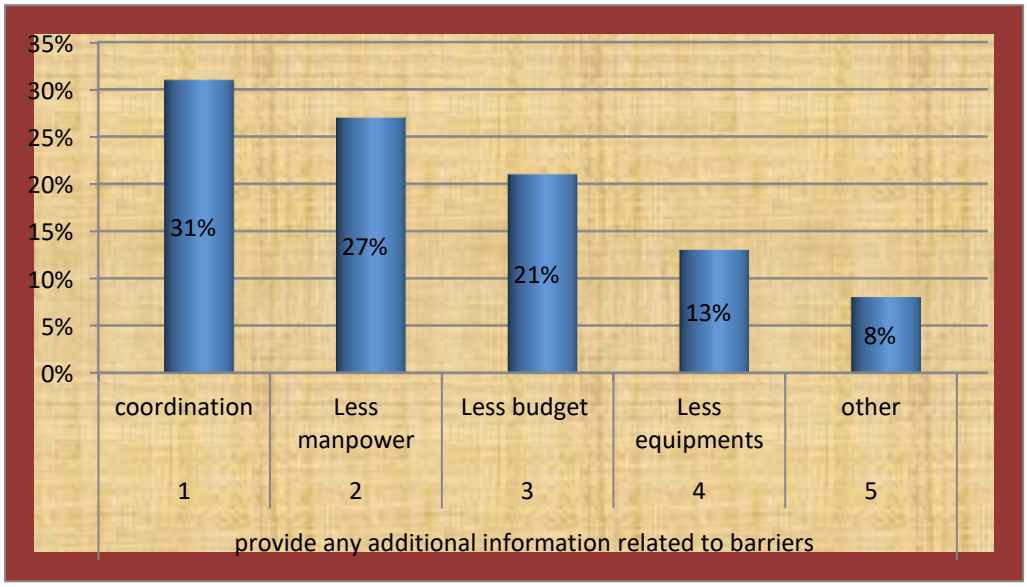
(2)27% respondents tell that less manpower is the main barrier in the organization trainings sessions are the main barrier in the organization.

(3) 21% respondents say that less budget is the main barrier in the organization.

(4) 13% respondents tell that less equipment is the main barrier in the organization.

(5)08% respondents tell that other reasons like the lacuna in the policy, less trainings and less resources are the main barrier in the organization.

Figure No. 5.58 Provide Any Additional Information Related To Barriers



Q.30	Do you have some suggestions how to overcome challenges of disasters in the future perspective?

Ans.

1	2	3	4	5
awareness	Practical trainings	More budget	Less advanced equipments	other
31%	27%	21%	13%	08%

Answer and explanation- In this question we also try to found out the suggestions of the disaster management. We had found out that mean is **3.290323** in mean score range, which shows that its status is average. Similarly, we also find out the standard deviation **1.247438**.

To know the suggestions researcher ask the question to overcome challenges of disasters in the future perspective

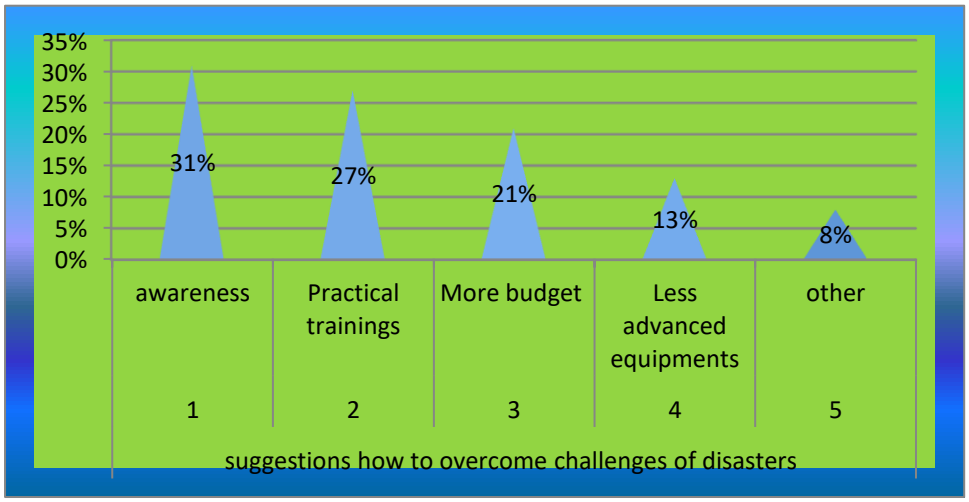
(1)39% respondents tell that there is the need to improve the awareness about the disasters by media, nukkad natak, educations etc. the training sessions quality by practical methods and their frequency,

(3) 23% respondents tell that there is the need to give more practical trainings and mock drills trainings about the disasters.

(3)21% respondents say that wants to improve the budget for better management of disaster management.

(4) 15% respondents tell that there is the need to improve the advanced equipments and their trainings to operate these equipments.

Figure No. 5.59 Suggestions How To Overcome Challenges Of Disasters



Conclusion:

This Chapter narrates and analyses the research area problem. The received data tabulated and filtered to get median range and standard deviation. Then the data was interpreted.

Chapter-6

Summary and Suggestions

6.1 Summary

6.2 Disaster Management

6.2.1 Disaster Management in Rajasthan

6.2.2 Disaster Management in Kota

6.3 Response Analysis and Findings

6.4 Suggestions & Strategy for Future

6.5 Other Recommendations

Chapter-6

Summary and Suggestions

6.1 Summary -

Today Disasters have becoming more frequent, more severe and affecting more people than ever before in the history. The reasons may vary but including climate change, population density growth and shifting habitation patterns are the important reasons. As per the statement released from the Centre for Research on the Epidemiology of Disasters and the United Nations in January 2009, the average number of disasters reported each year increased intensity more than 60 percent from 2003 to 2015, as compared with 1996 to 1998. The World watch Institute reported that in 2007 alone there were 874 weather-related disasters worldwide, a 13 percent increase over 2006 and the highest number since systematic record keeping began in 1974. [xiv]

Prompt and effective response minimizes loss of life and property. A caring approach for the special needs of vulnerable sections is also important. The existing and the new institutional arrangements need to ensure an integrated, synergized and proactive approach in dealing with any disaster .This is possible through contemporary forecasting and early warning systems, fail-safe communication and anticipatory deployment of specialized response forces. A well-informed and prepared community can mitigate the impact of disasters To better management of the disasters developing the tools, processes and best practices is becoming the effective way to manage the increasing number of disasters. To systematically manage information from various sources and implement them effectively to assist survivors, mitigate damage and help the communities to rebuild. In the event of an emergency having a preparedness plan can be a secure and safe transition way to out of danger for you and your beloved ones.

The central problem investigated in this thesis is the status of disaster management institutes in India. In this research topic we have selected the Kota districts disaster management institute as random basis. In doing this the study has analyzed field data from Kota district in Rajasthan. The thesis comprises five chapters.

Chapter one has offered a general introduction and explanation of the research topic. It has also emphasized the objectives, justification, chapterization and relevance of the research study.

The chapter two also has discussed the conceptual and legal framework of the disaster management in India. It describes the concept of disaster, types, impacts and the constitutional and legal arrangements to mitigate this research problem.

Chapter three discusses disaster management in India and Rajasthan state context. It involves the vulnerability, demographic, topographic and frequency of the disasters in India and Rajasthan disaster management. It also describes the institutes' arrangements in India and Rajasthan state.

Chapter four is the study of key research area Kota district which is selected as a whole. It describes the vulnerability, geo-climatic and vulnerability of the disasters in the Kota district. In doing so, researcher also study the Kota district collect rate office, which works as a district disaster management authority (DDMA) and all disaster related departments like Nagar Nigam,Water Resources ,Civil Defense, Fire Station, CMHO and SDRF departments were selected. These institutions are the stake holders in Kota disaster management. In this chapter two questionnaires were selected to collect the data sample. The questionnaire was filled by the peoples of Kota on random basis and the other one was filled by the government officials on stratified random base. By selecting the data, researcher finds out the present status of these disaster management institutions.

Chapter five narrates and analyses the research problem. The received data tabulated and filtered to get median range and standard deviation. Then the data was interpreted.

Chapter six discusses viable solution and suggestion for dealing with the problem of institutional management in the disaster management. This chapter also summarizes the lessons that have been learnt.

6.2 Disaster Management -

Traditionally disasters in Kota district have been compounded by climatic factor and Industrialization. Being under the monsoon region the study area has also faced frequent flood, drought and consequent famines. Being of speedy urbanization district has also faced pollution, chemical, industrial and road accidents, fire, building collapse etc. The recent development in the field of disaster management and urbanization have overlooked these obvious links and two separate institution structures have evolved to service urbanization and disaster management whilst both frameworks have seen parallel development. This requires wide scale capacity building in the interface Government as well as private institutions.

6.2.1 Disaster Management in Rajasthan -

The Disaster Management provides a better institutional mechanism for a quick and coordinated response to preventing the disasters .The Nodal departments are expected to initiate actions on their own view, as per their SOPs, in the event of a disaster or a threat of a disaster and act promptly as per the directions from the higher authorities. The ensuing damage can be minimized to a considerable extent if adequate preparedness and mitigation measures are taken up in a timely and proactive manner Thus, the state should organize series of awareness campaigns, programs and skill trainings at all levels to ensuring a state of 'culture of preparedness' and a 'Disaster resilient Rajasthan.

In the absence of any specific reference to the subject in the constitutional distribution of powers has distributed between centre and the state. It has been derived from the practice that the disaster management, presumably given its insignificance in the governmental reckoning during the colonial period .It should be a state subject as the specification of its constitutional domain is more concerned with the state. There is began a rethinking in resituating the Constitutional locale of the subject in such a way that the central government also gets an important role to play in the whole exercise of making India disaster resilient. Almost all the committees and commission set up to review the working of the constitution as well as the governmental ma-

chinery arrived at the conclusion that best disaster management can be a concurrent subject rather than considering it under exclusive jurisdiction of the states. It became somewhat indispensable for the governments, both central as well as states level, to enact dedicated legislations providing for a comprehensive disaster management plan and machinery to implement the same for efficient and effective management of disasters in the country. The state's role as the pioneers in the disaster management as they got their laws enacted and implemented effectively. Eventually, the central legislation on the disaster management was enacted in 2005 by raising a number of laws and constitutional issues in the management of disasters in India. On the part of the central government might be construed to be undue interference in the domain of the states. The developmental and humanitarian nature of activities involved for the better management of disasters. The subject has not become a point of one-upmanship between centre and states. But the issue remains a flash point in the centre-state-local relations in future.

Policy Formation at State level -

This should take into account:

- Greater policy, leadership and budget commitment
- Government Accountability and Political Commitment
- Disaster reduction as criteria for sustainable development
- Laying down model frameworks to fortify disaster management systems
- Provoking public awareness to disaster reduction
- Realizing criticality of disaster issues
- Disaster Code of Conduct

6.2.2 Disaster Management in Kota -

Disaster Management authority in Kota district needs the approach paradigm shift from relief centric approach to a multi dimensional preparedness and response approach. There should also stress on capabilities building up of communities to enable them to work towards risk reduction. Therefore there is the significant role of Disaster Management Institutions in Kota district because district is vulnerable to the various types of disasters like floods, fire, droughts, road accidents and industrial disasters. There is collect

rate office works as nodal agency for any emergency and other stake holders help in managing a disaster. This research tries to find out the present status of these disaster management institutions. It is finding out thorough the study that these institutions are established under the disaster management act 2005. For this, the researcher took the dimensions like awareness, policy, preparedness, trainings, response, capacity building, mock drills, risk assessment, resources and coordination with government agencies and the peoples view about the effectiveness of these organizations. Apart from the status of these disaster management institutions, major findings and challenges also encountered, which are as follows:

Kota Disaster Management plan is the basic roadmap, and coordinate document. For susceptible emergencies, like-Earthquakes, flood drought, Epidemic, Cyclone, Industrial and chemical disaster, Fire, road accident, train and accidents, this disaster plan is the frame – word to contact the emergencies and their intensities. This emergency plan also ensures the different institutions in case of different calamity.

Kota district disaster frame work vulnerability analysis –

It is very necessary to mitigate the disaster and find out their hazards, the insensible victims of the disasters, physical identification of the seniorities and the analysis of the posterities of the disasters to completely mitigate and preparedness and any emergencies.

S.No.	Departments	Responsibilities
1.	Police department	1. To maintain law and order in selected area. 2. Police/Home guards rescue team availability. 3.To find out and identifications of the dead / injured people. 4-To assist in relief work.
2.	Chief fire safety officer	1-To response on information's of any emergency and to reach their by relief force. 2-To start relief work.

		3-To identify the victims dead or alive. 4-To facilitate equipments and resources related to disasters. 5-To arrange public announcing systems.
3.	R.A.C./S.D.R.F (Relief Force)	1-To start relief work. 2- To identified the victim persons. 3- To available water divers. 4- To available the equipments related to disasters.
4.	Civil Defense	1-To find out the victims of the calamity. 2-To facilitates relief force and equipments 3-To facilitates and coordinate the relief activities.
5.	Nagar Nigam	1-To arrange the primary first aid to the victims. 2- 3-To deputes the specialists doctors at the body storage,
6.	Chief Medical Health Officer (C.M.H.O.)	1- To arrange the primary first aid to the victims 2- To available different blood groups storage. 3- To Deputes the specialists doctors at the emergency site. 4- To facilitates the dead body storage. 5- To postmortems the dead bodies.

We have found out major vulnerable emergencies which can take place, which are –

(1) Drought

(2) Flood

(3) Accidents

(4) Fire

(5) Earthquakes

Except these other disaster which may also take place are social riots voidance, had storm, Darn damage, Extreme high temperature, External cold and Industrial disasters.

1. District Disaster planning for Drought-

Kota district is vulnerable to Drought. To find out the key areas we can mitigate the this disaster to such extent-

❖ **Long term Plan-**

(1) To maximum utilize and conservation of the rain water.
(2) To accumulate and minimize the fresh drinking water.
(3) To rejuvenate the traditional water resources.
(4) To collect the rain water and refilling the surface water.
(5) To conservation of clay moisture by plantings.
(6) To minimize the tree cultivation and maximum roping of new trees.
(7) To increase the use of fountain irrigation method.
(8) To motivate the composition of NGO teams to aware the peoples about the water conservation.

❖ **Preparedness for Drought-**

(1) To identify the drought prone areas.
(2) To ensure the availability of fresh drinking water.
(3) To trained the peoples and NGO about the water conservation.
(4) To already make a plan for drought.

❖ **District administration for Drought-**

Kota District Collector arrange a drought emergency control room at DDMA centers-

(1)To facilitates the drought relief works.
(2) To facilitate the fresh drinking water.
(3) To Rejuvenates water resources.
(4) To take the Private Wells on rent or as possible.

(5) To arrange and distribute necessary food and medicines etc.

(6)To facilitates the electricity and diesel to the farmers for irrigation.

- **Electricity department for drought-**

  To facilitates the regular electricity supply.

- **NGO's for drought-**

  -To help in the relief and rescue work by facilitating fresh drinking water.

  -To financial assist the district administration to counteract the drought emergency.

2. Flood-

➢ Emergency planning by District Administration-

There is Structural and Non- structural ways should be utilized to minimize the loss of peoples and assets from Disaster Management-

(a) Structural ways-Structural ways are used to minimize the water flow at residential and village areas to save the peoples and assets-

(1) To facilitates deep digging of water reservoirs.

(2) To minimize the blockage of natural water flows to non-residential areas.

(3)To proper clean the water drainage system.

(4) To proper repairs the Dams timely.

(5)To facilitates the rehabilitation to the victims.

(b) Non –structural ways- Non –structural ways are used to mitigate the loss of flood hazards by shifting the peoples another place. We could mitigate the calamity by following ways-

(1) To facilitates the forecasting and early warning systems.

(2) To educate the peoples by public awareness camps.

(3) By aware the peoples by Information technology, media, news papers and mock drills.

➢ District Control rooms for Floods –

Kota district level control room which works as a nodal agency under the District collector, is situated at Kota collect rate office. To prepare from floods there is a cleanliness program held every year from 15 June to 15 September before the rainy season. This flood control room work 24 hours for flood and rain related information. The emergency contact numbers in flood disaster are as follows-

- ❖ District flood control room -1077 and 0744-2323557, 2325342
- ❖ Water Recourses department- 0744-2327648
- ❖ Command RAC second battalion-0744-2350771
- ❖ Nagar Nigam Kota-101,07442392201,2472355,2472216
- ❖ Sub-controller Civil Defense-0744-2327861,2320229

➢ Responsibilities of different departments for flood disasters-

(1) Water resources Department-mainly works as a nodal agency in flood emergency.

- ➢ To selection of comparative self places.
- ➢ To manage the relief amount and employment to the victims.
- ➢ To facilitates the vehicles to transfer them another place.

(2) Health department – Chief Medical Health Officer **(**CMHO) is the responsible officer for the emergency. There is the CMHO duty to arrange the proper medicines, first-aid and other supportive equipments for flood disasters. The department will arrange the arrange the following rapid response rescue team for district and block level-

Medical Officer	01
Health Supervisor	01
Male Nurse	01
M.P.W.	01

Ward boy	01
Ambulance with Driver	01

(6) Civil defense department-

The District collector directs the civil defense department to be alert and ready for relief and rescue works.

(7) Home guards-

The district collector also directs the home guards to be ready to handle the emergency circumstances.

(8) Fire safety department-

There is 02 fire safety stations are located at Kota district, under the Kota Nagar Nigam. The department is directed by Nagar Nigam and District Disaster management Authorities jointly in case of fire and other emergencies. The contact number of the departments is 101 and 108 to get immediate relief.

(9) NGO-

- To facilitates the help in the relief and rescue works.
- To help the first- aid of the disaster victims.
- To assist the district administration for financial help by donations.

List of Flood Prone Villages in Kota Distract

Tahshil/ Nagar Palika	Nadi/Nala	Affected Village Or Vard	Sub Division
LADPURA	ALANIYA RIVER	ALANIYA, BRIYADI, KEWAL NAGR, DADDAVI, MAVASHA, RANPURA, ABHYAPURA, HARIYAKHEDI, LADPURA, RAMNAGAR, RAMPURA, PRAHLADPURA, UMMEDGANJ, DHAKAR KHEDI, VINDA, KAWARPURA, RAJNAGAR, AMODKHERA, NOHRA, BORKHADI, ARJUNPURA, CHANDRESAL, NOTADA, KETHOON, BHIMPURA, MANDANIYA, NAGPURA, KHEDA, KHEDARASHULPURA, MANDNIYA, GAKHRA, BHOJPURA, JAGPURA, DASHLANA, HATHIKEDHA, PKHARATIM RAMKHEDI, PIPALDA, RAMRAJPURA, MANASGAWON.	LADPURA
LADPURA	RANGBARI, UMEDGAN, ANNATPURA, SHAJIDHEDA NALA	ANNATPURA, VIGYAN NAGAR, TALWANDI, KISHORPURA, DADABARI, SANJAY NAGAR, GANDHI NAGAR, INDIRA GANDHI NAGA, RAMCHANDARPURA, MAHAVEER NAGAT, INSTUMENTATION, TOWNSHIP AND FEKTRI J.K.NAGAR, D.C.M. COLONY, KANSUWA AUR UMEDGANJ	KOTA SAHAR
SANGOD	KALISHIND RIVER	BORINA KALA, BORINAKHURD, VIJAYPURA, KUDET, GHATAL, NAHRIYA, KOTADI, THUPUR	SANGOD
SANGOD	UJAD RIVER	BAGDASYA, JOGADA, HINGI, VINODKHURD, VINODKALA, MOIKHURD, SANGOD, NAGALKHEDI, NAGARHEDI, MALIHEDA, JHALIHEDA, NAGARHEDA, ATARALIYA, KRIRIYA, KANGAYA, KUNDANPUR, RAJGAR, GUDLA, ROLANA	SANGOD
SANGOD	PARVAN RIVER	CHREL, KOTADA, LAMBINYA, BAPABARKHURDM RALAVAD, GHANSKHEDA, DABARIKALA, DHIMLI, RAJGAR, UMARDA, BHUDHNI, SAHIPURA, SANGOD,	SANGOD

		BAHIHEDAM, RAJNAGAR, DEVLI, THODI, THONUR, GUDLA, KHEDLI, MUNDLA, RAMGAR URF KELASHA KANWASH, DEVLI, KHANDGAWAN	
SANGOD	ARU RIVER	KANWASH, DEVLI, KHANDGAW	SANGOD
PIPALDA	KALISHIND	KHARWAN, KHEDKI, NONERA, AAMALDA, CHIPARI, DIPARI, KALISHID	ITAWA
PIPALDA	SHUKNI RIVER	ITAWA, DADWARA, KHATOLI, KHEDLI, BORDA	ITAWA
PIPALDA	PARWATI RIVER	KADILA, KETHUDA, GORDHANPURA, BORDA, NIMODA, FUSHUNDA, MORKHUDANA, MARJANA, MITHODA, KHATOLI, JATWARA, JATWARI, BALUPA, NAYAGAWN, SANGRAMPURA, CHAPOL, LALGANJ, GIRDHARPURA	ITAWA
RAMGANJ MANDI	AMARJHAR RIVER	CHECHAT, NIMODA, SADHOLKHURDA, MAWASH, CHANDRAPURA EVAM AMRAJHAR NADI KE SAMIP WALE GAWN	RAMGANJ-MADI

List of Dams (Tashil wise)

S.No.	Name	Length (M)	Capecity	Affected Village	Affected Popula-tion
TAHSIL LADPURA					
1	RANPUR TALAB	1530.00	36.01	ANNATPURA, D.C.M.	3000
2	GIRDHARPURA TALAB	396.00	34.95	GIRDHARPURA	512
3	BORABASH TALAB	570.00	16.59	GURJARO KI TAPRI	2133
4	LAKHAWA TALAB	1170.00	25.42	LAKHAWA, ANNATPURA, D.C.M., RAMPURA, DEVLI ARAB ROAD	4173

5	DOLIYA BANDHA	491.50	39.00	COLONY, LAXMIPURA, AGARU, PANCHNKUI	1500
TAHSIL SANGOD					
1	SAWANBHARDWA	4285.00	1060.00	SIMLIYA, KANWASH, KOLANA, KOLANI, MADHUPURA, MADALHEDI, NIMEKHEDI, PADHUKHEDI, LALDPURA, SAWANBHADWO, AWAN, MOHANPURA, JANGALKHEDI, KHAJURNA, URANA, KHATIYANKHEDI, JHIORMALI, BHIKHAKHEDI, KANDIPURA, JHOKLI, KHUSHALIPURA, SAJARA, JAGDISHPURA, DEVLI, THODI, KHATOION	16402
2	KHATI KHEDA	2100.00	38.84	BRAJLIYA, KHATIKHEDA	100
TAHSIL DIGOD					
1	DAHRA TALAB	2537.85	63.55	POLYI KALAN	425
2	CHOMA TALAB	1851.00	27.50	CHOMA MALIYAN, BIBU	1355
3	BUDADIT TALAB			BUDADIT	

Main Canals and there Capacity

S.NO.	Name of Canal	Capacity
1	DAYI MUKHAYA NAHAR CHAMBAL	6656 Cusecs

3. Fire-

- **Fire vulnerable areas in Kota District-**

RIICO Industrial Area, Petrol pumps, Theaters. Bhamashah New grain Mandy,DCM, Chambal Fertilizers(CFCL), Multimetals Industries and all gas agencies in the Kota.

- **District Disaster planning for fire-**

(i) District Fire Control Room –

- To Coordinate and Supervise.
- To find out the actual data and information about the emergency.
- Distribution of relief and financial help to the victims.
- To maintain the law and order.

(ii) Civil Defiance Departments –

- To Immediate inform the administration and peoples.
- To Facilitate safer place to victims.
- To manage the crowd at emergency area.
- To help the Victim persons to overcome form fire emergency.
- To find out the other safe road maps to safely rescue the victims.

(iii) CMHO department –

- To facilitate first aid to victims.
- To alert and inform all Government and Private Hospitals.
- To arrange the proper medicines.
- To arrange the medical and para medical staff team at the site.
- To send the serious victims to the hospital.

(iv) NGO's –

- To arrange the relief and rescue team for help.
- To arrange the relief comps.
- To distribute the relief materials and medicines.

(v) Nagar Nigam –

- To arrange the Rain-Basera for rehabilitation.
- To manage the temporary tents.
- To Proper clean the affected areas.
- To send fire brigade at the emergency area.

3. Earthquakes –

- **District disaster planning for the earthquakes** -

(1) District Control Room –

- To Coordinate and Supervise.
- To find out the actual data and information about the emergency.
- Distribution of relief and financial help to the victims.
- To maintain the law and order.

(2) Civil Defiance Departments –

- To Immediate inform the administration and peoples.
- To Facilitate safer place to victims.
- To manage the crowd at emergency area.
- To help the Victim persons to overcome form fire emergency.
- To find out the other safe road maps to safely rescue the victims.

(3) CMHO department –

- To facilitate first aid to victims.
- To alert and inform all Government and Private Hospitals.
- To arrange the proper medicines.
- To arrange the medical and para medical staff team at the site.
- To send the serious victims to the hospital.

6.3 Response Analysis and Findings -

A. Researcher finds following responses from the questionnaire-1 respondents -

Questionnaires are filled by the peoples of the community on random basis to find out the present status of the Disaster management Institutions in Kota district. The first questionnaire sought to identify the subjects about the disaster and its management. In this regard questionnaire is divided into eight dimensions –

1. Awareness

(1) The family is relatively well-prepared to face the disaster –

Explanation- In this question we try to find out the awareness level of the peoples about the disasters. We had find out that mean **2.488372** which shows that its status is below average

(a) Peoples say that are not aware because they have not face any disaster till.

(b) Some peoples say that they have seen some disasters by television and heard by other peoples.

(c) Some say that they have seen and face the disaster: as they have lost their family and property.

Finding is that peoples are not much aware about the disasters. So, government should aware the families about the disasters and their intensities by print and electronic media, nukkad nataks etc.

(2) Community is relatively well- prepared for a disaster-

Explanation- In this question we try to found out the awareness level of the community towards disasters in the people. We had found out that mean **2.604651** which shows that its status is average.

(a) Peoples say that community is not much aware because the majority has not face any disaster till.

(b) Some peoples say that they have seen some disasters by media and heard by other peoples.

(c) Some say that they have seen and face the disaster: as they have lost their family and property.

Finding is that communities are not much aware about the disasters. So, government should aware the families about the disasters and their intensities by print and electronic media, mock drills, plays and trainings etc.

(3) Discussed disaster preparedness topic with family-

Explanation- In this question we try to found out the preparedness status about disaster management with the people among the community. Our results show that mean is **2.348837** which show that its status is below average.

(a) Some families say they have never talk on this topic.

(b) Some families say that they have on the topic but not in serious way.

(c) While some others say that they have already prepared plan in case of an emergency that what to do in that case.

Findings are that peoples have not take the preparedness topic seriously with their families and communities. So there should be special emphasis is done on emergency preparedness.

(4) Helpline number awareness-

Explanation- In this question we also try to found out the awareness status of the family members about the emergencies phone numbers. We had found out that mean is **2.325581** which shows that its status is below average.

(a)Some respondents say that they know these phone numbers and used some times.

(b)Some respondents say that they tries to call on these numbers but they rarely works and if someone pick up the phone then the reply action does not come on time.

(c) Some respondents tell that the response on these number receive so late, many times fire damkal machines reach after 1-2 hours when the almost lost.

(d) Some say that the working culture of these institutions is poor.

Findings are that the Government and related department should improve the efficiency and effectiveness of the response systems.

(5) Awareness about the disaster helping phone number 1077-

Explanation- In this question we try to found out the awareness status of the peoples about the helping disaster helpline phone numbers in an emergency. We had found out that mean is **2.325581** which shows that its status is below average.

(a) Some respondents say that they don't know about this phone numbers.

(b)Some respondents say that they tries to call on these numbers but they rarely works and if someone pick up the phone then the reply action does not come on time.

(c) Some respondents tell that the response on these number receive so late.

(d) Some say that the phone number is not so popular.

Findings are that the Government and related department should improve the awareness and availability of these emergency phone numbers.

(6) Your family knows about where valuable family documents are-

Explanation- In this question we also try to found out about the awareness status of important documents of the family in an emergency. We had found out that mean was which shows that its status is below average.

(a) Some respondent's say that they are aware, but all family members does not know about these important documents.

(b) Some respondent's say that they have not think seriously about bank cheque book, Adhar card and other valuable documents.

Findings are that there is a need to improve awareness about the knowledge about these important documents.

(7) Know about disaster plans at your workplace or at your children's school or day care-

Explanation- In this question we also try to found out the awareness of the disaster plans with the peoples among the community. We had found out that mean was**2.00**, which shows that its status is below average.

(a) Some respondents say that they don't know about these disaster plans.

(b)Some respondents say that they have not even heard about these plans.

(c) Some respondents tell that there should be paint these plans on the walls or give the live demonstration about these programs.

Findings are that peoples are not much aware about these plans, so there is a need to more spread the awareness about these disaster preparedness plans.

(8) Knowledge about a whole Family Disaster Supply Kit-

Explanation- In this question we also try to found out the preparedness level of the peoples about the disasters. We had found out that mean was**1.848837** which shows that its status was below average.

(a) Some respondents say that that have not aware about these kits.

(b) Some respondents say that they have limited knowledge about these disaster kits.

(c) Some respondents say that there Disaster supply kits are not in ready conditions, as they are not updated time accordingly.

Findings are that there is less awareness and availability about these disaster kits. So there should be educated the peoples about the disaster kits.

(9) Conducted a home hazard hunt and fixed potential hazards plan at home-

Explanation- In this question we also try to found out the plan preparedness level of the peoples among the community. We had found out that mean is **2.093023** which shows that its status was below average.

(a) Some respondents don't know about these plans.

(b)Some say that they have prepared but practically not practiced.

Findings are that there should be focus of families to prepare these potential plans at home.

(10) Have Insurance for each member of Family-

Explanation- In this question we also try to found out the Insurance preparedness level of the disaster management in the people among the community. We had found out that mean is **2.127907** which shows that its status is below average.

(a) Some respondents don't have insurance plans for each family member.
(b) Some respondents have insurance plans but they are not how to use these plans.
(c) Some families have plans but not of all family members.

Findings are that there is less awareness and preparedness about this Insurance plan. If some who take the plans either they are inadequate or less awareness about these awareness plans.

(11) Have operational smoke detectors and carbon monoxide detectors-

Explanation- In this question we also try to found out the preparedness level of the peoples among the community. We had found out that mean is**2.337209** which shows that its status is below average.

(a)Some respondents say that don't know about the smoke detectors and carbon monoxide detectors.

(b) Some respondents say that they have these equipments but there is no one is skilled person who knows its uses.

(c) Some respondents say that they have these equipments but they are not in proper working conditions.

Findings are that there is less awareness and availability of these emergency equipments. So there should be efforts about the awareness and knowledge of these equipments.

(12) All family members know how to turn off all utilities –

Explanation- In this question we also try to found out the awareness level of family about the disasters. We had found out that mean is **2.453488**, which shows that its status is below average.

(a) Some respondents say that know how to turn off all utilities but the all family members are not proper aware about these utilities.

(b) Some respondents say that have not think but now they will train the rest members about the turn off all the utilities.

Findings are that there is less awareness and availability of this about turn off all utilities. So there should be efforts done about the awareness and knowledge of these utilities.

(13) Rate the present disaster management system-

Explanation- In this question we try to found out the response level of the peoples about present disaster management. We had found out that mean is**2.209302** which shows that its status is below average.

(a) Some respondents say that present disaster management system is average and needs more better.

(b)Some respondents say that the present system is poor, due to old resources and traditional techniques.

Findings are that there should be more efforts to better the disaster management systems regarding better resources, practical trainings, mock drills and information technologies.

(14) You know where your family will meet outside home in case of an emergency-

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is **1.976744**which shows that its status is below average.

Explanation- In this question we try to found out the response level of the peoples about present disaster management. We had found out that mean is**2.209302** which shows that its status is below average.

(a) Some respondents say that their family members does not know that where they will meet outside home in case of an emergency.

(b)Some respondents say that they have not think about this matter.

Findings are that there should be improve more awareness to the community. That if there happens an emergency then what they have to do.

(15) You Know or have at least two exits from every room in your house in case of an emergency-

Explanation- In this question we found out the existing house structure of the disasters in the peoples in the community. We had found out that mean **2.05814** which shows that its status is below average.

(a) Some respondents not have two exits to escape in case in an emergency.
(b) Some respondents say that don't know and even not think in this way.
(c) Some respondents say that they have two exits in some rooms but not in all.

Findings are that there is less awareness and also Government has not proper disaster education to the peoples.

(16) Have you ever take training in First-Aid (Within the last 3years)-

Explanation- In this question we try to found out the training status the peoples in the community. We had found out that mean is**1.883721** which shows that its status is below average.

(a) Some respondents say that still they have not take any training.
(b) Some respondents say that they have take the trainings but after 3 years.
(c) Some respondents say that they were on leave when the training was held.
(d) Some respondents say that the first aid training was only demonstration and they have not practically done, so they have limited knowledge.

Findings are that there is less training sessions held so there is a need to improve more practical training sessions to improve the knowledge about first aid.

(17) All responsible family members having knowledge about First Aid-

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is**2.523256** which shows that its status is below average.

(a)Some respondents say that all the family members are not knowledge about first aid.

(b)Some respondents say that the first aid training was only demonstration and they have not practically knowledge.

(c) Some respondents say that the most of the family member are aware but not all members.

Findings there should be more focus of the Government as well as communities about the first aid knowledge to the all family members.

(18) You got any recently training in life saving within the last 3 years-

Explanation- In this question we try to found out the life saving training level of the peoples in the community. We had found out that mean is**3.093023**, which shows that its status is average.

(a) Some respondents say that they have not received any life saving training yet.

(b) Some respondents say that they have taken the training after 3-5 years.

(c) Some respondents say that these trainings are inadequate without practical knowledge.

Findings are that these types of trainings should be done practical and more frequently.

(19) You and your family members have currently trained in CPR (Cardio Pulmonary Resuscitation)-

Explanation- In this question we try to found out the family members training status of the peoples in the community. We had found out that mean is **3.953488** which shows that its status is good.

(a) Some respondents say that they self have taken the CPR training but all family members have not taken any training.

(b) Some respondents say that don't heard about these training where and who take these trainings.

(c) Some respondents say that these trainings should be more practical because they have take the trainings but yet they don't feel there self trend.

Findings are that these practical trainings should be more frequent and properly advertise in the print and electronic media.

(20) You have any list or idea about the actual cash value of every item in your home-

Explanation- In this question we also try to find out the response level of the peoples. We had found out that mean is**3.546512** which shows that its status is good.

(a) Some respondents say that have never think about this matter.

(b) Some respondents say that they have not any idea about the estimated cash value of the items in the house.

(c) Some respondents say that they have only idea but they are not proper sure about the actual cash value.

Findings are that the usually respondents have not proper idea or any list about the actual cash or cash value of the every items.

(21) Members of special needs have any plan for making sure these members will be safe during a disaster-

Explanation- In this question we try to found out the response level of the peoples among the community. We had found out that mean is **3.162791** which shows that its status is good.

(a) Some of the respondents say that they have not any plan or idea about these special needs persons.

(b) Some respondents say that they have given the training to these special needs persons about an emergency.

(c) Some respondents say that they will now think to train these special needs peoples.

Findings are that most of the respondents have not idea or training about these special needs persons, so government should increase the awareness about disasters.

(22) Have any plan for any emergency for your pets and animals-

Explanation- In this question we try to found out the preparedness level of the peoples among the community. We had found out that mean is**2.965116** which shows that its status is average.

(a) Some of the respondents say that they have not any plan or idea about their pets.

(b) Some respondents say that they will now think about train them.

Findings are that most of the respondents have not idea or training about their pets, so families and individuals should think about them.

(23) Have a charged ABC fire extinguisher in your colony for any fire emergencies-

Explanation- In this question we try to found out the resources level of the people among the community to face an emergency. We had found out that mean is**2.162791** which shows that its status is below average.

(a) Some respondents are sys that they have any have not any fire extinguisher.

(b) Some respondents say that they have fire extinguisher but is not in working condition.

(c) Some respondents say that they have fire extinguisher but they don't know how to operate it.

(d) Some respondents say that they have personally not any fire extinguisher but they have in their colony.

Findings are that they have fire extinguisher but not in working conditions, so there should improve the awareness about the fire extinguishers and also improve the frequencies of mock drills.

(24) You attained training how to escape peoples in a disaster (Within 3 years)-

Explanation- In this question we try to find out the awareness of the disaster management in the people among the community. We had found out that mean is**2.348837** which shows that its status is below average.

(a) Some respondents say that have take training about how to escape the peoples in a disaster.

(b) Some peoples say that they have find good these trainings.

(c) Some respondents say that these trainings are inadequate.

Findings are that there should be more frequent trainings about escaping the peoples in case of an emergency.

(25) You ever practiced an emergency mock drill within the past years-

Explanation- In this question we also try to find out the practice level of the peoples among the community. We had found out that mean is**2.639535** which shows that its status is average.

(a) Some respondents say that still they have not taken any training.

(b) Some respondents say that they have take the trainings but after 3 years.

(c) Some respondents say that they were on leave when the training was held.

(d) Some respondents say that the first aid training was only demonstration and they have not practically done, so they have limited knowledge.

Findings are that there is less training sessions held so there is a need to improve more practical training sessions to improve the knowledge about mock drills.

(26) You have the equipments to face an emergency-

Explanation- In this question we try to find out the response level of the disaster management in the people among the community. We had found out that mean is**2.186047** which shows that its status is average.

Some respondents say that don't know about the smoke detectors and carbon monoxide detectors.

(b) Some respondents say that they have these equipments but there is no one is skilled person at home who knows its uses.

(c) Some respondents say that they have these equipments but they are not in proper working conditions.

Findings are that there is less awareness and availability of these emergency equipments. So there should be efforts about the awareness and knowledge of these equipments.

(27) Any idea on safety, development and implementation for mitigation purpose-

Explanation- In this question we also try to found out the response level of the peoples among the community. We had found out that mean is**2.581395** which shows that its status is average.

(a) Some respondents say that there should be early warning systems in case of an emergency.

(b) Some respondents say that there should be proper equipments and they should be in working conditions.

(c) Some respondents say that there should be proper practical training sessions.

(d) Some respondents say that there should be frequent mock drills to mitigate the disasters.

Findings are that there should be scheduled planned practical trainings held to educate the community to face a disaster.

(28) You think that safety concerns are built into the syllabus of the students in schools, colleges, professional institutes and universities-

Answer and explanation- In this question we try to find out the safety awareness level of the peoples among the community. We had found out that mean is**2.44186** which shows that its status is below average.

(a) Some respondents say that the definitely safety concerns should be take into the students syllabus.

(b) Some respondents say that the safety concerns are practical part so there should be practical demonstration.

(c) Some respondents say that safety concerns should be proper advertised by the print and electronic media.

Findings are that the safety concerns should be properly emphasized by the Government institutions as well as private organizations and NGOSs.

(29) Suggestions to improve present disaster management system-

Explanation- In this question we also try to find out the response level of the disaster management in the people among the community. We had found out that mean is**2.94186** in mean score range, which shows that its status is average.

(a)Some respondents says that the there should be more focus on Scheduled practical trainings.

(b)Some respondents say that there should be much emphasis on advisement in print and electronic media.

(c) Some respondents say that disaster and safety concerns should be a part of student's syllabus.

Findings are that the disasters and safety concerns needs multi efforts Government institutions as well as private organizations.

B. Researcher finds following responses from the questionnaire-2 respondents -

Questionnaire -2 was filled by the selected Government officials on stratified random basis. The questionnaire sought to identify the current status of these stake holders, which is involved in the disaster management institutions. In this regard, researcher makes the questionnaire in eight dimensions-

It enables the researcher to identify the different areas of thesis objectives to find out the present status of these institutes related to disaster management. The questionnaire was based on five point licker scale.

1. Policy And Planning -

(1) Your organization actively taking steps towards disaster management plan-

Explanation- In this question we try to found out the policies status of the disaster management within the organization. We had find out that mean is in **2.505376** mean score range, which shows that its status is below average.

(a) Some respondents say that their organization is having disaster management plan guidelines.

(b) Some respondents say that they have not their self disaster management plan but they are following the central or state Government directions in these directions.

(c) Some respondents say that are working on making a proper disaster plan and is in under consideration.

Findings are that there are not a uniform disaster plans for different departments.

(2) There is a comprehensive policy or plan or related legislation governing on disaster management in your department, and how regularly the disaster management policy is updated-

Explanation- In this question we try to found out the planning level of the disaster management. We had find out that mean is**3.129032** in mean score range, which shows that its status is above average.

(a) Some respondents say that there is such not such plans but there is Government legislation about it.

(b) Some Respondents say that there are self departmental guideline are also available.

(c) Some respondents say that the policy is updated average within 3 years.

Findings are that there should be special and clear government guidelines about the policy and their updating.

(3) Rate the level of policy implementation of disasters in your organization-

Explanation- In this question we try to found out the policy implementation level of the emergency management in the organization. We had found out that mean is**2.365591** which shows that its status is average.

(a) Some respondents say that the policy implementation level of their organization is average and needs improvement.

(b) Some respondents say that the policy implementation is poor due red tapism in the organization.

(c) Some respondent's say that the policy implementation level of the average due to lack of skilled manpower.

Findings are that there is a need of more skilled man power to proper implementation of the institutions and red tapes should also tries to minimize.

(4) Any trained special team or persons for the disaster management in organization and management is taking any pro- active actions towards disaster mitigation process-

Explanation- In this question we try to found out the awareness status of the people among the community. We had find out that mean is in**2.462366** which shows that its status is below **average.**

(a) Some respondents say that there is special team and skilled staff is there but that is not enough as per the requirements.

(b) Some respondents say that there is special teams have but they have not proper equipments and those have are not in working conditions**.**

(c) Some respondents say that they have staff but the management is not working on the mitigation plan**.**

Findings are that there should a need of coordinated efforts towards mitigation plan of a disaster and also needs the proper efficient staff.

(5) Are the policies used in the organization working appropriately to ensure the disaster mitigation process?

Explanation- This question tries to found out the policy awareness level of the people. We had found out that mean is**3.129032** which shows that its status is average.

(a) Some respondents say that policies working in institution are sufficient but needs improvement in implementation level.

(b) Some respondents say that policies working in the institution are insufficient because they are not practical as per shortage of staff and insufficient resources.

(c) Some respondents say there is a lacuna in the policy at coordination level.

Findings are that there should re- evaluate the policy in the coordination level context.

(6) Satisfied with the alignment and accountability with the process of risk assessment-

Explanation- This question tries to found out the satisfaction of the risk assessment of the disaster management with the people among the community. We had find out that mean is **3.311828**, which shows that its status is average.

(a) Some respondents say that they are partially satisfied with the alignment and accountability with the process of risk assessment because they say that the dimension criteria of risk assessment should be increase.

(b) Similarly accountability and liabilities are interred connected, so liabilities should also carefully check.

(c) Alignment should be reevaluated by the committee time to time.

Findings are that there is a need to improvement the system for alignment and accountability with the process of risk assessment regarding disaster management.

(7) Rate the role of management in implementing the policies in your organization-

Explanation- This question tries to found out the policy implementation status of the disaster management. We had find out that mean is**3.344086**, which shows that its status is average.

(a) Some respondents say that management role in implementing the policy is slow due to less manpower.

(b) Some respondents say that there inter conflicts between the management.

(c) Some respondents say that there is the lack of coordination between the management,

Findings are that there should clear the conflicts at management and implementation.

(8) Organization compensates or gives pension to the victims of the Disaster-

Explanation- In this question we also try to found out the post disaster management status. We had find out that mean is **3.655914**, which shows that its status is average.

(a)Some respondents say that the organizations compensate and give pension to the victims of the Disaster.

(b) Some respondent's say that the organizational compensations and pensions are not enough besides this organization should increase in safety measures in the institutions.

Findings are that there should be increase measures in the organizations, and also improve the compensation by pursuing the staff's group insurance policies.

(9) You ever perceived any barriers to working in alliance with the disaster management in organization-

Explanation- In this question we also try to found out the barriers of the disaster management wit in the organization. We had find out that mean is**2.548387**, which shows that its status is average.

Barriers	Does not apply (1)	A major barrier(2)	A moderate barrier(3)	A minor barrier(3)	Not considered a barrier(4)
Lack of funds	09%	47%	27%	13%	04%
Management concern	14%	43%	19%	17%	07%
lack of funds	07%	52%	27%	11%	03%
Conflict of interest	05%	41%	28%	17%	09%
Technological differences	03%	59%	21%	09%	08%
Have other priorities	11%	41%	13%	19%	16%
Limited staff	03%	56%	23%	11%	07%
Difficulty in coordination	09%	49%	16%	15%	11%
Lack of time	04%	51%	24%	17%	04%
Lack of information	07%	46%	29%	12%	06%

Limited resources (other than fund)	04%	57%	23%	09%	07%
other	08%	31%	43%	13%	05%

Findings are that there should be more focus on these specified areas.

(**10) You find coordination between all your sections inside and outside your department-**

Explanation- In this question we also try to found out the coordination level of the disaster management. We had find out that mean is **3.333333**, which shows that its status is average.

(a) Some respondents say that there in not so much coordination in the organization due to not classified areas of their job work.

(b) Some respondents say that coordination is a big challenge in the organization due to lack of interests and inner conflicts.

Findings are that management should take into consideration these conflicts and clearly classified the job areas of the employees.

3. Preparednes -

(11) Your organization actively taking steps towards disaster preparedness plan-

Explanation- In this question we also try to found out the preparedness plan status of the disaster management. We had found out that mean is **3.064516** which shows that its status is average.

(a) Some respondents say that the management has not prepared preparedness plan but they are working on this dimension.

(b) Some respondents say that they have preparedness plan but it is find insufficient to meet the target so there need s a modification.

Findings are that there should be a complete disaster preparedness plan to mitigate the disasters effects.

(**12) Specific equipments are available/not available for preparedness measures in your organization-**

Identifying the challenges -

(1) The institutions can improve their disaster response capabilities with new technology, equipments and training programs. They must have a clear profile of the challenges they are trying to solve and have processes or practices in place to face the problems.

(2) Mandatory policies, planning's and procedures frequently require the modification of existing disaster management systems. The ability to rapidly adapt modifications to keep pace with evolving situations benefits the response organizations, and the people who depend on them, to take decisions.

(3) Challenge to the effectiveness of disaster management and early recovery is the sharing of information across institutions hampered by a lack of interoperability.

(13) Findings are that the most of the organizations has disaster relief teams but they are not enough to manage an emergency. So there should be efforts to compete these disaster teams.

(14) For the early disaster recovery there are less efforts done in the institutions show there is the need to improve the early disaster warning by alarm, media advertisement, weather forecasting etc.

(15) There is mush need to improve the preparedness work like fire extinguisher, mock drill trainings advanced equipments for forecasting.

(16) Government should more focus on the coordination, manpower, budget and other related dimensions for a better disaster management.

(17) They should be more awareness about the emergency toll free numbers by educating the peoples by media advertisements, nukkad natak and other methods.

(18) An organization should be oriented the programs for disaster awareness programs like pamphlets distribution, trainings, mock drills etc.

(19) The Schedule training plan for an organization should be increase so that all the staffs could be trained to face an emergency.

(20) Finding is that the training frequency is not enough for employees so frequency should be increase.

(21) The training program held by institution is not enough so should be effectively implemented.

(22) There are the challenges regarding disaster properness in the organization so that should be minimized by the focus in these directions.

(23) The institutions have increase the resources, more volunteers, better coordination and improved budget for enhanced emergency system.

(24) The congregation level should increase by technical advanced equipments, first aid services, storing disaster supplies an increased the disaster response volunteers.

(25) Definitely the technology has contributed towards the better disaster management, so the innovations should be quickly implemented.

(26) There should be an improved information management system for early disaster response management by siron sound, hammer, radio, television, mike announcement and alarm systems.

(27) There is a need of budgetary support, increase man power, well equipped instruments in the organization.

(28) For early disaster recovery there should be a preparedness plan for the mitigation of the calamity.

(29) There should be advanced equipments, more manpower and efficient budget for a better emergency management.

(30) There should be more awareness, education, training programs more budget already prepared plan for a safe emergency plan.

6.4 Suggestions & Strategy for Future -

In the light of the above research work relating to disaster management institutions status in Kota district the following suggestions have been made to better improvement of the disaster management in the country and enhance the capability to mitigate their bad impacts. The Kota District has already established coordinating body for disaster management (DDMA), and it is also looking forward for long-term disaster mitigation in the state. At this point, the subsequent areas require to be addressed to reinforce the overall process of disaster management. Disasters don't follow district boundaries. If we look at Gujarat, it comprises of different regions with their distinguished agro-climatic conditions, ecology and demography. The effect of any natural calamity also varies with this region. All the regions have their inherent characteristics and problems. Therefore, while going for any disaster risk reduction measures should be designed with regional approach as its foundation. The regions can further be divided into sub regions with its peculiarities, similarities in vulnerability, demography and other local characteristics. This process can also ensure balance between top down and bottom up approach since the vision is for the whole state but actions are aiming the local needs. Research involves the Kota collect rate office which acts as a nodal centre of District Disaster Management Authority (DDMA) as per disaster Management act, 2005. This research also involves the other stake holders in disaster management in Kota district like Nagar Nigam, Water resources, Electricity department, and Fire safety, CMHO, Civil Safety, and SDRF in Kota District.

(1) To find out the awareness and information at community level, of these organizations about disaster awareness and preparedness, which in long run helps in building disaster resilient communities. For this purpose researcher took the questionnaire- 1 filled up by the people of the Kota city by random sampling.

(2) To find out the running status of these disaster management institutions researcher select the another questionnaire- 2 to filled up by the Government offices related to disaster management by stratified random sampling the same is used to empower the community.

(3) More Active involvement of communities in the disaster management activities, with clear delineation of their responsibilities, by providing better trainings to the civilians about the various aspects of disasters, and the benefits of the counter measures.

(4) More Involvement of women in mitigation and planning activities based on community as focal points for interaction with local and national disaster officials.

(5) Coordinated Integration of student organizations, like, NCC, Scouts and Guides etc. in managing disasters by training teaching and preparing their mentality to address emergency issues priory, not just as humanitarian and management reasons, but with a perspective that includes foresight relating to the intricacies of development processes

(6) A Multi-dynamic participation of NGOs and religious groups in disaster relief and rehabilitation operations, and as well as in disaster preparedness, training, awareness and mitigation activities.

(7) Involvement of various groups, trade unions, companies, citizen groups, to take active interest in environmental hazardous industrial units for the purpose of collection and dissemination of critical information to the general public.

(8) Disaster response priority should be given to the most inaccessible regions during the distribution of humanitarian aid, with special attention to the needs and wants of children, old, sick, pregnant and lactating women and physically handicapped victims.

(9) Psychiatrists and counseling expert's guidance for psycho- social help should be given to the disaster victims for quick recovery.

(10) Legal awareness programs should be done for the general public for an awareness regarding the effects of disasters and legal aspects of redresser of their grievances.

(11) Encouragement of the community based rehabilitation and reconstruction should be managed for humans for cost and resource effective with special attention to the interests of the weakest sections of the society.

(12) Effective training programs for disaster help volunteers and primary health paramedics should be periodically arrange for effective disaster preparedness and prevention, and post disaster response activities.

(13) There should be special provision for techniques, trainings and workshops for civil engineers, architects, and interior designers to create awareness and provide upgraded guidelines regarding hazard resistant planning, building, designing, constructing and retrofitting and other habitats.

(14) Utilization of advanced local knowledge, improved technology and resources should used to build, renovate and retrofit buildings and other infrastructures.

(15) Relevant amendments should be done in the Disaster Management Act, 2005, to make it more efficient and effective in managing hazardous emergencies, by delegating prominent and mandatory responsibilities to the local bodies, communities, NGOs and other helping groups and bringing them under the purview of the Act in consonance with the disaster management.

(16) Procurement of modem rescue and relief equipments, based on state-of-the art technology, for swift operations in the affected areas to help save maximum number of lives in a short period of time.

(17) Improvement of forecasting and early warning communication system for disaster preparedness and communication warnings in local languages should established in disaster prone areas priory.

(18) Proper planning should be managed for post disaster events to help according the vulnerabilities and tackling of future disasters with the past disaster lessons learnt.

(19) Strengthening of international cooperation in information and experience exchange between countries for prevention and reduction of disaster risks.

(20) Involvement of legislators and other elected members should be involvement in the field operations, as their presence in the affected areas creates chaos and confusion, and leads to wastage of State resources for their security purpose.

- **Strategy for Future -**

Future strategy for disaster interventions demands a vision, where Government requires putting appropriate emphasis on Structural and Non-structural measures. This requires optimizing between these measures to make them effective in all the aspects. Non-structural measures will undoubtedly be less cost intensive as well as enduring also. Before going for structural measures a complete cost-Benefit analysis of the same requires to be carried out and the measures should be implemented only when they can prove to be fruitful. In a disaster management situation, information should be widely distributed owned by different institutions, critical data is usually maintained in disparate systems that often don't interoperate well, and there are no common standards to enable institutions to efficiently coordinate, organize and share their resources during response operations.

(1) Global disaster management and humanitarian assistance requires a multifaceted approach that leverages the skills, resources and commitments of corporations, government agencies, intergovernmental organizations, nongovernmental organizations and individuals.

(2) The need to an automated manual records for disaster response and humanitarian assistance institutions ,religious groups and NGOs, which is just as important as, if somewhat less glamorous than, other critical issues affecting their readiness. True interoperability is about connecting people, data and diverse processes and organizations, which requires not only flexible technology and accepted standards, but also the fewest possible bureaucratic and regulatory barriers.

(3) In many countries, including India the people and institutions that work in disaster management also have responsibilities related to national security. The processes and technology solutions they use for critical infrastructure protection can also be adapted for better disaster management. These responders increasingly rely on information and communications technology (ICT) systems that can streamline knowledge sharing, situational analysis and optimize collaboration among institutions.

(4) Information communication Technology acts as first respondents to help and reduce the loss of life, property, reunite families and alleviate human suffering by providing with the tools for effective communication and collaboration to overcome challenges posed by distance, diverse languages, cultural differences, geographic barriers, international borders and damaged infrastructure.

(5) Training should be given to know the warning signs, alert and signals for vulnerable areas and people should stay tuned to their local television, radio station or community alert system for emergency information.

Preparedness and awareness should be increase by following ways-

1. **Check disaster survival kit-** people should make sure disaster survival kit is stocked with essential items and kept in an easily accessible location.
2. **Collect emergency building materials.** Depending on the type of disasters, peoples may want to have emergency materials on hand, such as plywood, sandbags and waterproof tarps.
3. **Fuel up vehicles and equipment.** People having emergency generators make sure that they have fresh fuel on hand. Depending on situations, they

may need a supply of extra fuel. They should sure to store the spare fuel in an approved container in a safe location.

4. **Be sure have chargers for cell phone, smart phone and other portable devices-** Having car chargers available can assist you in staying in communication with others if your electricity goes out. Peoples should not forget to take fully charge devices before a storm.
5. **Secure all outdoor objects or move them inside-** Grills, patio furniture and flowerpots are common household items that can become airborne in high winds. People should not use grills inside or store propane tanks inside the house or garage. Business owners should also remember to secure outdoor signage, benches and equipment to help minimize potential damage.
6. **Know how to turn off all utilities-**

It is always a good idea to know how to turn off the gas, electricity and water in home or business place. If you need to evacuate suddenly, it may be prudent to turn off utilities before leaving. Before doing so, consider equipment that can help minimize damage and should therefore not have utilities interrupted, such as electricity to sump pumps or fire protection equipment.

7. Know what will face -

Raining giant meatballs = probably unlikely. Part of preparation is know exactly what kind of disasters you might face and knowing what to do in each situation. Living in Montana? You probably don't need to worry about hurricanes. California? Better be ready for an earthquake, but don't overlook your chances of severe weather or pandemic flu. If you can't think of all the possibilities, here's a handy list from the Red Cross. If you think you live in a disaster-free zone, you're probably wrong.

8. Learn area's evacuation routes and shelter locations -

The time to figure these things out isn't while a hurricane is bearing down on your home, or after a tsunami warning has been issued. Evacuations are actually pretty common, so it will serve you well to know the details ahead of time. You should also know the escape routes from your own home, including the more obscure ones, like out that ground-level window in your bathroom. If you have kids, draw them a map and post it near their door. You should also plan

where your family will regroup if you must evacuate your house. Pick one location right outside your home, and one outside the neighborhood, in case you must leave the area. Decide ahead of time where you would go in case of an evacuation, whether its a friend's or relative's house or a Red Cross shelter.

9. Know how reconnect with people who matter -

If cell networks aren't working, you don't just need to worry about how your Netflix stream will be affected. Consider how you will contact your family or your roommates. How will you let others know you are alright? Figuring this out ahead of time can make everything so much easier in a difficult situation. The Red Cross recommends using an out-of-area emergency contact to have family members check in with, since it may be easier to make long distance calls. Everyone should also have a list of emergency contacts and local emergency numbers.

10. Sign up for emergency alerts and know how officials will communicate with you during a disaster -

You can get these on your cell phone, if you haven't disabled them already. We know the blaring noise overtaking the silent mode on your phone can be annoying, but this is probably the best way to learn about emergencies if you are constantly attached to your phone. The emergency alert system also broadcasts over the radio and television, and NOAA weather radio can tell you if severe weather is expected 24 hours a day, seven days a week. Tune in on social media as well, but don't expect to rely on it exclusively as you may not keep your Internet connection in an emergency.

11. Learn what to do if caught away from home -

Obviously you may not be at home when disaster strikes. In the case of an unexpected emergency, you should be prepared to react from different locations, including your workplace or car. Most of this is pretty basic stuff -- again, know your evacuation routes, communication plan and how you'll receive emergency notification. Have a plan for reconnecting with kids who may be at school, daycare or after-school activities. Talk to schools to see how they will communicate

with families in an emergency, if they have a shelter-in-place plan and where they will go if they are forced to evacuate.

12. Have a kit and know how to use it -

We're talking about some basic necessities. This includes food, water, basic first aid supplies and other emergency equipment that you might already have (think flashlights and duct tape). Check out this full list by FEMA for tips. The key is to have this assembled and ready to use, not scattered all over your house. Make sure everything is in working order and that no one sneaks snacks from your finished kit. Some kits are available for purchase pre-packed, but remember, if you don't know how to use what you have, it could be useless.

13. Keep in mind people who may need special preparation-

Kids, infants, people with disabilities and seniors may all need special considerations while planning for an emergency. If you or a family member need medication or special equipment, make sure you have a plan to bring it with you. Talk to your neighbors about how you can help one another in a disaster, and check on each other in case of an emergency.

14. Prepare for pets-

The goal of emergency preparedness is to keep the whole family safe -- and that includes our pets. If you need to evacuate, you should never leave your pet behind. Try to evacuate to a friend or family member's house, as pets may not be allowed inside public shelters. Keep a pet emergency kit on hand with food and other important items. The ASPCA recommends micro chipping pets so they can be identified and returned to you even without tags (or you may want to invest in a GPS tracker so you can find them yourself). The ASPCA app also helps you keep track of animal records required to board pets at an emergency shelter and has other helpful tips for a variety of situations.

15. Learn emergency skills that can always come in handy -

Make sure you know little things that can make a huge difference, like how to use a fire extinguisher or perform basic first aid. Get trained in CPR or the even simpler hands-only CPR, which could help save someone's life even when you least expect it. You can also learn how to shut off utilities in your house in case of a disaster that may damage gas, water or electrical lines.

16. Find out how to help community during a disaster -

Volunteer firefighters are trained to respond to all sorts of emergencies Want to help out even more? Learn how you can be a community leader during a disaster or teach others how to be prepared. Volunteer positions with local emergency response agencies or nonprofits are available in a huge range of capacities.

6.5 Other Recommendations -

1. The developing nations should build the capacity building to deploy mobile communication vehicles such as stratospheric balloon networks, Unmanned Aerial Vehicles (UAVs), and Millimeter Wave (Mi-Wave) products in the emergency response phase. By considering developing nations' economic constraints, they could seek partnerships to access these resources from nations that have these technologies.
2. Internet connectivity and mobile networks can be made available for emergency responders in unconnected areas by using balloon based projects such as Loon Project and Sky Site.
3. In times of panic, there can be an overload of cellular networks in the affected location when members of the public try to contact friends and family. This results in a delay of communicating with emergency response teams and providing early warning to those in highest-risk areas.
4. Developing nations can combine an open-access location data from the Global Positioning system (GPS) and Global Navigation Satellite System (GNSS) with Internet of Things (IoT) devices.

5. Development of the Artificial Intelligence (AI) to define critically vulnerable areas in disaster zones to prioritize incoming alert messages and outgoing distress messages or calls. Use of an AI notification service algorithm to prioritize alerts based on location.
6. Use of mobile Bluetooth technology for text messages in the disaster areas where networks are unable.
7. There is a need to update national regulations and policy to include network and message prioritization Issue.
8. Developing nations can develop and introduce a Smartphone application that encourages civilians to input locations of road blockages through crowd sourced data and social media during disaster response to optimize evacuation route updates. The population should be aware of this application and how to use it.
9. Use of field observations and location data from affected people provide real-time updates on movements and obstacles.
10. Public, private and government data sharing should be facilitate.
11. Mitigation and preparedness are improved by reliable early detection systems. The Indonesian and Chilean case studies demonstrated that delayed warnings result in communities being unprepared for the impacts of an earthquake. Early prediction of an event gives additional notice to those affected, allowing them to better prepare for the impending event.
12. Developing nations can investigate the development of a mobile app that encourages users to gather, self-index, and share field observations of abnormal animal behaviors to generate a model that links animal movement with prediction of pre-seismic events.
13. Developing nations can seek access to electromagnetic measurements from satellites such as the China Seismo-Electromagnetic Satellite (CSES), which correlates earthquake predictions with global disaster management databases such as UN-SPIDER to improve the effectiveness of their mitigation and preparedness phases of their disaster plan.
14. Developing nations could monitor tectonic plate movements by using Very Long Baseline Interferometers (VLBI) and IoT sensors at points of interest in

an effort to predict earthquakes and communicate early warnings direct to civilian devices.

15. Considering developing nation's economic constraints, access to these instruments and their data may be available in the future through extensions of the International Charter or other multilateral international agreements.

Conclusion-

Disaster Management has to be a multi-disciplinary and pro-active approach. There are various measures for putting in place institutional and policy framework, disaster prevention, mitigation and preparedness enunciated in this research work. Initiatives being taken by the Central and State Governments, the community, civil society organizations and media also have a key role to play in achieving towards a safer India. To move towards safer and sustainable national development, development projects should be sensitive towards disaster mitigation and preparedness. The efforts for vulnerability reduction to all types of hazards would be waste if the people of this country are not prepared to pay the proper attention in terms of massive casualties and economic losses, the task, though difficult but it could be achieve by disaster education by proper channel. India has taken the few significant steps towards vulnerability reduction like prevention, mitigation measures and preparedness for a rapid and more professional response. With a massive awareness generation campaign and building up of capabilities as well as institutionalization of the entire mechanism through a techno legal and techno financial framework, we are gradually moving in the direction of sustainable development.

Our vision is to build a safer and secure India through sustained collective effort, synergy of national capacities and people's participation. What looks a dream today will be transformed into reality in the next two decades. This is our goal and we shall strive to achieve this goal with a missionary zeal. The path ahead, which looks difficult today, will become a lot easier as we move along together.

Further considering importance of disaster preparedness, we have to make it inevitable, integral practice and approach to our development planning. Disaster

preparedness should become a culture and conscious practice. The response to a disaster should start from where it strikes so as to reduce the time gap between natural disaster and response. Development plans and policies that fail to understand this and fail to integrate disaster risk reduction are bound to suffer in the long run. Disaster preparedness should become an issue of governance and common interest[xv].

Reference -

1. Courtesy of jocelyn Augustine/ Fema.]

2. Shodhganga.inflibnet.ac.in/bitstream/10603/19636/12/12_chapter4.pdf

3. Beyond Building a Centre of Excellence For EO-Based Monitoring Of Natural

4. Disasters. A GEO Workshop on Natural Disasters Mitigation and Earth Observations. Presentation- Kontoes, H. (2014)

5. Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications ·

6. Disaster Management- G.K Ghosh-A.P.H. Publishing Corporation ·

7. Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi.

8.Kota Disaster Management Report-2010

9.kjota Disaster Management Report-2015

10. Kota Nagar Nigam Bulletin -2008

11.Kota at aGlance-2006

12.Kota ko Jano-Dr. B.K.Singh,2003

Conclusions

(1) There is targeted revenue difficult elimination issue. Over-exploitation of natural resources is leading towards environmental degradation. That may lead to nation increases much but public safety common sense and awareness in community lacks. In many instance lack of preparedness is converting hazards into disasters. Flaws in intelligence are causing some disasters, say, terrorism, strikes, social tensions, etc.

(2) Public Health infrastructure is inadequate but health hazards increase. Women and Children are usually most affected during disasters. More attention is needed to be given to this issue. Even camp managing Committee lack sufficient number of women, to take care of women, in relief and rehabilitation Apprehensions of misuse of science and technological advancements exist. Drought affects rural areas more and water supply infrastructure remains weak in rural areas.

(3) As normal procedures are difficult to follow, due to urgency corruption problems are there. Ineffectiveness in water management Policies creates problems in drought management and flood relief. Study and Research in Disaster Management is still deficient. In fact, there is need to introduce the Disaster management and Public Administration.

(4) Traditionally, even in legal framework, meaning of disaster has been taken narrowly. Enforcement of Public Safety Regulations is not effective Low income and Poverty creates problems in matters of preparedness. Professional skills for field machinery in matters of disaster management still lack.

(5) Still there are deficiencies in taking up the issue of Geographical Information System (GlS) as a plan scheme. Community participation in vulnerability analysis lacks. Media use for bringing mass awareness is not paid sufficient attention. Digital dissemination of information by Disaster Management Authorities is still inadequate.

(6) Much gap exists between disaster research and community capacity building. There are instances of policy makers lacking the Disaster Management experience. Potential of ex-servicemen available in between country is not used well. International or bilateral cooperation in Disaster management is not up to the mark.

Suggestions-

(1) Life cycle of crisis management can be broadly divided in three phases – pre crisis, during crisis and post- crisis. Sustainable Development preparedness can reduce hazard. There is need to link disaster management and development plans.

(2) Planned improvement in legal framework in needed.

(3) Bringing community consciousness will help. Short term and long terms planning need integration. More effective international cooperation and use of it is need for disaster warning system.

(4) Community response is the first in case of disaster, there is much need for community capacity building.

(5) Policy of Emergency Operation Centers (EOC) at national, state and district level should be effectively implemented.

(6) Subject of Disaster management is not mentioned specifically, in any of the three lists of the Seventh Schedule of the constitution. National Commission of the Constitution (NCRWC) suggested its inclusion in Concurrent List. Best Practices guidelines should be laid down by subject experts.

(7) Meaning of Disaster in National Disaster Management Act, 2005 is narrow it should be broadened. Capacity building in local government is needed. In Japan local governments have a role to play in such matters.

(8) 2nd ARC recommends, in larger cities (say with population, exceeding 2.5 million) the Mayor, assisted by the Commissioner of the Municipal Corporation

and the Police Commissioner should be directly responsible for Crisis management.

(9) Initiatives by Calamity relief Fund (CRF) exists various related rules exist, say, Hazardous Waste (management and Handling Rules) 1989, The Ozone Depleting Substances (Regulation and control) Rules, 2000 etc.

(10) New disaster preparedness plans for states and districts other states should be made and implemented. National Institute of Disaster Management is set up at Delhi, Coastal Zone Regulations, Building Codes, Fire Safety Rules etc. some States have gone for State Disaster Management Acts, say : Act, 2003, Bihar Disaster management Act, 2004, Uttrakhand Disaster Mitigation, Management and Prevention Act, 2005; Uttar Pradesh Disaster Management Act, 2005 etc. Uttarakhand has set up a separate department of Disaster Management

(11) Vulnerability Atlas of India was brought in 1998. Seismic Zone of India has been standardized. Of late, Five Year Planning had been giving high priority to such issues. National Building Code 3 was brought in 2005.

Disaster Management has to be a multi-disciplinary and pro-active approach. There are various measures for putting in place institutional and policy framework, disaster prevention, mitigation and preparedness enunciated in this research work. Initiatives being taken by the Central and State Governments, the community, civil society organizations and media also have a key role to play in achieving towards a safer India. To move towards safer and sustainable national development, development projects should be sensitive towards disaster mitigation and preparedness. The efforts for vulnerability reduction to all types of hazards would be waste if the people of this country are not prepared to pay the proper attention in terms of massive casualties and economic losses, the task, though difficult but it could be achieve by disaster education by proper channel. India has taken the few significant steps towards vulnerability reduction like prevention, mitigation measures and preparedness for a rapid and more professional response. With a massive awareness generation campaign and building up of capabilities as well as institutionalization of the entire mechanism through a techno

legal and techno financial framework, we are gradually moving in the direction of sustainable development.

Our vision is to build a safer and secure India through sustained collective effort, synergy of national capacities and people's participation. What looks a dream today will be transformed into reality in the next two decades. This is our goal and we shall strive to achieve this goal with a missionary zeal. The path ahead, which looks difficult today, will become a lot easier as we move along together.

Further considering importance of disaster preparedness, we have to make it inevitable, integral practice and approach to our development planning. Disaster preparedness should become a culture and conscious practice. The response to a disaster should start from where it strikes so as to reduce the time gap between natural disaster and response. Development plans and policies that fail to understand this and fail to integrate disaster risk reduction are bound to suffer in the long run. Disaster preparedness should become an issue of governance and common interest.

Bibliography

Bibliography

Books:

1. Ashwath narayana, G., Drought in India. In Proceeding of National Seminar on Drought, Desertification and Famine New Delhi, 1986.

2. A case of gregarious flowering in bamboo, dominated lowland forest of Assam, India: phenology, regeneration, impact on rural economy, and conservation Journal off forestry research. 21(4).

3. Bhatia, B. M. (1967): Famines in India, Asia Publishing House, New Delhi, pp. 389.

4. Disaster Management in India – Relevant acts and Rules: Bose.

5. Dracup, J. A., Lee, K. S. and Paulson, E. G., on the definition of drought. Water Resources Res., 1980, 16, 297–302

6. Food security and seasonal climate information: Kenyan challenges. Sustain Sc, 5, 99–114.Ray-Bennett, N. S. (2009).

7. Food and freedom- Washington D.C. CGIAR. Shahabuddin, Q. & Ali Z. (2006) Natural disasters, risks, vulnerability and persistence of poverty: An analysis of household level data program for research on chronic poverty in Bangladesh. PRCPB Working Paper No. 15.

8. Famine and human rights. Development in Practice, 1 (2), 77-83

9. Gurjar R. K. and Jatt, B.C. (2001): Natural Disaster, Surbhi Publication, Jaipur (Raj.).

10. Gupta, K. Harsh (2003): Disaster Management, Indian national science Academy, Delhi.

11. German Technical Cooperation Timmermans (2004). Rural livelihoods at Dwesa/Cwebe: Poverty, development and natural resource use on the wild coast, South Africa. Unpublished master's thesis, Rhodes University

12. In Komol Singha (Ed.), Village development in north east India. New Delhi: Concept Publishing Company.

13.In Grant R. Singleton, Steve R. Belmain, Peter R. Brown, and Bill Hardy, (Eds.),2012

14. Jack Pinkowski (2007) : Disaster Management Hand Book, CRC Press, Taylor & Francis Group, Boca Raton, London, New York.

15. Karnataka. Economic and Political Weekly, 37(35) (August 31), 3677-3681

16. Littleton, C. J. (1990): Counter Disaster Activities in Australia, UNDRO NEWS, Jan/Feb., pp. 22.

17. Mitchell, James K. (1998): Confronting Natural Disasters: An International Decade for Natural Hazard Reduction, Environment.

18. Multiple disasters and policy responses in pre - and post independence Orissa, India. 274-290 Regassa, Nigatu. (2011)

19. Natural Disaster Management, ICFAI Books – Articles.

20. Poverty and Famines - An essay on entitlement and deprivation"- Oxford: Clarendon Press Sen, A. (1987).

21. Pattern of droughts and survival strategies of farm households in a droughtprone district in Tamil Nadu. Indian Journal of Agricultural Economics,

22. Parikh, V. Darshan (2004): National Disaster Management Framework, Rohit Publications, Delhi.

23. Rodent outbreaks: ecology and impacts. Los Baños (Philippines): International Rice Research Institute Singleton, G.R., Htwe, N.M., & Nelson, A.D. (2011).

24.Robert K. Yin (2009)- Case study Research: Designs and Methods. Fourth Edition, Applied Social Research Methods Series, Volume 5

25. Rodier, J. A. and Beran, M. A., Some information on the UNESCO–WMO report on the hydrological aspects of drought. In Proceedings of International Symposium on Hydrological Aspects of Drought, 3–7 December 1979, pp. 461

26. Robledo, C., Fischler, M. & Patino, A. (2004)- Increasing the resilience of hillside communities in Bolivia: Has vulnerability to climate change been reduced as a result of previous sustainable development cooperation- Mountain Research

And Development 24:14–18

27. Redmond, K., Climate monitoring and indices-In proceedings of seminar workshop on drought management and planning. IDTC Technical Report (eds Wilhite, D. A., Wood, D. A. and Kay, P. A.), University of Nibraskas, Lincolin, 1991.

28. Rokhuma, C. (1988)-Tam do pawlin engnge an tih(What is anti-famine organization doing?), Aizawl: Author Salzer, M.S., & Bickman, L. (1999). The short- and long-term psychological impact of disasters: implications for mental health interventions and policy, response to disaster: Psychosocial, community, and ecological approaches. Brunner/Mazel, USA, pp 63–82.

29. Rodent outbreaks and extreme weather events: A south-east Asian perspective.

29. R. R., & Weigel, D.J. (1987) - Identifying stressors and coping strategies in Two-generation farm families Family Relations, 36(4), 379-384

31. Singh Sarinder (1991): Environmental Geography, Prayag Pustak Bhawan, Allahabad (U.P.).

32. Sahni Pradeep and Dhamija Alka (2000): Disaster Management Employment News paper, Information and Publication Minister, Publication Department, Indian Govt. New Delhi, P. 6-7 & 13.

33. Sinha, R. K. (1991): Human Ecology, INA Publications, Jaipur.

34. Shaw Rajib (2004): Towards Sustainable Recovery, Future Challenges after Gujrat Earthquakes in India, Kings Publications, Patna.

35. Sinha, D. K. (1994): Towards Basics of Natural Disaster Reduction, Research Book Centre New Delhi.

36. Sinha, D. K. (1900): Towards Emerging facets of Disaster Emergency and Crisis Management, Research Book Center, New Delhi.

37. Sinha, D. K. (1990): International Decade for Natural Disaster Reduction (IDNDR): A Critique on Information management, souvenir (SI)-90, Silver Jublee Convention, pp.47-49.

38. Sinha, D. K. (1990): Some remarks on management of Disaster pertaining to coastal Areas in Coastal Management of West Bengal, Sea Explorers, Institute, Calcutta, (W.B.).

39. Singh, Brij Kishor Prasad (2009): Industrial disaster management, Hardbound Publication, Hardbound.

40. Swami, S. K., Management of drought in India. UNDP Sub regional seminar on Drought Mitigation, Iran, 28–29 August 2001

41. Small holder farmers coping strategies to household food in security and hunger in southern Ethiopia. Ethiopian Journal of Environmental Studies and Management, 4 (1) 39-48.

42. Sami, L. (2002)-Gender differentials in famine mortality Madras (1876-78) and Punjab (1896-97). Economic and Political Weekly, June 29, 2593-2600 Sarma, H., Sarma A. M., Sarma, A., & Borah, S. (2010)

43. Scoones, I. (1993)-Coping with drought: Responses of herders and livestock in Context of savanna environments in southern Zimbabwe. Human Ecology, 20, (3), 293-314.

44. Scoones, I. (1988) - Sustainable rural livelihoods: A Framework for Analysis, IDS Working Paper No.72, Brigton: Institute of Development Studies, University of Sussex, UK. Sen, A. (1981).

45. Shariff, Z. M., & Khor, G.L. (2008) - Household food insecurity and coping strategies in a poor rural community in Malaysia. Nutrition Research and Practice 2, (1), 26-34.

46. Shibata, S. (2009) - Consideration of the flowering periodicity of melocanna baccifera through past records and recent flowering with a 48-year cycle. VIII WorldBamboo Congress Proceedings 5:90-99.

47. Siamwiza, B. S. (2009) - Historical analysis of vulnerability and resilience in a semiaridregion of Zambia. Working Paper on Social-Ecological Resilience Series No. 2009-011. Department of history,University of Zambia.

48. Singh, R. J. (2004). Drought and household coping strategies: A case of Rajasthan"- Indian Journal of Agricultural Economics, 59(4), 689.

49. Singha, R.K.P.G., Chhuanawma, L.H., & Singh, B. (2009) - Bamboo flowering and its impact on socio-economic life of tribal people in Mizoram.

50. Singleton, G.R., Belmain, S.R., & Brown, P.R. (2010b).Rodent outbreaks: an age-old issue with a modern appraisal.

51. Sivakumar, S. & Kerbert, E. (2004) - Drought, sustenance and livelihoods Akal survey in Rajasthan. Economic and Political Weekly, 39(3), 285-294. Skoufias, E. (2003). Economic crises and natural disasters: Coping strategies and Policy.World Development, 31(7), 1087–1102.

52. Smit, B. (ed.), (1993). Adaptation to Climatic Variability and Change: Report of the Task Force on Climate Adaptation. Guelph, Environment Canada, 53pp.

53. Smith, M., Pointing, J., & Maxwell, S. (1992). Household food security, concepts and definitions: An annotated bibliography Development Bibliography No.8. Institute of development Studies,Brighton.

54. Smucker,T. A., & Wisner, B. (2008) - Changing household responses to drought in Tharaka, Kenya: Vulnerability, persistence and challenge. Overseas Development Institute. Oxford UK: Blackwell Publishing

55. Sridhara, S. & Rajendran, T.P. (2009)- Bamboo flowering and rodent outbreaks. Jodhpur: Scientific Publishers.

56. Subbiah, A.R. (2000.-Response strategies of local farmers in India. In D.A. Wilhite (Ed.) Drought: A Global Assessment (Vol. 2), Rutledge, London.

57. Takasaki, Y., Barhamoliver, B.L., & Coomes, T. (2004). Risk coping strategies in tropical forests: Floods, illnesses, and resource extraction. Environment and Development Economics, 9, 203–224.

58. Talukdar, S. (2005) - Study of natural disaster in Mizoram and its impact. In R.N. Prasad and A.K. Agarwal (Eds.) Landmarks: A Study of Public Administration in Mizoram. Aizawl: Lengchhawn Press.

59. Talukdar, S. (2008)- Acute food shortage in Mizoram villages. The Hindu, Tuesday April08, 2008

60. Tarasuk V. (2001)- A Critical examination of community-based responses to household food insecurity in Canada. Health Education & Behavior.

61. Thakur, N.S. A. Firake, D.M., & Kumar, D. (2012) An appraisal of pre-harvest rodent damage in major crops of north-eastern Himalaya, India. Archives of Phytopathology and Plant Protection,

62. Thomas, B. K., Muradian, R., Groot, G., & Ruijter, A. (2010) Resilient and Resourceful: A case study on how the poor cope in Kerala, India. Journal of Asian and African Studies, 45, 29-45.

63. Tideman, E., & Khatana, V. (2004).-Drought coping strategies in semi arid India.

64. Tompkins, E. L., & Adger, W. N. (2003). Building resilience to climate change through adaptive management of natural resources. Tyndall Centre for Climate Change Research Working Paper. 27.

65. Troube, R.S. (1921).-The Silviculture in Indian Trees. Oxford: Clarendon Press. Umamaheswari, I., Krishnamoorthy, S., Nasurudeen, P., & Kolli, R. K. (2001).

66. Tank, V. Singh (2003): An Approach to disaster management, Public Adm. in New millennium, Anamica Publishers and Distributors, New Delhi.

67. Thornthwaite, C. W., An approach towards a rational classification of climate, Geogr. Rev., 1947, 38(1), 55–94.

68. Vermaak, J., & Niekerk, D. (2004) - Disaster risk reduction initiatives in South Africa .Development Southern Africa, 21(3).

69. Vidyarthi, L.P., & Rai, B.K. (1976) - The tribal culture of India. Delhi: Concept Publishing Corporation.

70. Visvanathan, S. (1997). The Carnival for Science, Delhi: Oxford University Press. Xxvii Waal, A. D. (1991).

71. Wilhite, A. D., ISDR ad-hoc discussion group on drought. Inter-agency Task Force on Disaster Reduction, Geneva, 2002, pp. 1–5

72. Walker, B. W. (1985)-Famine in Africa-The real causes and possible solutions. The Environmentalist, 5(3), 167-170.

73. Weichselgartner, J., & Sendzimir, J. (2004) - Resolving the paradox: Food for thought on the wider dimensions of natural disasters.

74. West C. T., Roncoli C., & Ouattara, F. (2008) - Local perceptions and regional climate trends on the central plateau of Burkina Faso. Land Degradation & Development (Published online in Wiley Inter Science) www.interscience.wiley.com

75. White, H. (2002) - Combining quantitative and qualitative approaches in poverty analysis. World Development 30(3), 511–522.

Wisner, B. (1975) - Famine relief and people's war. Review of African Political Economy, 3, 77-83.

76. World Bank (1986). Poverty and hunger: Issues and options for food security in developing countries, World Bank, Washington DC.

77. Yaro, J. A. (2002) - The poor peasant: One label, different lives, The dynamics of the rural livelihood strategies in the Gia-Kajelo community, northern Ghana Norwegian Journal of Geography, 56 (1), 10-20.

78. Young, H., Jaspars S., Brown, R., Frize, J., & Khogali H. (2001). Food-security Assessments in emergencies: A livelihoods approach. Overseas Development Institute London.

79. Young, R.A. (1995). Coping with a severe sustained drought on the Colorado River.

1. Pumpkins, people and policy. Natural Resources Forum, 30.

2. Water Resources Bulletin, 31(5), 779-788.

3. Zaitinvawra, D & Kanagaraj, E (2008). Shifting cultivation to settled agriculture: Rural livelihood patterns in Mizoram. The Eastern Anthropologist, 61(2), 201-225.

4. Zamani, Gh. H., Gorgievski-Duijvesteijn, M.J., Zarafshani, K. (2006) - Coping with drought towards a multilevel understanding based on conservation of resources .Hum Ecol, 34, 677–692.

5. Zarafshani, K., Gorgievski, M. J., & Zamani, G. H. (2007). Dealing with drought: A comparison of perceptions and coping strategies of Iranian farmers from regions with different drought intensities. The Journal of Agricultural Education and Extension, 13(1), 69 – 80.

6. Ziervogel, G., & Calder, R. (2003)- Climate variability and rural livelihoods: assessing the impact of seasonal climate forecasts in Lesotho. Area, 35(4) 403–417.

7. Ziervogel, G., Bharwani, S., & Downing, T. E. (2006). Adapting to climate variability:

Journals and Magazines:

1. A Model Citizen's Charter for Disaster Management in Uttaranchal (India): An International Journal, vol. 16, No. 5 (2007), pp. 755-760.
2. INDIA TODAY (2000): 10th May, 2000 Edition, Delhi.
3. Journal of Loss Prevention in the Process Industries, vol. 13, issue I, January, 2000, pp. 57-62.
4. PRATIYOGITA DARPAN (2008): September Edition, Disaster Management and Relief.
5. VIGYAN PRAGATI (1999): June Edition, Scientific and Industrial Research Council, New Delhi.
6. YOJNA (2000): July Edition, Publication Department, Indian Govt. Delhi.
7. YOJNA (2009): June Edition, Publication Department, Indian Govt., Delhi.

Related Websites:

www.education.bioxel.com/kota

www.flikart.com/disaster management

www.geographia.nic.in

www.indianenvironment portal.org.in

www.nidmindia.nic.in

www.ndma.com

www.nsci.com

www.reliefweb.in

Summary

Introduction -

Disasters have shown emergent challenge in terms of lives and property all over the world due to urbanization, increasing population and increasing degradation of environment. The global efforts to manage disasters are still not matched with the frequency and magnitude of disasters. Though, for the last 15 years some new philosophy on disaster management has emerge at all significant levels which plead for a proactive and preventive approach and integrates disaster management with ongoing development activities that is sustainable development.

As per the Disaster World Report 2009, hydro meteorological event, linked to climate change – floods, storms, heat waves and drought together accounted for nearly 60 % of Disaster Relief Emergency Fund In the Myanmar alone, cyclone Nargis claimed some 1, 38,000 life. Earthquake in Sichuan Province in China has killed some 88,000 people, affected 46 million people; a major US flood 11 million and a drought in Thailand 10 million. So, there is there must be proactive preparedness plan for disaster mitigation.

Disaster Profile of India-

The Indian subcontinent is among the world's most catastrophe prone area. Almost 85% of India's area is exposed to multiple hazards. The 28 states and 7 union territories, of the nation -22 are more prone to disasters. About 60% landmass of in India is prone to earthquake of various intensities, over 40 million hectares is vulnerable to floods, about 8 % of the total area is prone to cyclones and 68 % of area is susceptible to drought. That means almost 57% of the land is vulnerable to earthquake (high seismic zones lll-V), 68% to drought, 8% to cyclones and 12% to floods. Since the 2004, India has also become more vulnerable to tsunamis in the Indian Ocean.

Types of Disasters-

The disaster is divided as per the criterion of classification. On the basis of their origin, they are classified as natural and manmade. their severity, they may be classified as major and minor disasters. High powered committee (HPC) constituted in August, 1999 by the Government of India, under the Chairmanship of J.C. Pant adopted origin as the standard for the categorization of disaster. The fundamental task of the committee was to prepare comprehensive model plans for disaster management at district, state and national level. The committee has identified 30 disasters and categories them in the five following groups.

1. Water and Climate Disaste --

Such as flood, cyclones, hailstorms, cloudburst, heat and cold waves, snow avalanches, droughts, sea erosion, thunder and lightning.

2. Geological Disaster-

Such as landslides and mud flows, earthquakes, mine fires, dam failures and general fires.

3. Biological Disaster-

Such as epidemics, pest attacks, cattle epidemic and food poisoning.

4. Nuclear and Industrial Disaster-

Such as Industrial, Chemical and Nuclear accidents.

5. Accidental Disaster-

Such as fires, oil spill, mine flooding incidents, collapse of building structures, bomb blasts, air, road and rail mishap, boat capsizing and stampede during congregations. At central level, an administrative ministry has been identified as nodal agency for each disaster to coordinate the activities of disaster management operations at different levels.

Disaster Management – A New Approach-

Disaster Management is an effort to inquire into the process of a hazard turning to disaster to identify its causes and rectify the same through public policy. Therefore disaster management is a policy issue concerned with minimizing and preventing the damaging impact of a natural or manmade hazard. Some of the policy and administrative factors relevant to disaster management are such as poor and weak or overcrowded buildings in earthquake prone zone, poor land use planning in flood prone areas, inadequate and faulty laws regulating various processes and facilities, general low risk perception towards among people etc.

The above description of disaster management underlines the difference between the hazard and the disaster. A hazard is a natural or manmade damaging event which is beyond the effective control of human being, whereas the disaster is the sum total of consequences of natural hazard due to vulnerability of people or regions subject to hazard. Thus same natural hazard may produce different amount of disastrous impact on different group of people or regions. The new approach to disaster management evolved gradually in 1990s beginning with the declaration of 1990-2000 by UN General Assembly as the International Decade of Natural Disaster Reduction.

Disaster statics in India-

The major disasters such as tsunami in Asia in 2004, Hurricane Katrina in U.S. in 2005 and Muzaffarabad Earthquake in 2005 and underlined the importance of the new approach accepted across the world. The United Nation Report titled “Living with risk” claims that though there has been decline in the number of losses to human lives from disaster the occurrence of disaster is raising.

(1) The Yakohama Strategy for disaster management was renewed at the world conference on Disaster Reduction held at Hyogo (Japan) in Jan. 2005. The conference laid emphasis on some crucial but neglected aspects of disaster management such as governance and policy framework, risk identification and early warning, knowledge management, reducing risk factors and preparedness for effective re-

sponse and recovery. The Hyogo conference adopted the framework of Action, 2005-2015 called "Building the Resilience of Nations and Communities to Disaster."

(2) As panic swept across India's eastern coast in the aftermath of the massive 8.6 magnitude earthquake off the Indonesian coast on 12 April, 2012, the National Disaster Management Authority (NDMA) set off the biggest disaster drill the country has seen since the body was created.

(3) The alert brought back memories of the devastating tsunami of 2004, in which 2.4 lakh people were killed worldwide. Before that, among the major quakes India has seen was the one on April 4, 1905, an 8.25 rocker that hit the Kangra region in Himachal. It had killed around 20,000 people. Then there were two very large magnitude earthquakes in Bihar (1934) and Assam (1950).

Through these earthquakes and the authorities' response to those, a "quake philosophy" has been evolving continuously. Till the end of last century, the essential administrative approach was, "Earthquakes cannot be predicted."

(4) This attitude experienced a thaw sometime after the disastrous Bhuj earthquake of magnitude 8.0 on January 26, 2001. The administration started considering how to save lives and manage disaster. Various state governments were requested to set up a disaster management office. At the Government of India level, two institutes were set up in New Delhi — the National Institute of Disaster Management (NIDM) and the National Disaster Management Authority (NDMA). The aim was to mitigate the damage potential of natural disasters in future.

Structural Management of Disaster-

The subject of disaster management had been taken seriously at the governmental level. However, subsequent earthquakes proved that the organizations were not able to check disasters. After Bhuj, there were two major seismic events - the Andaman (Sumatran) earthquake-cum-tsunami of 26 December, 2004, and the Kashmir earthquake of October 8, 2005. The disaster management bodies

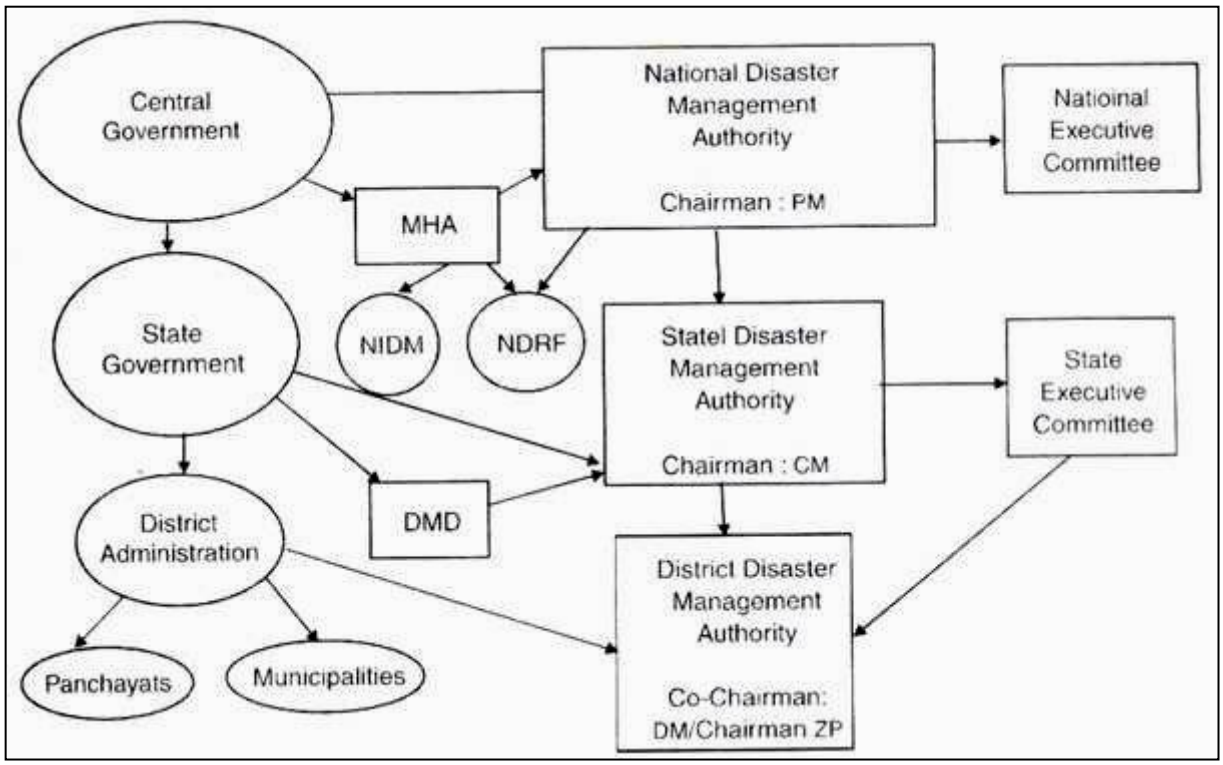
were not able to do anything to prevent deaths. Even a moderate earthquake of magnitude 6.8 on September 18, 2011, in Sikkim was a disaster. Most disaster management plans have thus far focused on the post-seismic period of rescue, rehabilitation and reconstruction (RRR). The Geological Survey of India (GSI), in a report presented to the Uttarakhand Government in July 2007, observed that the probability of occurrence of a large magnitude earthquake more than magnitude 8.0 in Uttarakhand was as high as 0.98%. The Ministry of Home Affairs (MHA) in the Central Government has the overall responsibility for disaster management in the country. For a few specific types of disasters the concerned Ministries have the nodal responsibilities for management of the disasters, as under:

Drought	**Ministry of Agriculture**
Epidemics & Biological Disasters Chemical Disasters Nuclear Disasters Air Accidents Railway Accidents	Ministry of Health and Family Welfare Ministry of Environment & Forests Ministry of Atomic Energy Ministry of Civil Aviation Ministry of Railways

Preparedness Plan-

Under such unforeseen conditions, our managers need to plan some activities during the pre-seismic period and also discuss what should be done during the co-seismic period. Take every section of society in confidence and explain to them the limits of earthquake prediction and how the administration plans to overcome the odds. It is a fact that the subject of earthquake prediction has not reached perfection. It is difficult to predict earthquakes. On the other hand, if the administration predicts an earthquake, and it does not occur, the administration has to face public criticism. The best way for disaster management offices is to create awareness, inform people about reliable precursor's events and indicators that may be noted ahead of an impending an emergency.

Disaster Management Structural Diagram



National Disaster Management Act 2005-

National Disaster Management Act, 2005 defines events that cause substantial less of life, prosperity and environment. It read, "Disaster means catastrophe, mishap, calamity or grave occurrence in any area, arising from nature or man-made causes, or by accident or negligence which result in substantial loss of life, of human suffering or damage to, and destruction of property, or damage to, or degradation of environment, and is of such nature or magnitude as to be beyond the coping capacity of the community of affected areas."

Disaster management Act, 2005 defines Disaster Management as, a continuous cycle and integrated process of planning, organizing, coordinating and implementing, coordinating and implementing measures which are necessary or expedient for-

(I) Prevention of danger or threat of any disaster.

(ii) Mitigation or reduction of risk of any disaster or its severity or consequences.

(iii) Capacity-building.

(iv) Preparedness to deal with any disaster.

(v) Prompt response to any threatening disaster situation or disaster.

(vi) To assessing the severity or magnitude of effects of any disaster.

(vii) Evacuation, rescue and relief.

(viii) Rehabilitation and Reconstruction.

An Institutional Arrangements for Disaster Management-

The Disaster Management Act 2005 has provided the legal and institutional framework for disaster management in India at the national, state and district levels. In the federal polity of India the primary responsibility of disaster management vests with the State Governments. The Central Government lays down policies and guidelines and provides technical, financial and logistic support while the district administration carries out most of the operations in collaboration with central and state level agencies. In the Central Government there are existing institutions and mechanisms for disaster management while new dedicated institutions have been created under the Disaster Management Act of 2005.

Main Provisions of National Disaster Management Act, 2005-

The Act provides for three tier mechanism for Disaster Management that includes National Disaster Management Authority, State Disaster Management Authority and District Disaster Management Authority.

(A) Union Government-

(1) National Disaster Management Authority (NDMA)-

The National Disaster Management Authority (NDMA) under the Chairmanship of the Prime Minister is the apex body responsible for laying down poli-

cies, plans and guidelines for disaster management and for coordinating their enforcement and implementation throughout the country.

The policies and guidelines will assist the Central Ministries, State Governments and district administration to formulate their respective plans and programs. NDMA has the power to approve the National Plans and the Plans of the respective Ministries and Departments of Government of India. Besides chairperson is the Prime Minister Not more than nine other members can be there. Vice Chairpersons are appointed from amongst members by the Chairperson. Executive Committee is chaired by the Secretary of the Ministry entrusted with the work of the Disaster Management.

(2) National Disaster Response Fund (NDRF)-

To be constituted by the Central Government for emergency response, relief and rehabilitation. General superintendence, direction and control of National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA. The National Disaster Response Force (NDRF) is the specialized force for disaster response which works under the overall supervision and control of the NDMA.

(3) National Institute Disaster Management (NIDM)-

NIDM is constituted by the Central Government for the projects exclusively of mitigation The National Institute of Disaster Management (NIDM) has the mandate for human resource development and capacity building for disaster management within the broad policies and guidelines laid down by the NDMA. NIDM is required to design, develop and implement training programs, undertake research, formulate and implement a comprehensive human resource development plan, provide assistance in national policy formulation, assist other research and training institutes, state governments and other organizations for successfully discharging their responsibilities, develop educational materials for dissemination and promote awareness among stakeholders in addition to undertake any other function as assigned to it by the Central Government. Through State Legislative

Enactments some function has been given to local government also, more so after 73rd and 74th Constitutional Amendment Act.

(4) National Executive Committee (NEC)-

The National Executive Committee (NEC) is mandated to assist the NDMA in the discharge of its functions and further ensure compliance of the directions issued by the Central Government. The NEC comprises of the Union Home Secretary as the Chairperson, and the Secretaries to the GOI in the Ministries/ Departments of Agriculture, Atomic Energy, Defense, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science and Technology, Space, Telecommunications, Urban Development, Water Resources and the Chief of the Integrated Defense Staff of the Chiefs of Staff Committee as members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways and Secretary, NDMA are special invitees to the meetings of the NEC. The National Executive Committee is responsible to prepare the National Plan and coordinate and monitor the implementation of the National Policy and the guidelines issued by NDMA.

(5) National Calamity contingency Fund (NCCF)-

Supportive role is there in matters of research and development, finances, etc. There is Cabined Committee on Management Act, 2005 provides for the National Disaster Management Authority under Prime Minister's already functional. A committee of Union government looks after issue of financial support from National Calamity contingency Fund. There is Central Relief Fund. Biological and Chemical Emergencies are coordinated by Cabinet committee on security.

(6) National Crisis Management committee (NCMC)-

This organization is headed by the Cabinet Secretary. Union Ministries looking after disasters are : Ministry of Home Affairs – natural and man-made Disasters; Ministry of Agriculture – Drought, Ministry of Civil Aviation – Air

Accidents; Ministry of Railways – Railway Accidents; Ministry of Environment – Chemical Disaster; Ministry of Health – Biological Disasters; Department of Atomic Energy – Nuclear Accidents; etc.

(7) Cabinet Committee on Management of Natural Calamities (CCMNC)-

The National Crisis Management Committee (NCMC) under the Cabinet Secretary oversees the Command, Control and Coordination of the disaster response. The Disaster Management Act, 2005 has created new institutions at the national, state, district and local levels. The new institutional framework for disaster management in the country is as under:

(8) The Cabinet Committee on Security (CCS)-

The Cabinet Committee on Security (CCS) deals with the matters relating to nuclear, biological and chemical emergencies.

(9) Crisis Management Group (CMG)-

CMG is chaired by Central Relief Commissioner in the Ministry of Home Affairs.

Under Constitutional Position, Union List includes-

Atomic Energy, Railways etc. State List includes – Public Order, Public Health, Agriculture, Water etc. Concurrent List includes – Environment, Social Security, prevention of the extension from one State to another of infectious or contagious diseases, etc.

(B) State Government-

Primary responsibility of relief operations is of the States. National Disaster Management Act, 2005 provides for the state Disaster Management Authority under the Chief Minister. At top political level, there is, normally Cabinet Committee on Natural Calamities under the Chief Minister. There are Crisis Management Committees chaired by the Chief Secretaries. Relief commissioners – functionaries of State Revenue Department are used. They look after issues of Natural Disasters. They work under Crisis Management committee headed by the Chief

Secretary. State Revenue Secretaries also have some responsibilities. The State Disaster Management Authority (SDMA) which is mostly positioned in the Revenue and relief Department is the nodal authority.

State Disaster Management Authority (SDMA)-

At the State Level the State Disaster Management Authority (SDMA), headed by the Chief Minister, lays down policies and plans for disaster management in the State. It is also responsible to coordinate the implementation of the State Plan, recommend provision of funds for mitigation and preparedness measures and review the developmental plans of the different departments of the State to ensure integration of prevention, preparedness and mitigation measures.

Its Chairperson is the Chief Minister of the concerned State. Other members not exceeding eight are there. And in addition, Chairperson of the State Executive Committee (who is Chief Secretary) is also included. Vice Chairperson is appointed by Chairpersons from amongst members. Chairperson of the State Executive Committee is the Chief Executive Officer. State Executive Committee is chaired by the State Chief Secretary.

(C) District Disaster Management Authority (DDMA)-

National Disaster Management Act, 2005 provides for the district Disaster Management Authority under the district collector chairpersonships. The co-chairpersons is elected member of local authority. Overall responsibility at the District Level rests with the District Collector/ District magistrate.

District Collector / District Magistrates-

The Important and primary role of the district collector is to overall co-ordination between various departments at district level. In the district level the District Disaster Management Authority (DDMA) is headed by the District Magistrate, with the elected representative of the local authority as the Co-Chairperson. DDMA is the planning, coordinating and implementing body for disaster management at district level. It will, inter alia prepare the District Disaster

Management Plan and monitor the implementation of the National and State Policies and the National, State and the District Plans. DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by the NDMA and the SDMA are followed by all departments of the State Government at the district level and the local authorities in the district.

(D) Local Disaster Management Authority-

The Local Authorities both the rural local self governing institutions (Panchayati Raj Institutions) and urban local bodies (Municipalities, Cantonment Boards and Town Planning Authorities) These bodies will ensure capacity building of their officers and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with guidelines of the NDMA, SDMAs and DDMAs.

- **Other Institutions-**

Armed Force

The Indian Armed Forces are supposed to be called upon to intervene and take on specific tasks only when the situation is beyond the capability of civil administration. In practice, the Armed Forces are the core of the government's response capacity and tend to be the first responders of the Government of India in a major disaster.

India Disaster Resources Network Disaster Management -A web enabled centralized data base. Standard Operating Procedures (SOP) are there which guide the operations in case of crisis. Civil Defense Act was brought in 1968 and Civil Defense Regulations, 1968 exist.

SAARC Disaster Management Centre -it was set up in October 2006. It is in the premises of National Institute of Disaster Management, New Delhi.

The oversees all aspects relating to the management of natural calamities including assessment of the situation and identification of measures and programs

considered necessary to reduce its impact, monitor and suggest long term measures for prevention of such calamities, formulate and recommend programs for public awareness for building up society's resilience to them.

- **National Policy on Disaster Management 2009:**

The National Policy on Disaster Management was approved by the Government in November 2009. This comprehensive policy document lays down policies on every aspect of holistic management of disasters in the country. Salient Features of India's National Policy on Disaster Management (2009)-

India's National Policy on Disaster Management was approved by the Union Cabinet of India on 22nd October, 2009 with the aim to minimize the losses to lives, livelihoods and property, caused by natural or manmade disasters with a vision to build a safe & Disaster resilient India by developing a holistic, proactive, integrated, Multi-disaster oriented and technology driven strategy. With this national Policy in place in India, a holistic and integrated approach will be evolved towards disaster management with emphasis on building strategic partnerships at various levels.

(a) The themes underpinning the policy include Community based Disaster Management, Capacity development in all spheres, Consolidation of past initiatives and best practices and Cooperation with agencies at National and International levels with multi-sectoral synergy.

(b) The Policy is also intended to promote a culture of prevention, preparedness and resilience at all levels through knowledge, innovation and education. It encourages mitigation measures based on environmental sustainability. It seeks to mainstream disaster management into the developmental planning process and provides for Institutional and Financial arrangements at national, State, and District-levels for Disaster Prevention, Mitigation, Preparedness and Response as it ensures adequate budgeting for disaster mitigation activities in all Ministries and Departments.

(c) State Policies on Disaster Management - The States of Madhya Pradesh, Gujarat, Kerala have formulated State Disaster Management Policies. Tamil Nadu, Chattisgarh, Uttranchal, Meghalaya, Bihar, Rajasthan, Delhi, Orissa and West Bengal have prepared draft policies.

(d) State Relief Codes/ DM Codes: Many States have manuals and codes for management of drought, floods etc. Now many states are in the process of changing their State Relief codes into Disaster Management Manuals.

Disasters Effects-

Disaster effects the overall development of a country. They not only derail the development process but also they affect resource availability for future development. Mere narrow approach temporary relief and involves more cost. There is need to link Disaster management and Development, relief and reconstruction. Some disasters – say flood-have much post disaster complication. Man made inhumane disasters increase.

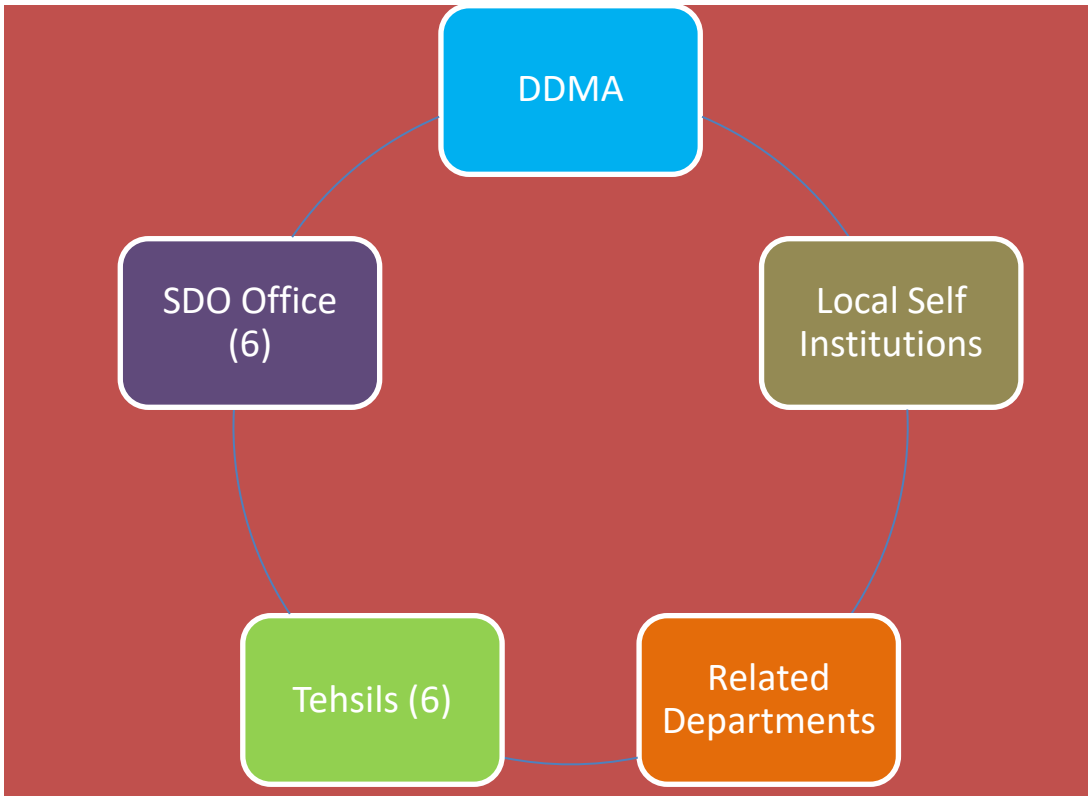
Methodology -

The researcher used sampling method to draft the required number of respondents for both the quantitative and qualitative part of the research. The researcher takes two questionnaires for the quantitative part of the research. One questionnaire was filled by the citizens of the Kota city to finding their awareness, training, problem, suggestions, and their views about the present status of the disaster management institutions. Second questionnaire was filled by the Government officials of the various stakeholders departments related to disaster management in Kota district. Respondents were filled questionnaire for the qualitative part of the study. Secondary sources such as books, articles, journals, internet, reports and other relevant documents were also used for conducting this research study.

Sampling and define the Whole –

The institutions related to disaster management in Kota district are the part of whole. Kota district collector office is the nodal agency, which acts as the District Disaster Management Authority (DDMA) .Kota district collector office is the primary institution for disaster management in Kota district and also responsible for the planning ,effective execution , mitigation ,coordination and post disaster management activities. Besides district disaster management authority other stake holders are as follows-

Structure of District Disaster Management Institutes (DDMA)



Sampling collection and Numbers -

For data collection, Kota district has been selected as a nodal agency. Besides this Kota city various stakeholders Government Departments- Nagar Nigam, Civil Safety Departments, Water Resources, Department, Fire Service Department,

Chief medical health Officer (CMHO), State Disaster Response Force (SDRF), were selected for data sampling. These samples were selected on behalf of selection of samples at each level. Kota collect rate office was selected as a nodal agency. So, all 28 employees related to Disaster Management were selected as respondents and stake holders of various Government Departments were selected on "Stratified Random sampling ".Criteria on which sampling were selected is described in following table-

(A) Kota Collect rate level (Nodal Agency)

Kota District Collect rate Office is the centre nodal agency for all kind of disasters. So the office employees related to disaster management were selected for filling the questionnaire.

Table No. 1

Post	Kota Collector	S.D.O Office	Collect rate office employees	Total
Included in sampling	01	06	21	28

(B) Govt. Departments related to Disaster Management (As Stakeholders)

Sampling of Government Departments has been selected as stakeholders for Disaster Management in Kota district. Selected employees of Government Departments were selected by "Stratified Random Sampling". In Kota City Six Departments related to Disaster Management were selected for filling this questionnaire. The sample selection criteria of candidates at each stakeholders department is as follows-

The 86 respondents were selected for filling the questionnaire. Thus 28 respondents of Kota Collect rate office and 86 respondents of stakeholder's total 114 (114 =28+86) were selected for filling the questionnaire -1.

Table No. -2

S. No.	Name of Govt. Department	Total NO. of employee	Employee selected in sampling(every one person on 02 persons)	Total no. of respondents
1	Nagar Nig ram(1)	18	9	
2	Nagar palika (4)	20	10	
3	Tehsil (6)	20	10	
4	SDRF	15	7	
5	Civil Safety	12	06	**86**
6	Fire Station	18	09	
7	CMHO	32	16	
8	Water Resources	18	9	
9	Electricity	20	10	
	Total	**173**	**86**	

Table No. -3

S.No.	Name of Panchyat samiti	Total candidates number	Selected candidates in sampling(01 member selected on every o2 members)	Total selected members for sampling
1	Ladpura	6	3	
2	sultanpur	8	4	
3	Itawa	8	4	
4	Sangod	10	5	**20**
5	Khairabad	8	4	
	Total	**40**	**20**	

So far as, the data collected by these respondents were calculated by statics analysis in following manner-

(3) At first, the data calculated by respondents were collected and tabulated.

(4) Selecting a sample following things were taken into consideration-

- Departments related to disasters were selected.
- From every two persons, one respondent was selected.
- Kota district level status on disaster management was evaluated on five point scale –policy, management, training, planning, problems and satisfaction variables.
- For Data analysis following formula was used.

Data analysis -

This chapter presents the data collected from the respondents collect rate staff (DDMA) and all stake holders and also community questionnaires. The questionnaire is divided in two types.

(3) Questionnaire- 1-Filled by people of community random base on random basis.

(4) Questionnaire-2- Filled by the Government Officials on stratified random basis**.**

(1) SECTION –A

Questionnaire -1- Was filled by the people of the community by the researcher on random basis. The first questionnaire sought to identify the subjects who have the awareness about the disaster and its management.

Response rate-Total number of 100 Questionnaires was distributed, besides this only 87 questionnaires were received the response rate of questionnaire was 87% (87/100). **(N=87)**

The respondents for each individual's questions were added together to find and filter the Mean range and Standard Deviation range. These findings were then presented in tabular form-

Standard Deviation As per the findings of Standard Deviations researcher find out the present status of the disaster management institutions.

(2) SECTION B -

Questionnaire -2 was filled by the selected Government officials on stratified random basis. The questionnaire sought to identify the current status of these stake holders, which is

Response rate-Total number of 114 Questionnaires was distributed, only 93 questionnaires were received the response rate of questionnaire was 81.57% (93/114). **(N=93)**

The respondents for each individual's questions were added together to find and filter the Mean range and Standard Deviation range. These findings were then presented in tabular form.

Mean Score range- we have made a score range of mean. Then the researcher analysis the present status of disaster management institutions findings as per score range.

Standard Deviation -As per the findings of Standard Deviations researcher find out the present status of the disaster management institutions status.

Conclusions-

(1) There is targeted revenue difficult elimination issue. Over-exploitation of natural resources is leading towards environmental degradation. That may lead to nation increases much but public safety common sense and awareness in community lacks. In many instance lack of preparedness is converting hazards into disasters. Flaws in intelligence are causing some disasters, say, terrorism, strikes, social tensions, etc.

(2) Public Health infrastructure is inadequate but health hazards increase. Women and Children are usually most affected during disasters. More attention is needed to be given to this issue. Even camp managing Committee lack sufficient number of women, to take care of women, in relief and rehabilitation Apprehensions of

misuse of science and technological advancements exist. Drought affects rural areas more and water supply infrastructure remains weak in rural areas.

(3) As normal procedures are difficult to follow, due to urgency corruption problems are there. Ineffectiveness in water management Policies creates problems in drought management and flood relief. Study and Research in Disaster Management is still deficient. In fact, there is need to introduce the Disaster management and Public Administration.

(4) Traditionally, even in legal framework, meaning of disaster has been taken narrowly. Enforcement of Public Safety Regulations is not effective Low income and Poverty creates problems in matters of preparedness. Professional skills for field machinery in matters of disaster management still lack.

(5) Still there are deficiencies in taking up the issue of Geographical Information System (GlS) as a plan scheme. Community participation in vulnerability analysis lacks. Media use for bringing mass awareness is not paid sufficient attention. Digital dissemination of information by Disaster Management Authorities is still inadequate.

(6) Much gap exists between disaster research and community capacity building. There are instances of policy makers lacking the Disaster Management experience. Potential of ex-servicemen available in between country is not used well. International or bilateral cooperation in Disaster management is not up to the mark.

Suggestions-

(1) Life cycle of crisis management can be broadly divided in three phases – pre crisis, during crisis and post- crisis. Sustainable Development preparedness can reduce hazard. There is need to link disaster management and development plans.

(2) Planned improvement in legal framework in needed.

(3) Bringing community consciousness will help. Short term and long terms planning need integration. More effective international cooperation and use of it is need for disaster warning system.

(4) Community response is the first in case of disaster, there is much need for community capacity building.

(5) Policy of Emergency Operation Centers (EOC) at national, state and district level should be effectively implemented.

(6) Subject of Disaster management is not mentioned specifically, in any of the three lists of the Seventh Schedule of the constitution. National Commission of the Constitution (NCRWC) suggested its inclusion in Concurrent List. Best Practices guidelines should be laid down by subject experts.

(7) Meaning of Disaster in National Disaster Management Act, 2005 is narrow it should be broadened. Capacity building in local government is needed. In Japan local governments have a role to play in such matters.

(8) 2nd ARC recommends, in larger cities (say with population, exceeding 2.5 million) the Mayor, assisted by the Commissioner of the Municipal Corporation and the Police Commissioner should be directly responsible for Crisis management.

(9) Initiatives by Calamity relief Fund (CRF) exists various related rules exist, say, Hazardous Waste (management and Handling Rules) 1989, The Ozone Depleting Substances (Regulation and control) Rules, 2000 etc.

(10) New disaster preparedness plans for states and districts other states should be made and implemented. National Institute of Disaster Management is set up at Delhi, Coastal Zone Regulations, Building Codes, Fire Safety Rules etc. some States have gone for State Disaster Management Acts, say : Act, 2003, Bihar Disaster management Act, 2004, Uttrakhand Disaster Mitigation, Management and

Prevention Act, 2005; Uttar Pradesh Disaster Management Act, 2005 etc. Uttarakhand has set up a separate department of Disaster Management

(11) Vulnerability Atlas of India was brought in 1998. Seismic Zone of India has been standardized. Of late, Five Year Planning had been giving high priority to such issues. National Building Code 3 was brought in 2005.

Addendum

NAGAR NIGAM, KOTA

S.NO.	NAME	OFFICE	MOBILE
1	C.E.O. NAGAR NIGAM KOTA	2502293	7891332277
2	COMMISINER HEAD OFFICE NAGAR NIGAM KOTA	2502142	9636588693
3	COMMISINER VIGYAN NAGAR JON, NAGAR NIGAM KOTA	2502583	
4	COMMISINER RAMPURA, NAGAR NIGAM KOTA	2501039	
5	HEAD ACCOUNTANT OFFICER	2500883	9414045618
6	HEAD FIRE BRIGAD OFFICER NAGAR NIGAM KOTA	2392201, 101,2472355	9829063227
7	KOTA BARRAGE	2370984	9414521036
8	POLICE CONTROL ROOM, CITY	100/2350777	
9	POLICE CONTROL ROOM RURAL	2350888	
10	DISTRICT PRO	245604612	

S.No.	NAME OFFICE WITH INSTITUTES	CONTECT NO.
1	KARNAL BHAN D.S.M.	9829037937
2	MEGAR MEHTA D.S.M.	9414181502
3	AKASH NAMA RAYANS	9929590958
4	L.P.SINGH K.P.P.S.	9414049715
5	MAHESH A.D.BAL	9799497116
6	SHIV A.D.BAL	9314627086
7	NAGAR SURYA CHAMBAL POWER PROJECT RANGPUR	9982219155
8	C.F.C.L. SHRI AMIT	8003829900

POLICE THANA

S.No.	NAME	OFFICE
1	BHIMGANG MANDI	2350754
2	KOTWALI RAMPURA	2350760
3	MAKBARA	2350759
4	KATHONIPOL	2350758
5	VIGYAN NAGAR	2350763

6	NAYAPURA	2350756
7	KUNHADI	2350755
8	GUMANPURA	2350752
9	UDHUG NAGAR	2350762
10	DADABARI	2350751
11	RALIWY COLONY	2350757
12	MAHAVEER NAGAR	2350761
13	KISHORPURA	2350753
14	MAHILA THANA KOTA	2350764
15	JAWAHAR NAGAR	2350763
16	ANNATPURA	2207766
17	R.K.PURAM	2350768
18	BORKHEDA	2207700
19	VIDHUT THANA	2450167
20	CALECTRED KOTA CHOWKI KOTA	2350857
21	GHANTAGHAR CHOWKI	2350862
22	CHAVNI CHOWKI	2350852
23	SORAJ POL CHOWKI	2350853
24	BADHGAV CHOWKI	2350855
25	BUS STAND CHOWKI	2350856
26	M.B.S.CHOWKI	2350858
27	KOTA BERAJ	2350859
28	PATANPOL CHOWKI	2350861
29	INDIRA GANDI NAGAR CHOWKI	2350865
30	LADPURA CHOWKI	2324177
31	RAMGANJMANDI	95-7459-22100
32	MORAK	95-7559-232243
33	KANWASH	95-7450-254624
34	SULTANPUR	95-97455-224238
35	ITAWA	95-7458-225230
36	SANGOD	2844207

List of Sanitary Inspectors in Nagar Nigam

S.NO.	NAME OFFICER	OFFICE CONTECT NO.	PHONE NO.
1	SHRI RAMAKANT SHARMA	2392209	9887096183 7891512448
2	SHRI MOHAMMAD YUNUSH	2392209	9887031067 7891512406
3	SHRI DEVENDRA SHARMA	2392209	9785010293 7891512403
4	SHRI PRAHLAD KUMAR	2392209	9784518944 7891512410
5	SHRI OM PRAKASH	2502768	

	SANGAT		
6	SHRI KANHIYA LAL MA-HARAJA	2502345	9950012268
7	SHRI PRAKASH MAHARAJA	2502768	7891512414
8	SHRI MAHENDRA SINGH	2502768	9887092784 7891512405
9	SHRI RAMPRASHAD	2502368	9887096056 7891512415
10	SHRI DHANRAJ KACHAWA	2502345	7998097181 7891512412
11	SHRI HARISH GHOSH	2502345	9352755542 7891512413
12	SHRI CHANDRA PRAKASH CHATURVEDI	2502345	7891512408 9829593593
13	VINAYA KUMAR JAIN	2502345	7891517371

Availablity Of Essential Equipment In District Kota

S.No.	Type of Equip-ment	Nos.	Location	Name of Owner	Contect Ad-dress In Emegency With Telephon No.	Re-marks
1	2	3	4	5	6	7
1	Tractor Dumper JCB	1 1 1	Kota	M.M. Const. (Mahendra)	Kota 9413361269	
2	JCB Tractor/Dumper /Truck	1 6	Khatoli	Madan Mohan Goyal	Khatoli Teh. Pipalda, 9414188731	
3	JCB Tractor/Dumper	1 2	Kota	M/s Munni lal & Co.	Anantpura Crusher 9214868480	
4	JCB Tractor/Dumper	1 2	Kota	SH. R.C. SHARMA	Shopping cen-ter Kota 9414190093	
5	Jcb Truck Pumpset Generator	1 6 3 3	Kota	M/s. Raghubala Const. Co.	DADABARI KOTA 9414185797	

6	Dumper Tractor	5 3	Kota	Vijai Saxena	Kota 9414844331	
7	JCB DUMPER	1 2	KOTA	HARISH GARG	DADABARI KOTA 9413352331	
8	JCB DUMPER	1 4	KOTA	S&A ENGI-NEERS	KOTA 9314035524	
9	JCB TRACTOR	1 5	SANGOD	ABDUL KARIM	SANGOD 9929774375	
10	JCB TRUCKS DUMPER	1 2 2	SULTAN PURA	JAIN/CHETAK ENTERPRISES SH. HUKUM CHAND JAIN	9413352610 MUNDRA JI	

Flood Control Action Plan for Flood Vulnerable Areas

KOTA NAGAR	NAYAPURA, KALPURIYA, HARI-JAN BASTI, DOSTPURA, GAWDA, KHADLI, SAJIDHEDA, CHATARVILASH, SANJAY NAGAR, VIGYAN NAGAR, RAMCHANDRAPURA.
KOTA GRAMIN	SANGOD, ITAWA, KAHTOON, RAMGANJMADI, MADANA.
MEDICAL DEPTT.	14(8 DAL KOTA NAGAR AND 6 DAL KOTA GRAMIN)
DUTY DOCTOR	14
MALE NARAS	14
MALERIYA NITIKSHAK	04
SANETRORI NIRIKSHAK	04
HELTHA WORKER	16
VAHAN CHALAK	12
VAHAN KARYARAT	12

Private Area Nursing Home

S.No.	Name	Telephone No.
1	SHEELA CHODHRI NARSHIN HOME	2425787, 2427125
2	DEEPSHIKHA ARTOPIDIK HOSPITAL	2422492
3	YOROLOGI CLINICE	2425152
4	KOTA EYE HOSPITAL	2320767, 2321044
5	KINKAR HOSPITAL AND PRASHUTI GRAH	2412722
6	SETRAPAL NARSHING HOME	2450594
7	M.L.BAHETI HOSPITAL AND RESUCH CENTER	2426684

Emergency Helpline No. of Important Institution

S.No.	Institution	Contact Numbers	Equipments
1.	Railway -DRM	2467000(O) 2467001(R) 900101700(M)	-Rescue/Relief force -Gas cutter
2.	Rawatbhata Atomic Power plant	01475-242101(O) 94141-85102(M)	-Rescue and Relief Force -Fire Brigade with Equipment -70-140 tons capacity crane
3.	D.C.M.	2480991-98(O) 2503218(O) 9829037419(M)	-Fire brigade -Gas cutter with Operators
4.	Chambal Fertilizers (CFCL)	247121-25(O) 2782021(O) 98290-37419(M)	-Fire Brigade force. -Gas cutter with operator
5.	Irfan Crane Services (N.G.O.)	98287-53298	-Various Capacity Cranes -80/120/140/200 tons cranes
6.	Karmayogi Seva Sansthan	98293-28525	-Ambulance -Dead body vehicle
7.	Kalya Construction Company	098290-47321	-Rock brakers and Focklen machine -140tons capacity crane.

Published Research Papers

Constitutional and legal Framework for effective Disaster Management in India

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Abstract

Institutional arrangements for disaster management and legal frameworks are interlinked. Laws and regulations provide an enabling framework to the organizational structure and its participants. An Organizational structure without a legal foundation would be less effective. In the larger context, however, the overall system of governance, which includes policies, institutions, laws and values, influence the relative strengths and achievements of the agencies and individuals undertaking the activities of disaster management. Consequently, a review of law relating to disaster management would invariably involve an analysis of the organizational structures at different levels, their roles, functions and appropriateness for the tasks assigned or to be assigned. Laws and institutions evolve over time and are influenced by the thoughts, ideas and events as the time changes. The DM Act, 2005, in India exemplifies this to a great extent, it is both interesting and useful to delve into some of the important developments and trends at the international and national level, which prepared the ground for and accelerated the process of the enactment of the Act. All the initiatives were characterized by a considerable focus on legislation, policy and institutional arrangements as important ingredients of a holistic and integrated approach to the disaster management. Disaster Management includes an integrated and inter-disciplinary approach to mitigate the effects of disasters affecting the living and non-living animals. In India, we had no such plans as part of our existing legal regime till, the 2005 Tsunami struck the Indian continent. The Government of India has come up with legislation with the objective to provide for requisite institutional mechanisms for drawing up and monitoring the implementation of the disaster management plans to ensure measures by various wings of Government for undertaking a holistic, co-ordinate and prompt response any disaster situation.

Keywords: disaster, mitigation, preparedness, risk, Disaster management,

Role of Disaster Management legislations-

Laws can be used to provide penalties and incentives by enforcing standards, to empower existing agencies or establish new bodies with new responsibilities, and to assign budget lines. The role of legal framework in disaster management has been well recognized in the last two decades by policy makers, practitioners and analysts at the national and international level. The following statement from the Global Assessment Report on Disaster Risk Reduction, 2011, citing from various sources:

- [1]'To implement such emergency actions effectively, legislation is necessary. A legal framework establishes "legal authority for programs and organizations that relate to hazards, risk and risk management. (**Mattingly, 2002**)

- These laws may dictate or encourage – policies, practices, processes, the assignment of authorities and responsibilities to individuals and/or institutions, and the creation of institutions or mechanisms for coordination or collaborative action among institutions". **Britton (2006)**
  Disaster risk reduction legislation

This chapter is sub- divided into two sections-

1. Constitutional Provisions for Disaster Management in India

1- Disaster risk reduction legislation as a basis for effective adaptation Silvia Llosa & Irina Zodrow2011

Constitution of India does not have any explicit provision on the subject of disaster management. Despite being one of the world's lengthiest constitutions, disaster management in the constitution may probably be explained by three interrelated reasons. **Firstly**, being the supreme law of the land, a constitution is usually a body of basic laws to outline the fundamental contours of a polity with elaborate provisions on fundamental rights and indicative division of legislative, administrative and financial competencies of different strata of governments. **Secondly**, and more importantly, at the time of framing the constitution, disaster management was not considered such a significant subject as to merit the attention of the constitution makers, and find a place in the provisions of the constitution. **Finally**, the prevalence of tools of disaster management such as Famine Code along with the existence of steel framed administrative machinery to conduct the rescue and relief operations in the times of disasters probably appeared sufficient, to manage the disasters even in future as well. As a result, the subject of disaster management failed to secure a place in the elaborate scheme of division of vital subjects between the centre and states. The HPC and the Second ARC have examined the necessity of a specific entry relating to disaster management in the Constitution of India. In the **Seventh Schedule** of the Constitution, subjects that come under the legislative competence of the Union and state governments are enumerated in the Union List and the State List, respectively. Subjects on whom both the Union and state governments have concurrent legislative jurisdictions are included in the Concurrent List. Disaster management was not mentioned specifically as a subject in any of the lists. According to the HPC, the only two entries in the State List that are somewhat related to the subject of disaster management are **entry 14** – which deals with agriculture, including protection against pests and plant diseases – and **entry 17**, which deals with water, including water supply, drainage and embankments. The HPC strongly felt that this was grossly in adequate, and that disaster management needed a specific entry in the Seventh Schedule of the Constitution of India.

Indian Constitution and Natural Disaster -[2]Indian Constitution, the magna-cart of Fundamental Rights for Indians which guarantees to protection of life and security with the purpose of ensuring a welfare State. Laws and regulations framed by the Central and State Governments have to be in conformity with the Constitutional provisions, Also the authorities have a duty under the Constitution to safeguard and protect the Fundamental Rights. The scope and applicability of these Fundamental Rights and the validity of the laws passed by the legislatures and the executive actions of the government are regulated by the Supreme Court of India has given a wider interpretation to the scope of **Article 21**- to include the Right to have a clean and healthy environment. The scope of the Right to life has been further widened "Disaster Management" means all the aspects of planning, coordinating and implementing all measures which are necessary nor desirable to prevent , minimize, overcome or to stop the spread of a disaster upon the people or any property and includes all stages of rescue and immediate relief.

As mentioned in the **Third report of the Second ARC** (**page 34**), a subject not specifically mentioned in any of the three lists of the Seventh Schedule of the Constitution comes under the Residuary Power of the Union under **entry 97** of the Union List: "According to one view, Parliament therefore has the competence to legislate on the subject. However, by practice and convention the primary responsibility for managing disasters rests with the State Governments." State governments are provided financial assistance by the Union Government for meeting expenditure on specified natural calamities on the basis of the recommendations of the Finance Commissions. The Parliament enacted the DM Act, 2005, by invoking entry 23, namely, "Social Security and Social Insurance; Employment and Unemployment" in the Concurrent List of the Constitution of India. This also has the advantage that that States can have their own legislation on disaster management as well.

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CONCLUSION AND SUGGESTIONS

There are huge efforts made by the Indian Government in regards of providing free constitutional and legal to ensure the true prevalence of actual welfare state in India. There are many problems in implementing it in true sense in the Indian society. The major obstacles to the legal aid movement in India are the lack of legal awareness and illiteracy. People are still not proper aware of their basic rights due to which the legal aid movement has not achieved its goal yet. It is the absence of legal awareness, which leads to exploitation, and deprivation of rights and benefits of the poor. Thus it is the need of the hour that the poor illiterate people should be imparted with legal knowledge and should be educated on their basic rights which should be done from the grass root level of the country. If they were aware about their rights then they may claim for it in courts. Otherwise, they may try to settle their disputes on the streets or roads to protect their rights through muscle power and in such condition there will be anarchy and complete death of the rule of law. This means that its work is clearly addressing the constitution and legal rights for the majority of the peoples, who are not aware about them. The constitution also gives the power at the local levels so that the Disaster can easily coordinated, Mitigated at the grass-root level efficiently.

References:

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Constitutional and legal Framework for effective Disaster Management in India

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Abstract

Institutional arrangements for disaster management and legal frameworks are interlinked. Laws and regulations provide an enabling framework to the organizational structure and its participants. An Organizational structure without a legal foundation would be less effective. In the larger context, however, the overall system of governance, which includes policies, institutions, laws and values, influence the relative strengths and achievements of the agencies and individuals undertaking the activities of disaster management. Consequently, a review of law relating to disaster management would invariably involve an analysis of the organizational structures at different levels, their roles, functions and appropriateness for the tasks assigned or to be assigned. Laws and institutions evolve over time and are influenced by the thoughts, ideas and events as the time changes. The DM Act, 2005, in India exemplifies this to a great extent, it is both interesting and useful to delve into some of the important developments and trends at the international and national level, which prepared the ground for and accelerated the process of the enactment of the Act. All the initiatives were characterized by a considerable focus on legislation, policy and institutional arrangements as important ingredients of a holistic and integrated approach to the disaster management. Disaster Management includes an integrated and inter-disciplinary approach to mitigate the effects of disasters affecting the living and non-living animals. In India, we had no such plans as part of our existing legal regime till, the 2005 Tsunami struck the Indian continent. The Government of India has come up with legislation with the objective to provide for requisite institutional mechanisms for drawing up and monitoring the implementation of the disaster management plans to ensure measures by various wings of Government for undertaking a holistic, co-ordinate and prompt response any disaster situation.

Keywords: disaster, mitigation, preparedness, risk, Disaster management,

Role of Disaster Management legislations-

Laws can be used to provide penalties and incentives by enforcing standards, to empower existing agencies or establish new bodies with new responsibilities, and to assign budget lines. The role of legal framework in disaster management has been well recognized in the last two decades by policy makers, practitioners and analysts at the national and international level. The following statement from the Global Assessment Report on Disaster Risk Reduction, 2011, citing from various sources:

- [1]'To implement such emergency actions effectively, legislation is necessary. A legal framework establishes "legal authority for programs and organizations that relate to hazards, risk and risk management. (**Mattingly, 2002**)

- These laws may dictate or encourage – policies, practices, processes, the assignment of authorities and responsibilities to individuals and/or institutions, and the creation of institutions or mechanisms for coordination or collaborative action among institutions". **Britton (2006)**
  Disaster risk reduction legislation

This chapter is sub- divided into two sections-

1. Constitutional Provisions for Disaster Management in India

1- Disaster risk reduction legislation as a basis for effective adaptation Silvia Llosa & Irina Zodrow2011

Constitution of India does not have any explicit provision on the subject of disaster management. Despite being one of the world's lengthiest constitutions, disaster management in the constitution may probably be explained by three interrelated reasons. **Firstly**, being the supreme law of the land, a constitution is usually a body of basic laws to outline the fundamental contours of a polity with elaborate provisions on fundamental rights and indicative division of legislative, administrative and financial competencies of different strata of governments. **Secondly**, and more importantly, at the time of framing the constitution, disaster management was not considered such a significant subject as to merit the attention of the constitution makers, and find a place in the provisions of the constitution. **Finally**, the prevalence of tools of disaster management such as Famine Code along with the existence of steel framed administrative machinery to conduct the rescue and relief operations in the times of disasters probably appeared sufficient, to manage the disasters even in future as well. As a result, the subject of disaster management failed to secure a place in the elaborate scheme of division of vital subjects between the centre and states. The HPC and the Second ARC have examined the necessity of a specific entry relating to disaster management in the Constitution of India. In the **Seventh Schedule** of the Constitution, subjects that come under the legislative competence of the Union and state governments are enumerated in the Union List and the State List, respectively. Subjects on whom both the Union and state governments have concurrent legislative jurisdictions are included in the Concurrent List. Disaster management was not mentioned specifically as a subject in any of the lists. According to the HPC, the only two entries in the State List that are somewhat related to the subject of disaster management are **entry 14** – which deals with agriculture, including protection against pests and plant diseases – and **entry 17**, which deals with water, including water supply, drainage and embankments. The HPC strongly felt that this was grossly in adequate, and that disaster management needed a specific entry in the Seventh Schedule of the Constitution of India.

Indian Constitution and Natural Disaster -[2]Indian Constitution, the magna-cart of Fundamental Rights for Indians which guarantees to protection of life and security with the purpose of ensuring a welfare State. Laws and regulations framed by the Central and State Governments have to be in conformity with the Constitutional provisions, Also the authorities have a duty under the Constitution to safeguard and protect the Fundamental Rights. The scope and applicability of these Fundamental Rights and the validity of the laws passed by the legislatures and the executive actions of the government are regulated by the Supreme Court of India has given a wider interpretation to the scope of **Article 21**- to include the Right to have a clean and healthy environment. The scope of the Right to life has been further widened "Disaster Management" means all the aspects of planning, coordinating and implementing all measures which are necessary nor desirable to prevent , minimize, overcome or to stop the spread of a disaster upon the people or any property and includes all stages of rescue and immediate relief.

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References:

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6. Ghosh S.K. : Women in a changing world : Ashish Publishing house 8/81, Punjabi Bagh, New Delhi –110026 : Tele : 500581.
7. Indian Law Institute: Release on Bail Law & Practice, 1986,
8. S.P. Dhavan at the Central Electric Press, 80-D, Kamla Nagar, Delhi-7.
9. Jayapalan N. : Women & Human Rights, 2001, Atlantic Publishers, B-2, Vishal Enclave, Opp. Rajouri Garden, New Delhi-27 Ph. 5413460

Refercence

Chapter -1

1. As per report, “Disaster Mitigation and Vulnerability Atlas of India, by Skull Foundation (2003-2010) http://www.bmtpc.org/disaster.html
2. WHO Regional Office for South East Asia 2010 – A report.
3. Rajasthan State Disaster Management (DM) Policy & Relief - A report (2010)
4. AJEDM, Rajib Shaw, Kyoto University, Japan & Ramasawamy R. Krishnamurthy, University of Madras, India, ISSN (print) : 1793-9240, vol. I, issue-2 (December,2009).
5. URL:http://www.blackwell.synergy.com/links/doi/101111/J.1541-1338,1990 tbo 1074.x/ enhancedabs, vol. 9(1990), issue-4/06, pp. 703-725.
6. Jagdish Kaur, Published in International Review of Psychiatry, vol. 18, issue-6, December, 2006, pp. 553-557,
7. Natural Hazards and Disaster Management: Vulnerability and Mitigation- by R B Singh
8. Disaster Management and Mitigation- by Prof R B Singh
9. Disaster Mitigation: Experiences And Reflections”-by Alka Dhameja and Pardeep Dhameja
10. Disaster Management: Disaster Management and Mitigation approaches in india- by Paritosh Srivastava
11. Management and Mitigation of Natural Disasters- by Rajan Kumar Sahoo
12. Disaster Mitigation and Management: Post-Tsunami Perspectives- by Jegadish P.Gandhi.
13. Disasters: Strengthening Community Mitigation and Preparedness-by Khanna B.K.
14. Disaster Management - By Mukesh Kapoor
15. Disaster Management- Global Challenges and Local Solutions, By Rajib Shaw and R. R. Krishnamurthy
16. Disaster Management (3 Vols.)- Manmade Disasters, By K. K. Singh and Lofty Aleya and Vinod Singh

17. Disaster Management and Economic Development by-G.K.Kapoor

18. Disaster Management and Strategies-Concept And Methods, Risk Reduction & Insurance, Experiences & Case Studies-Byashu Pasricha , Kiyanoush Ghalavand , and Jai Narain Sharma

Chapter -2

1. https://es.scribd.com/.../Environmental-Hazards-Assessing-Risk-and-Reducing-Pg-157.

2. B.K. Reza, Global Publication, New Delhi, First Published, 2010, pp. 215

3. https://en.wikipedia.org/wiki/Natural_hazard

4. https://books.google.co.in/books?isbn=138708599Dr.V.Sharmila/ Predictive

5. Correlates Of The Knowledge Of Natural Hazards

6. https://www.iwapublishing.com/news/disaster-management

8. dgfasli.nic.in/policy/NPDM-101209.pdf

6. Earthquake & Natural Disasters-by Manik Kar

7. Management and Mitigation of Natural Disasters-by Rajan Kumar Sahoo and Tilottama Senapati

8. Management of Mana-Made Disasters-by S.L.Goel

9. A Manual on Disaster Management-by Parag Diwan

10. A Practical Guide To Disaster Management-BY Dr. A.K.Jain

11. Safety and Disaster Management-By O.P.Dutta

12.Disater Management. Indian National Science Academy. Orient Blackswan Gupta HK.2003

13. Coping with Catastrophe: A handbook of Disaster Management Rout ledge. Hodgkinson P.E. & Stewart M. 1991.

14. Disaster Management. Sharma VK. 2001-National Centre for Disaster Management, India

15. Beyond Building a Centre of Excellence For EO-Based Monitoring Of Natural Disasters. A GEO Workshop on Natural Disasters Mitigation and Earth Observations. Presentation- Kontoes, H. (2014)

16. NIDM publications 2008 to 2010.

17. SDRF Reports – 2015

18. India Disaster Report 2016
19. Disaster Resilient State Rajasthan – Dr. B.K.Soni, 2008

Chapter -3

1. https://www.unisdr.org/2005/mdgs-drr/national-reports/india-report.pdf
2. Civil-Military Relations in Emergency Management: Federal, State, and Local Emergency Management Programs Are Now Part of the Nation's Defense and SecurityBy Sylves, Richard TThe Public Manager, Vol. 38, No. 3, Fall 2009
3. Emergency Relief OperationsBy Kevin M. CahillFordham University Press, 2003
4. The Current Situation of Sudden Natural Disaster Emergency Management of Our GovernmentBy Qi, ZuoCanadian Social Science, Vol. 9, No. 3, May 1, 20
5. Disaster Mental Health Services: A Primer for PractitionersBy Diane Myers; David F. WeeBrunner-Routledge, 2005
6. World Trade Center Recovery: A Challenge to Traditional Disaster Management. (Article)By Howard, Melissa M.; Buck, Richard AThe Public Manager, Vol. 31, No. 1, Spring 2002
7. Natural Hazards, People's Vulnerability and Disasters? By Khurshid Alam
8. A Crack in the Edge of the World: America and the Great California Earthquake of 1906.- Simon Winchester
9. Disaster Management Act, 2005
10. National Disaster Management Authority Report, 2009
11. National Disaster Response force Report-2010
12. India Disaster Maps and Statics2016
13. National Disaster Management Policy – 2009
14. National Institution Report- 2015
15. Report of the CAG and Performance Audit of Disaster Properness in India 2013, Report no. 5
16. Rajasthan Statistic 2011 - A report of Niti Aayog
17. Directorate of Economics and statics Rajasthan 2015
18. Report of water resource department 2015

Chapter -4

1. Courtesy of jocelyn Augustine/ Fema.]

2. Shodhganga.inflibnet.ac.in/bitstream/10603/19636/12/12_chapter4.pdf

3. Beyond Building a Centre of Excellence For EO-Based Monitoring Of Natural

4. Disasters. A GEO Workshop on Natural Disasters Mitigation and Earth Observations. Presentation- Kontoes, H. (2014)

5. Disaster Administration and Management, Text & Case studies- SL Goel-Deep and Deep Publications ·

6. Disaster Management- G.K Ghosh-A.P.H. Publishing Corporation ·

7. Disaster management – S.K.Singh, S.C. Kundu, Shobha Singh A – 119, William Publications, New Delhi.

8.Kota Disaster Management Report-2010

9.kjota Disaster Management Report-2015

10. Kota Nagar Nigam Bulletin -2008

11.Kota at aGlance-2006

12.Kota ko Jano-Dr. B.K.Singh,2003