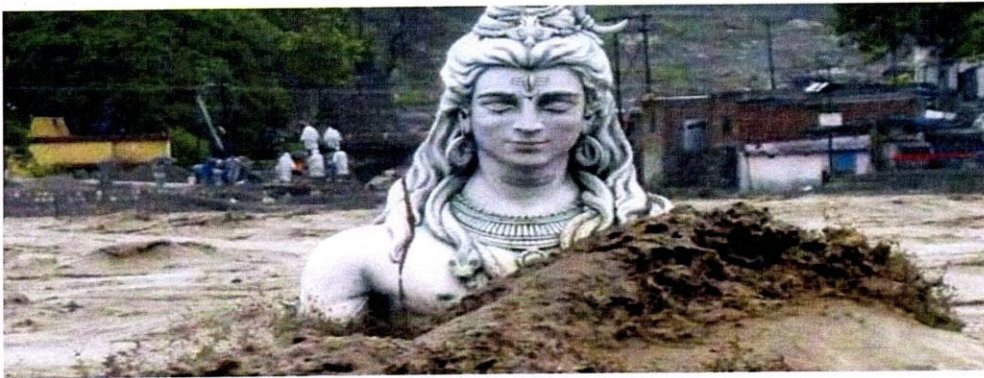


**IMPEDIMENTS IN INSTITUTIONALISATION OF INCIDENT RESPONSE
SYSTEM: A CASE STUDY OF UTTRAKHAND**

Misfortunes enter when window is left open to them

-A Czechoslovakian proverb



INTRODUCTION

1. *Disasters disrupt the progress and destroy the developmental efforts, often pushing the nations, in their quest for progress, by several decades. Thus efficient management of disasters is receiving much attention in recent times than mere reacting to the disasters. In this context, India stands out as one of the most disaster prone countries in the world¹ and is vulnerable to a variety of natural and man-made disasters that hinder country's growth². Out of 35 states and union territories in the country, as many as 27 of them are prone to natural disasters. High Powered Committee (HPC) constituted in August 1999 to draw up a systematic, comprehensive, and holistic approach towards disasters, identified India's vulnerability to 41 types of disasters including 10 water & climate related*

¹ Report of the CAG on Performance Audit of Disaster Preparedness of India, Union Govt of India (MHA) 'Report No 5 of 2013', pp 2.

² Executive Summary, 'National Disaster Management Guidelines- Incident Response System,' NDMA, 2010, pp xvii.

disasters, four geologically related disasters, two chemical industrial & nuclear related disasters, 11 accident related disasters and three biologically related disasters³. Almost every part of the country falls in at least one natural hazard zone or the other⁴ (refer Fig 1 below). This is largely due to India's geo-climatic conditions combined with population density and other socio economic factors.

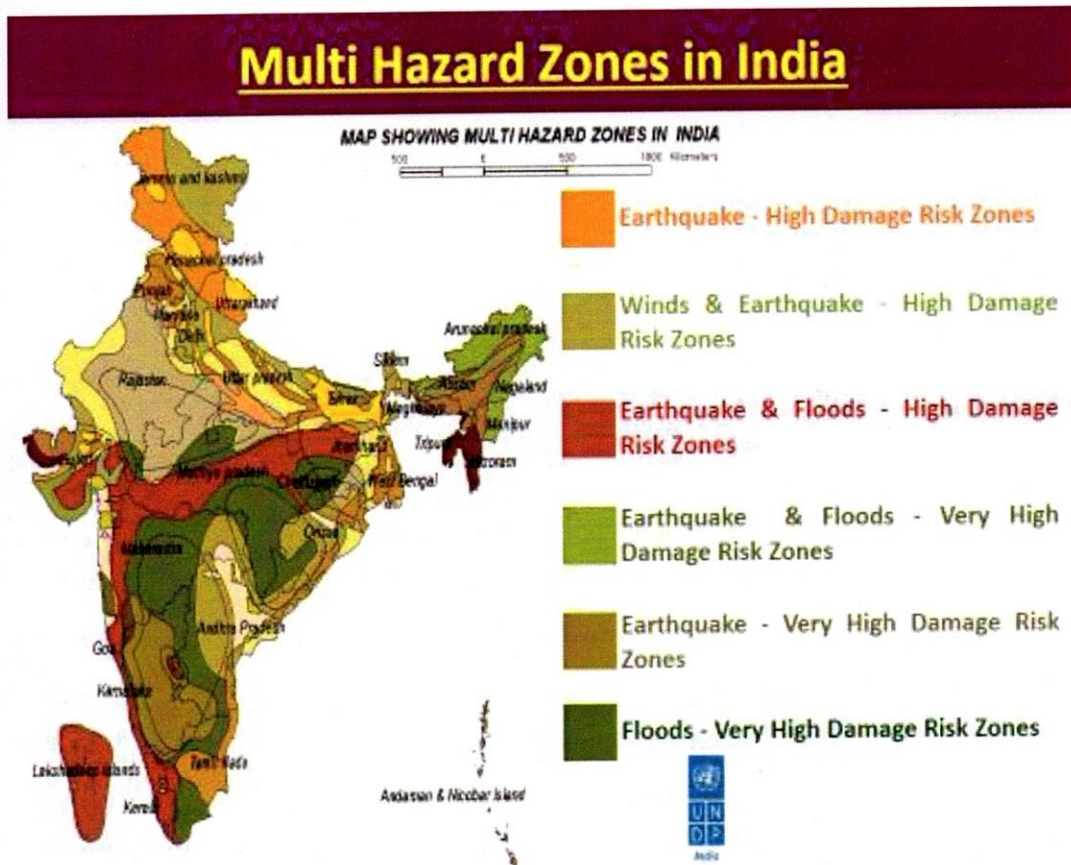


Fig 1 – Multi Hazard Zones in India

(Source – Presentation by HQ IDS at NIDM 'NIDM Seminar on Uttarakhand Floods and Lessons Learnt' 19 Aug 2013)

³ 'The Report of High Powered Committee on Disaster Management', National Centre for Disaster Management, IIPA, Oct 2001', pp 71.

⁴ AE Ahmad (2011), Secretary Border Management, MHA, Govt of India, in Preface of MHA Report, 'Disaster Management in India, May 2011'.

2. Disasters cause widespread damage and disruption in India with a high frequency of natural causes such as droughts, floods, cyclones and earthquakes and occasional man-made tragedies like the Gas Leak at Bhopal. Though the country has been responding to disasters for decades, our record of response to both, natural and manmade disasters has not been as it ought to be especially from pro-activism and professional response points of view. More often than not our Central / states governments have been found reacting to the disasters, Uttarakhand Floods / Kedarnath Tragedy of June 2013 being a recent case in point. However, over the last decade the *emphasis in Disaster Management has shifted from relief centric approach to proactive regime*⁵. We are graduating from our earlier approach of reaction to a more proactive approach of mitigation, preparedness & response to disasters, though we have miles to go. *Disaster risks in India are inevitable and are further compounded by increasing vulnerabilities including ever growing population, rapid urbanization, increasing industrialisation, development within high risk zones, environment degradation, and climate change*⁶.

3. With rapid climate change and rampant development, the frequency and enormity of both natural and manmade disasters would only increase necessitating large scale response by multiple agencies as no agency, however big can handle mega disasters single-handedly. Again, Uttarakhand tragedy in June 2013 is a case in point which had to be managed by deploying a host of agencies including the Army and Air Force. *Though India has been successfully managing disasters in the past, there are still a number of shortcomings which need to be addressed*⁷. The response today has to be far more comprehensive, effective, swift and well planned based on a well-conceived response mechanism. As per the Comptroller and Auditor General of India (CAG) *despite considerable progress in setting up institutions and creating funding arrangements, there are critical gaps in the*

⁵ Gen NC Vij, Vice Chairman NDMA, 'National Disaster Management Guidelines, Jul 2010', pp 13.

⁶ Sunanda Day (2013), Delhi University, 'Mainstreaming Indigenous Knowledge in Disaster Risk Reduction (DRR), First Session of National Platform for DRR, 2013'.

⁷ Preamble, 'National Disaster Management Guidelines- Incident Response System', NDMA, 2010, pp v.

preparedness levels for various disasters⁸ in our country. These gaps need to be addressed on an urgent basis.

4. Disaster response is a complex exercise which may involve multiple agencies and large scale resources, necessitating elaborate planning, detailed coordination and management of resources to ensure synergy and optimal outcomes. Often enough owing to lack of a 'system of pre-planning and detailed coordination', response agencies end up working in isolation resulting in duplication of efforts, critical gaps in response, turf wars and colossal wastage of both, precious human effort and resources. Hence, there is an urgent need to put a system in place to streamline our response to disasters. *Realisation of certain shortcomings in response and a desire to address the critical gaps led Government of India (GoI) to look at the world's best practices and adopt the Incident Command System (ICS)⁹ based on the recommendations of the High Powered Committee (HPC) in 2002. ICS was developed by USA to deal with mega forest fires in California in the 70s and ever since then the system has been used world over successfully. Accordingly, MHA launched pilot projects in Assam, Gujarat and Andhra Pradesh to test ICS in Indian environment.*

5. It was felt that ICS is a response centric system and can merge with the administrative set up with relative ease. National Disaster Management Authority (NDMA), therefore, decided to adapt ICS duly indigenized so that it is in consonance with the administrative structure of the country to strengthen and standardize the response system in India¹⁰. Indigenized version of ICS is now called Incident Response System (IRS). NDMA has issued the guidelines on IRS under Section 6 of the DM Act, 2005 for effective, efficient and comprehensive management of disasters in India. The vision is to minimize loss of life and property

⁸ Report of the CAG on Performance Audit of Disaster Preparedness of India, Union Govt of India (MHA) 'Report No 5 of 2013', pp v.

⁹ Executive Summary, 'National Disaster Management Guidelines- Incident Response System,' NDMA, 2010, pp xvii.

¹⁰ Ibid, pp xviii.

by strengthening and standardizing the disaster response mechanism in the country.

6. Most often than not disasters come unannounced. With IRS having been formalized at national level, our disaster prone states can ill-afford not to use it should another disaster strike in the times ahead. Hence, equipping of states with IRS needs no further emphasis. Even though ICS has been adopted in India for almost a decade and formalized as IRS in 2010, the pace of institutionalization across the country is rather slow. IRS is yet to be utilized in a structured format to respond to a disaster in our country in spite of issue of guidelines by the NDMA in July in 2010 and substantial training efforts in IRS in the country. *Had IRS been used in Uttarakhand Disaster in June 2014, the response could have been much more swift and comprehensive*¹¹. At this juncture it will be prudent to examine barriers to institutionalization of IRS in the states and find remedial measures to hasten the process. Accordingly, research on the subject was conducted on the subject, inputs sought and the matter was examined in great details. The details of the research are covered in succeeding chapters.

Preview

7. The research report is laid out as follows:-

(a) **Chapter I** – Statement of the problem, research objectives, literature review, research approach and design.

(b) **Chapter II** - Disaster scenario in India and response mechanism.

(c) **Chapter III** –Incident Response System.

¹¹ Col Rajeev Mehta (2014), Unit Commander in Rudraprayag responsible for SAR operations in Kedarnath region in June 13, tele-interview on 28 Feb 14.

(d) **Chapter IV** – A case study on disaster response in Uttarakhand Floods in June – July 2013.

(e) **Chapter V** – Impediments to institutionalisation of IRS in disaster prone states and remedial measures.

(f) **Chapter VI** – Recommendations to institutionalise IRS and Conclusion.

CHAPTER I – STATEMENT OF THE PROBLEM, OBJECTIVES, LITERATURE REVIEW, RESEARCH APPROACH AND DESIGN

'The challenge before us, is to strive towards higher levels of understanding, preparedness, mitigation efforts and response mechanism'¹²

Statement of the Problem

1.1. Disaster response is a multi-agency, multi-dimensional operation required to be carried out, often without any prior warning or at very short notice. Time and resources are always at premium in disaster response situations and stakes in terms of lives and property are always very high. Therefore, there is a need for well-structured, pre-planned, straight jacketed operations to ensure a cogent and synergised response by the stake holders and relief agencies in the quickest timeframe to achieve optimal outcomes. Though IRS fits the bill and is designed to ensure just these, the system is yet to be institutionalised in the country even though the country has been working on ICS since 2004 and IRS has been promulgated through National Disaster Management Guidelines in July 2010 by NDMA. Additionally, numerous measures have been initiated by the MHA, Govt of India, NDMA and National Institute of Disaster Management (NIDM) to train resources personnel, key functionaries in last few years.

1.2. As is apparent from our response to disasters in past few years, prima facie, IRS is far from being institutionalised in most of the states in India¹³. In fact media reports of chaos and confusion in disaster response in Uttarakhand floods in June 2013¹⁴ is a recent case in point. As was learnt from the brain storming session held

¹² PC Chidambaram (2011), Home Minister of India, MHA, Govt of India, Preface in MHA Report 'Disaster Management in India, May 2011'.

¹³ Maj Gen VK Datta (2013), Senior Specialist in Disaster Management and Counter Terrorism, NDMA, New Delhi, in an interaction at NDMA in Nov 2013.

¹⁴ Praveen Pawar (2014), UN Disaster Management Team at Rudraprayag, in a tele-interview on 28 Feb 2014.

at IIPA in July 13 on Uttarakhand Floods as well as from the National Workshop organised by NIDM on the same subject to learn lessons on 19 August 2013¹⁵, lack of coordination and synergy were major drawbacks which resulted in duplication of effort, chaos, confusion and suboptimal outcomes. It is learnt that in some cases there was an experience of even a 'problem of plenty' resulting in colossal wastage of relief material and sub-optimal utilisation of relief effort. Had there been a pre-planned, well-structured response, may be some more lives could have been saved besides saving a great deal to the national exchequer. Hence, the need for planning our response and preparing for unforeseen eventualities is beyond debate and IRS is precisely the tool which professionalises our response ensuring synergistic approach to deal with disasters of all kinds.

1.3. IRS propagates specified organisation at taluka, district or state level which is designed to build response capacity at various levels. The constituents likely to form part of IRS must be oriented to likely contingencies, trained and equipped to deal with disasters. Hence, all disaster prone states are expected to put IRS in place as part of their disaster preparedness drive in the times ahead. But, not only have most of the disaster prone states yet to institutionalise IRS, a great deal of effort is required to initiate / establish other institutional frameworks such as raising of state disaster management force (SDRF), formulation of district disaster management authority (DDMAs) at districts and making functional already formed state disaster management authority (SDMAs) at state level. There is therefore an urgent need to analyse progress of institutionalisation of IRS in India and study impediments to its institutionalisation at districts and state levels to enable the states to take remedial measures.

1.4. Armed Forces are at the core of response capacity of Central Govt and get called out invariably to aid civil authority to respond to disasters. In fact Armed Forces are a major contributor in search and rescue (SAR) operations and if IRS

¹⁵ Proceedings of National Workshop on Uttarakhand Disaster 2013: Lessons Learnt, August 19, 2013 New Delhi, <http://nidm.gov.in/pdf/PROC%20ukw-13.pdf>, 09 Sept 13.

is to be applied, need will arise to integrate the Armed Forces units with the rest of the responders within the ambit of IRS. Armed Forces on the other hand have a specified chain of command and are normally not placed under command other civilian agencies or administrators during operations. Armed Forces are requisitioned and employed as per guidelines contained in the Defence Publication of MoD, 'Aid to Civil Authority, 2004'. Armed Forces are required to be assigned clear role and tasks to attain specific objectives. Methodology and manner in which the tasks are required to be carried out are left to be decided by the Armed Forces units involved in the response process. NDMG promulgated in July 2010 do not however, clearly lay down how will the Armed Forces be integrated / incorporated in IRS. In fact, NDMG lay down that when central teams (NDRF, Armed Forces) are deployed in disaster response, the Responsible Officer (RO) should ensure resolution of all conflicts¹⁶. Hence, while operationalizing IRS, conflicts relating to command and control of troops under an Incident Commander cannot be ruled out. The same has potential to undermine collective efforts of various agencies involved in the response. Therefore, integration of Armed Forces as part of IRS may impede the process and there is a need to work out suitable arrangement to ensure requisite synergy in collective response.

1.5. **Defining the Problem.** Institutionalisation of disaster response plans and SOPs in disaster prone states continues to be a distant dream even as on date. Disaster response is not being accorded requisite priority at various levels be it at national, state or district levels. Lessons learnt from previous disasters have not been acted upon in full measure as the same is apparent from repeated shortcomings in our reaction/ response to disaster after disaster in various disaster prone states. Owing to various impediments adhocism in disaster response continues and there is limited progress of institutionalisation of IRS which is adversely affecting disaster preparedness of disaster prone states. An inadequate response in the aftermath of Uttarakhand Floods in June – July 2013 is a comment on our preparedness and worthy of analysis from institutionalisation of IRS point

¹⁶ Disaster Response Management – Chapter III, 'NDM Guidelines – IRS July 2010', NDMA, pp 24.

of view. The lessons from Uttarakhand disaster of June 13 would enable other states to focus on preparedness and professional response.

Justification of the Study

1.6. With global warming and rampant development likelihood of mega disasters of the kind of Gujarat earthquake, Indian Ocean Tsunami, Ladakh mud slides or recent Uttarakhand Floods in foreseeable future cannot be ruled out. With the paradigm shift from our relief centric approach to a prevention, mitigation and preparedness approach, IRS assumes a significant importance and must be operationalized in the disaster prone states on top priority and institutionalised down to grassroots level for effective response, when required.

1.7. Our resources being limited, most often than not, states are unable to cope with the disasters and hence, Armed Forces are called upon to respond to disasters. In view of this, incorporating Armed Forces units as part of IRS is unavoidable and must be done in a collaborative manner. As apprehended in IRS Guidelines, owing to nature of operations, conflicts are bound to surface in multi-agency environment. But conflicts cannot be left to be resolved later during response stage. Therefore there is a need to work out a suitable arrangement which facilitates incorporation of Armed Forces units in IRS in keeping with working ethos of the Armed Forces. Both these issues must be resolved on an operational immediate basis as delays would only add penalty in terms of lives lost in future disaster situations. Uttarakhand being one of the most disaster prone hill states in the country is an ideal state for study especially in view of large scale environmental degradation and increasing disaster risks in Himalayan states.

Objective of the Study

1.8. The objectives of the study were to identify impediments in institutionalisation of IRS in disaster prone states and recommend remedial measures.

Research Questions

1.9. The research questions of the study were as follows:-

- (a) What are the impediments in institutionalisation of IRS in disaster prone states?
- (b) How can impetus be provided to institutionalise IRS in disaster prone states?

Scope

1.10. The scope of the study was limited to the following:-

- (a) IRS is analysed in the context of only natural disasters.
- (b) Study is restricted to only 'response phase' to include search and rescue (SAR) and relief operations. The study excluded other phases of disaster management cycle ie prevention mitigation, rehabilitation and reconstruction.
- (c) Progress has been analysed in the state of Uttrakhand with brief references to other disaster prone states.

REVIEW OF THE RELATED LITERATURE

Disaster Response

1.11. Disaster management is a not a very new subject and hence enough literature is available on the subject. Disaster management is a very inclusive term encompassing a host of issues and dimensions. Most books are either very generic or very specific to a part of disaster management such as hydrological disasters or nuclear disasters etc. However, there are hardly any books that deal with disaster response per se which is an important aspect of disaster management. Most articles and periodicals are case specific to particular type of disasters. There are innumerable articles on the internet on the subject of disaster management. Often, many articles use disaster management and disaster response interchangeably though both the terms are quite different. Not only that, disaster management is often being also understood as emergency management as both have numerous similarities. As per Wikipedia, disaster management (or emergency management) is the discipline of avoiding and dealing with both natural and man-made disasters. It involves preparedness, response and recovery plans made in order to lessen the impact of disasters. As per MHA, Govt of India, disaster management¹⁷, involves a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for: prevention of danger or threat of any disaster, mitigation or reduction of risk of any disaster or its severity or consequences, capacity building including research and knowledge management, preparedness to deal with any disaster. Hence it would be prudent to examine how disaster response is defined.

1.12. Examining the literature on disaster response it is acknowledged that disaster response is perceived differently and has varied implications. As per Wikipedia¹⁸, *disaster response is the second phase of the disaster management*

¹⁷ 'National Policy on Disaster Management 2009', MHA Govt of India, pp 7.

¹⁸ Wikipedia definitions and explanations, http://en.wikipedia.org/wiki/Disaster_response, 12 Jan 2014.

cycle. It consists of a number of elements, for example; warning /evacuation, search and rescue, providing immediate assistance, assessing damage, continuing assistance and the immediate restoration of infrastructure. The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population. Such assistance may range from providing specific but limited aid, such as assisting refugees with transport, temporary shelter, and food, to establishing semi-permanent settlement in camps and other locations. It may also involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found. Humanitarian organizations are often strongly present in this phase of the disaster management cycle.

1.13. According to the Business Continuity Institute (BCI), disaster response is most suitably incorporated within an overall Business Continuity Plan. The BCI's Good Practice Guidelines (BCI, 2013) highlight that crisis or disaster response cannot be considered as a discreet entity and should be viewed as plan to continue business. As per Business Dictionary.Com¹⁹, disaster response is defined as aggregate of decisions and measures taken to; contain or mitigate the effects of a disastrous event to prevent any further loss of life and/or property, to restore order in its immediate aftermath, and re-establish normality through reconstruction and rehabilitation shortly thereafter. The first and immediate response is called emergency response.

1.14. NIDM Course Module on Disaster Management for NDRF Commanders²⁰ defines disaster response as '*The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of affected people. It can be of an immediate, short term or protracted*

¹⁹ Business Dictionary explanations, <http://www.businessdictionary.com/definition/disaster-response.html>, 12 Jan 2014.

²⁰ Arun Sahdeo, NIDM 'Training Course Module on Disaster Management for NDRF Commanders, 2012', pp 19.

duration. Disaster response per se is one of the steps of disaster management cycle. Disaster management cycle is a six stage process – prevention, mitigation, preparedness, response, rehabilitation & reconstruction (refer Fig 1.1 below).

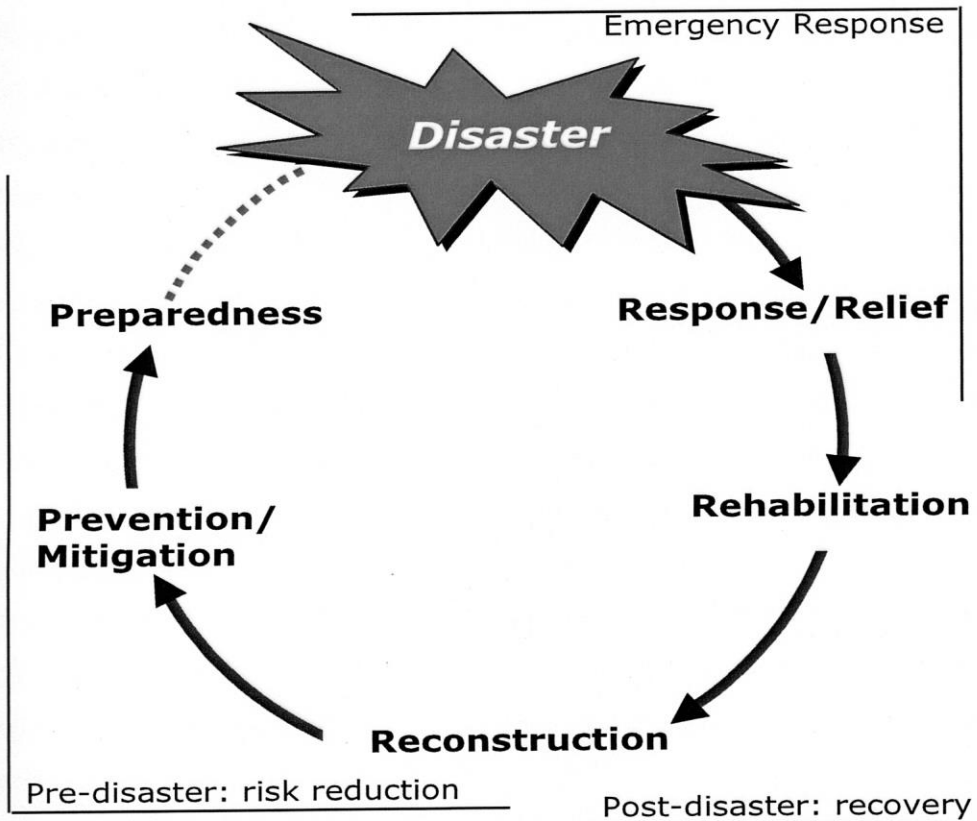


Fig 1.1 – Disaster Management Cycle

(Source- APPPA 39 Group Presentations on Disaster Risk Reduction at IIPA, 16 Feb 2014)

1.15. However, various stages of disaster mgt have no clear beginning or end and each stage blurs with the next stage. Response would also entail preparedness for response as one can only respond if one is prepared for the response. Often in many cases response has to commence well before a disaster strike. A case in point is tropical Cyclone Phallin which struck Odisha and Andhra Pradesh in October 2013 but owing to a well discernible early warning and detailed

preparedness of the states, stakeholders responded in time and evacuated thousands to safer areas and cyclone shelters resulting in saving a large number of lives and property.

1.16. It is evident from the preceding paragraphs that disaster response and emergency response are synonymous in the context of disasters and have been defined in various ways. Disaster response is a five stage process – assess, plan, coordinate, implement and monitor²¹. Assessment stage will entail assessing the situation, identifying critical needs and targeting resources to those needs as per required priorities. Planning stage would imply creating a framework and mechanism /platform for strategic decision making, facilitating and mobilizing the relief assistance and consolidating, managing and dissemination of information. Coordination involves ensuring the roles and responsibilities do not clash and duplication is avoided. Coordination will warrant that the implementation of response is hassle free and bottlenecks are addressed in quick timeframes. Implementation is the execution step of actual response tasks as per action plan and as per laid down priorities. The entire process of response needs to be monitored for identifying bottlenecks and grey areas followed by initiating mid-course corrections, ensuring synergy is achieved in execution of tasks by multiple agencies. Disaster response therefore necessitate both linear and non-linear activities taking place in various dimensions. Disaster response is typically over once the emergency is over and relief agencies can take over from SAR workers.

1.17. The response to disasters in most cases requires involvement of number of organizations / departments such as Police, Fire and Emergency Services, Revenue, Medical and Health, Public Works, Communications, Home, Finance, Rural Development, Roads, Agriculture, Animal Husbandry etc. Achieving coordination among these agencies during emergency times create unique challenges such as line of authority, supervision, resource management, differences in terminology and other communication problem, span of control etc.

²¹ NIDM 'Course Module on IRS – Basic cum Intermediate Course'.

Often it is found that as a result of these difficulties, the response process suffers leading to poor incident management. The disaster in Uttarakhand in June 2013 was a complex case of response necessitating large number of agencies including the Armed Forces, NDRF, Govt agencies, NGOs, local community and so on, the list is endless. Owing to inaccessible terrain and multiple hazards of flash floods, landslides and bad weather conditions delivery of response became extremely complex and hazardous. To add to the difficulty was lack of preparedness on part of the local Govt and stakeholders²². Uttarakhand Govt has admitted that, as pointed out by CAG that it had fallen short of the disaster preparedness standards laid down by the NDMA²³.

1.18. As per Dr. Renu Kumari Kushwaha, Hon'ble Minister for Disaster Management, Govt of Bihar, disaster management²⁴ has several challenges which includes absence of professional teams available at national, state & district levels, mounting response operation such as search, rescue & relief without much of planning and very poor or no resource management etc. She highlights challenges encountered by her department as follows:

- (a) Often onsite disaster response is mounted without any appropriate plan.
- (b) No clarity of roles and responsibilities.
- (c) The authorities not backed by professional response teams leading to delay in operational deployment and inefficient response.
- (d) Inadequate cost monitoring.

²² Col JS Rawat (2014), HQ Uttarakhand Sub Area, Dehradun while interacting in an unstructured interview, 28 Feb 2014.

²³ News Article on the net, <http://in.news.yahoo.com/uttarakhand-falling-woefully-short-disaster-management-standards-113801751.html>, 14 Jan 2014.

²⁴ Patna Workshop Report, <http://saarc-sdmc.nic.in/pdf/workshops/ICS-PATNA.pdf>, 15 Jan 2014, pp 11.

(e) Lack of documentation.

(f) Coordination problem.

(g) Communication weakness.

(h) Problem in mobilization of men and other resources.

1.19. Most argue that disaster response being a complex, multiple agency interdisciplinary operation, necessitates a well-conceived system which can orchestrate the actions of responders to achieve desired goals. Incident Command System (ICS) has been rated as one of the successful system and often used in the Western world and needed to be studied.

Incident Command System

1.20. ICS was used by USA to control forest fires in California in 70s. The system is a copy of command and staff functions used in the Armed Forces world over. ICS was found to be very effective in conduct of large scale events and response to disasters in USA. As per Wikipedia²⁵ ICS is "*a systematic tool used for the command, control, and coordination of emergency response*" according to the United States Federal Highway Administration. A more detailed definition of an ICS according to the United States Centre for Excellence in Disaster Management & Humanitarian Assistance is "*a set of personnel, policies, procedures, facilities, and equipment, integrated into a common organizational structure designed to improve emergency response operations of all types and complexities. ICS is a subcomponent of the National Incident Management System (NIMS), as released by the U.S. Department of Homeland Security in 2004.*"

²⁵ Wikipedia Definition, http://en.wikipedia.org/wiki/Incident_Command_System , 15 Jan 14.

1.21. As per FEMA of US ICS is a standardized, on-scene, all-hazards incident management approach that allows for the integration of facilities, equipment, personnel, procedures and communications operating within a common organizational structure. It enables a coordinated response among various jurisdictions and functional agencies, both public and private. ICS establishes common processes for planning and managing resources. ICS is flexible and can be used for incidents of any type, scope and complexity. ICS allows its users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents.

1.22. India suffered a number of mega disasters in the 80s and 90s such as Bhopal gas Tragedy in 1984, Latur Earthquake in 1993 and later Super Cyclone in Orissa in 1999. The response of state machinery in all these cases was reported to be reactive and adhoc. In view of these disasters and ongoing approach, a HPC set up by MHA studied the disaster management scene in India in detail and came up with wide ranging recommendations to deal with both natural and manmade disasters at various levels in their report in October 2001. It's a comprehensive document which propagates that the national strategy should aim at bringing about a fundamental change in the mind set of all the role players and the community about hazard risks, preparedness for their prevention and mitigation, and the fact timely prevention is far more cost effective than post disaster relief and rehabilitation²⁶. The report highlights the need to choose from best practices from the world, ICS being one such system from USA. Accordingly, Central Govt decided to test the system in India by launching pilot projects in Assam, Gujarat and Andhra Pradesh in 2004. Although there are no reports or feedback on use of ICS in India in any of the disasters, ICS was reportedly used in Nanded Sahib in Maharashtra successfully in conduct of Tri-centenary functions in October 2008. A publication by the Govt of India MHA on ICS of 2004 covers issues pertaining to features of ICS, training aspects and time horizon for ICS training. It gives out

²⁶ 'The Report of High Powered Committee on Disaster Management', National Centre for Disaster Management, IIPA, Oct 2001' Preface, pp xvi

training of core group trainers and districts functionaries from 2004 to 2007²⁷. But ICS has to be in synchronization with the administrative structures of the state where it is to be put into practice.

1.23. Ms Abha Mishra²⁸ of UNDP in her query posted on the net asserted that *ICS is an imported system and hence it may not find favour with the Governmental officials especially at taluka and block levels. ICS uses terminology unfamiliar to the officials and various agencies involved in disaster response.* Her apprehensions are not unfounded but then the country does need a system, if not ICS. Country needs a standard system that can be put in place to address disaster response requirement, in times of need. Accordingly, ICS had to be modified to suit Indian administrative system and hence IRS was evolved based on detailed study of ICS and Indian requirements.

Incident Response System

1.24 Organizing administrative machinery, dealing with disasters, is a vital responsibility of governance²⁹. Strong and effective emergency management has been a felt need in all corners of the world³⁰. Responsiveness of governance becomes evident in the manner in which it addresses the crucial task of ameliorating suffering and reducing losses. Public servants have a responsibility of formulating policies and building capacities for dealing with such situations³¹. The public perceives Govts to have learnt from experience, theirs and others. Yet, a common complaint has been that Govt agencies are unprepared or ill prepared

²⁷ 'Incident Command System', MHA Govt of India Publication, National Disaster Management Division, pp 12.

²⁸ Abha Mishra, UNDP, Responding to IRS relate Query posted on the Web for Disaster Management Fraternity.. <https://in-mg61.mail.yahoo.com/neo/launch?.rand=20n2bcd196pdk#mail>, 22 Feb 14.

²⁹ Christoplos, Mitchell and Liljelund (2001); Waugh (2000).

³⁰ Rosenthal (1988); Sakamura 2001, covers vulnerabilities and disaster records of Netherlands and Japan.

³¹ Waugh, William L., Jr. 1988. "Current Policy and Implementation Issues in Disaster Preparedness" in Comfort, Louise K. (Ed). 1988. *Managing Disaster: Strategies and Policy Perspectives*. Durham, pp 111.

for the next big crisis and are unable to prevent large-scale loss of life and damage to property. It is in this context, the Govt at both Centre and states need to do their best to put a system in place to respond to disasters in the most professional manner.

1.25. There are a very few references to IRS per se, either in the print or on the net. In fact IRS being India specific and rather new, the subject is more or less unexplored. While reasonable amount of literature and references on the net are available on ICS, there are hardly any references which give details of either IRS, its application /usages in India or its institutionalisation. Number of articles, periodicals and publications have been referred / studied to identify the gaps in information. As per author of an article *India is one among the ten most disaster-prone countries in the world and regretted that the incident response system is not satisfactory in the country despite being so vulnerable to disasters*. Highlighting various loopholes in the Indian disaster response system, he stated *lack of professional supply management, co-ordination issues, communication gaps, lack of clarity in delegation of power and poor documentation are the blockades in the effective implementation of disaster management in India*³².

1.26. In an article titled 'Tips to tackle disasters' published in The Telegraph on 26 October 2011³³ Mr Sinha, says *IRS is a mechanism that reduces "ad hocism in response" through a well-conceived team. It should be a flexible modular system and adaptable to natural disasters as well as "man-made emergencies"*. Mr Sinha advocates the need for preparing the Indian version of ICS, which would fit into the country's administrative structure. He says the NDMA had decided to create IRS

³² Rajesh Bhatia, 'Incident response system is not satisfactory: Official' Deccan Herald News Service 06 Nov 2012, <http://www.deccanherald.com/content/290433/incident-response-system-not-satisfactory.html>, 10 Sept 2013.

³³ JK Sinha, Member NDMA, Article "Tips to Tackle Disasters" The Telegraph, 26 October 2011, http://www.telegraphindia.com/1111026/jsp/bihar/story_14666226.jsp 10 Sept 2013.

awareness among senior officers of the state Govt and explain them its key features and organisational approach to disaster response management.

1.27. It is acknowledged that one of the key shortcomings in our disaster response is logistics and supply chain management. Both these grey areas were highlighted by Prof Andharia in her article³⁴ titled "*The Uttarakhand floods exposed that logistics, key to reaching humanitarian relief speedily to victims, is a much neglected aspect of disaster management in India evident in the Uttarakhand disaster in June 14*". Floods and landslides in Uttarakhand once again challenged country's disaster management architecture. She argued that in order to improve our disaster response, it is important that Govt agencies pay greater attention to a largely neglected sphere in disaster management — humanitarian logistics and supply chain management. *Disaster specialists acknowledge that logistics constitutes 80 % cent of disaster effort. It is a critical support function, which impacts the extent and quality of the outreach of relief.* This is especially true in the hilly terrain of Himalayan states like Uttarakhand. Hence, the need for a system that gives an overriding importance to logistics and supply chain management. It is felt that logistics is one of the primary functions of ICS / IRS and a separate section chief with a whole range of branches form part of this section.

1.28. The NDMG of July 2010 issued by NDMA is a sole publication on the IRS other than a few manuals published by NIDM. In fact NDMG is a very comprehensive document which covers IRS in great details to include its organisation, role and tasks of various functionaries, suggested appointments at districts and state levels who could assume roles at various levels as part of IRS in the wake of a disaster, documentation / suggested formats for recording information and other important aspects IRS. The document does include aspects

³⁴ Janki Andharia, Professor at TISS, Mumbai, The Hindu, 19 July 2013 <http://www.thehindu.com/opinion/op-ed/all-for-the-want-of-a-horseshoe-nail/article4928677.ece#comments>, 23 July 13.

required to operationalize IRS and timelines for implementation of the system in states.

1.29. NDM Guidelines – IRS³⁵ very explicitly lay down a roadmap for institutionalization of IRS in India actions to be taken and responsibility as short & medium term guidelines covering up to two & five years, respectively. Actions to be taken in **short term** covering a period of **up to two years** were as follows (refer table 1.1):-

Table 1.1 – Roadmap for Institutionalisation of IRS Guidelines (Short Term)

Ser No	Actions	Responsible Agencies	Remarks
1.	Preparation of response plans incorporating IRS	SECs / State Govts / District Administrations	
2.	Incorporate IRS in the syllabus of ATI and other training institutions	SECs / State Govts / Heads of ATI and other training institutes	
3.	Identification of suitable officers at different levels for various positions in the IRS organizational structure and formation of IRTs at State, District, Sub-Division and Tehsil / Block levels	SDMAs / SECs / State Govts / District Administrations	
4.	Identify & train at least four Key Resource Persons (KRPs) in each	- do -	

³⁵ 'National Disaster Management Guidelines – IRS', issued by the NDMA in 2010, pp 87-90.

	District, who in turn to impart training on IRS in respective Districts		
5.	Training of officers from different States in IRS and maintain roster. These officers can preferably be selected as Master Trainers and KRPs of the concerned State itself.	- do -	
6.	Develop training faculty and master trainers in each State for capacity building of KRPs in each District	SDMAs / State Govts / NIDM	
7.	Finalize training calendar for Master Trainers of the State. Training of Master Trainers in each State to accomplish ultimate objective of finally trained 4 KRPs in each District.	NIDM / State Govts / SDMAs / SECs	
8.	Conduct mock exercises to test the efficacy of DM plans, and sensitizing the IRT members on the principles of IRS. NDMA will guide the conduct of such mock exercises and sensitizing the IRTs on IRS, when requested.	NDMA / State Govts / SDMAs / SECs / District Administrations	
9.	Strengthen EOC in each State and District as per laid down norms in the Guidelines and ensure establishments of IT Solutions for: (i) standardization of command structure; (ii) proactive planning facilities; (iii) strategic and tactical response; (iv) comprehensive resource management;	SDMAs / SECs / State Govts /District Administrations	

	<p>(v) GIS, situational awareness and decision support;</p> <p>(vi) enhancing modelling capability for predicting casualties and mobilization of resources for large scale incidents including CBRN emergencies.</p>		
10.	<p>Organize existing communications network so as to meet emergency requirements. Plan for quick and easy linking of existing independent networks of all the different line departments of the State Govts. Communications plan to also include alternative communication facilities like HAM radio, wireless, satellite phone, Skype etc.</p>	<p>SDMAs / SECs / State Govts / District Administrations / Line Departments</p>	

1.30. Actions to be taken in **medium term** covering a **period of two years to five years** are as follows (refer Table 1.2):-

(There is an ambitious target of training 2500 key resource persons (KRP) so that there are four KRPs in each district. This necessitate that each state has a few master trainers who can in turn train requisite numbers of KRPs)

Table 1.2 –Roadmap for Institutionalisation of IRS Guidelines (Medium Term)

Ser No	Actions to be Taken	Responsible Agencies	Remarks
1.	State Govts will need to select 6 officials for training as Master Trainers at following scale. i) ADM/SDM/SDO/Addl. SP : 2 ii) Dy. SP/SDPO/Tehsildar/BDO/ District Fire Officer / Reserve Inspector / Sergeant Major of the Police Lines : 2 iii) District Medical Officer : 1 iv) Assistant Engineer / PWD/PHD and other such officers : 1	State Govts / SDMAs / NIDM/ ATIs	
2.	The requirement is to train about 210- Master Trainers as per roadmap prepared by NIDM from each State. NIDM will also finalize IRS training curriculum and training material according to the adapted IRS Guidelines issued by NDMA.	NIDM	
3.	A capsule of training on IRS will be introduced in all the training programmes	NDMA / SDMAs / SECs / State Govts /	

	of the different training Institutions of the state.	NIDM / ATIs	
4.	As a preparedness effort, State Govts will ensure that IRS is in place and trained IRTs are ready for disaster response. States will have to ensure that adequate funds are allocated to the ATIs or other training institutions of the State Govt and necessary budgetary provisions will be made in the Annual Budget of the State.	State Govts / SDMAs / SECs	
5.	Ensure that adequate funds are available through plan and non-plan budget for capacity building and training of the various officers of IRS in the pre-disaster phase.	State Govts / SDMAs / SECs	
6.	Recommended funds of 13th Finance Commission for capacity building of administrative machinery will be spent appropriately.	State Govts / SDMAs / SECs	
7.	On specific request from the State Govts, NDMA will conduct some of the capacity building programmes recommended in IRS Guidelines, as per availability of funds, for awareness generation through NIDM, ATIs and other training institutes.	SDMAs / SECs / State Govts / NIDM / ATIs / NDMA	
8.	State Govts will ensure that the action points discussed in these guidelines are implemented within these five years and apprise NDMA from time to time.	SDMAs / SECs / State Govts / District Administrations	

1.31. As is evident from the tables above, very elaborate guidelines and roadmap has been laid out by NDMA necessitating implementation by various agencies and the states in a time bound manner. Over three years have passed since the issue of these guidelines, the progress on ground does not appear to be as desired. It is also observed that while few states like Gujarat, Andhra Pradesh and Odisha have been quite proactive in their response to disasters some others like Bihar and Uttarakhand have been more reactive. AS per an article in The Wall Street Journal³⁶ the author argues *that the Odisha administration seems to have been more proactive than its counterpart in Uttarakhand, although the suddenness of the June disaster in the latter, as well as the state's mountainous terrain, have to be factored into this narrative.* It will be prudent to examine factors that impede institutionalisation of a system like IRS in one state vis a vis another. The state Govts need to take stock of the situation and ensure the progress of institutionalization of IRS is expedited. An urgent necessity to strengthen the disaster response mechanism in our country needs no emphasis. A strong political and bureaucratic resolve is therefore needed at various levels to ensure that actions are taken as per NDMA guidelines in totality.

1.32. While there are sufficient references on the contents of ICS and disaster response in India in form of case studies, not enough literature or references could be found in any form to deal with operationalization of IRS in the country. Most manuals and publications illustrate in details what IRS is and how is it to be used etc but except the NDMG no other references could be accessed on the subject of institutionalisation of IRS in the disaster prone states. Institutionalisation of any public policy is a tedious process necessitating deliberate efforts on part of all the functionaries and time. However, if the impediments to implementation of a policy can be visualised in time, the process of implementation can be hastened by taking

³⁶ Anil Padmnabhan “ Cyclone Phallin and a tale of three tragedies”, Live mint 15 Oct 2013, <http://www.livemint.com/Politics/B11VVLEeH9OvK6qq3lPd6M/Cyclone-Phailin-and-a-tale-of-three-tragedies.html> , 21 Feb 14.

remedial measures. Hence, it is important to identify the impediments in institutionalisation of IRS and look for remedial measures. There is also grey areas relating to the monitoring of the specified road map of institutionalisation of IRS which must be done to ensure that worst affected disaster prone states are prepared to tackle disasters using IRS, if and when the need arises. These are the areas that need to be explored /researched to orchestrate cogent response in case of disasters in India.

RESEARCH APPROACH AND DESIGN

1.33. It is evident from the literature review that India has come a long way from being relief centric to adopting a response oriented approach to disasters. Enactment of Disaster Management Act 2005, formation of NDMA, NDRF, SDMA, NIDM and adoption of ICS as IRS are some of the measures taken by the Govt of India in this regard. MHA through the NDMG has laid down a roadmap for institutionalisation of IRS across the country but how far the states have succeeded in dissemination of IRS guidelines, training and taking proactive steps to use IRS are unknown. There appear to be some glitches and roadblocks in institutionalisation of IRS in the country that must be identified and measures found to address the same. Accordingly, to ascertain the status of institutionalisation of IRS, examine impediments and find remedial measures, a descriptive study on progress of institutionalisation of IRS in disaster prone states has been carried out. The objective of this study has been to analyse impediments to institutionalisation of IRS in disaster prone states. The research tools used are covered in the succeeding paragraphs.

1.34. The research was carried out using a combination of approach as follows:-

(a) Field visit to State Sachivalaya, HQ Uttarakhand, Disaster Mitigation & management Centre (DMMC) and state EOC at Dehradun. The state affected during Uttarakhand Floods in June 2013.

(b) A field visit to Distt HQ of Rudraprayag Distt in Uttarakhand, worst affected during Uttarakhand Floods in June 2013 was also planned but owing to bad weather and heavy rains on 27 Feb 14, the visit did not materialise. As Kedarnath shrine falls in this district, telephonic interviews were conducted to interact with key officials at Rudraprayag.

(c) Interactions at MHA, NDMA, NIDM, IIPA, Army HQ, Naval HQ using structured / unstructured interviews.

(d) Administering of Questionnaires at national and state levels.

(e) Web discussion by posting a query on IRS institutionalisation on net se-drm@solutionexchange-un.net.in being managed by UNDP, a website where disaster management experts and functionaries, academia interact and discuss solutions to pressing issues³⁷. The query was posted on the net in Feb 14 and a large number of experts responded to the query. The web query posted is as at Appendix A.

1.35. **Questionnaires**. In order to examine the status of institutionalisation of IRS what was needed was to study whether the system has been disseminated down to the last ranks, comprehended by stakeholders and functionaries, adapted by the Govt machinery at state and distt levels and finally its utilisation in times of need followed by reappraisal. The questionnaires were designed keeping these

³⁷ IRS Query on UNDP Solution Exchange site managed by Disaster Management Community <https://in-mg61.mail.yahoo.com/neo/launch?.rand=20n2bcd196pdk#mail>, 02 Feb 14.

criteria in view. Questionnaires administered at national and state levels are as at Appendices B & C. The questionnaires were prepared with multiple choice responses for objectivity as descriptive responses lead to subjectivity besides reluctance on part of the respondents to write. Five point Likert Scale was used to design suggested responses to questions.

(a) The population was divided in various strata and then **convenience sampling method** was used. The population of responders at national, state, and distt level worked out to be approx. 4000. As per the Sample calculation table³⁸ as at Appendix D, the sample size worked out to be 357 for a Confidence level of 95% with an error of margin of 5%. The details of those contacted are as follows:-

(i) Principal Secretaries/ Secretaries (Revenue & DM) or relief commissioners of all states and UTs.

(ii) SDMAs / Disaster management departments of 20 states/UTs.

(iii) Important national level institutes dealing with disaster management.

(iv) Experts and policy makers at NDMA, NIDM and MHA.

(v) Staff at HQ NDRF, New Delhi.

(vi) Participants of Logistics Section Commanders' Course at NIDM, Jan 14.

(vii) Participants of Mid-Career Course Phase III at LBSNAA 2013.

³⁸ Source - Article on web: <http://research-advisors.com/tools/SampleSize-Old.htm> , 14 Dec 13.

(viii) Participants of NDRF Commanders Course at NIDM, Feb 14.

(ix) Participants of Flood Management Course at NIDM, Feb 14.

(x) Few NGOs.

(xi) Individual disaster management experts esp those with background and knowledge of ICS / IRS / disaster response.

(xii) Armed Forces officers / staff officers dealing with issues pertaining to disaster response and aid to civil authority.

(xiii) Disaster victims and affected community members.

(xiv) Central Services officers at APPPA 39.

(xv) Community / victims of disasters.

(b) The aspects addressed in the questionnaires are as follows:-

(i) Response including coordination, collaboration.

(ii) Training in response, ICS / IRS.

(iii) Promulgation of ICS / IRS.

(iv) Recommendations to institutionalise IRS.

(v) Conflicts arising in response.

(vi) Recommendations to resolve conflicts when employing Armed Forces in IRS.

(c) **Respondents**. Although the sample size worked out to be 357 the Questionnaires were mailed to over 500 potential respondents. The questionnaires were sent both by post as well as by e-mail. In some cases Questionnaires were administered personally at NIDM where disaster management experts attend training courses. Only a handful (69) responded to the questionnaires sent by post and email. A large number of addresses did not respond and some responded stating they had no expertise in IRS or even disaster response.

1.36. **Uttarakhand Case Study**. A case study on Uttarakhand Floods 2013 was carried out to cover the following:-

(a) Disaster vulnerability of Uttarakhand including details of major natural disasters in past.

(b) Institutional framework for disaster management & disaster response mechanism in the state.

(c) Efforts by MHA / NDMA to propagate IRS in the state.

(d) Current status of institutionalisation of IRS in the state and comparison with other disaster prone state like Sikkim / Gujarat.

(d) Chronology of events of Uttarakhand Floods June-July 2013.

(e) Analysis of disaster response in the aftermath of this calamity, achievements, follies and lessons.

(f) Impediments to institutionalisation of disaster response (IRS) and remedial measures.

1.37. The parameters to ascertain progress of institutionalisation of IRS have been taken as follows:-

(a) Circulation /dissemination of National Disaster Management Guidelines, 2010.

(b) Establishment of SDMA, DDMA, SDRF.

(c) Preparation of disaster management plans & SOPs.

(d) Conduct of training in disaster response and IRS.

(e) Nomination / earmarking of state / district functionaries as per IRS.

(f) Conduct of mock / table top exercises.

(g) Periodical reappraisal of preparedness.

(h) Establishment of EOC at state and district level.

(j) Use of IRS in conduct of events / exercises / disaster response.

1.38. **Data Collection.** Both primary and secondary sources have been used for the purpose as follows:-

(a) **Primary Sources.**

(i) Structured Interviews / administering of Questionnaires to seek views of policy makers / disaster management experts, NGOs at national / state / districts level to determine experiences, lessons in disaster response, application of ICS / IRS, impediments in implementation and recommended remedial measures.

(ii) Interviews / Questionnaires to seek views of Armed Forces / NDRF officials especially those having operated in SAR operations in recent Uttarakhand Floods in June – July 2013 to ascertain issues relating to conflicts arising out of command & control, coordination and decision making.

(iii) Web discussion on the subject by posting a query related to IRS institutionalisation in India on UNDP site.

(b) **Secondary Sources.** Data was collected from the following:-

(i) Pilot training course material on ICS by USAID / MHA / NIDM.

(ii) NDMG issued by NDMA in July 2010.

(iii) General Staff Publication 'Aid to Civil Authority, 2004'.

(iv) Progresses reports / feedback at NDMA, MHA and other states esp Andhra Pradesh, Gujarat, Sikkim, Bihar and Uttarakhand.

Em Dat, World Disaster Report 2011 / 2012.

(v) Official after action reports - Gujarat Earthquake 2001, Indian Ocean Tsunami 2004, Bihar Floods 2007, Ladakh Mud Slides, Sikkim Earthquake 2011, Uttrakhand Floods 2013.

(vi) Periodicals - Disaster and Development, published by NIDM, Economic and Political Weekly.

(vii) Outcomes and minutes of workshops / seminars on disaster response in India and abroad.

(viii) Books on the disaster response, contemporary articles / papers.

(ix) Reference material on the net.

1.39. **Limitations**. Some of the limitations of the study were as follows:-

(a) Owing to time constraints pilot study was not feasible to test the questionnaires.

(b) Owing to administrative constraints, the interviews could only be conducted in Delhi & Dehradun though an attempt was made to administer the questionnaires in Uttrakhand and selected states.

(c) On preliminary interaction with the some of the govt entities it is felt that official data relating to the study and progress of institutionalisation may not be forthcoming. Hence, an attempt was made to assess the progress based on response to the questionnaires and personal interviews with the experts and govt officials.