ISSUES OF MULTI AGENCY OPERATIONS IN DISASTER RESPONSE: A CASE STUDY OF KASHMIR FLOODS

A Dissertation submitted to the Panjab University, Chandigarh in partial fulfilment of the requirement for the award of Master of Philosophy in Social Sciences

By

Brigadier Shailendra Singh, SM

(Roll No.4538)

Under the guidance of Dr. Sachin Chowdhry

45th Advance Professional Programme in Public Administration

(2019-2020)

Indian Institute of Public Administration

New Delhi

CERTIFICATE

I have the pleasure to certify that Brig Shailendra Singh, SM has pursued his research work and prepared the present dissertation titled "**Issues of Multi-Agency Operations in Disaster Response: A Case Study of Kashmir Floods**" under my guidance and supervision. The dissertation is the result of his own research and to the best of my knowledge, no part of it has earlier comprised any other monograph, dissertation or book. This is being submitted to the Panjab University, Chandigarh for the degree of **Master of Philosophy in Social Sciences** based on curriculum of **Advance Professional Programme in Public Administration (APPPA)** of **Indian Institute of Public Administration (IIPA)**, New Delhi.

I recommend that the dissertation of **Brig Shailendra Singh, SM** is worthy of consideration for the award of **M.Phil degree of Panjab University, Chandigarh**.

(Dr. Sachin Chowdhry)
Supervisor and Guide
Indian Institute of Public Administration
I.P. Estate, Ring Road
New Delhi - 110002

ACKNOWLEDGEMENT

At the outset I wish to acknowledge the opportunity provided by the Indian Institute of Public Administration, New Delhi to pursue research on the important subject of Issues of Multi-Agency Operations in Disaster Response in the Indian context.

My dissertation would not have been complete in its current form without the wholehearted support of Dr Sachin Chowdhry, who has been my friend, philosopher and guide in this endeavour. I am particularly thankful to him for making me focus towards the study and providing the necessary impetus towards structuring the same.

I also seek to express my gratitude to the IIPA library analysts and staff who have always been helpful in assisting in my research by providing valuable inputs and access to reference material.

I also take this opportunity to acknowledge the patience and support of my wife Dr Namita Singh, without which it would not have been possible for me to put in the long hours during the time spent at home and that too during the challenging times of COVID-19.

This work is dedicated to all the CORONA WARRIORS spread across the entire spectrum of our beloved India, who tirelessly and selflessly worked towards seeing us through these difficult times, with only the faint light at the end of the tunnel to exalt them. Salute you all for your supreme sacrifice and courage.

Date: Mar 2020   (Shailendra Singh)
Place: New Delhi   Brigadier
                                                                    Roll No. 4538, 45 APPPA

TABLE OF CONTENTS

<u>SELF-DECLARATION</u>

I declare that the dissertation titled "**Issues of Multi-Agency Operations in Disaster Response: A Case Study of Kashmir Floods**" for the award of Master of Philosophy Degree in Social Sciences of Panjab University, Chandigarh is original work and that this work or a part of has not been submitted for the award of any degree or diploma of either this or any other University.

Dated: Shailendra Singh

Place: IIPA, New Delhi   APPPA - 45

ABBREVIATIONS AND ACRONYMS

ABBREVIATION	FULL FORM
AIR	All India Radio
BDO	Block Development Officer
BRO	Border Roads Organisation
CAT	Catchment Area Treatment
CBO	Community Based Organisation
CD	Civil Defence
CEO	Chief Executive Officer
CFCB	Central Flood Control Board
COR	Commissioner of Relief
CPWD	Central Public Works Department
CRF	Calamity Relief Fund
CSR	Corporate Social Responsibility
cumec	cubic meter per second
CWC	Central Water Commission
DART	Disaster Assistance Response Team
DCC	District Coordinator Committee
DDMA	District Disaster Management Authority
DM	Disaster Management
DMA	Disaster Management Authority
DMS	Disaster Management Support / Store
DMP	Disaster Management Plan
DRM	Disaster Risk Management

DRR	Disaster Risk Reduction
DSS	Decision Support System
ECEW	Emergency Coordination & Early warning
EEP	Emergency Evacuation Plan
EOC	Emergency Operations Centre
FF	Flood Forecasting
FM	Flood Management
FMP	Flood Management Plan
FP	Flood Protection
GIS	Geographical Information System
GPS	Global Positioning System
GSI	Geological Survey of India
HPC	High Power Committee on Disaster Management
IAP	Incident Action Plan
IASC	Inter-Agency Standing Committee
ICP	Incident Command Posts
ICS	Incident Command System
ISRO	Indian Space Research Organisation
IDNDR	United Nations International Decade for Natural Disaster Reduction
IDRN	Indian Disaster Resource Network
ITBP	Indo-Tibetan Border Police
MARGS	Mutual Aid and Response Groups
MHA	Ministry of Home Affairs

MIS	Management Information System
MOWR	Ministry of Water Resources
NCDM	National Committee on Disaster Management
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NEC	National Executive Committee
NEOC	National Emergency Operation Centre
NFMI	National Flood Management Institute
NGO	Non-governmental Organisation
NIC	National Informatics Centre
NIDM	National Institute of Disaster Management
PDNA	Post Disaster Needs Assessment
PRI	Panchayati Raj Institution
SAR	Search and Rescue
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SEC	State Executive Committee
SOP	Standard Operating Procedure
UDD	Urban Development Department
UNISDR	United Nations International Strategy for Disaster Reduction

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

INTRODUCTION

India is highly vulnerable to floods, cyclones, avalanches, heat/cold waves, landslides, lightnings, earthquake and droughts. **According to the National Disaster Management Authority, around 40 million hectares of land in India is exposed to floods (around 12 per cent of the total land area)** (NDMA, n.d.), 68 per cent of land is vulnerable to droughts, landslides and avalanches, 58.6 per cent landmass is earthquake-prone, and tsunamis and cyclones are a regular phenomenon for 5,700 km of the 7,516-km long coastal line. Such vulnerable conditions have placed India amongst the top disaster-prone countries. **According to the Global Climate Risk Index report 2019, India is the 14th most vulnerable country in the world, due to extreme weather-related events**. The report also noted that India lost around 2,736 lives in 2017 due to disasters, second only to Puerto Rico, that saw 2,978 lives lost. **Further, economic losses in India due to such calamities accounted for around $13,789 million, the 4th highest in the world**. Between 1970 and 2009, India experienced 371 natural disasters, because of which 1,51,000 persons were killed and 1.86 billion were affected. **Floods are the most frequent disaster in India, accounting for 52 per cent of the total occurrences of calamities**, followed by cyclones (30 per cent), landslides (10 per cent), earthquakes (5 per cent) and droughts (2 per cent) (Parida & Goel, 2020).

Earlier the frequency of major floods was more than once in five years, but major floods are happening year on year now. Floods have now been happening in areas which were earlier not considered flood prone. Eighty per cent of the rainfall takes place in the monsoon months from June to September. The rivers bring heavy sediment burden from the catchments. These combined with inadequate carrying capacity of the rivers are responsible for causing floods, drainage blockage and wearing

down of riverbanks. Cyclones, cyclonic circulations and cloud bursts cause flash floods and lead to huge losses of lives and property and in turn a negative impact on the economy. The fact that some of the rivers causing damage in India originate in neighbouring countries, adds another complicated dimension to the crisis. Continuing and extensive loss of lives and destruction to public and private property due to floods imply that we are still to create an efficient response to floods. (NDMA, n.d.)

Disaster management is a dynamic process which involves multiple agencies operating together to respond to a given situation in a disaster. It stands beyond doubt that **no one agency can singlehandedly deal with a disaster situation** of any given magnitude. It needs to be taken as a **shared responsibility** of varied groups at the national and state levels like various ministries, departments, state and local government bodies, private sector undertakings, civil societies, Non-Governmental Organizations (NGO), Military, emergency services, National Disaster Response Force (NDRF) and international organisations etc., and everyone has a vital role to play in this process.

According to most studies, floods cause more damage to properties and earthquakes cause most deaths and injury in general. The **local population and the local authorities are in most cases the first responders** often carrying rescue within the first 12 to 24 hours. The **state and district level governance have a major role in the immediate response post any disaster.** The local government, by their virtue of being in touch of ground realities and its populace are mandated towards planning and preparing for any contingencies and eventualities of a disaster. **Local knowledge about the available resources, facilities and support systems, and the alternative options in the limited time frame are crucial factors** in disaster management. During any disaster and major calamities, the local populace does depend solely on the good

governance of the authorities to earnestly address their problems and basic requirements. And the onus lies squarely on the local authorities to deliver in an effective and timely manner and fulfil their responsibilities and their laid down mandate.

The Ministry of Home Affairs remains the overall nodal Ministry for planning and coordinating towards disaster response to floods and encompassing the complete aspects of natural disaster management, while the Department of Agriculture is the nodal Ministry for drought management. **Ministries have been assigned individual responsibilities towards providing assistance in case of disasters that fall in their charter** such as Air Traffic Accidents (Ministry of Civil Aviation), Rail Accidents (Ministry of Railways), Chemical Accidents (Ministry of Environment and Forest), Biological Disasters like for COVID-19 (Ministry of Health), and Nuclear Disasters (Department of Atomic Energy).

The training of students in schools in recent years have increased with more awareness about disasters through local and state agencies. **The volunteers can also train themselves through the special training programs organised by state disaster management agencies for rescue and recovery.** The people engaged in traditional occupation have trained themselves like fishermen who helped save life and property during recent flood incident in Kerala. To enhance the public participation and perception, capacity building of different stakeholders is being organised at regular intervals, as per NIDM and NDMA websites and online data. Disaster myths commonly portray disaster victims as dazed, panicked, or disorganized but people respond in a generally adaptive manner when disasters strike. Adaptive response is often delayed because normalcy bias delays people's realization that an improbable event is, in fact, occurring to them. Further delays occur because people have limited information about

the situation and, therefore, seek confirmation of any initial indications of an emergency before initiating protective action. In addition, most people respond in terms of their customary social units—especially their households and neighbourhoods—which usually consumes time in developing social organizations that can cope with the disaster's demands. Contrary to stereotypes of individual selfishness, disaster victims often devote considerable effort to protecting others' persons and property (Grimshaw, 1971).

For a trained population, a matter of 5 or 10 minutes is all that is required to reach safety or be safe. This was proved by Japan's remarkable disaster readiness. In the wake of the most powerful earthquake and subsequent tsunami in Japan's history on March 11, 2011, hundreds of people were killed, and many were missing. But it could have been far worse, had any other populous country suffered the 8.9-magnitude earthquake. **Tens of thousands of people might already be counted among the dead if not for Japan** adopting strict building codes and **massive public education and training program**. **This is in contrast to the much less experienced Southeast Asians, many of whom died in the 2004 Indian Ocean tsunami because of lack of awareness, no official warning of the tsunami as it is a rarity of tsunami hazard in the subcontinent and so the extent of the loss of human lives and damage to property was beyond imagination** (Nedunchezhiyan & R, 2019).

Armed Forces in India have time and again been called upon by the Civil Administration to render assistance during disaster response and relief work. However, the execution of the multi-agency relief work could have been much better and more responsive had there been a quicker and more intimate coordination between the Civil Administration, the Armed Forces and other agencies. The Armed Forces along with NDRF and other agencies **would need critical coordination with the Civil**

Administration to be able to effectively conduct disaster relief operations, cases in point being the Sikkim earthquake (2011), Uttarakhand floods (2013), J&K floods (2014), floods in Chennai (2015) and the more recent floods in Kerala in 2018 and 2019, wherein precious lives were lost despite the best of efforts of all agencies involved.

When disaster strikes, the complex environment necessitates multiple organizations to transform from independent actors into interdependent decision-making teams, all within a limited time frame. In order to guarantee coherent coordination amongst the responding organizations, it is **essential to have appropriate institutional mechanisms in place to support the vital 'plug and play' capability**. **Large-scale disasters require timely sharing of information & coordination of effort between numerous autonomous agencies, the paucity of which causes conflict in the aid work**. It is vital that multiple agencies can merge with disaster relief operations with the highest degree of harmonization, while contributing optimally towards disaster relief efforts and all working mutually to minimise the damage.

Coordination amongst various stakeholders is a crucial determinant of a resilient Disaster Risk Reduction (DRR) institutional framework. There are various stakeholders, organisations and authorities that constitute a core network for implementing various disaster management related functions. The UNISDR Hyogo Framework for Action 2005-2015 states that

> *"Collaboration and cooperation are crucial to disaster risk reduction: states, regional organizations and institutions, and international organizations all have a role to play. Civil society, including volunteers and community-based organizations, the scientific community, the media, and the private sector, are all vital stakeholders"*

Some of the **key assumption underlying multi-stakeholder partnerships in DRR** are given below (Nedunchezhiyan & R, 2019).

• Effective disaster risk reduction requires the **strengthening of partnerships and cooperation** between government, civil society and the private sector.

• Multiple stakeholders have a **shared responsibility** in shaping disaster risk reduction as a key priority in development planning and investment.

• A culture of disaster resilience can be developed only if there is a **positive nurturing of cross-disciplinary cooperation** from local to global levels of practice.

• **Better knowledge management of risk, vulnerability and hazards** are possible through collective action.

The **objectives of a multi-stakeholder partnership** in disaster risk reduction could be understood as follows (Nedunchezhiyan & R, 2019).

• To **strengthen collaborative action** for disaster risk reduction.

• To **generate learning and improved practice** for all stakeholders concerned in disaster risk reduction

• To develop a **shared culture of risk reduction** such that diverse stakeholders work together to shape DRR as a recognized priority and correspondingly design appropriate DRR strategies and actions.

• To collectively **ensure that DRR is prioritized** in public policy, planning and investments.

• To **develop new, innovative and sustainable approaches** in dealing with risk.

- To **strengthen horizontal and vertical cooperation**, specifically in strengthening coordination of DRR priorities and approaches between different departments of government and the non-state actors.

For example, the **multiplicity and diverse stakeholders with roles within the context of disaster management in Jammu and Kashmir** are as illustrated in the figure below:

Figure 1. Stakeholders with Roles within context of DM of J&K
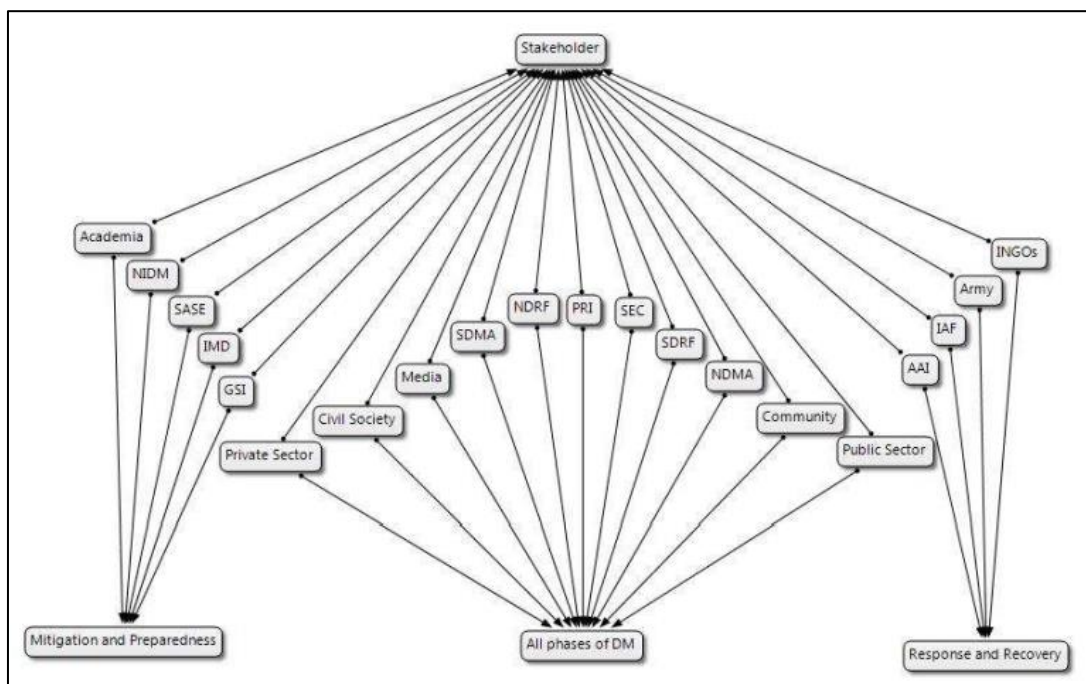
(**Source**: J&K State Disaster Management Authority)

It would be pertinent to mention here that there was a **virtual collapse of the state government and the civil administration during the first few days of the Jammu & Kashmir floods in 2014** (Venugopal & Yasir, 2017)**, leave alone the complexities in multi-agency coordination that were found lacking** and are crucial in the immediate aftermath of any disaster and the response thereof.

The **flooding of August 2018, the worst in Kerala** in nearly a century, isolated people across different regions of the state. The state was not equipped to cope with

such a massive damage to life and infrastructure—it was declared that only 14.52 per cent of its region is flood prone. The government confirmed 387 deaths. The preliminary loss had been estimated by the state government at Rs 20,000 crore, which was around 15 percent of the state's GDP estimate for 2018-19. As per Care Ratings, the flooding had affected more than 4 million people in the state. In August alone, people lost wages worth Rs 4,000 crore. More than one million people were sheltered in relief camps across the state. Damaged road system (more than 12,000 kilometres of roads were destroyed) substantially affected speedy relief and rebuilding operations (Venkatesh, 2018). **The traditional modes of communication were ineffective during the flooding as telephone and mobile networks failed**. **This made it difficult to deal with requests for help and coordinate rescue efforts**. At this point, people from across the world turned to volunteers with **social media platforms and geared up rescue and relief operations instantly** (Awasthi Suresh Babu, 2019).

The increasing number of victims from disasters in recent years results in several challenges for authorities aiming to protect and provide support to affected people. **Humanitarian logistics represents one of the most important fields during preparedness and response** in cases of disaster, **seeking to provide relief, information and services to disaster victims**. However, on top of the challenges of logistical activities, the **successful completion of operations depends to a large extent on coordination**. This is particularly **important for developing countries, where disasters occur very often, and resources are even scarcer**. The underlying assumption is of only one decision-maker with control over all resources. **In reality, several organizations are involved in disaster management** (Nolte, Martin, & Boenigk, 2012). Moreover, **just among governmental organizations, the autonomy of several of them calls for coordination and cooperation to cope with the**

emergency. Coordination requires "strategic thinking to align, organize and differentiate participating organizations' activities between beneficiaries, tasks, regions or tactics" (Nolte, Martin, & Boenigk, 2012). Therefore, tools designed for disaster management should include a coordination component to provide a more realistic and usable approach (Brewster, Albores, & Rodriguez-Espindola, 2015).

Command and control of disaster response operations is a complex endeavour, a fact recognized by the Director of Homeland Security and Justice Issues at the U.S. Government Accountability Office who testified that *"effective emergency preparedness and response for major incidents requires the coordinated planning and actions of multiple players from multiple first responder disciplines, jurisdictions and levels of government as well as nongovernmental entities"*. This problem is not a new one. Massive wildfires in California led to the start of a program in the 1970s to **develop doctrine and training that would enhance the ability of agencies to work together within a singular command and control construct**. The result of these efforts was development of the National Inter-agency Incident Management System, which formed the basis of the National Incident Management System (NIMS). NIMS was mandated by Homeland Security Presidential Directive (HSPD), which called for a comprehensive national incident management system (Smith & D.M., 2011).

Training is defined as the steps involved **in preparing and mitigating the situation**. Disaster management training is **meant to build the competencies of disaster relief workers and volunteers in improving the preparedness and response time** in all levels before and after disasters. The success of any training programme would be depending upon the training structure. The training needs for each of the agencies will first need to be identified which in turn would be dictated by the kind of response envisaged in each type of a disaster. Thus, **disaster management**

training is given to not only improve the technical skills of disaster relief workers and volunteers, but also for personnel and team management. Furthermore, **training is a tool to improve the coordination among various stakeholders** in disaster preparedness stage (Nedunchezhiyan & R, 2019).

Literature Review

Likewise, there is a vast array of literature available on this issue. Some of the studies undertaken by other scholars in the field are as covered in the succeeding paragraphs.

Shaluf (2007) spelt out that, disasters cannot be managed with the resources of a single organization alone but require an immediate and effective response from multiple agencies.

Alok Raj (2008) observed that there is **lack of coordination between the civil administration and Armed Forces** during disaster management.

Dagur (2008) assessed the inefficiencies amongst other administrative agencies like NDRF, CAPFs and other government agencies in dealing with disaster management issues and their **coordination with other multi-agencies**.

Kumar (2009) studied other structures and organisations for their role in disaster management, and that of other multi agencies like NGOs, civil societies and the military in the process of disaster management in Himachal Pradesh. His observation of **lack of cooperation among multi agencies involved in disaster response** and that the state government did not take adequate measures for ensuring adequate coordination amongst all agencies involved.

Elisabeth (2011) states that the Centre and State Administration needs to consider how best to utilise the Military during disaster response operations. The principal accountability remains with the civil administration at the National, state and district levels.

McMaster, Baber, & Christopher (2012) analyses that major disasters normally are complex in nature and difficult in decision making. That major disasters happen suddenly and without much warning and ultimately involve agencies who may have never rehearsed their drills together.

Mahalingam (2013) observed that the Military is not trained or equipped to handle disasters. However, it's the **leadership, discipline and the ethos built in the Military that makes the setup homogeneous**, **with innovativeness in their use of their inventory, their leadership and their abilities to handle large scale activities with precision**. He questioned the appointment of civil administrators to supervise disaster response operations and their notable absence during emergencies.

Gautam (2013) studied that the military is called in to deal with disasters whereas it's the Ministry of Home that is in charge for the disaster response and relief operations in India. However, as and when a disaster breaks out it's the military which is called in first to cope with the enormity of the situation as part of its Aid to Civil authority. He also dwelt in as to why the civil administration is found wanting often at times.

Krishna (2017) observed the areas where the military work towards disaster response was adversely affected because of the lack of coordination on part of the civil administration during the floods of J&K and Chennai. He observed that mutual exercise

and training amongst multi agencies and the civil government is a must for better disaster response.

Statement of the Problem

When disaster strikes, the **complex environment requires multiple organizations to transform from autonomous actors into interdependent decision-making teams, all within a very short time frame**. In order to ensure coherent coordination amongst the responding organizations, it is **essential to have relevant institutional mechanisms in place** ab-initio to provide the vital 'plug and play' capability. Large-scale disasters require **timely sharing of information & coordination** of effort between numerous autonomous agencies, the lack of which causes friction in the relief work. It is essential that multiple agencies can join disaster relief operations with the highest degree of coordination, while contributing optimally towards disaster relief efforts and all working collectively to minimise the destruction.

The capacity for interoperability between multi-agency emergency teams in India is under researched and poorly understood. This research endeavoured to help cover this gap.

Research Objectives

Multi-agency disaster management requires collaboration among geographically distributed public and private organizations, civil administration and Armed Forces, to enable a rapid and effective response to an unexpected event. Considering the above, the **main objectives of the research** were: -

(a)   To study the existing disaster response mechanism in India with respect to multi-agency coordination and find gaps.

(b)   To assess the efficacy of the mechanism of the disaster response and analyse multi-agency coordination issues and related problems during the Kashmir Floods of 2014.

(c)   To recommend remedial measures for addressing multi-agency coordination issues during disaster response in India.

Research Questions

The pertinent research questions that arose were as under: -

(a)   What were the laid down procedures and what were the gaps, if any, in the multi-agency coordination aspects with respect to the existing disaster response mechanism for floods in India?

(b)   What were the disaster risk perception in J&K in 2014 and what were the mechanism established for disaster response?

(c)   What were the multi-agency coordination issues and what problems were faced during the Kashmir Floods of 2014?

(d)   What are the recommended remedial measures to address Multi-Agency concerns during disaster response and relief operations for floods in India?

Methodology

Case Study Method has been deployed to comprehensively gain concrete, contextual and in-depth knowledge about disaster risk perception in J&K in 2014 and what was the mechanism established for disaster response and what were the multi-agency coordination issues and what problems were faced during the Kashmir Floods of 2014.

Therefore, in order to find solutions, the research methodology adopted is Exploratory and Descriptive.

The study endeavours to provide insight into the level of cooperation and coordination required between the civil administration and multi-agencies to handle disaster relief operations. The various provisions under the national and state statutes and guidelines have been analysed to assess the adequacy of provisions and gaps / shortcomings, if any. This includes institutional arrangements, infrastructure – both physical and social etc. Roles and responsibilities of each stakeholder have also been analysed besides addressing the technological aspects.

Data Sources

Use of personal experience has also been made for analysis, as the researcher was posted in one of the Army Brigades in South of Kashmir as the Deputy Commander, which was involved in disaster response during Kashmir floods of 2014.

The Secondary Data available in the open domain from web sites, journals, books and other research papers besides the following sources have also been utilized for the research: -

(a)   National Disaster Management Guidelines.

(b)   National Disaster Management Act 2005.

(c)   National Disaster Management Plan 2019.

(d)   J&K State Disaster Management Plan 2017.

(e)   Comptroller and Auditor General of India report on Performance Audit of Disaster Management in the State of Jammu and Kashmir.

Justification of the Study

There has been a perceptible improvement in coordination amongst multi-agencies and local civil administration for disaster relief in the last few years. However, we continue to have huge losses both in terms of lives and property and much remains to be done to plug gaps and achieve the desired synergy between the civil administration and multiple agencies involved in disaster response.

This research identifies gaps in procedures for multi-agency coordination for flood relief and recommends mechanisms to be put in place to plug the same. This would help achieve synergy amongst all stakeholders thereby reducing the adverse impact of floods in India.

Scope / Limitations / Delimitations

The scope of this research is **restricted to the 'response and relief' phase** of Disaster Management and **only pertaining to floods**, **being the most frequent and recurring of the natural disasters in India** and as such the issues of multi-agency operations during a disaster response are largely common to all types of natural disasters.

Considering the **limited time available during the APPPA course** and the **lockdown across the country due to coronavirus**, the research has the limitation with regards to access to documentation and those available of institutions in the open domain.

CHAPTER 2

AN OVERVIEW OF DISASTER MANAGEMENT IN INDIA

AN OVERVIEW OF DISASTER MANAGEMENT IN INDIA

Introduction

The aim of this chapter was to study the existing laid down procedures for disaster response mechanism in India with reference to floods and in doing so to find out the gaps if any, in the multi-agency coordination aspects.

While working for this chapter, a personal visit to National Disaster Management Authority (NDMA) in Delhi was made besides studying their portal and the web sites of NIDM, NDRF, J&KSDMA etc. The overview of disaster management plan in India is covered by way of the recently released document National Disaster Management Plan (NDMP) – 2019 which covers in great depth the issues of multi-agency operations in keeping with the Sendai Framework for Disaster Risk Reduction. The **relevant aspects pertaining to the laid down procedures for disaster response mechanism in India from the NDMP-2019 and various other research papers are as analysed** in the subsequent paragraphs.

Definitions

The revised terminology of the United Nations Office for Disaster Risk Reduction (UNISDR1) defines 'disaster' as:

"A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts." (United Nations Office for Disaster Risk Reduction)

The effect of any disaster can be immediate and often widespread and prolonging till long after the event, COVID-19 being the most recent example. The **effect may overwhelm the capacity of a society to cope using the resources immediately available with it**, and **therefore may require assistance from external agencies**, which could include **neighbouring states, or those at the national or international levels**. UNISDR considers disaster to be a result of the combination of many factors such as the exposure to hazards, the conditions of vulnerability that are present, and insufficient capacity or measures to reduce or cope with the potential negative consequences. Disaster impacts may include loss of life, injuries, disease and other negative effects on human physical, mental and social well-being, together with damage to property, destruction of assets, loss of services, social and economic disruption and environmental degradation. (United Nations Office for Disaster Risk Reduction)

The Indian DM Act 2005 uses the following definition for disaster:

"Disaster" means a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or manmade 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". (NDMP, 2019)

The National Disaster Management Plan (NDMP) of 2019 lays down the structure and gives out guidelines for each phase of the disaster for each type of disasters that can be envisaged. The NDMP is catered for updating at regular periodicity

to include the best practices and acquired knowledge in disaster management from other states and internationally.

Within each state in India, the state government is primarily responsible for disaster. However, in situations where the resources of the state are inadequate to cope effectively with the situation, the State Government can seek assistance from the Central Government. In addition, **there may be situations in which the Central Government will have direct responsibilities** in certain aspects of disaster management like that for COVID-19. While the NDMP pertains to both these exigencies, in most cases the **role of central agencies will be to support the respective state governments**. Barring exceptional circumstances, the state governments will deploy the first responders and carry out other activities pertaining to disaster management.

The **NDMP of 2019 provides a framework covering all aspects of the disaster management cycle**. It covers disaster risk reduction, mitigation, preparedness, response, recovery, and building back better. It recognises that, effective disaster management necessitates a comprehensive framework encompassing multiple hazards. The **NDMP incorporates an integrated approach that ensures the involvement of government agencies, numerous other relevant organisations, private sector participants, and local communities** (NDMP, 2019).

The NDMP works towards removing any confusion in the mandate and charter of all agencies and specifies the responsibilities of each agency at respective stages of the disaster management cycle (NDMP, 2019).

The NDMP provides a framework with role clarity for rapid mobilization of resources and effective disaster management by the Central and State Governments and

other concerned stakeholders in India. While it **focuses primarily on the needs of the government agencies, it envisages all those involved in disaster management including communities and non-government agencies as potential users**. The NDMP provides a framework for disaster management covering scope of work and roles of relevant agencies along with their responsibilities and accountability necessary to ensure effective mitigation, develop preparedness, and mobilize adequate response. (NDMP, 2019).

According to the revised UNISDR terminology, Disaster Management (DM) is "*the organization, planning and application of measures preparing for, responding to and recovering from disasters*" and Disaster Risk Management (DRM) is "*the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses*" (United Nations Office for Disaster Risk Reduction). The sense in which DM Act 2005 uses the term disaster management, covers nearly DM, DRR and DRM without maintaining a strict distinction between them.

Paradigm Shift

The DM Act 2005 and the National Policy on Disaster Management (NPDM) marks the institutionalization of paradigm shift in disaster management in India, **from a relief-centric approach to one of proactive prevention, mitigation and preparedness**. The NPDM notes that while it is not possible to avoid natural hazards, adequate mitigation and disaster risk reduction measures can prevent the hazards becoming major disasters. Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities. The NPDM suggests a multi-

pronged approach for disaster risk reduction and mitigation consisting of the following (NDMP, 2019):

• Integrating risk reduction measures into all development projects.

• Initiating mitigation projects in identified high priority areas through joint efforts of the Central and State Governments.

• Encouraging and assisting State level mitigation projects.

• Paying attention to indigenous knowledge on disaster and coping mechanisms.

• Giving due weightage to the protection of heritage structures.

In the terminology adopted by the UNISDR, the concept and practices of reducing disaster risks involve systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events. While both the terms "Disaster Reduction" and "Disaster Risk Reduction" are widely used, the latter provides a better recognition of the ongoing nature of disaster risks and the ongoing potential to reduce these risks. Mitigation consists of various measures required for lessening the adverse impacts of hazards and related disasters.

Synergy of the three Post-2015 Global Frameworks for DRR

The Post-2015 goals and agenda are set forth in the three landmark global agreements reached in 2015 – the **Sendai Framework for Disaster Risk Reduction** (**Sendai, Japan, March 2015**), **Sustainable Development Goals** (UN General Assembly, **New York, September 2015**) and **Climate Change Agreement** (Conference of Parties, **COP21, Paris, December 2015**). The three documents set the

stage for future global actions on DRR, sustainable development and climate change. These three agreements have created a rare but significant opportunity to build coherence across different areas having several shared or overlapping concerns. Taken together, these frameworks represent a nearly complete agenda for building resilience, as that requires action spanning development, humanitarian, climate change impacts and disaster risk reduction. **India is committed to these global frameworks** and the government of India has taken various measures for **realization of the goals through involvement of government, private sector and the non-government organisations**.

The **agreements represent a major turning point in the global efforts to tackle existing and future challenges in all countries**. Specific emphasis is apparent to support resilience-building measures, and **a shift away from managing crises to proactively reducing their risks**. The agreements have varying degrees of emphasis on sustainable development, DRR, resilience and climate change. An important element in the Sendai Framework is to mutually reinforce with the other post-2015 global agendas by deliberately pursuing coherence across and integration of DRR, sustainable development, responses to climate change and resilience. In keeping with the global trends and priorities, the NDMP 2019 has also been restructured to ensure coherence and mutual reinforcing of the national initiatives in the domains of DRR, sustainable development and the responses to meet challenges of global climate change.

Scope of National Disaster Management Plan 2019

As per the DM Act 2005, the NDMP shall include: (NDMP, 2019)

- Measures to be taken for prevention of disasters or the mitigation of their effects.

- Measures to be taken for the integration of mitigation measures in the development plans.

- Measures to be taken for preparedness and capacity building to effectively respond to any threatening disaster situations or disaster.

- Roles and responsibilities of different Ministries or Departments of the Government of India in respect of measures of the three aspects mentioned above.

The NDMP provides an over-arching planning framework for DM for the whole country and which needs to be reviewed and updated periodically. Disaster management, covering prevention and mitigation, preparedness, response, and recovery, necessarily involves multiple agencies and it is even more so in a large country like India. **Hence, the inter-agency coordination and collaboration among stakeholders are of utmost importance for the successful implementation of the NDMP and in ensuring effective risk reduction, response and recovery.**

The **NDMP provides the framework for mobilization and coordination of the central ministries, departments and other agencies among themselves and the devolution of responsibilities between central and state government in all spheres of disaster prevention, preparedness, response and recovery within India**. The deployment of armed forces and central agencies during disaster within India will be subject to norms adopted by the Central government and the relevant protocols agreed upon between Central and State Governments. Any State may seek the assistance and support of the Centre and other States at any time during a disaster. Responding to incident specific emergencies is the responsibility of designated agencies.

The plan is based on detailed hazard-specific guidelines prepared by the NDMA. The GOI has notified certain central ministries and departments for hazard-specific nodal responsibilities for overall coordination of disaster management for different hazards. In addition**, GOI has notified disaster-wise certain ministries for coordinating immediate post-disaster response. These notified ministries/ departments are required to prepare detailed DM plans to carry out the roles assigned to them**. At the same time, each central ministry, department, state, and district is also required to formulate respective DM plans specifying how each entity would contribute to effectively manage disasters.

National Disaster Management Authority (NDMA)

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, has the responsibility for laying down the policies and guidelines for disaster management for ensuring timely and effective response to disaster**. The **guidelines of NDMA would assist the Central Ministries, Departments, and States to formulate their respective DM plans**. NDMA is also mandated to **approve the National Disaster Management Plan and DM plans of the Central Ministries/ Departments**. It needs to 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 need to extend necessary cooperation and assistance to NDMA for carrying out its mandate. (NDMA, n.d.)

NDMA has the power to authorise 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 are mandated to be exercised by NDMA. The National Institute of Disaster Management (NIDM) is mandated to work within the framework of broad policies and guidelines laid down by the NDMA**. The **NDMA has the mandate to deal with all types of disasters – natural or human-induced**. However, other emergencies such as terrorism (counter-insurgency), law and order situations, hijacking, air accidents, CBRN weapon systems, which require the close involvement of the security forces and/or intelligence agencies, and other incidents such as mine disasters, port and harbour emergencies, forest fires, oilfield fires and oil spills will be handled by the **National Crisis Management Committee (NCMC)**.

National Institute of Disaster Management (NIDM)

As per the provisions 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 **premier institute for capacity development for disaster management in India and the region**. 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** (NIDM, n.d.). The NIDM has **built strategic partnerships** with various 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 Management Centres (DMCs) in the Administrative Training Institutes (ATIs) of the States and Union

Territories. Some of them are emerging as centres of excellence in the specialised areas of risk management – flood, earthquake, cyclone, drought, landslides, and industrial disasters.

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 is mandated to be vested and exercised by the NDMA** (NDRF, n.d.). The command and supervision of the NDRF is vested with the Director General appointed by the Government of India. The **NDRF is to position its battalions at different locations** as required for effective response. NDRF units **are required to maintain close liaison with the designated State Governments** and should 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 are required to also **impart basic training to all the stakeholders identified by the State Governments in their respective locations**. A National Disaster Response Academy has been operationalised in Nagpur and infrastructure set up to cater to national and international training programmes for disaster management. Disaster Management Training Wings of four CAPFs (BSF, CRPF, ITBP and CISF) is planned to be merged with this Academy. Experience in major disasters has evidently 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. (NDRF, n.d.)

At present, National Disaster Response Force **consist of 12 battalions, three each from the BSF and CRPF and two each from CISF, ITBP and SSB. Each battalion have 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics**. The total strength of each battalion is 1,149. All the 12 battalions are equipped and trained to respond to both natural as well as man-made disasters. Battalions are also trained and equipped for response during chemical, biological, radiological and nuclear (CBRN) emergencies. (NDRF, n.d.)

These NDRF battalions are located at 12 different locations in the country based on the vulnerability profile of country and to cut down the response time for their deployment at disaster site.

Figure 2. Locations of NDRF Battalions

(**Source**: http://www.ndrf.gov.in/about-us)
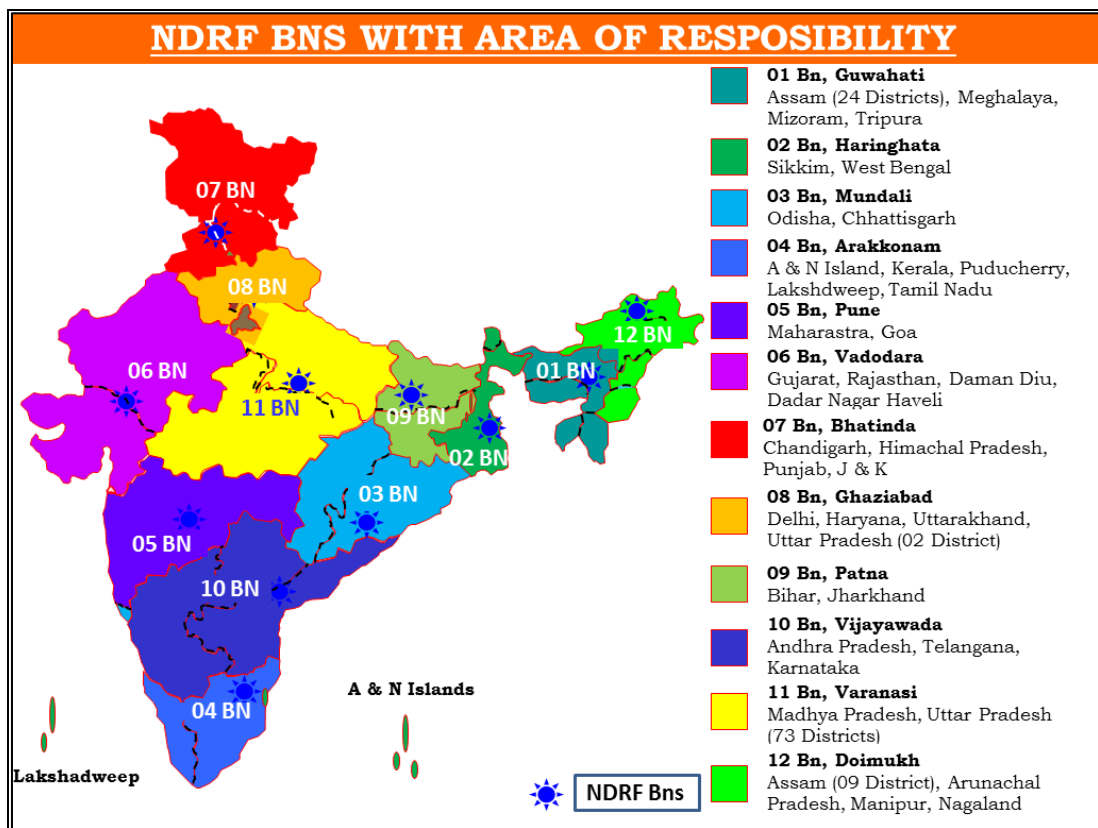
State Level Framework for DM

As per the DM Act of 2005, **each state in India/ Union Territory (UT) needs to have its own institutional framework** for disaster management. **Each State/UT needs to have one nodal department for coordination of disaster management, referred as DM department (DMD), although the name and department will differ for each State/UT**. Among other things, the DM Act, mandates that **each State/UT needs to take necessary steps for the preparation of State/UT DM plans, integration of measures for prevention of disasters into State/UT development plans, allocation of funds, and establish EWS**. Depending on specific situations and needs, the State/UT need to also assist the Central Government and central agencies in various aspects of DM. **Each state needs to prepare its own State Disaster Management Plan**. (DMAct, 2005)

The DM Act mandates the **setting up of a State Disaster Management Authority (SDMA)** and a similar system in each Union Territory. At the **district level, District Disaster Management Authority (DDMA)**, the District Collector or District Magistrate or the Deputy Commissioner, as applicable, needs to be responsible for overall coordination of the disaster management efforts and planning (DMAct, 2005).

State Disaster Management Authority (SDMA)

As per provisions in Chapter-III of the DM Act, each State Government needs to establish a State Disaster Management Authority (SDMA) or its equivalent as notified by the state government with the **Chief Minister as the Chairperson**. In case of other UTs, the Lieutenant Governor or the Administrator will 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 respectively 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 is to lay down policies and plans for DM** in the State. The **SDMA** is to **approve the disaster management plans** prepared by various departments. It will, inter alia **approve the State Plan in accordance with the guidelines laid down by the NDMA**, **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 the integration of prevention, preparedness and mitigation measures. The State Government is also required to **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**. (NDMP, 2019)

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, or District Magistrate as the case may be, with the elected representative of the local authority as the Cochair person**. The State Government shall appoint an officer not below the rank of Additional Collector or Additional District Magistrate or Additional Deputy Commissioner 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, inter alia, **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, and response measures laid down by the NDMA and the SDMA are followed by all** the district-level offices of the various departments of the State Government. (NDMP, 2019)

Plan Implementation

The DM Act 2005 enjoins central and state governments to make provisions for the implementation of the disaster management plans. In this respect, the sections of the DM Act 2005 applicable for national, state, and district DM plans are 11, 23, and 31. The **Chapters V and VI of the DM Act spell out the responsibilities of the central, state, and local governments** with respect to disaster management. The DM Act states that every Ministry or Department of the Government of India shall make provisions, in its annual budget, for funds for the purposes of carrying out the activities and programmes set out in its disaster management plan. (NDMP, 2019)

The NDMP sets outs the priorities, time frames and defines the Thematic Areas for DRR along with Sub-Thematic Areas that must be implemented in a highly distributed, decentralised and coordinated manner by the central and state governments. It is not one omnibus plan that must be implemented by one agency with using one overarching budget; instead it is one that must be financed from the union and state budgets through various ministries and government agencies. **The centrally allocated finances are limited to National Disaster Response Fund and State Disaster Response Fund meant for immediate relief and emergency response** after a disaster. Since DRR mainstreaming is an integral part of the main plans of centre, central

ministries, states/UTs and state/UT-level agencies, there cannot be a separate financial allocation for it.

The **Act mandates that every Ministry and Department of the Government of India and every state must prepare a DMP in accordance with the NDMP**. Respective DM authorities must **regularly review and update** their DM plans. Central ministries and state governments will integrate DRR into their development policy, planning and programming at all levels. **They must adopt a holistic approach and build multi-stakeholder partnerships at all levels, as appropriate, for the implementation of the DM plans.** Depending on its nature, different components of the NDMP will be implemented within short, medium and long-term timeframes ending in 2030, with the actions under these timeframes often running concurrently and not sequentially. In a broad sense, **the approach described in the NDMP applies to all those working for disaster risk reduction in the country, be it government, private, not for-profit entities, national agencies or international organisations**.

The plan is highly ambitious and the complete implementation of all elements across the country may take a very long time. The **NDMA has prepared and published guidelines covering various aspects of disaster management and including a separate one for response** (NDMP, 2019).

Figure 3. Organisation Tree of National DM Structure of India

(**Source:** https://ndma.gov.in/images/policyplan/dmplan/ndmp-2019.pdf)
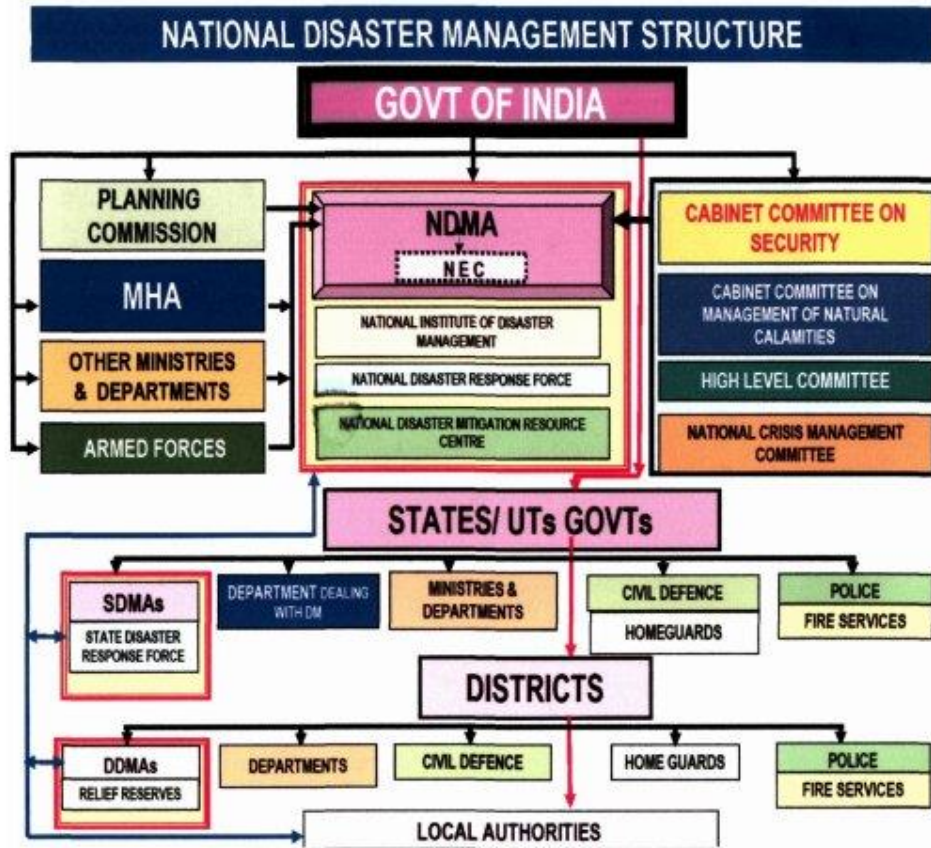
Interplay Amongst Multi-Tiered Institutional System

The **Disaster Management Act, 2005 (DM Act 2005) lays down institutional and coordination mechanism for effective Disaster Management (DM) at the national, state, district and local levels**. As mandated by this Act, the Government of India created a multi-tiered institutional system consisting of the National Disaster Management Authority (NDMA) headed by the Prime Minister, the State Disaster Management Authority (SDMA) headed by the respective Chief Ministers and the

District Disaster Management Authority (DDMA) headed by the District Collectors/ District Magistrate and co-chaired by Chairpersons of the local bodies. **In each State/ Union Territory (UT), there is one nodal agency, for coordination of disaster management, which is referred in the plan as 'Disaster Management Department' (DMD).** The institutional arrangements have been set up consistent with the **paradigm shift from the relief-centric approach of the past to a proactive, holistic and integrated approach for Disaster Risk Reduction (DRR)** by way of strengthening disaster preparedness, mitigation, and emergency response. (NDMP, 2019)

The **NDMP works towards the need to minimize, if not eliminate, any ambiguity in the responsibility framework**. It, therefore, **specifies who is responsible for what at different stages of managing disasters**. It is meant to be implemented in a flexible and scalable manner in all phases of disaster management: a) Mitigation (prevention and risk reduction), b) Preparedness, c) Response and d) Recovery (immediate restoration and build-back beer). While the names of ministries/ departments of the Centre and State/UT having specific roles and responsibilities are mentioned in the Plan, in the spirit of the DM Act 2005 and the exigencies of humanitarian response, every ministry/ department and agency is expected to contribute to DM going beyond their normal rules of business. (NDMP, 2019)

Main Pillars of NDMP

The NDMP, in a sense, has five main pillars: (NDMP, 2019)

- Conforming to the **national legal mandates**—the **DM Act 2005** and the **NPDM 2009**
- Participating proactively to **realising the global goals** as per agreements to which India is signatory—Sendai Framework for DRR, Sustainable

Development Goals (SDGs) and Conference of Parties (COP21) Paris Agreement on Climate Change

- **Prime Minister's Ten Point Agenda for DRR** articulating contemporary national priorities

- **Social inclusion** as a ubiquitous and cross-cutting principle.

- **Mainstreaming DRR** as an integral feature.

The NDMP of 2016 was the world's first ever national plan explicitly aligned with the Sendai Framework. Once again, taking a global lead, the revised plan of 2019 attempts to incorporate the emerging global approach of bringing about coherence and mutual reinforcement of the three Post-2015 Global Frameworks. The revised plan also incorporates the Ten Point Agenda on DRR, enunciated by Prime Minister during Asian Ministerial Conference on DRR (AMCDRR) in November 2016 in New Delhi.

The period envisaged as 'Long-Term' in this revised plan is co-terminus with year 2030, the ending year of the major post-2015 global frameworks. The activities running concurrently in most cases are grouped under overlapping time frames—short, medium, and long-term, ending by 2022, 2027 and 2030 respectively in addition to the recurring/regular (i.e., routine) ones. They do not signify any order of priority. The measures mentioned are indicative and not exhaustive. Based on global practices and national experiences, the plan will incorporate changes during the periodic reviews and updates.

Multi-Hazard Vulnerability

India, due to its, physiographic and climatic conditions is one of the most disaster-prone countries of the world. Vulnerability to human-induced disasters/emergencies also exists. The NDMP covers disaster management cycle for all

types of hazards—natural and human-induced. Heightened vulnerabilities to disaster risks can be related to increasing population, urbanisation, industrialisation, development within high-risk zones, environmental degradation, and climate change. Besides the natural factors and anthropogenic climate change, various human activities could also be responsible for aggravated impacts and increased frequency of disasters.

Building Resilience

The **role of the central agencies is to support the disaster-affected State or the UT in response to requests for assistance**. The central agencies will play a pro - active role in disaster situations. In the domains of DM planning, preparedness, and capacity building, the central agencies will constantly work to upgrade Indian DM systems and practices as per global trends. The **priorities of the Sendai Framework and those related to DRR in SDGs and Paris Agreement have been integrated into the planning framework for Disaster Risk Reduction under the following Thematic Areas for Disaster Risk Reduction**: (NDMP, 2019)

- Understanding Risk

- Inter-Agency Coordination

- Investing in DRR – Structural Measures

- Investing in DRR – Non-Structural Measures

- Capacity Development and

- Climate Change Risk Management

Preparedness & Response

Response measures are those taken immediately after receiving early warning from the relevant authority or in anticipation of an impending disaster, or immediately after the occurrence of an event without any warning. The primary goal of response to

a disaster is **saving lives, protecting property, environment, and meeting basic needs of human and other living beings** after the disaster. Its focus is on rescuing those affected and those likely to be affected by the disaster.

The overarching concern of disaster response is immediate and short-term needs, including immediate disaster relief. **Effective, efficient, and timely response relies on disaster risk-informed preparedness measures, including the development of the response capacities of individuals, communities, organizations, countries and the international community.** The **institutional elements of response often include the provision of emergency services and public assistance by public and private sectors and community sectors, as well as community and volunteer participation.** "Emergency services" are a critical set of specialized agencies that have specific responsibilities in serving and protecting people and property in emergency and disaster situations. They include civil protection authorities, and police and fire services, among many others. The division between the response stage and the subsequent recovery stage is not clear-cut. Some response actions, such as the supply of temporary housing and water supplies, may extend well into the recovery stage.

Preparedness, as defined by UNISDR (2016), consist of the knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters. Preparedness action is carried out within the context of disaster risk management and aims to build the capacities needed to efficiently manage all types of emergencies and achieve orderly transitions from response to sustained recovery.

Preparedness is based on a sound analysis of disaster risks and good linkages with early warning systems, and includes such activities as contingency planning, the

stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation, and public information, and associated training and field exercises. These must be supported by formal institutional, legal, and budgetary capacities. The related term "readiness" describes the ability to respond quickly and appropriately when required.

Local level preparedness of people for disasters can help in mitigating the impacts of disasters and better response**. Involvement of community at local level through PRIs can go a long way in getting people prepared for countering disasters**. In case of disasters, PRIs can play a crucial role in mobilizing people and local resources.

Based on the preparedness, the response process begins as soon as it becomes apparent that a disastrous event is imminent and lasts until the relevant authorities declare it as over. **Response is carried out during periods of high stress in highly time-constrained situations with limited information and recourses**. Response is considered as the most visible among various phases of disaster management. **It includes not only those activities that directly address the immediate needs, such as search and rescue, first aid and temporary shelters, but also rapid mobilization of various systems necessary to coordinate and support the efforts. For effective response, all the stakeholders need to have a clear vision about hazards, its consequences, clarity on plans of action and must be well versed with their roles and responsibilities.**

Any emergency requires a quick response to save lives, contain the damage and prevent any secondary disasters. In most cases, **first responders such as members of Incident Response Teams (IRT) of district, block, or other agencies (medical fire, police, civil supplies, municipalities) manage emergencies immediately at the local**

level. If an emergency escalates beyond their capacities, the local administration must seek assistance from the district administration or the State Government. If State Government considers it necessary, it can seek central assistance.

The **Cabinet Committee on Security (CCS)** deals with issues related to defence 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. **CCS will be involved in the decision-making if the disaster has serious security implications. The NEC will coordinate response in the event of any threatening disaster situation or disaster where central assistance is needed**. The NEC may give directions to the relevant Ministries/Departments of the GOI, the State Governments, and the State Authorities regarding measures to be taken by them in response to any specific threatening disaster situation or disaster as per needs of the State.

The NDMA has a facilitative role in disaster risk management in all phases of the disaster management cycle including response for all types of disasters. The general superintendence, direction and control of the National Disaster Response Force (NDRF) is vested in and will be exercised by the NDMA. The NCMC will deal with major crises that have serious or national ramifications. These include incidents such as those requiring close involvement of the security forces and/or intelligence agencies such as terrorism (counter-insurgency), law and order situations, serial bomb blasts, hijacking, air accidents, threats of nuclear/ radiological terrorism events, CBRN emergencies, detonation of conventional weapons, mine disasters, port and harbour emergencies, forest fires, oilfield fires, and oil spills.

The immediate response in the event of a disaster lies with the local authorities with the support of the state government, central government and the specialized

agencies. The central government supplements the efforts of state government by providing logistic and financial support, deploying NDRF, Armed Forces, CAPF, and other specialized agencies mandated to respond to particular types of disasters. It will depute experts to assist the state government in planning and its implementation as per request from the state government. (NDMP, 2019)

Institutional Framework

NDMP-2019 provides an overview of the institutional arrangements covering all aspects of disaster management. There are specific tasks, roles and responsibilities in the domain of response, which as mentioned before, is the most critical and time-sensitive aspect of disaster management.

No single agency or department can handle a disaster situation of any scale alone. Different departments must work together to manage the disaster with an objective to reduce its impact. Section 37(a) of the DM Act, 2005 mandates that departments/ ministries of Central Government prepare disaster management plans keeping mitigation, preparedness and response elements into consideration. Sections 22(2), 24, 30 and 34 of the DM Act, 2005 have clearly laid down various dues relating to DM to be performed by various agencies. (NDMP, 2019)

The institutional arrangements for the response system consist of the following elements:

- Nodal central ministries with disaster-specific responsibilities for national-level coordination of the response and mobilization of all the necessary resources.

- Central agencies with disaster-specific responsibilities for Early Warning Systems and alerts.

- National Disaster Response Force (NDRF).

- State Disaster Response Force (SDRF).

Presently a National Emergency Response Centre (NERC) is functional in Disaster Management Division of MHA and establishment of an Integrated Control Room for Emergency Response (ICR-ER) has been initiated by MHA. It is to be connected to the following control rooms:

- All agencies designated to provide hazard-specific early warnings

- State Emergency Operations Centre (SEOC)

- District Emergency Operations Centre (DEOC)

- NDRF

- HQ Integrated Defence Staff (IDS)

- MEA

- CAPFs

National Early Warning System

The Central Agencies Designated for Natural Hazard-Specific Early Warnings are as follows:

Figure 4. Central Agencies Designated for Natural Hazard-Specific Early Warnings

SN	Hazard	Ministry	Agency
1.	Avalanches	MOD	Snow and Avalanche Study Establishment (SASE)
2.	Cold Wave	MOES	India Meteorological Department (IMD)
3.	Cyclone	MOES	India Meteorological Department (IMD) Regional Specialized Meteorological Centre (RSMC) Tropical Cyclone Warning Centres (TCWC) for different regions
4.	Drought	MAFW	Central Drought Relief Commissioner (CDRC) and Crop Weather Watch Group (CWWG)
5.	Earthquake	MOES	India Meteorological Department (IMD)
6.	Epidemics	MHFW	Ministry of Health and Family Welfare (MHFW)
7.	Floods	MOJS	Central Water Commission (CWC)
8.	Heat Wave	MOES	India Meteorological Department (IMD)
9.	Landslides	MOM	Geological Survey of India (GSI)
10.	Tsunami	MOES	India National Centre for Oceanic Information Services (INCOIS)

(**Source**: National DM Plan 2019)

The **GOI has designated specific agencies to monitor the onset of different natural disasters, set up adequate Early Warning Systems (EWS), and disseminate necessary warnings/ alerts regarding any impending hazard**, for all those hazards where early warning and monitoring is possible with the currently available technologies and methods. These agencies provide inputs to the MHA, which will issue alerts and warnings through various communication channels. **The agencies responsible for EWS are to maintain equipment in proper functioning order and conduct simulation drills to test their efficacy**. On their part, the relevant State Government and district administration need to disseminate such alerts and warnings on the ground through all possible methods of communications and public announcements.

Role of Central Agencies/ Departments

The **National Emergency Response Centre (NERC) will act as the communication and coordination hub** for maintaining constant touch with early warning agencies for updated inputs. It will **eventually be upgraded as the Integrated Control Room for Emergency Response (ICR-ER)**. It will inform State Emergency Operations Centre (SEOC) and District Emergency Operations Centre (DEOC) through all the available communication channels and mechanisms. The **DM Division of the MHA will communicate and coordinate with designated early warning agencies, various nodal ministries, and state governments**. It will **mobilise reinforcements from the NDRF, Armed Forces and the CAPFs and put together transportation plans** for moving resources. The **NDMA will support the overall coordination of response** as per needs of MHA. The NDMA will be providing general guidance and take decisions for the deployment of the NDRF. The NDRF will be deployed as required depending on the request from State Government. The NRDF will always be in operational readiness. (NDMP, 2019)

Coordination of Response at National Level

At the national level, the **Central Government has assigned nodal responsibilities to specific ministries for coordinating disaster-specific responses**. The NEC will coordinate response in the event of any threatening disaster situation or disaster. The State Government will activate the IRTs at State, District, or block level and ensure coordination with the SEOC. The SDMA will provide the technical support needed to strengthen the response system.

It is **essential that the first responders and relief reach the affected areas in the shortest possible time**. Often, there are **inordinate delays due to real constraints**

imposed by the location, nature of disaster and, most regrettably, due to inadequate preparedness. In many situations, even a delay of six to twelve hours will prove to be too late or unacceptable. To make matters worse, **relief tend to arrive in a highly fragmented or uncoordinated form with multiple organisations acting independently of each other without a cohesive plan, without mechanisms to avoid overlaps and without proper prioritization of different aspects of relief such as shelter, clothing, food, or medicine**. From an operational perspective, the challenges are similar across most hazards. The NDMA has formulated Incident Response System (IRS) Guidelines for the effective, efficient, and comprehensive management of disasters. **The implementation of NDMA's IRS Guidelines by the States will help in standardising of operations, bring clarity to the roles of various departments and other agencies, which are common to most disaster response situations**.

The **state and district administration need to identify sites for establishment of various facilities as mentioned in the IRS guidelines such as Incident Command Post, relief camp, base stations, staging area, camps, and helipads, for providing various services during the response**. The state and local administration must widely disseminate and publicise information about these arrangements as mandated in the SDMP and DDMP. **Since disaster response operations are multifaceted, time-sensitive, extremely fastmoving, and mostly unpredictable, it requires rapid assessment, close coordination among several departments, quick decision-making, fast deployment of human resources and machinery as well as close monitoring**. To prevent delays and eliminate ambiguities regarding chain of command, the SDMP and DDMP must clearly spell out the response organisation as per IRS. These **plans must clearly identify the personnel to be deputed for various responsibilities in the IRT at various levels of administration**

along with proper responsibility and accountability framework. Provision for **implementation of unified command in case of involvement of multiple agencies** such as Army, NDRF, CAPF, and International Search and Rescue Advisory Group (INSARAG) must be spelt out in the SDMP. **From time to time the DM plan must be tested and rehearsed by carrying out mock exercises**. (NDMP, 2019)

Incident Response System

The Guidelines on the Incident Response System (IRS) are issued by the National Disaster Management Authority (NDMA) 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 by strengthening and standardising the disaster response mechanism in the country.

Though India has been successfully managing disasters in the past, **there are still several shortcomings which need to be addressed. The response today must be far more comprehensive, effective, swift and well planned based on a well-conceived response mechanism.**

Realisation of certain **shortcomings in our response system and a desire to address the critical gaps led the Government of India (GoI) to look at the world's best practices**. The GoI found that the system evolved for firefighting in California is very comprehensive and thus decided to adopt Incident Command System (ICS).

In view of the provisions of the DM Act, 2005, NDMA felt that authoritative Guidelines on the subject, with necessary modifications to suit the Indian administrative setup, were essential. A **comprehensive set of Guidelines has thus been prepared and is called the Incident Response System (IRS)**. (NDMP, 2019)

- **<u>Definition and Context of Incident Response System</u>**

  The **Incident Response System (IRS) is an effective mechanism for reducing the scope for ad-hoc measures in response**. It incorporates all the tasks that may be performed during DM irrespective of their level of complexity. It **envisages a composite team with various Sections to attend to all the possible response requirements**. The IRS identifies and designates officers to perform various duties and get them trained in their respective roles. **If IRS is put in place and stakeholders trained and made aware of their roles, it will greatly help in reducing chaos and confusion during the response phase.** Everyone will know what needs to be done, who will do it and who is in command, etc. IRS is a flexible system and all the Sections, Branches and Units need not be activated at the same time. Various Sections, Branches and Units need to be activated only as and when they are required.

  The main purpose of these Guidelines as envisaged in the NDMP 2019 is to lay down the roles and responsibilities of different functionaries and stakeholders, at State and District levels and how coordination with the multi-tiered institutional mechanisms at the National, State and District level will be done. It also emphasises the **need for proper documentation of various activities for better planning, accountability and analysis**. It will also **help new responders to immediately get a comprehensive picture of the situation and go in for immediate action**. However, the gap lies in the flawless implementation and execution of the NDMP and not in the plan itself.

- **IRS Organisation**

    The IRS organisation functions through Incident Response Teams (IRTs) in the field. In line with the administrative structure and DM Act 2005, **Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response** management. The **RO may however delegate responsibilities to the Incident Commander (IC)**, **who in turn will manage the incident through IRTs**. **The IRTs needs to be pre-designated at all levels; State, District, Sub-Division and Tehsil/Block**. On receipt of Early Warning, the RO will activate them. In case a disaster occurs without any warning, the local IRT will respond and contact RO for further support, if required. A **Nodal Officer (NO) must be designated for proper coordination between the District, State and National level in activating air support for response**. (NDMP, 2019)

    Apart from the RO and Nodal Officer (NO), the IRS has two main components: Command Staff and General Staff as shown in Fig below.

Figure 5. IRS Organisation Tree
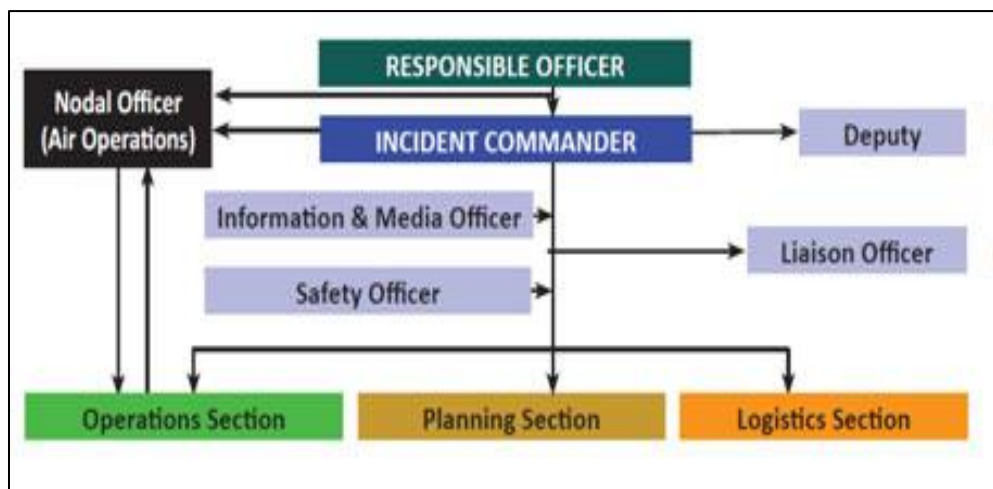
(**Source**: National DM Plan 2019)

- **Command Staff**

  The Command Staff consists of Incident Commander (IC), Information & Media Officer (IMO), Safety Officer (SO) and Liaison Officer (LO). They report directly to the IC and may have assistants. The Command Staff may or may not have supporting organisations under them. The main function of the Command Staff is to assist the IC in the discharge of his functions.

- **General Staff**

  The General Staff has three components which are as follows.

  o **Operations Section (OS)**

    The OS is **responsible for directing the required tactical actions** to meet incident objectives. Management of disaster may not immediately require activation of Branch, Division and Group. Expansion of the OS depends on the enormity of the situation and number of different types and kinds of functional Groups required in the response management.

  o **Planning Section (PS)**

    The PS is **responsible for collection, evaluation and display of incident information, maintaining and tracking resources, preparing the Incident Action Plan (IAP) and other necessary incident related documentation**. They will assess the requirement of additional resources, propose from where it can be mobilised and keep IC informed. This Section also prepares the demobilisation plan.

o **Logistics & Finance Section (L&FS)**

The L&FS is **responsible for providing facilities, services, materials, equipment and other resources in support** of the incident response. The Section Chief participates in development and implementation of the IAP, activates and supervises Branches and Units of his section. In order to ensure prompt and smooth procurement and supply of resources as per financial rules, the Finance Branch has been included in the LS.

- **States/UTs which have notified the IRS**

Seven States (Andhra Pradesh; Arunachal Pradesh; Assam; Manipur; Mizoram; Nagaland; Tripura), and one Union Territory (Andaman & Nicobar Islands) have already notified the IRS and taken steps to form Incident Response Teams **(IRTs).** (NDMA, n.d.) **However, what seems to be the gap here is the secretariat for setting up the IRS, in terms of the requisite staffing and office infrastructure, which is critically required beforehand and not post a disaster striking.**

Responding to Requests for Central Assistance from State

Catastrophic disasters like earthquakes, floods, cyclones and tsunami result in large casualties and inflict tremendous damage on property and infrastructure. The Government of India has established a flexible response mechanism for a prompt and effective delivery of essential services as well as resources to assist a State Government or Union Territory hit hard by a severe disaster. **Disaster management is considered as the responsibility of the State Governments, and hence the primary responsibility for undertaking rescue, relief and rehabilitation measures during a**

disaster lies with the State Governments. The Central Government supplements their efforts through logistic and financial support during severe disasters as requested by the State Governments. Responding to such emergencies stretches the resources of district and State administration to the utmost and they may require and seek the assistance of Central Ministries/ Departments and agencies like the NDRF, Armed Forces, CAPF, and Specialized Ministries/ Agencies. (NDMP, 2019)

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, as the impact of their occurrence may affect another. **The administrative hierarchy of India consisting of National, State and District level arrangements presents challenges 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. The NCMC plays a major role in handing such multi-state disasters.** NDMA needs to encourage identification of such situations and promote the establishment of mechanisms for coordinated strategies for dealing with them by the States and Central Ministries, departments and other relevant agencies. (NDMP, 2019)

Response System Activation

National Disaster Management Plan (NDMP) remains in operation during all phases of disaster cycle i.e. mitigation, preparedness, response and recovery. However, NEC may activate disaster response system (partially or fully with all support functions activated based on the situation) on the receipt of disaster warning or upon the

occurrence of a disaster. The occurrence of disaster is required to be reported by the relevant monitoring authorities (both National and State) to the NEC by the fastest means. The NEC is required to activate emergency support functions, scale of which would commensurate with the demand of situation (size, urgency, and intensity of incident).

The activation sequence for national response in the event of a disaster is as given below: (NDMP, 2019)

- The relevant State Government would assume direct responsibility in the event of a disaster.

- The MHA would assume direct responsibility in case of Union Territories.

- The response from Central agencies would come into operation when the relevant State Government makes a specific request for Central assistance, financial, logistical, or resources – including transport, search, rescue and relief operations by air, inter-State movement of relief materials, among others.

- The direct involvement of Central Agencies will apply to those cases where the GOI has primary jurisdiction: organisation of international assistance, response on high seas, and impact assessment of disasters with the assistance of international agencies, and financial assistance from the National Disaster Response Fund.

Emergency Functions and the Responsibilities: Centre and State

While there are disaster-specific aspects to the post-disaster response, the emergency functions are broadly common to all disasters and there are specific ministries, departments, or agencies that can provide that emergency response. Besides,

very often, there are multiple hazards and secondary disasters that follow a major disaster. Hence, response intrinsically follows a multi-hazard approach. Therefore, all the response activities have been summarized in a single responsibility framework applicable to all types of disasters. The response responsibility framework specifies the major theme of response. It specifies the agencies from the Central and State Government responsible for the major theme of response. **All agencies responsible for response are to follow the NDMA's IRS guidelines, which will help in ensuring proper accountability and division of responsibilities**. Different ministries and departments must provide specialized emergency support to the response effort. Certain agencies of Central Government will play a lead role, while others will be in a supporting role.

The **DMD (State Disaster Management Department, i.e., the state's nodal dept. for DM) and SDMA are lead agencies at the state level for coordination of response**. **The DDMA is the lead agency for coordination of response at District level**. Various central ministries, departments, agencies, and state governments must prepare their own hazard specific response plans as per guidelines of the NDMA and in line with the NDMP. **They are to always ensure preparedness for response and need to carry out regular mock drills and conduct tests of readiness periodically, and the ministries/ departments must report the status to the NDMA**. Agencies responsible for disaster response should develop their individual scenario-based plans and SOPs considering multiple hazards and envisaging different scenarios ranging from least to the worst cases. The scenario-based planning exercises should be part of the preparedness of response agencies at all levels. The **major tasks of disaster response given in the responsibility framework** and listed alphabetically for easy reference are: (NDMP, 2019)

1. Communication

2. Cultural Heritage Sites, their Precincts and Museums — Protection & Preservation

3. Data Collection and Management

4. Disposal of animal carcasses

5. Drinking Water/ Dewatering Pumps/ Sanitation Facilities

6. Early Warning, Maps, Satellite inputs, Information Dissemination

7. Evacuation of People and Animals

8. Fodder for livestock in scarcity-hit areas

9. Food and Essential Supplies

10. Fuel

11. Housing and Temporary Shelters

12. Management of the dead people

13. Media Relations

14. Medical care

15. Power

16. Public Health

17. Rehabilitation and Ensuring Safety of Livestock and other Veterinary Care

18. Relief Employment

19. Relief Logistics and Supply Chain Management

20. Search and Rescue of People and Animals

21. Transportation

Having studied the mechanism in place for handling disaster responses at the national level, state level and the district level, the study went on to examine

other researches available online to get a better sense of practices available especially while dealing with issues related to multi-agency operations during floods.

Impediments to Smooth Multi-Agency Cooperation

One of the online researches that was analysed is titled 'Multi-agency operations: Cooperation during flooding'[1] by McMaster, Baber and Christopher published in Applied Ergonomics in 2012. (McMaster, Baber, & Christopher, 2012)

The paper brings out the **fact that issues recur so often in multi-agency cooperation during disasters that it implies that there are inherent challenges associated with the coordination of multi-agency emergency responses. It goes on to analyse as to what is it that prevents multi-agencies from cooperating, given that the failure of agencies to coordinate their activities during emergency responses is hampering their effectiveness.**

The impediments were as follows:

- Lack of coordination between Agencies

- Failure to communicate warnings and other information

- Competitive practices

- Lack of trust between Agencies

- Slow mobilization of response

- Response systems overwhelmed by the scale of the emergency

- Failure to share information between Agencies

- Poorly defined chains of command

---

[1] This paper presents an investigation of command and control during Multi-Agency Operations. ; the purpose of this study was to elaborate on known themes associated with multi-agency emergency response, through a study of the successful combined military and civilian defence of Walham electricity substation from rising flood water in July 2007.

- Interoperability failures

- Lack of awareness of the presence and activity of other Agencies in the area

- Failure to fully integrate military into the response

Complex Problem of Multi-Agency Cooperation

Another paper that was analysed was titled 'Collaboration and Network Theory Proceedings of the ISCRAM 2015 Conference' by Norbert Steigenberger[2].

The paper goes on to analyse how disaster response operations exceed the capabilities of any single agency and hence requires coordination by multiple agencies almost simultaneously resulting in a dynamic mesh of cognition, coordination, command and control problems. The same are elaborated in the subsequent paragraphs.

- **Cognition**. The cognitive appraisal of the event is a challenge decision-makers at all levels face. **The most prominent issue in the field of cognition is the importance of experience and skills**. Experience and skills, **acquired through training or practical exposure, are both necessary to develop routines required for performing tasks under conditions of time pressure** and situational complexity. **Experience is also necessary to enact communication and coordination plans**, as these typically require familiarity with the respective system and terminology. Disasters are rare events for each person; it is therefore unlikely that much practical experience exists. **Trainings or exercises are therefore required to provide an environment where skills and experience can be developed**. (Norbert, 2015)

---

[2] This paper presents a review of empirical studies on multi-agency coordination in disaster response operations in order to initiate and facilitate cross-case learning. The review covers 72 empirical studies and highlights the importance of themes such as plans and plan enactment, leadership or personal acquaintance of actors in emergent multi-agency response networks.

Stress and physical exhaustion are troublesome for cognitive tasks in disaster response management, as stressors such as time pressure, ethically problematic decisions, high-stake decisions, physical danger and high workload are typical for work under disaster conditions. **Stress hampers the ability to develop situation awareness in complex task environments** and causes decision-makers to apply standard behaviour and reactive instead of forward-looking planning as well as to neglect small clues. Stress and physical exhaustion may also lead to decision paralysis and reduced communication capabilities. Stress is therefore a peculiar problem for persons in coordination functions. One way to **reduce stress and physical exhaustion is careful workload management, another option is to provide means for recovery**, for example in the form of recreation areas. Withdrawing key personnel from coordination responsibility early might be a good strategy to avoid costly errors in judgment and decision-making. (Norbert, 2015)

Artifacts, such as maps, shared information spaces, whiteboards have been shown to be helpful to structure inputs and thus develop a shared understanding on the staff level. The downside of sophisticated tools like shared information spaces is that they are also costly in terms of time and mental capacity, which makes them less useful under conditions of resource strain, high workload and time pressure. It is therefore recommendable to allow enough resources to utilize the options artifacts offer or, if that is not possible, refer to simple tools such as whiteboards or maps. (Norbert, 2015)

- **Communication, Control & Feedback**. The **availability of a technical communication infrastructure is a strong predictor of success or failure in disaster response activities. Large-scale natural disasters often destroy the**

technical communication infrastructures. Incompatibility of communication devices employed in different agencies is also a frequent problem. An **in operational communication infrastructure hampers or even prevents coordination** and command. **A reliable communication environment is therefore critical for effective multi-agency disaster response management**. **Redundant communication systems** (e.g. radio, mobile phone, amateur radio networks, text messaging) **are recommendable to preserve the ability to communicate** under disaster. **For effective communication, it is important to decide which information to share**. Too much information sharing overcrowds communication channels as well as information processing capacities of decision-makers. Too little information sharing results in a situation where decision-makers lack the necessary inputs to develop an accurate operational picture. **Training and practical experience help establish a shared understanding of roles and information demands, either directly, through professional knowledge of the roles of others, or indirectly, via personal**. (Norbert, 2015)

Communication plans are generally the simplest and most straightforward means to solve information allocation problems in multi-agency disaster response operations, but those plans need to be up to date when disaster strikes. If persons or roles accounted for in a communication plan are not actually present or contact information is incorrect, communication plans become a liability. **It is also important to have only one, unifying, plan in place, instead of various parallel plans**. Personal acquaintance between key people compensates for the lack of formal communication plans, providing a shortcut for information relay.

Communication networks in disaster response activities are often centralized, meaning that few people receive the bulk of the information communicated throughout the network. **These network nodes have a filtering function, they collect information from various sources and decide which information to relay**. The implication of a centralized communication network is a high structural probability that **network nodes will be overburdened, especially if these central persons are also responsible for decision making and coordination**. **If these nodes are ineffective, sub-networks might be cut off from information flows**. In addition, overburdened decision-makers tend to revert to a reactive decision-making style, which has been found to be inferior to pro-active decision-making. Individuals and agencies must be willing to share information and must be prepared to be coordinated. **This is often problematic when political or strategic interests not related to the disaster response activity intervene, a frequent problem with NGOs** and political agencies. **In such a case, persons or agencies tend to withhold information, act in an uncoordinated way or commit resources based on individual instead of strategic considerations. Trust, in turn, has been shown to increase the willingness to share information and initiate cooperation.** (Norbert, 2015)

- **Coordination & Command**. **Effective coordination requires a clear idea of command structures, the roles involved agencies play in the joint effort and the capabilities and resources these agencies have at their disposal**. A coordination plan outlines roles and command structures and substantive coordination problems occur regularly when such a plan is missing or not enacted, e.g. in early stages of a disaster response activity. **Persons and**

agencies subjected to coordination require a clear understanding of the plan in order to be able to enact it. The study concludes that the **main role of disaster response plans should not be to prescribe action but to inform about roles, responsibilities, scenarios and potential threats**. The plan needs to be as lean and simple as possible, to limit the amount of training necessary to successfully enact it in a disaster response situation. **Successful enactment of a plan requires training in the form of exercises** and/or practical exposure. Exercises are also important for plan development. They can serve as stress tests for coordination plans. If a plan works poorly in a training scenario, re-specification might be required. The presentation of the plan is also important, e.g. through a visualization of each agency's role in the response plan. Physical artifacts also benefit coordination on the operational level, e.g. to clarify roles and identify decision-makers at the disaster site. (Norbert, 2015)

The study also goes on to analyse how centralized coordination should be. **Centralized coordination and decision-making allow strong strategic planning and resource deployment and facilitates the development of a common operational picture but is also demanding regarding leadership, information processing and decision-making**. **Decentralization allows more flexible and potentially more resilient operations, at the cost of a loss of capacity for strategic action.** It goes on to state that decentralized decision-making is less risky, as it allows quicker reactions to occurrences on scene, when upstream communication is difficult. Centralized coordination creates a bottleneck. (Norbert, 2015)

Another coordination problem is lack of leadership, in particular at the staff level, which can result from information or work overload, lack of

mental resilience or **lack of expertise and experience**. Lack of leadership leads to reactive or paralytic decision-making on the staff level and uncoordinated and often ineffective action on ground and thus to poor coordination, isolation of efforts, misplacement of resources and duplication of efforts. This problem tends to be most salient in early stages of a disaster response event, where roles and structures have not been established and time pressure is particularly high. **Observant and careful staffing, intense training as well as an efficient coordination and communication plan are the means to keep this problem under control.** (Norbert, 2015)

A less studied coordination problem is bureaucratic decision-making. Bureaucratic decision-making has been found to hamper coordination activities in some cases, but the insights obtained are isolated. Cultural heterogeneity might be a problem for multi-agency coordination in international operations. Trust, as a pre-condition for successful coordination, is also an important topic in the field of coordination & command. (Norbert, 2015)

In conclusion the study goes on to state that in all practicality for disaster response a **meticulously created plan** and **efficient training** are of utmost importance. The **plan needs to just give the outline roles and responsibilities** with the structure of **command centrality**. Also, that a good plan should **cater for all contingencies** and their responses. **Collapse of telecommunication infrastructure**, **shortage of skilled personnel** and an **unanticipated magnitude** of the disaster and the likes, should always be factored in. **Training remains of paramount importance** in turn providing **skills**, while **imparting knowledge** about **respective roles and responsibilities** and catering as a stress test. (Norbert, 2015)

Gaps in Multi-Agency Coordination Aspects of Disaster Response Mechanism

Having analysed the disaster response mechanism as existing in India and studied certain pertinent research material, there are certain gaps in aspects of multi-agency operations in disaster response, which need to be addressed. The issues are as follows: -

- **The Indian disaster response mechanism does not address the crucial element of leadership in the command and control set up as also at the staff level**. Notwithstanding the best of DM plans, a decision paralysis in the leadership at any level, ensuing from information or work overload, lack of mental resilience or lack of expertise and experience, could result in loss of lives and property due to uncoordinated and delayed action on ground[3].

- Responsible Officers (ROs) have been designated at the State and District level as overall in charge of the incident response management. **As per the NDMP 2019 the RO may however delegate responsibilities to the Incident Commander (IC), who in turn will manage the incident through IRTs**. **If one starts delegating critical duties and responsibilities at the very moment of a crisis, no one would be willing to take it on in the first place leading to a failed / delayed response and it would be unethical for any leader to delegate his mandated responsibilities / accountability at the very moment of a major crisis / disaster, to someone else who maybe ill prepared**. Decision making being the most critical aspect in time and space during a disaster response, it is important that the said decision makers are nominated

---

[3] The author was posted in one of the Army Brigades in South Kashmir during the floods of 2014 and saw the inept handling of the situation by the civil administration due to a leadership crisis at the apex level. The Army took over the ad hoc command and control and provided the leadership during the response phase of the crisis management.

based on their knowledge, aptitude and experience and held accountable for their actions / inactions.

- The financial allocations given out by the Centre to the States is through a constitutional body of the Finance Commission which gets to decide the amount. **Presently, the Finance Commission gives a fixed amount annually, equally to all the states without considering its vulnerabilities or risk profile, which are bound to be different and which may bring in huge disparities within the state's allocation**[4]. And the probable reasons for the same, as identified by UNDP, are the **absence of yearly data on disasters** in each state and the expenditures on relief operation vis a vis the entire DM cycle.

- **NIDM** has been **mandated to** develop training modules, undertake research and documentation in disaster management and organise training programmes besides other charters. However, **maintaining a repository of lessons learnt / case studies / after action reports post disasters / National status and statistics of implementation of National DM Plans etc don't find a mention either in NIDM website or that of NDMA**. Not having learnt lessons from past mistakes and getting to repeat a mistake by way of human loss would be the biggest folly that a nation can make. Likewise, **best practices from recent disasters can be shared, only if it is available online** as part of a central repository, for all states to learn from and inculcate in their own plans. Moreover, the **current status of implementation of the DM Plans across the states needs to be tested, reviewed and documented, and only then can it be updated**.

---

[4] For instance, while Uttar Pradesh, one of India's poorest states with more than 200 million people (nearly the population of Brazil), was allocated US $120 million for 2019-20, Maharashtra, a much richer and much smaller state than Uttar Pradesh, was allocated US $250 million for the same year. (UNDP)

- Committees such as NEC at the national level, State Executive Committee (SEC), Emergency Operations Centres (EOC), Incident Response System (IRS) and IRTs, are ad-hoc committees in nature which are to be established on occurrence of a disaster. **There is no data on NDMA website to substantiate the extent to which all states have implemented these guidelines / Plans and institutionalised these committees.** These **committees would lack the synergy and wherewithal which can only come with regular training and rehearsals** by way of mock drills and exercises amongst all stakeholders as also by catering for all necessary equipment and infrastructure ab-initio. Though NIDM has conducted six courses[5] on IRS from Apr 2019 to Mar 2020 at Kerala, Maharashtra, Punjab, Delhi, Telangana and in Mizoram (NIDM, n.d.) however, more needs to be done to increase the training of the numbers of those responsible for these committees and also to cover the balance states and at regular periodicity for all.

- Since disaster response operations are multifaceted, time-sensitive, extremely fastmoving, and mostly unpredictable, it requires rapid assessment, close coordination among several departments, quick decision-making, fast deployment of human resources and machinery as well as close monitoring. **The gap remains in the compatibility of software / technology overlay for ease of use by all stakeholders and across all levels, in order to carry out such real time monitoring of the relief efforts**.

---

[55] Though 150 courses on different topics of Disaster Management have been covered over the period but the canvas for India is too huge to cover all types of disasters and across all states. Nevertheless, the endeavour of NIDM remains to cover all aspects and for all states on a regular basis. Retrieved from https://nidm.gov.in/PDF/trgcal/trgcal_19_20.pdf.

- The state and district administration are required to **identify sites for establishment of various facilities** as mentioned in the IRS guidelines such as Incident Command Post, relief camps, staging area, helipads etc for providing various services during the response phase. The **gap which remains is that the identification of such critical sites has been left to the Nodal officer whereas it rightly should be done jointly and in conjunction with all agencies and branches**, to cater for the intricate requirements of each stakeholder (Electricity, Medical, Communications, Helipad in vicinity for Air lift, Road head, Stocking issues etc) **and not in isolation** by the civil administration / DMD. The state and local administration must ab-initio disseminate and publicise information about these arrangements widely and not leave them to be established post a disaster strike.

- The **Incident Command Post would require a whole lot of wherewithal** in terms of digital maps, GIS, state of the art communications, satellite real time weather broadcasts and updates, Liaison officers of all departments / branches / agencies, artifacts for big picture display, uniform format for updating / dissemination of plans and information, requisite technology and software for coordinated and timely supply of relief material without duplicating efforts etc. **These need to be provided for ab-initio and rehearsed during routine mock drills / exercises and not be organised and put in place after a disaster has struck, as is planned in the existing DM Plans.**

- **There remains a gap in posting experienced, conversant and officers with aptitude at key appointments of the response chain and not on an ad-hoc rotational basis as is presently the case.** IRS as envisaged needs to be implemented on ground and drilled to excellence, and the only way is to identify

trained and experienced professionals to be positioned in critical positions and appointments, to implement it on ground and refine the system with mock exercises.

- The **disaster response preparedness at the national level appears functional on paper** as it is covered in detail in the NDMP however, the **implementation and execution of the same on ground is not evident, given the recent floods and the losses suffered.** The DM Act 2005 mandates vide Chapter V, Para 35(2) that the Central Government should ensure that the Ministries or Departments of the Government of India take necessary measures for preparedness to promptly and effectively respond to any disaster. The fact that **J&K state had not fully constituted its full-time members to SDMA and that the committee had met only once in the last six years before 2016. The State Advisory Committee (SAC) had not been constituted, the SDMP had not been fully implemented, no Disaster Management Authority had been constituted** (CAG, 2016) at the divisional level only shows that there were **no checks and balances in place from the Ministries or Departments of the Government of India** during the deluge of Kashmir floods and that the **same needs to be ensured by the Centre in letter and spirit for all states**.

- The **division of responsibilities** under the **Disaster Management Act 2005** was **not very clear, resulting in its poor implementation**. There also **existed an overlap** between the implementing agencies. However, the **division of responsibilities have now been clearly indicated in the National Disaster Management Plan of 2019** and the overlap of accountability resolved.

- Presently **only seven States/UTs have notified the IRS**[6] and have taken steps to form the Incident Response Teams (IRTs). This is a major lacuna which **NDMA needs to address on a war footing and ensure its correct and timely implementation** by all states & UTs in the country. Besides notifying the IRS in balance of the states, it's vital that all IRS have their secretariat and the requisite infrastructure for its proper functioning.

- Even though the NDMP recognizes the need to minimize, if not eliminate, any ambiguity in the responsibility framework while the States have their respective designated departments of disaster management (**DDM**), **but these DDM / DMD are still poorly equipped and ill prepared to lend support in times of disasters** as was exhibited in the recent floods of Kerala in 2018 and 2019 wherein the level of preparedness was found inadequate, leading to high levels of mortality and displacement of people.

---

[6] As on date **seven States (Andhra Pradesh; Arunachal Pradesh; Assam; Manipur; Mizoram; Nagaland; Tripura), and one Union Territory (Andaman & Nicobar Islands) have already notified the IRS** and taken steps to form Incident Response Teams (IRTs). Retrieved from https://www.ndma.gov.in/en/irs-training/training.html on 13 Mar 2020

CHAPTER 3

CASE STUDY OF
KASHMIR FLOODS
OF 2014

The 2014 Floods in Kashmir: A Case Study

It looked like doomsday. God should never show that day again. In the 51 years of my life I have never seen water being so angry it just wanted to take away what ever came on its way. [7]

Introduction

This chapter assesses **the efficacy of disaster response mechanism during the Kashmir floods of 2014** and **analyses the multi-agency coordination issues** and related problems by deploying a case study.

The case study dwelled into several research papers and interviews[8] **taken in the immediate aftermath of the Kashmir floods of 2014 and tried to cull out from these secondary sources the issues of multi-agency operations during the disaster response** phase. The **case study also analyzed the CAG reports and other lessons learnt** from the response of the civil administration in J&K and endeavors to provide an insight into the level of cooperation and coordination required between the

---

[7] Venugopal, R., & Yasir, S. (2017) explored the politics of the 2014 floods in the contentious and conflict-prone Indian state of Jammu and Kashmir. The September 2014 floods were the most serious natural disaster in the state in the past 60 years and affected some two million people in the Kashmir valley. Drawing on qualitative interview evidence from 50 flood victims in south, central and north Kashmir, their paper examined the extent to which the disaster transformed existing political narratives. In doing so, it examined the role of the state and central governments, the army, local volunteers, and the media. The paper engaged with the politics of disaster literature, exploring how disasters can serve as a lens rather than as a catalyst, and stressing the relevance of understanding the social construction of disaster narratives.

[8] Ibid

civil administration and multi-agencies including the Armed Forces to handle disaster response and relief operations in such situations and of such a huge magnitude.

Context

From **2nd to 6th September 2014**, heavy **monsoon rains** struck across the Kashmir valley, **triggering landslides and flooding across the state**. A sweep of heavy rain hit the southern part of the valley and the adjoining hill districts of Poonch, Rajouri, Reasi and Ramban amounting to **as much as ten times the normal rainfall in that period**. By 3rd September, the water level at the Sangam bridge near Bijbehara had crossed the danger mark as the main southern tributaries of the Jhelum – the Rembiara, Vishaw, Brengi, Kuthar and Sandran – had already risen high enough to flood parts of the valley (Venugopal & Yasir, 2017).

Heavy rains continued until 6th September and flood water peaked on 8th September, receding and draining slowly over the next three weeks. In the valley, **a total 557 km^2 of land was inundated**, directly **affecting** villages and towns occupied by **two million people**, or almost **40% of the total population** of the valley. In total, **268 people died** as a result of the floods. In the affected parts of the Kashmir valley, there were relatively fewer deaths compared to Poonch, Rajauri and Reasi in Jammu district, which suffered serious landslides and flash flooding. But as the economic and administrative hub of the state, with the bulk of its population, the impact was far greater in the valley in terms of the number of people displaced, houses damaged, crops destroyed, and productive enterprises lost (Venugopal & Yasir, 2017).

In the rural areas of south Kashmir, entire villages and thousands of acres of farmlands were submerged. In some villages, virtually every house and structure had crumbled in the torrent, leaving very little behind. The **rural economy suffered heavily with the saffron and apple crops bearing estimated losses of Rs 700 Cr and Rs 1000 Cr**, respectively. **In the capital Srinagar alone, some 73,000 houses were damaged or destroyed**, as many parts of the **city remained under 14 feet of water** for days. People in the flooded areas were either forced to flee their homes in the face of a rising current, or else were stranded awaiting rescue, without food, water or communication for days. Most **people remained displaced or in distressed conditions for the next three weeks**, and it was only on 1st October that water levels receded to the point where occupants were able to return and inspect the damage. At the time of the interviews[9], which took place in October-November of 2014, flood waters had receded entirely, but large numbers of flood victims remained in acute distress, struggling to confront the enormity of the financial and human loss they had suffered. (Venugopal & Yasir, 2017)

<u>Narratives of Kashmir Flood Survivors</u>[10]

Despite the prolonged history of flooding, and the vulnerability of the valley, the 2014 floods were notable for their magnitude and extent of damage. In a brief space of time, a sizeable part of the population suddenly lost their homes, all their personal possessions, livestock, crops, tools, economic assets and important documents. People

---

[9] Ibid (Interview 11, Srinagar, 15 October 2014)
[10] Ibid

recounted 'a catastrophe never seen before' and how they lost everything they ever owned in a flash.

What also stands out about the Kashmir floods of 2014 is the lack of an early warning system, the **extent of unpreparedness for the disaster**, and the surprise with which people were consequently forced to confront it. Most people remained in their homes until the very last minute as waters rose, by which time they were either trapped inside, or else were forced to escape because their homes were collapsing. **The lack of advance warning or timely evacuation had a clear impact on the extent of human suffering and economic losses which resulted**.

Unlike the flash floods and landslides of the adjoining mountainous parts of Rajouri or Poonch, which took place without much warning on the first two days, the floods in the valley spread relatively slowly from south to north. **The high flood waters of the Jhelum and its tributaries took five days to make the 120-kilometre journey from south to north**: Pulwama was submerged on 3 September, Anantnag on 5 September, Srinagar on 6 September, and Baramulla on 9 September. **Yet it took the authorities and people by surprise**.

On 3 September, two days later, when Anantnag some 20 kilometres away was flooded, people described how it caught them unaware. Four days after this, and just 80 kilometres away when the floods reached Pattan, people recounted as to how water burst into their houses suddenly at around 5am.

In the rural areas of Kulgam, Anantnag and Pulwama districts, which were affected in the first two days, large areas of agricultural lands were flooded, and people

fled homes and villages on foot because their houses were destroyed by the height and force of the current. In Srinagar, where better-built two or three storey concrete houses were able to withstand the floods, most people found themselves trapped on the second floor or roof of their houses. **Virtually all the population of Srinagar spent between three days to two weeks trapped in their houses with little water or food**.

As a result of the lack of warning or early evacuation, people responded only at the very last minute, under emergency conditions, often in the middle of the night. In Srinagar, there was a very sudden escalation of water levels in the early hours of 7th September, trapping a large portion of the one million residents of the city inside their houses. Some people described how a 12-foot high tide of water first entered their houses at 4am, after which in minutes the ground floor was inundated.

This surprise element of the floods, which was a recurrent narrative in the interviews taken by Venugopal and Yasir[11], in the immediate aftermath of the deluge, had three serious consequences which have an impact on the issues of multi-agency operations during disaster response. **Firstly, the lack of early**

---

[11] Ibid

warning and the overall preparedness in the state resulted in enormous, and to some extent preventable, financial loss. Although much of the damage, particularly to agricultural crops and houses, could not have been prevented even with early warning, the loss of movable equipment, tools, raw materials and finished goods suffered by businessmen, shopkeepers and artisans as well as a great deal of personal property and household possessions could well have been better managed. Had the various committees like SDMA, SEC, EOC, DDMA, IRS etc, as legislated by the national DM Act 2005 and NDMP 2019, been implemented and effective and practiced on ground the fate of the people during the Kashmir floods would have been quite different.

Secondly, it meant that families with elderly or infirm members with medical conditions had great difficulty in escaping the floods, in getting evacuated, or in accessing regular medication. Had the early warning system been in place which could have activated the trained local civil defence volunteers and had the various committees to operationalise disaster operations effective on ground, the multi-agencies could have coordinated their evacuation in an efficient and a planned manner thereby saving a huge population of those with medical conditions.

Thirdly, many families became separated in the circumstances and due to the collapse of cellular telephone networks, remained without contact with one another for days or weeks. There were no mechanism in place at the initial phase of

the rescue operations to evacuate those marooned to pre-identified safe areas, neither was there any system in place from the civil administration that could provide leadership, guidance,

coordination, joint inputs for furtherance of coordinated joint multi-agency operations. All this led to huge confusion and loss of time and effort during the critical phase of the floods. The Army consequently took the onus of providing the leadership and coordinating disaster response and relief operations as the magnitude of the deluge became clear, all this at their own initiative.[12]

State Failure

Closely related to the lack of warning and preparation was another narrative about the **widespread collapse of all branches of the administration during the first two weeks of the floods**. Across socio-economic status and geographical location, there was an overwhelming consensus about the **absence and incompetence of the state**. As the then chief minister Omar Abdullah himself conceded in a television interview: '*I had no government … My secretariat, the police headquarters, the control room, fire services, hospitals, all the infrastructure was under water*' (Ghosh, 2014). Indeed, large numbers of politicians, bureaucrats and police were themselves trapped and in desperate circumstances. **Many army camps,**

---

[12] The Army personnel deployed for counter insurgency operations across the valley, on their own undertook flood relief operations without waiting for orders for their requisition from the District Magistrate. Army in conjunction with the local population helped evacuate local elderly, women, children and disabled to safer places and provided them sustenance from their defense rations and medical aids. Army used their internal communication network and heavy equipment to open lines of communication and coordinate relief effort with other agencies. Not used to operating without their personal protection of AK-47 rifles, Bullet Proof Jackets and helmets the Army personnel without any apprehension for their personal safety quickly dropped the same as it was weighing them down and went with full gusto in aid of civil authority.

including Srinagar's Badami Bagh cantonment, besides those of the other CAPFs were also heavily flooded, leading to an absence of security forces in the valley.[13]

In some of the interviews captured by Yasir the basic theme in their response was that the State government was itself helpless, that the central government reacted late, the State police was not visible anywhere and totally absent and that the Army was trying to appease people with little help. Other respondents did note the presence and the role of the army, and to a lesser extent, the National Disaster Relief Force (NDRF) who were active in areas such as Srinagar's Shivpora, Rambagh and Indra Nagar. There was, however, no such appreciation extended to the state government from any of the respondents. Despite the personal efforts and frequent public appearances of the Chief Minister Omar Abdullah on the ground and on television, there was widespread criticism of the political, administrative and law enforcement machinery.

---

[13] Badami Bag Cantonment located in Srinagar is the Headquarters of 15 Corps and the nerve center of all operations in Kashmir valley and that coordinating all rescue operations, was under 15 feet of flood waters. Electricity, water supply and civil communications had collapsed. Did this delay rescue operations? Obviously, they did, but only for a few hours and only in Srinagar. Officers and men deployed across the valley had their families residing at this cantonment. During the entire duration of the deluge which did not spare the Badami Bagh cantonment, the officers and men of the Indian Army continued their relentless efforts towards aid to civil authority and flood relief operations without even for once checking on their own marooned families stationed in Srinagar away from them and out of communication network, only reassured by the fact the this great organization of the Indian Amy will look after their families during the hours of crisis.

State Machinery Vs Local Youth

With the effective collapse of the state government and administration during the first few days of the flood, how then did hundreds of thousands of trapped people in the valley get rescued and find relief? The Indian national media's coverage emphasised and projected the role of the large Indian military presence in the state. In the days after the floods, Indian television viewers saw vivid images of trapped civilians being rescued and air-lifted to safety in large coordinated missions (Operation Megh Rahat and Operation Sadbhavna) by army and air force personnel, as well as by the National Disaster Response Force (NDRF). Official press releases describe over 200,000 people rescued by the armed forces, and indeed, many flood victims acknowledged their role. Narratives from the interviews taken by Yasir described that the people were rescued by locals and Army without any bias, and that the Army also provided some food and blankets.

But while the Indian army may well have played an important role, the interviewees, as well as a considerable body of evidence from media, NGO and other observers, suggest that the role of the Army was in reality limited in relation to the vast scale of the problem at hand. In contrast, a far greater number, appear to have been assisted by impromptu groups of local volunteers, a fact which was widely described in the local media but rarely in the national media.[14]

---

[14] It's a fact that the local youth were instrumental in evacuating many of those stranded in the initial phase of the response operations with their makeshift boats and rafts. Keeping the enormity of the deluge all along the valley floor, the presence of the Army columns was concentrated in areas which were maximum hit by floods, and which required maximum help. It was impossible for the Army to have been omnipresent everywhere.

This confirms a wide body of anecdotal evidence, as well as the findings of an earlier study on the floods by a group of student volunteers which found that 96% of people in shelters reported being rescued by local volunteers (EurAsiaWatch, 2014). Local media reports from the Kashmir valley-based media in the aftermath of the floods provide sporadic and episodic evidence of this phenomenon. Even General D.S.Hooda, the Northern Army Commander had acknowledged the same in many media reports stating that "*The task in Srinagar was too enormous and whatever the relief agencies (Army, Air Force, NDRF) could do would still not be enough. This is where we have to acknowledge the efforts of local volunteers who have contributed immensely.*" (ADGPI, 2014)

There is only anecdotal information available about the identity and organizational networks behind the numerous volunteer groups credited with most of the relief work. For the most part, they appear to be highly localised, fragmented and impromptu collectives of young males who formed and dispersed spontaneously. **Their effectiveness came from a combination of localised knowledge, personal links and high levels of commitment**. But beyond the realities of their effectiveness, the identification and attribution of credit to the local Kashmiri youth volunteers compared to the Indian military is significant and has meaning in itself.

While many respondents described rescue-and-relief efforts by the army, NDRF and the Air Force, there were voluntary donations from other parts of India and from numerous NGOs such as Oxfam, Save the Children, Action Aid etc.

Important Observations (J&K Floods of 2014)

Some of the very **pertinent observations of the floods in Kashmir of 2014** as covered in a paper titled Armed Forces in Disaster Management in India **co-authored by Maj Gen Amar Krishna (Retd) and Dr. Pramod Damle are as covered. 30 copies of the Questionnaire were distributed by these authors** (Krishna, 2017) **to various Officials who had participated in this operation**. An overall analysis of their response relevant to the issues of multi-agency operations to disaster response is as covered below.

- There was a **total absence of the civil administration for the first 96 hours**. The Chief Minister of J&K, Shri Omar Abdullah, had stated that he was helpless as none of his State Ministers were available to take control of the situation, as they themselves were badly affected and even needed to be rescued.

- Even though the Army Cantonment (Badami Bagh), and its surrounding areas was also badly affected by the rising flood waters, **the local Army Commander, became, de facto in charge of the entire initial rescue and relief operations**, working in close coordination directly with the State Governor and Chief Minister.

- All the **Committees that had been planned to function in such a situation were non-existent**. The civil administration was caught totally unaware and unprepared,

even though there were adequate inputs and warnings of the rising levels of water in the Jhelum River.

- As the gravity of the situation became known to the outside world, relief material, of all sorts, started arriving in mammoth proportions at the Srinagar Airport. **There being no civil administration to manage this large quantity of relief material, most of it rotted in the rains and became useless, especially food items**. Army units had to be deployed to take control of this task also.

- Coordination of rescue and relief operations in areas affected by insurgency requires very intimate interaction with the civil administration. There were instances, especially in Downtown Srinagar, where the Army did not operate, the local population, though badly in need of rescue and relief assistance, but due to pressures from **insurgent groups, obstructed the Army vehicles and boats carrying relief material** for them. Stones were pelted on these Army columns. There was no protection given to these Army columns from the civil police.

- People who were rescued by the AF and brought to a safe area, had **no means of transport to go to other places, nor was there any central places where the civil administration had arranged for temporary or tented accommodation**, with medical facilities.

Chennai Floods (Dec 2015)

Certain other observations and lessons learnt that can be summarised from the paper referred above (Krishna, 2017) in regards to issues of multi-agency operations during Chennai Floods of 2015 are as follows: -

- The Armed Forces, which had rescued thousands of marooned residents, faced **critical coordination problems with the local administration** at the ground level,

resulting in **delayed action** in some places. The **unpreparedness of the local agencies, including Chennai Corporation, in giving appropriate directions to the Army came to light** when media persons accompanied the rescue teams in several places.

- For instance, **despite waters having fast receded at T. Nagar, an Army column was called in for rescue there**. It only brought out the lack of real time inputs and coordination between the civil administration and the Armed Forces which the various committees instituted for the purpose of disaster response could have better coordinated.

- In Velachery, a **Corporation official had brought out that he had come to know of the Army's arrival just half an hour before they reached the locality**. Since multiple operations drained batteries on their search lights, the forces asked for the equipment — which was not organised. Again, underpinning the lack of coordination amongst the multiple agencies involved in the response operations.

- The Army columns pressed into aid to civil authority faced the brunt of the lack of coordination as **the rescued residents began questioning the complete lack of transport facilities when they were brought out of the flooded areas** at 11 p.m. The Army men then had to request cars plying in the area to drop the residents. Some good Samaritans obliged, going out of their way to take pregnant women and the elderly to faraway places.

- At the State level, the **photos of 100 soldiers from Hyderabad, waiting for over 10 hours for instructions from the Tamil Nadu government as Chennai sank, showed the civil administration in very poor light**. It indicated that bureaucrats did not have the freedom to act. Even during natural disasters, they had to be given instructions because they are used to that pattern of governance now. They

expected 'clearance' for everything, and a lot of time was wasted as officers looked up to the CM for every small decision.

- Local politicians were playing dirty because the State administration was missing in action. The **political executive washed its hands of the matter the minute the forces landed**. It became the Army's job to ensure that relief and rescue operations went smoothly.

- It also became evident that notwithstanding the overall needs being obvious, the **needs of those marooned varied more and more with time and that a one size fits all relief material packet would not suffice** and needs to be foreseen and planned before investing in procuring from far off places and then again in air dropping, all in futility.

Observations by Sphere India: Jammu and Kashmir Floods

- Just to get a **sense of the operational aspects and enormity of effort that went into multi-agency coordination towards disaster relief during Kashmir floods**, this study analysed the data published by Sphere India, a NGO, on the Kashmir floods of 2014 (Sphere, 2014). The observations for Jammu and Kashmir Floods as published by Sphere India[15] on 12 Sep 2014, was carried out between the 9th and 12th of September. Some of **relevant aspects dealing with issues of multi-agency operations during disaster response are as summarised** in the subsequent paragraphs.

---

[15] **About Sphere India**. The vulnerability profile, the diversity, frequency and sheer size of the both natural and manmade disasters coupled with the Socio-political-economic diversity has often led to complex humanitarian situations in India. India also happened to be base for a lot of Humanitarian agencies working in South Asian region and many Humanitarian agencies have been working in India. Thus, when Sphere piloting agencies recommended for country piloting, India was selected as one of the country pilots. Sphere India consultation led to emergence of Sphere India as a National Coalition of Humanitarian Agencies in India. Sphere India launched on 21st Feb 2003 followed an inclusive consultative process of collaboration with a goal to collectively work towards improving the quality and accountability of humanitarian action in India. Sphere India members include the Government of India, International and National non-government agencies, Ngo networks and UN agencies working in India.

o **Relief Measures – GO & NGO Response**. The National Crisis Management Committee chaired by the Cabinet Secretary continued its review of the situation in J&K arising on account of floods on 10th September. Secretary (Planning), J&K briefed the Committee about the ground situation and further support required. The details were as follows:

- 1,237 tons of relief material was air dropped.

- This included the following items delivered in the earlier stages: 210,000 litres of water, 2.6 tons of biscuits, 7 tons of baby food, and 31,000 food packets, 370 tons of cooked food were airdropped and distributed in flood affected areas, 3 tons of milk in tetra pack was rushed, in addition to milk powder, 6,000 Solar lanterns were mobilized in view of the disruption in power supply in the valley, 10,000 blankets and 3,000 tents from Kanpur to Jammu and Srinagar.

- Thirteen tons of water purifying tablets and six water filtration plants with a capacity to filter 120,000 bottles per day.

- PM announced Rs. 1,000 crores of Aid for the state.

- Compensation was provided to affected (Rs. 2 lakhs for the kin of the dead and Rs 50,000 for those seriously injured) from PM's Relief Fund.

- Availability of Boats was being augmented further with inflatable boats and fiberglass boats with outboard motors. Over 372 boats had already been deployed (11th September).

- 35,000 soldiers deployed.

- The Army has moved in 200 columns and evacuated more than 15,000 people from different areas of the state (6th September).

- Over 96,000 persons had been rescued by the Armed forces and NDRF from different parts of Jammu and Kashmir in the on-going rescue and relief operations.

- 19 relief camps were reported on 11 September with more than 20,000 persons.

- Centre also sent eight National Disaster Response Force teams who saved 112 persons.

- Air Force choppers carried out 1081 sorties for rescues and to airdrop relief materials.

- Air asset support was being up scaled. Over 84 transportation aircraft were made available. Indian Airlines declared free passage for the tourists trapped in Srinagar. Three C-130J Super Hercules aircraft had also been deployed.

- Heavy-duty submersible pumps were flown in to pump out water once the river level started subsiding.

- To restore road connectivity, five task forces of Border Roads Organization, which include 5,700 personnel, had been pressed into service. On the Jammu-Srinagar highway, BRO personnel cleared the road blocked by fresh landslide.

- As on 11 September 2014 networks in Jammu area had been restored to 95% functionality. In the Kashmir Valley about 50% of cellular towers were functional, most were not functioning due to inability to access them with diesel for generators. Some towers near the

airport had become functional allowing some connectivity. Road link to Srinagar via Leh had been reopened. Work along the Jammu-Srinagar National Highway that closed on the 4th of September, and in Poonch, was also going on war footing to restore the road links to boost the relief effort.

Having examined the situation during the Kashmir floods of 2014 with issues dealing with multi-agency operations during disaster response and subsequently analysed certain research papers, **the study now moves forward to examine the Report of the Comptroller and Auditor General (CAG) of India on 'Performance Audit of Disaster Management** in the State of Jammu and Kashmir for the year ended 31 March 2016'.

Report of the Comptroller and Auditor General of India on Performance Audit of Disaster Management in the State of Jammu and Kashmir for the year ended 31 March 2016[16]

The **performance audit of disaster management in the State focused on assessing the State Government's pre-disaster preparedness and management, emergency response and relief, restoration of public utilities and infrastructure and their reconstruction/rebuilding**. The audit was conducted between July 2015 and February 2016 and covered the districts of Anantnag, Budgam, Jammu, Leh, Poonch, Srinagar and Udhampur as test-check samples. (CAG, 2016)

---

[16] Comptroller and Auditor General of India (CAG) (2016), Report No.4 of 2016 - Performance Audit of Disaster Management in the State of Jammu and Kashmir Government of Jammu and Kashmir. Retrieved from https://cag.gov.in/content/report-no4-2016-performance-audit-disaster-management-state-jammu-and-kashmir-government

- **Pre-Disaster Preparedness and Management**

  Audit identified gaps in establishment and functioning of institutional mechanisms and implementation of policies that inhibited the ability of the administrative machinery to prepare and implement cohesive disaster management plans that would have enabled rapid response to disasters and mitigate their impact on loss of lives and property. These included the following: (CAG, 2016)

  - The **State Disaster Management Authority (SDMA)**, though established in April 2007, **was not fully constituted as its full-time members were yet to be appointed as of July 2016, even after a lapse of nine years**. Further, as against the stipulation of holding at least one meeting in a year, the SDMA had **met only once in 2012** in the last six years.

  - The **State Advisory Committee (SAC)** responsible for making recommendations on issues relating to disaster management **had not been constituted**.

  - The **State Disaster Management Policy**, approved in February 2012, had **not been fully implemented**.

  - **No Disaster Management Authority had been constituted** at the **divisional level** (Jammu and Kashmir).

  - While Disaster Management Authorities had been constituted at the district level, they were non-functional. **District Disaster Management Plans had not been formulated except in Leh district**. Even the Leh district plan that had been approved in May 2011 had neither been implemented nor reviewed.

- The risk of inadequate disaster preparedness due to weak institutional structures was aggravated by **shortcomings in the Government's pre-disaster preparedness** and management activities as below:

  o The **State Disaster Response Force (SDRF) was not only short of its sanctioned strength by 28 % but 69 % of its available manpower was deployed for duties not connected to disaster relief or response**. Further, the bulk of the Force **had not undergone the mandatory orientation and specialized training** courses necessary for them to effectively carry out their functions in the event of a disaster.

  o Government had **not conducted assessment of hazards, vulnerabilities and risks in the State and did not prepare risk maps for 13 multi-hazard districts despite Rs 20 lakh having been released** by Central Government in June 2014 under the Capacity Building grants for this purpose.

  o Scheme for Improvements to Flood Spill channel by way of construction of central cunnette (2008-09) was taken up to deal with the reduced carrying capacity of the Jhelum River due to accumulation of sediments from various nallahs. This was subsumed in the "Flood Threat to River Jhelum Scheme" (2010-11). Under the first scheme only about 81 per cent and under the second scheme only 68 per cent of the total targeted flood spill channels were treated. Further, Rs 1.98 crore under the first scheme and Rs 9.20 crore under the second scheme **were utilized for the purposes not related to the scheme objectives. Had the two schemes been progressed and implemented as per their Detailed Project Reports, the impact of the floods of September 2014 would have been mitigated to quite an extent**.

- The State Disaster Management Policy envisaged that the National Buildings Code and other codes prescribed by the Bureau of Indian Standards for seismic zones IV and V would be followed by all departments. However, earthquake resistant seismic designs had not been made mandatory for private buildings and **disaster resistant designs and retrofitting techniques were not ensured in re-construction of houses damaged during the floods of September 2014**. Hence, the constructions remained vulnerable to earthquakes despite being in a seismic sensitive zone.

- **Disaster forecasting and early warning and alert systems were not established despite release of Rs 20 lakh** for early warning systems. The amount was surrendered.

- **Emergency Operation Centres were not established though Rs 2 crore was earmarked** by the State Executive Committee (2013-14) for the purpose.

- **State Government had not undertaken capacity building activities including public awareness and preparedness as envisaged** in the Disaster Management Act and Rs 10.21 crore out of Rs 12 crore released by Government of India remained unutilized. Further, Rs 25.24 lakh was utilized for procurement of vehicles during 2014-15 instead of capacity building.

• **Post Disaster Audit** observed that relief and evacuation were not provided to the victims of floods in a timely and effective manner due to the **absence of adequate damage and need assessment, lack of effective coordination and monitoring by any nodal agency for procurement, transportation and distribution of relief**

materials, diversion of funds and irregular spending or spending on ineligible items in contravention of SDRF's guidelines. **Inadequate and inaccurate damage assessment coupled with inefficient management of projects and diversion of funds** also hampered restoration and re-building of public utilities and infrastructure damaged by the floods. Audit highlighted the following:

o   Assessment of damages was completed in only three out of the six test checked districts while **need assessment had not been conducted** in any of the six districts resulting in partial or inaccurate damage assessment. The **initial and subsequent assessments varied from 11 per cent to 137 per cent leading to delays** in arranging materials and procurement of supplies that adversely impacted provision of timely assistance to the affected persons.

o   There was **no evacuation plan and relief centres/ camps had not been identified** in any of the test-checked districts resulting in rescue, evacuation and relief being **managed in an ad-hoc manner**.

o   **Assistance** amounting to Rs 12.60 crore due to affected families **remained undisbursed** while material (tents, blankets) valuing Rs 3.30 crore remained unutilized or in excess of requirement. Further, gratuitous relief of Rs 1.42 crore was **disbursed to ineligible families and families not affected by floods**. In addition, expenditure of Rs 1.30 crore incurred by PWD on lifting of garbage, clearance of drains, etc. in Srinagar city could not be verified by audit as the same work was also reported to have been done by the Srinagar Municipal Corporation.

o In the six test-checked districts, there were **delays of three to six months in payment of gratuitous relief** to 22,808 cases and of more than six months in 8,452 cases.

o Though Government announced free ration for six months (September 2014 to February 2015) to the affected families, several thousand families received the ration after six months and many even after nine months. Further, **ration was not provided as per the criteria to both ration cardholding and non-holding families**. In the test-checked districts, 1,99,482 quintals of ration were provided less to 4,53,629 ration card holding families while 87,189 quintals of ration were provided less to 1,20,033 non-card holding families for the six months' period.

o There was **delay in disbursement of gratuitous relief** ranging up to more than six months **which defeated the very purpose of providing immediate relief**. Funds amounting to Rs 0.94 crore was disbursed without sanction of the competent authority and additional assistance of Rs 8.80 crore was provided as a result of change in status of damages to houses after re-assessment of damages.

o While **no assessment of livestock losses and damage to agricultural land and crops had been done** in any of the test-checked districts of Kashmir division, Rs 4.20 crore of assistance for farmers for input subsidy/ compensation for losses of Poonch district was not paid to the affected persons as of August 2015.

o **Rs 8.90 crore was spent on purchase of ineligible items/equipment which were not related to the floods**. There was **no record of disbursement/ utilization** of items valuing Rs 14.38 lakh procured for

flood related activities and useful life of bio-manure valuing Rs 15.44 lakh expired in September 2015.

o **Relief materials** valuing Rs 4.88 crore procured and dispatched by government agencies as well as 18 trucks of relief material received from other States/agencies from outside **was not accounted for in the records** of the Central Store (Entrepreneurship Development Institute, Pampore, Srinagar) and DC Jammu.

o Divisional Commissioner Kashmir sanctioned **Rs 2.51 crore out of SDRF for purchase of 75,000 kgs of whole milk and 5,000 kgs of skimmed milk** from M/s Mother Dairy and Vegetables Private Limited, New Delhi through the J&K Milk Producer Co-operative Limited, Milk Plant, Srinagar, for distribution amongst the flood affected people. The Co-operative received the full quantity of whole milk and skimmed milk in September 2014. **However, only 7,000 kgs of whole milk was distributed amongst the affected people. While 2,600 kgs of milk was damaged, the balance valued at Rs 1.99 crore was either used by the Cooperative as part of its business or was not traceable**.

o Out of the 53,298 bags (26,500 quintals) of **rice received from Chhattisgarh** Government, 5,375 bags (2,675 quintals) **were damaged at waterlogged open space at Udhampur Railway Station due to delay in lifting**. A further 26,920 bags (13,396 quintals) which were transported to Kashmir for distribution was also **damaged/became sub-standard** (June 2015) **due to delay in distribution by the Consumer Affairs and Public Distribution (CAPD) Department**. This resulted in Rs 42.74 lakh **spent on transportation of the rice being rendered infructuous**.

o As required under the Standard Operating Procedures for restoration of public utilities and infrastructure, sanction for expenditure from SDRF above Rs 30 lakh was to be obtained from the SEC, up to Rs 30 lakh from Financial Commissioner, Revenue, up to Rs 20 lakh from Divisional Commissioners and up to Rs 10 lakh from Deputy Commissioners. **In contravention of these instructions, works implementing agencies did not obtain sanction from any of the aforesaid competent authorities for any of the restoration works.**

o Further, a total of Rs 27.36 crore of SDRF was **spent irregularly or diverted**.

o **Due to incorrect projection of span for a bailey bridge in Poonch district, excess material costing Rs 4.39 crore was procured** which could have been avoided. Further, due to incorrect application of rates by the Irrigation and Flood Control Division, Srinagar for earthwork in banking in layers and for supply of earth, extra expenditure of Rs 2.36 crore from SDRF was incurred.

o 6,369 metres of pipes were issued (January-February 2015) from the store of the Water Works Division Srinagar for 25 restoration works costing Rs 23.54 lakh. However, the said works had already been shown completed (October-December 2014), **raising doubt as to the actual execution of the work**.

o As per the Manual for Administration of SDRF, eligible sectors for which assistance are to be provided are specifically named/categorized. However, **Rs 31.44 crore was released from SDRF to seven departments/ agencies which were not eligible**. Out of the said amount, Rs 14.97 crore was spent

by Estates Department, Tourism Department (including Shere-Kashmir
International Conference Centre, SKICC) and State Motor Garages on items
such as furniture, furnishing, electronic and electrical gadgets and items,
renovation of government quarters, **which in any case were not associated
with flood damage**.

o Government of India released Rs 1,000 crore as Special Plan Assistance
(SPA) for re-building of damaged infrastructure. Audit observed that Rs
42.24 crore of **SPA funds were utilized on works/items not covered
under the SPA guidelines**.

**Having studied as to how the state of Jammu and Kashmir responded
during the deluge of 2014 and the CAG audit of the J&K government handling of
the floods, the study now takes an account of how J&K State had implemented
DRR projects post the 2014 floods and study the J&K State DM Plan of 2017
which came into effect subsequently.**

How J&K has Implemented Disaster Risk Reduction Projects post 2014 Floods

Gupta (2017) [17] notes that in the wake of recurring disasters, the **State has
always paid heavily in terms of loss of life and property**. The State of Jammu and
Kashmir recognizes that hazards are inevitable, but these need not necessarily convert
into disasters. A pro-active, holistic, comprehensive and multifarious approach is
required, for disaster risk reduction and management. The **State has thus, adopted the**

---

[17] A paper titled Long Term Disaster Recovery in Kashmir published in southasiadisasters.net contains many insights from practitioners and academics from different areas who have focused their attention on rebuilding Jammu and Kashmir after the devastating floods of 2014. Often dubbed as the most severe flood to hit the state in over 100 years, the havoc wreaked by these floods affected close to 550,000 people. The Indian state as well as the international community were quick to respond to the crisis that followed this disaster. Devoting massive financial and human resources, many long-term recovery initiatives have been started in the state. This issue is a compilation of such initiatives that capture the many facets of Kashmir's complex long-term recovery process to "Build Back Better".

twin principle of minimizing human suffering, during disasters and reduction of financial losses through integration of DRR activities into development planning.

In the aftermath of the devastating floods, the **Government of India requested assistance from the World Bank and an emergency project was started, the Project was named as Jehlum and Tawi Flood Recovery Project**[18]. The project focuses on restoring critical infrastructure using international best practices and on resilient infrastructure. Given the State's vulnerability to both floods and earthquakes, the infrastructure was designed with upgraded resilient features, and includes contingency planning for future disaster events. **The project aims at both restoring essential services disrupted by the floods and improving the design standard and practices to increase resilience**.

Jammu and Kashmir now has a structured institutional mechanism to deal with disasters at the State level, as follows:

- The **State Disaster Management Authority** is headed by Honourable Chief Minister.

---

[18] Retrieved from http://documents.worldbank.org/curated/en/328431577822693398/pdf/Disclosable-Version-of-the-ISR-Jhelum-and-Tawi-Flood-Recovery-Project-P154990-Sequence-No-07.pdf. The project development objective is to support the recovery and increase disaster resilience in Project Areas and increase the capacity of the Project Implementing Entity to respond promptly and effectively to an eligible crisis or emergency. The **project closing date is scheduled for 30 June 2020**. It involves the following: -
- Reconstruction and strengthening of critical infrastructure:(Cost $60.00 M)
- Reconstruction of roads and bridges:(Cost $80.00 M)
- Restoration of urban flood management infrastructure:(Cost $50.00 M)
- Restoration and strengthening of livelihoods:(Cost $15.00 M)
- Strengthening disaster risk management capacity:(Cost $25.00 M)
- Contingent Emergency Response
- Implementation Support:(Cost $20.00 M)

Implementation Status and Key Decisions.   The project was approved by the Bank in June 2015 and became effective in April 2016. While overall slow progress in works implementation, disbursement and contract award continues, the Project gained momentum in several components over this year. PMU performance has improved but leadership changed twice over past quarters. Work on eight bridges and livelihood related activities has begun. Delivery and deployment of disaster response equipment has started. Several works related to drainage The World Bank Implementation Status & Results Report Jhelum and Tawi Flood Recovery Project (P154990) 12/31/2019 Page 2 of 8 improvement of Srinagar city, restoration of artisan livelihood, and restoration of hospital buildings are awarded or in advance stage of procurement. Multi-hazard risk assessment and flood management studies for Jhelum and Tawi basins are progressing as planned. A complete review will be conducted in Q3-FY20.

- The **State Executive Committee** is headed by the Chief Secretary.

- The State had the unique distinction of having a shifting State Capital, between Srinagar and Jammu, every six months and therefore Jammu and Kashmir was the only State in the country then to have two unique **Divisional Disaster Management Authorities** for Kashmir and Jammu Divisions, which were headed by the respective Divisional Commissioners.

- 22 District Disaster Management Authorities (**DDMAs**), headed by the Deputy Commissioners of the Districts, to manage the whole gamut of disasters.

- **Land has been identified at the State level for establishment of State Emergency Operation Centre**, for ensuring effective management of disasters. Till the time permanent EOCs are constructed, interim EOCs have been established at all 22 District Headquarters.

- **The State Disaster Management Plan, the State Disaster Management Policy and District Disaster Management Plans have been prepared, implemented and uploaded on the website www.jksda.org**. These plans are to be **regularly updated** and upgraded.

- The State has **established two dedicated Battalions of State Disaster Response Force (SDRF)**. The **process of upgrading SDRF with adequate manpower, capacity building and equipment support has been initiated**. Besides this, the Fire and Emergency Services has been strengthened and upgraded.

- Community is amongst the first responders in any disaster situations and therefore, the State has taken **innovative steps for strengthening the community and creating awareness amongst general masses for enhancing**

their capacity, so that they are better equipped to handle any exigencies in the future.

- **300 volunteers per District (Total 6600 in the State)** had been identified by the respective Deputy Commissioners and **trained in basic life skills, including firefighting, first-aid, search and rescue** (Gupta, 2017). For ensuring proper training the training capability of Civil Defence, SDRF, Red Cross and Health Department were utilised. These volunteers had been drawn from the community and comprised of able-bodied youth. It was ensured that **women were adequately represented**. These volunteers were **equipped with personal basic emergency equipment**, so that they can act as first responders in any emergency.

- Training of students and teachers on **School Safety Measures** was accorded top priority. **Mock drills** were held on a regular basis in various educational institutions. The **Chief Education Officers was nominated as Nodal Officers for implementation of the School Safety Programmes at the District level**.

- **State Government Officers** and officials including Revenue Officers, Tehsildars, Patwaris, Senior Administrators and Municipal Ward Corporates were **imparted training**. After the training, they were **involved in preparation of Community Level Disaster Management Plans**, including Village Disaster Management Plans.

- In order to strengthen the District Disaster Management Authorities (DDMA), the **Tehsildar Headquarters in the office of Deputy Commissioners had been re-designated as District Disaster Management Officers** and were actively involved in the Disaster Management issues at District level. The **first batch of pass-out students of MSc Disaster Management** from the University

of Kashmir had been **engaged as Disaster Management Professionals** and deployed in the various DDMAs.

- Jammu and Kashmir had established the **State Disaster Mitigation Fund, by allocating Rs 1.00 Crore per district** as District Disaster Mitigation Fund.

- Jammu and Kashmir had initiated the process for **procurement of 100 No's of Satellite phones from BSNL (Inmarsat) for establishing a fail-safe communication** network across the State.

Disasters cannot be prevented, but all necessary measures can be taken to minimize damages due to disasters. A prepared community can deal with disasters in a better manner.

JKSDMP & Framework for Mainstreaming Disaster Management in J&K[19]

Having set the context for the Kashmir floods of 2014, the study then analysed the narratives of some of the survivors in the immediate aftermath of the deluge and then analysed the State Failures and studied the important observations from various research papers related to issues of multi-agency operations during disaster response, followed by the CAG audit in 2016, the study went on to analysing how J&K government has implemented the DRR strategy post floods and now shall dwell on how the J&K State Disaster Management Authority has put in place the framework by way of State DM Plan 2017 for mainstreaming DM in J&K.

---

[19]. A State-level Disaster-Management Plan was brought out in May 2017 post the deluge of 2014 (Developed by Tata Institute of Social Sciences, Mumbai) and is a comprehensive document that covers the entire range of disaster management and disaster risk reduction activities at the level of the entire State. Retrieved from http://www.jksdma.org/wp-content/uploads/2017/01/Guidelines-for-floods.pdf

- **Disaster Response**

    The efficacy of a Disaster Management Plan depends entirely on the extent to which various elements of the Plan can be made operational or brought to the level of active implementation. The Disaster Management Plan for the state of Jammu & Kashmir emphasises some key elements that need to be taken up urgently in order to speedily operationalise and implement several parts of the Plan. **The Disaster Management Plan projects several infrastructural requirements, operational structures and modalities of action** for a safe and disaster-resilient state. These will not become a reality immediately as **it would require financial, technical and human resources to be deployed**, which will inevitably take some time. It would be a grave error to assume that, with an available Plan, the state would have a ready to hand blueprint that will enable the state machinery and other stakeholders to immediately take Jammu and Kashmir State Disaster Management Plan into action for the next and subsequent disasters. With the receipt of the Plan, the government and its various departments need to plan a structured, time-bound process of implementation and realization. (J&K State Disaster Management Authority: State DM Plan, 2017)

    o **Role of Key Stakeholders**

        ▪ **State Disaster Management Authority (SDMA)**.

            The SDMA facilitates the overall coordination of the situation arising in the wake of a disaster. In order to ensure an effective response, SDMA has developed guidelines for agencies that govern the emergency relief measures. SDMA coordinates with agencies of other States as well as the National and International agencies to supplement the search, rescue and relief efforts, if needed. Relief is envisaged to be

provided in a just, equitable and transparent manner without regard to economic or social status of the beneficiaries and without any discrimination of caste, creed, religion, community or gender.

- **Line Departments of the State**

All line departments need to be involved in search, rescue and immediate relief operations as per the State DMPs and DDMPs under the overall supervision of SDMA. **The Financial Commissioner (Disaster Management & Revenue), FC (DM&R) office has been designated to take a lead role in this phase with the support of SDRF, Police and Fire & Emergency Services under the administrative control of the Department of Home**. The **respective Divisional Commissioner and Deputy Commissioners would coordinate and monitor the response and provide immediate relief**. Based on the inputs received from the field agencies the FC (DM&R) shall recommend to SDMA if an event needs to be declared as a disaster.

If required, Incident Response System (IRS) at the State level would be activated at this stage. All line departments shall perform their respective responsibilities as per the Emergency Support Function under the Incident Response System.

- **Divisional and District Disaster Management Authorities (DDMA)**

Divisional DMA and DDMA would activate Divisional Disaster Management Plan, District Disaster Management Plan, Incident Response System, Emergency Operation Centre, Departmental Plans

and Standard Operating Procedures. The Divisional Administration shall carry out evacuation, search, rescue and relief activities with the help of the concerned District Administration. The Divisional Commissioner is required to coordinate with SDMA and FC (DM&R) office for additional resources. (J&K State Disaster Management Authority: State DM Plan, 2017)

- **Local Authorities**

The Urban Local Bodies (ULBs) and PRIs would work in close coordination with respective Nodal Department and Divisional and District Disaster Management Authorities in performing key activities of this phase. All facilities of such organizations would be pooled together and placed at the disposal of Divisional and District Disaster Management Authorities. ULB and PRIs shall be strengthened and given roles, as first responders.

- **Civil Society Organizations and Self-Help Groups**

The Community Based Disaster Management (CBDM) system established during the pre-disaster phase shall encourage Civil Society Organizations, Self-Help Groups, Non-Governmental Organisations, Voluntary Organisations and Local community to undertake relief operations immediately. Such agencies shall cooperate with district administration in the conduct of a preliminary damage assessment and to provide inputs to relevant authorities as to the magnitude of the effect of the disaster, need for additional resources, etc. **Civil Society Organisations, SHGs, NGOs, Civil Defence, Home Guards, Scouts**

and Guides, NCC, NSS and Community Based Organisations are now encouraged to undertake training and capacity building activities in Disaster Management at community level.

- ▪ <u>**Corporate Sector**</u>

  All available resources with the corporate sector would be mobilized to respond to the disaster and to provide immediate relief to the affected people. The corporate sector is **expected to support the relief efforts of the government through relief materials and volunteers**. The SDMA, Div. DMA and DDMAs would hold periodical meetings with the corporate sector so that they are also sensitised towards their role in Disaster Mitigation.

- o <u>**Key Activities in Disaster Response Phase**</u>

  - ▪ <u>**Implementation and Operationalisation of DM Plan**</u>

    The State, Divisional and District Disaster Management Plans, Disaster Management Plans of the line Departments and Standard Operating Procedures of Incident Response System (IRS) and Emergency Operation Centres (EOC) would be activated in this phase. IRS (State, Divisional or District level, as applicable) shall be utilized to its full extent. SDMA would set up toll-free numbers like 1070 and 1077 etc for emergency information and assistance. Helplines would be established for providing, directing and coordinating logistical operations. These are in addition to the toll-free numbers 100 (PCR), 101 (Fire control room) and 108 (ambulatory service), besides toll free number for child-help etc. Coordination and linkages are ensured

between these toll free/help -line numbers. The State, Divisional and District-level Emergency Operation Centres are to facilitate the State Disaster Management Authority/FC (DM&R)/Divisional DMA and District Disaster Management Authority in coordination, operations management, information collection and dissemination, public information and resource management etc. in this phase.

- **Evacuation, Search and Rescue**

Divisional Commissioner/Deputy Commissioner, guided by respective Disaster Management Plan and supported by line departments, is responsible for evacuation, search and rescue operations in their respective jurisdictions. Fire & Emergency Services, SDRF, NDRF, Police, Security Forces, Indian Air Force, Armed Forces, Home Guards, Civil Defence, Scouts and Guides etc., shall be engaged by the respective administration in evacuation, search and rescue activities depending upon the proportion of the event. In the event of a disaster, Police & Security forces shall also prevent theft, looting and other anti-social activities and shall provide a sense of security to the affected community, especially the vulnerable groups.

- **Essential Services**

The Divisional and District Disaster Management Authorities, **in conjunction with respective line departments, is to ensure enough food, water supply, emergency medicine, sanitation and temporary shelters to the affected population**. Educational institutions, community halls and similar other facilities shall be **utilized as**

multipurpose community centres/temporary shelters to accommodate the displaced population. Necessary arrangements to house the affected families individually with enough provisions for sanitary facilities and privacy for adolescent girls and women shall be made at these centres. Shelters for domestic animals, especially milch animals, shall also be arranged, if necessary.

- **Restoration of Essential Services**

The Divisional and District Disaster Management Authorities, in association with the respective line departments are to ensure an **immediate restoration of basic infrastructure facilities** like water, gas, road, transportation, power supply, communication systems etc.

- **Maintenance of Law and Order**

The Divisional and District Disaster Management Authorities, in association with the respective line departments, is to ensure the maintenance of law and order and **provision of due security to the affected population along with the aid-workers for ensuring the uninterrupted relief operations**. Arrangements shall also be made to provide adequate security cover to the storage and distribution of relief supplies.

- **Immediate Relief**

The Divisional and District Disaster Management Authorities is to ensure immediate relief to all the affected families, without any discrimination of caste, creed, domicile, religion or gender. The **relief packets shall be need-based and customized to the specifics of the**

affected people. Attention is to be given to the cultural and social concerns of different communities and to eliminate religion-based discrimination in relief distribution. Gender sensitiveness shall be ensured through close interaction with the affected communities during the relief planning process and involvement of women in relief planning, distribution of assistance and in other emergency management activities. It ensures that relief reaches the sub-categories, such as widows, single women, elder women, female-headed households and the differently abled.

- **Damage and Needs Assessment**

The Divisional and District Disaster Management Authorities in association with respective line departments is required to conduct preliminary **assessments to ensure optimum utilization of the limited resources in an efficient manner and to avoid duplication of efforts**.

- **Functioning of the State Emergency Operations Centre (EOC)**

Emergency Operations Centre (EOC) plays an important role in effectively and efficiently coordinating multi-agency, intergovernmental responses to disaster events. **The EOC not only assembles resources for an incident scene, but also command responsibilities associated with decisions taken towards threat abatement and deploying agencies and personnel** (J&K State Disaster Management Authority: State DM Plan, 2017). It is very critical to comprehend that during routine emergencies, the Incident Management Systems (IMS) that are in place gathers and controls required resources to deal with the situation. Usually, such routine emergencies are taken care by law enforcement agencies, emergency public health and medical services, fire and

emergency services, hazardous material teams, police and first responders. However, **as the emergency or disaster situation escalates, the response requirements become huge and the EOC gets activated** from its regular mode of functioning to the emergency mode and comes into the scene to handle the crisis. **The EOCs thus become active usually during major emergencies or disaster events**, **where the situation demands large-scale government and other stakeholder response across several jurisdictions and geographical locales**. During large scale emergencies and disasters, the **EOCs become the centre of co-ordination**, **planning, resource mobilization and deployment, communication, information management and dissemination**. Yet another significant feature of the EOC is that it **acts as the platform where key decision makers and administrators' interface with technical experts** in the provisioning of legitimate emergency authority and expertise.

- **Functions of EOC**

    The six primary functions of EOC are: (i) Coordination, (ii) Policy Making, (iii) Operations, (iv) Information Gathering, (v) Public Information and (v) Visitor Hosting. These functions are elaborated as follows.

    - **Coordination**: It involves assessing the disaster threat in terms of both agent-generated and response-generated demands and marshalling the available resources to act in concert to counter the threat. In this regard, it is the EOCs responsibility **to ensure that responder organizations are aware of one another's missions, responsibilities and areas of operation**. The State Disaster Management Plan and the respective District Disaster Management Plans will be the key framework to achieve coordination. Box below details the specific tasks of EOC with respect to coordination.

Figure 6. Coordination Functions of EOC: Specific Tasks

• EOC becomes the Central Coordinator.

• Enumeration of all agencies involved in Disaster Response, accessing resources and Networking with other Institutions in Disaster Preparedness and Response.

• Other Key functions of coordination include:

      o Notifying EOC staff to gather at EOC in crisis

      o Communicating decisions, needs, resource information to response partners

      o Agreeing in advance on EOC relationships/networks to other institutional structures

      o Coordinating preparation of preparedness plans by national and / or local structures before crisis

      o Coordinating joint training exercises and drills

      o Providing venue for response coordination meetings

      o Coordinating actual crisis response to ensure effectiveness and efficiency

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

    o **Policy Making**: Researches have pointed out that the policy concern operates at two levels: (a) a disaster action plan that deals with technical emergency management issues and (b) the integration of needed political and legal authorities. Together, these levels of policymaking define the creation of strategy for the overall community response to a disaster event.

Figure 7. Policy Making Functions of EOC: Specific Tasks

• The Secretary (Revenue) will coordinate the Key EOC functions with the help of the Steering Committee.

• Establishing clear policies on leadership and decision-making structures for EOCs

• Making broad policy decisions to guide the overall jurisdiction's response

• Establishing policies on activating and de-activating the EOC

• Preparing communications policies for EOC and all services

• Establishing safety and security policies for responders

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

    o **Operations**: The EOC must oversee or support the conduct of disaster operations. The EOC must continuously monitor the threat environment and

the response resources (including personnel) need to be continually reviewed and re-deployed to insure optimum community wide management of the disaster impact.

Figure 8. Operations Functions of EOC: Specific Tasks

- Activating the EOC from its regular mode to the emergency mode.
- Giving directions quickly and properly to response agencies
- Equipping response partners with needed relief supplies
- Deploying fire, emergency medical, search and rescue services
- Managing EOC staff on daily basis
- Ensuring EOC staff security and safety
- Ensuring other EOC staff needs (food, water etc.)
- Establishing telecommunications systems (main and backup)
- Ensuring needed measures are taken to guarantee public security and safety
- Coordinating response monitoring activities
- Deactivating the EOC from the Emergency mode to Regular mode

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

o **Information Gathering**: The scope of information gathering by the EOC is necessarily very broad. **It pertains both to the incident demands and activity and to available resources**. The various modes of information include (a) damage assessment, (b) progress (success and failures) in disaster response, (c) timing and effectiveness of operational decisions and deployments. The EOC **also collects and collates information on the activity and success of different responder agencies and relays the information to other responder agencies with related tasks**.

Figure 9. Information Gathering Functions of EOC – Key Tasks

- Inventorying available public and private resources for response

- Obtaining damage and needs assessment information

- Coordinating, cross-checking, verifying all data/information as they arrive at EOC

- Generating and storing lessons learned

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

o **Public Information**: While the need for public information is usually obvious, it is sometimes separated from the EOC. Such arrangements invite difficulties associated with misinformation and ambiguity, to the extent that those who disseminate information are not directly connected to the principal source of accurate response data – the EOC. Incident managers in the field should not be burdened by this information need and the EOC can be designed to effectively accomplish it. About public information needs, two audiences are of principal concern: the general public and the public-at-risk. Another important audience that sometimes serves as a buffer between the EOC and public is the mass media. **By centralizing this function in the EOC and placing it under the supervision of a Public Information Officer (PIO), one ensures that consistent and accurate messages are disseminated and at the same time makes it easier for media to obtain authoritative information**.

Figure 10. Public Information Functions at EOC – Key Tasks

- Issuing public warnings of possible incident

- Communicating information to the general public

- Communicating information to the media

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

- **EOC Structure and Operation**

The EOC is a place that brings together communication capability, logistical and personnel support that represent all the resources of the jurisdiction, including the authority to make decisions in crisis. **The EOC commander will be the Chief Secretary or Secretary (Revenue)**. There will be an advisory body to the EOC commander. The **Advisory body will be headed by a chief administrative officer and includes the secretaries or directors of key departments in the state such as police, fire, public health and public works**. The disaster response policy will be devised by the EOC commander in consultation with the advisory group. In the context of Jammu and Kashmir, it is also relevant if a WMD specialist is part of the advisory group. The WMD specialist could provide interpretation and specialized chemical, biological and radiological agent information to the EOC command.

Figure 11. Illustrates the EOC Organisation as such.
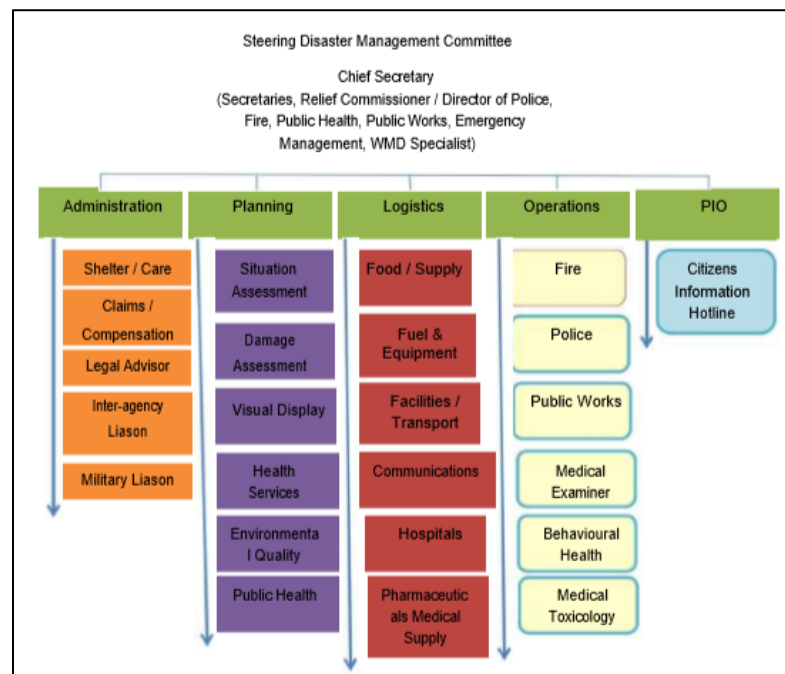
(Source: Jammu and Kashmir State Disaster Management Plan)

- **Immediate Tasks on EOC Activation**

Figure 12. Immediate Tasks on EOC Activation

1. The Chief Secretary will determine what staff he/she deems necessary to effectively operate the EOC apart from the prescribed staff. The Personnel from various departments and agencies are called to work in the EOC.

2. Orders are faxed from the crisis management committee to related ministries and departments for additional resources.

3. The emergency operation taskforces are asked to send report on the situation and their immediate resource requirements to the EOC within 4-8 hours of activation.

4. The EOC produces a situation report summarizing these reports.

5. Records will be maintained in the emergency control room.

(**Source**: http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf)

Tasks Within First 24 Hours

Figure 13. Tasks Within First 24 Hours

1. Establishing Control rooms at the airport with information desks at the arrival, departure and assembly points.

2. Set up General Information Desk at airport EOC.

3. Establish and activate emergency phone lines and helplines immediately within few hours of the disaster.

4. Set up separate desks for each ESF and international aid /NGO.

5. Set up desks for donations (cash and material).

6. Establish contact with the affected State EOC.

7. Set up EOC at neighbouring States

8. Establish contact with NRSA/ISRO/Defence for aerial and satellite imageries of the affected area.

9. Provide information and standard operating procedures for civilian population such as media, researchers, volunteers, field workers, etc. through:

 o Organize/coordinate aerial surveys for rescue operations

 o Establish contact with the disaster site which will have Incident Command Systems placed at the disaster site based on the scale of the disaster

 o Deploy Incident Commanders in consultation with the Centre at strategic incident commands

(Source: Jammu and Kashmir State Disaster Management Plan)

Tasks Within Next 48 Hours

Figure 14. Tasks Within next 48 Hours

EOCs at the State and the central levels will be jointly involved in the following:

1. Set up information desks at critical locations

2. Identify and channelize different categories of workers under the following at the information desks and provide identification tags for the following:

- Media

- Researchers

- NGO/International Agency

- Field workers/Volunteers

- Government officials

3. Place situation reports at bulletin boards outside information desks and E O C.

4. Direct Central and international agencies to priority areas (worst affected areas).

5. Identify locations for international and other NGO agencies to set up their site offices for the uniform distribution of aid in all parts of the affected area.

6. Communicate with the District Magistrate and the SRC for local information through:

- Information flow chart of Information and Arrival Centre at airport.

- Material/Manpower flow chart of Information and Arrival Centre at airport.

- Information flow chart of EOC at Centre.

- Information flow chart of desk for ESF.

- Information flow chart of NGOs.

- Information flow chart of media.

- Information flow chart of researchers.

(**Source**: Jammu and Kashmir State Disaster Management Plan)

- **EOC Communication**

The Telecommunication Task Force Leader of the EOC is to ensure immediate restoration of disrupted communication facility or infrastructure to ensure uninterrupted communication for effective disaster management operations. The task force is also to ensure that the communication shall be brief and simple, and no chaotic situations arise. Telephones or Hot Lines is to be used wherever possible to avoid

congestion of radio communication. All task force members are to communicate only through their allotted frequency channel to avoid congestion in the channel. The personnel who use radios should be acquainted with the operation of the equipment, various channels, code words, length of speech, etc. The EOC has an important role in issuing early warning. The flow chart of early warning dissemination is given in the figure below.

**Figure 15**. Flow Chart of Early Warning Dissemination
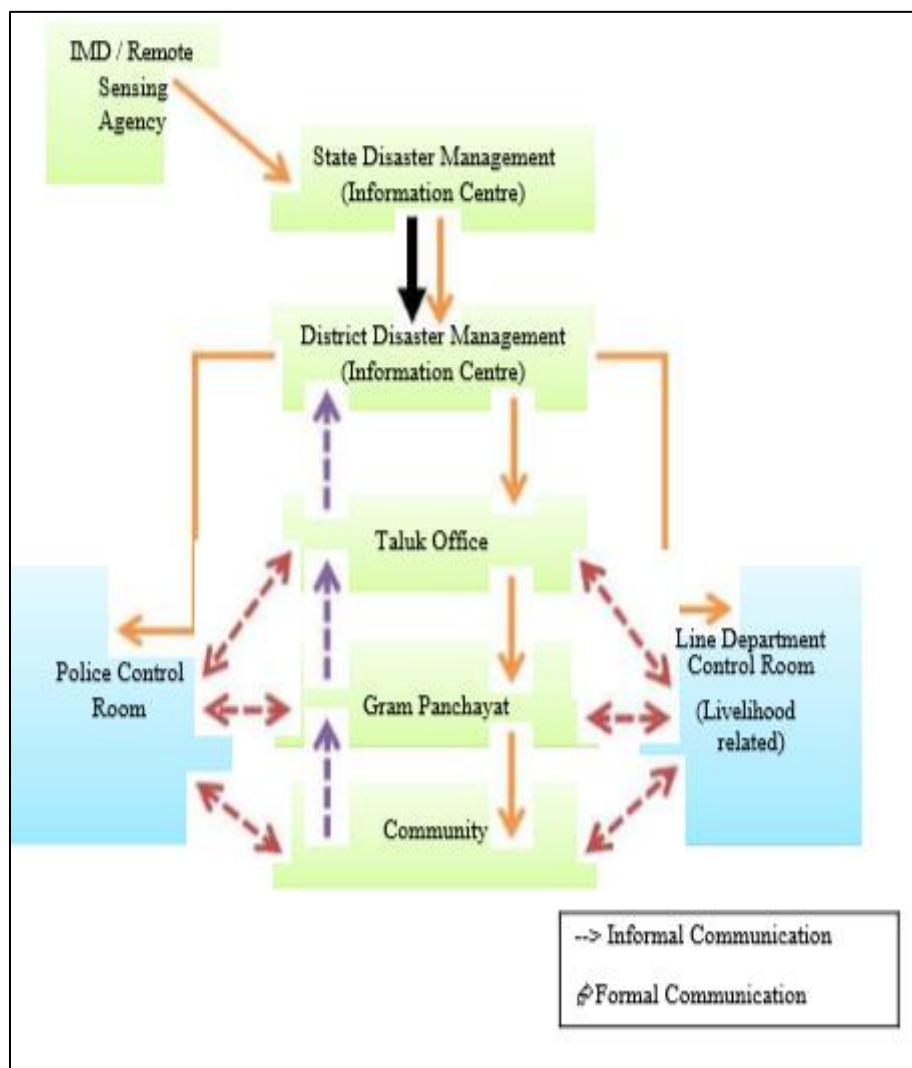
(Source: Jammu and Kashmir State Disaster Management Plan)

- **EOC Information Centre Management**

The principal role of information centre in the EOC constitutes **collection of data, analysis and dissemination of information to relevant organisation**. Upon the activation of EOC, this centre coordinates the flow of information with respect to activities associated with relief operations. During normal times, it **maintains a systematic database of the resources available, important phone numbers, name and addresses of important government officials, EOC emergency staff members, trained officials and first responders, international aid agencies and NGOs**. The EOC information centre does damage assessment of the affected areas, collect all related information of government schemes for smooth management, monitors different disaster mitigation programmes, coordinate with different organizations, also conducts evaluation of the programmes. The information flow chart from EOC-Information centre is given below.

Figure 16. Information Flow Chart from EOC-Information Centre
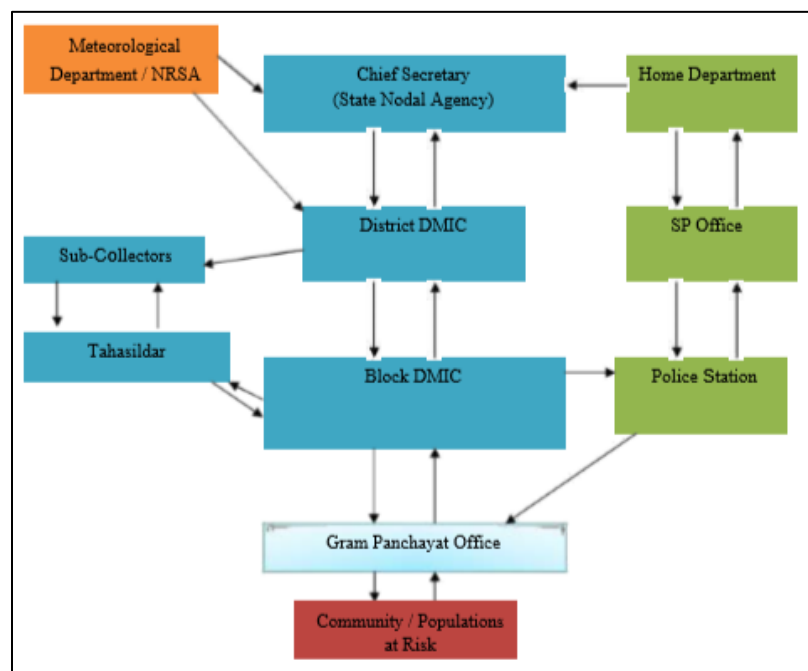
(Source: Jammu and Kashmir State Disaster Management Plan)

- **<u>Geo-Informatics: Disaster Response and Emergency Operation</u>**

Geo-informatics constituting Remote Sensing, GIS and GPS are very effective tools for forecasting, monitoring and assessment of pre, during and post disasters in a region by utilizing prior information and developing commensurate strategies. For example, **use of spatial information to make decisions regarding targeting the affected population, demarcating the affected area, relief material distribution and holistic management**. The role of geo-informatics in disaster response and emergency rescue operations are as follows:

- Pre-assessment of the incident area

- Identifying the area for early warning

- To display the EOC, ICP, command units and their duties in the warning area

- To draw rescue routes and make an emergency operation plan

- To analyse the relief material distribution

- Monitoring the incident situation

- Disaster information display and real-time dissemination

- Disaster assessment and reconstruction (assess the disaster losses such as population, damages - building, road, infrastructure, agricultural, socio-eco loses, livelihood. Assess the relief, rehabilitation and reconstruction cost in accordance with post disaster needs.

The geo-informatics data base must consist of the following significant information to handle the incident in a better manner:

- ICP's

• Resource management (including human and other resources)

• Demographic details (including children, aged and gender)

• Livelihood and habitation etc.

• Positioning of line department

• Infrastructure and basic amenities

• Public health hospitals, health post, health centre

• Logistics and distribution system, and transport network

• Land use and land cover (built-up, agricultural, forest, water, waste and others)

• Academic institutes (schools, colleges, institutes and universities)

• Research institutes

• Industries and mining area

- **GIS in EOC system**

GIS in EOC or mobile GIS is new technology and widely used in many countries during incident situations. It would **support multiple mobile terminals (PDA, Cell phone and laptops), real-time services (navigation devices supported (GPS)), and support multiple types data acquisitions (locations, transport networks and regions by PDA, images, audios, videos and positioning services)**. Mobile GIS is integrated with GIS, GPS, remote sensing, and mobile communication systems (GSM/GPRS/CDMA). It is utilized for the following.

- Spatial data management and spatial analysis with GIS

- Positioning and tracking with GPS

- Data acquisition with PDA

- Transmission of information as images, text and audio with mobile communication technologies.

Figure 17. System Architecture of the Real-time Incident Monitoring and Communication System.
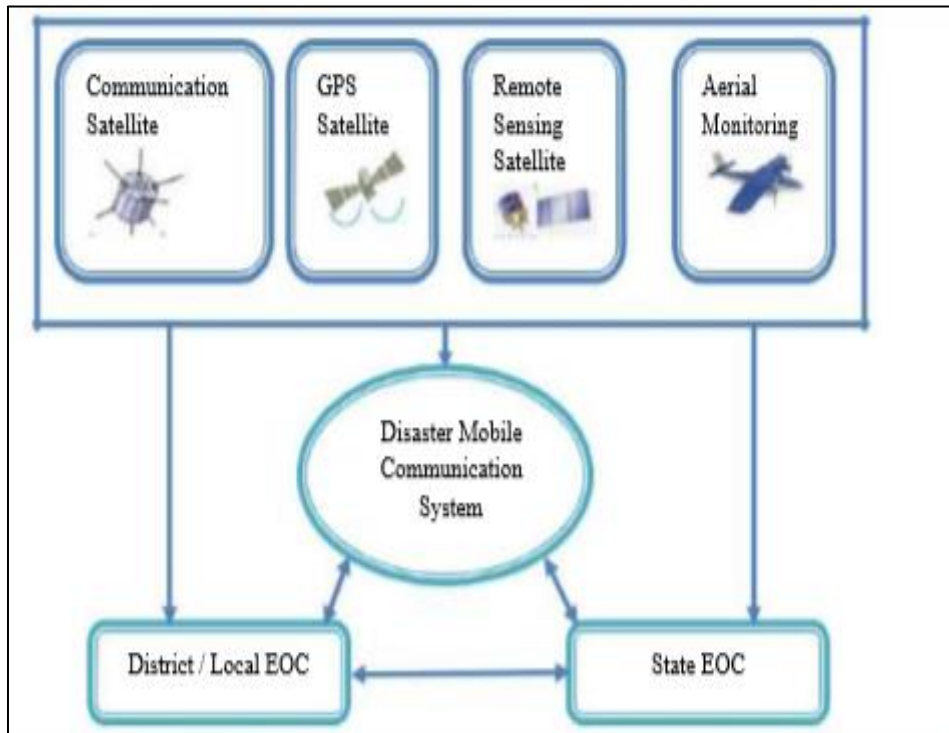
(**Source**: Jammu and Kashmir State Disaster Management Plan)

Findings of the Case Study on Kashmir Floods

Despite multi-hazardous risks and occurrence of several disasters in the past, the **steps taken by the J&K State Government to prepare for and mitigate the impact of disasters were not commensurate with the enormity of the task** at hand. There were **critical gaps** and deficiencies **in institutional arrangements, policy and plan formulation as well as implementation of pre and post disaster measures**. There was a **total breakdown** of even the routine functioning **of the civil administration** leave alone the essential services and the emergency DM committees

like SDMA, SEC, EOC, DDMA and IRS which would have helped with issues of multi-agency operations and coordination during disaster response in the early stages. As a result, the Army had to take on and head the ad-hoc disaster response mechanism in the Kashmir valley during the initial and the most critical phase of the floods. There was **no early warning to the local populace** even though it took three days for the flood waters to reach Srinagar as there was no EW system in place, even though the funds for the same had been catered for from earlier. The **emergency response groups in J&K** and the various departments and branches did not pre-empt the enormity of the situation and **did not convene** the emergency committees like **SDMA, SEC, EOC, IRS** etc **for taking any coordinated action** in the face of the deluge. The J&K government ceased to exist as a whole and faced a total breakdown in its infrastructure and working specially during the crucial first few days. There was a total lack of coordination between the civil administration, local youth volunteers, NGOs, NDRF and the Indian Army and the Indian Air Force during the initial critical phase of the disaster response operations. The **people of Kashmir valley** were stranded for nearly three to four weeks in their homes **without critical relief packages** which when air dropped were not adequate and did not cater for the critical needs of the people at that point in time.

The lack of preparedness as well as inadequate institutional mechanisms and processes including internal control and monitoring mechanisms necessary to ensure efficient and timely relief and rehabilitation on the occurrence of a disaster were self-evident in the disaster relief activities following the floods of 2014. There were **deficiencies and delays in damage and need assessments**, **diversion of relief funds and delay in reaching relief and assistance** to the affected persons/families.

A total of Rs 1,369.16 crore had been spent between 2010-11 and 2014-15 from the SDRF (CAG, 2016). An amount of Rs 122.72 crore was diverted from sanctioned works/projects towards or spent on ineligible items/works, Rs 62.88 crore remained unutilized, extra expenditure of Rs 214.46 crore was incurred on account of excess payment/ procurement at higher rate and there was wasteful and unfruitful expenditure of Rs 0.86 crore and avoidable expenditure of Rs 4.39 crore. Under the Special Plan Assistance, Rs 1,000 crore was provided for re-building damaged infrastructure in October 2014. However, Rs 4.66 crore was spent in contravention of the SPA conditions and Rs 37.58 crore was spent for purposes not related to re-building the damaged infrastructure. Overall, there was a lack of assurance that relief and assistance were provided to the actual beneficiaries in a timely and efficient manner despite availability of financial resources.

In affect the **state had NOT catered to implement the following critical aspects towards multi-agency coordination for an effective disaster response during the response as seen during the Kashmir deluge of 2014**: -

- **Implementation of the DM Act** of 2005 and the **NDMP, SDMP** in letter and spirit. The efficacy of a Disaster Management Plan depends entirely on the extent to which various elements of the Plan can be made operational or brought to the level of active implementation.

- Execution of the same through **mock exercises to draw out the criticalities and lessons learnt**, thereby bringing in the requisite amendments.

- Checking and **implementing the vested roles and responsibilities of the nominated bodies** like SDMA, SEC, EOC, DDMA, IRS etc for effective DM.

- **Command and control set up** with the requisite experience, knowledge and aptitude to execute the disaster response and relief.

- Lack of **strategic thinking** at the apex level.

- Ensuring that all the **SOPs and guidelines were updated** and that all **stakeholders** were **well versed** with the same including the media.

- **IRS** which is designed as an effective mechanism for reducing scope of chaos and confusion during disaster response phase and **is put in place to train stakeholders about their role** was not implemented on ground.

- **Lack of proper documentation** of previous disasters and **lessons learnt** from them. With this **lack of institutional memory** and the recurring nature of disasters, we are bound to repeat the same mistakes again and at the cost of the disaster struck population.

- Proper **documentation of activities for better planning, accountability and analysis** and to help new responders to immediately get a comprehensive picture of the situation and go in for immediate action.

- That all the necessary **wherewithal was stocked, available** and made functional to meet any eventuality in case of any disaster.

- That there existed **equipment for operative communication and information sharing amongst multiple agencies** for ease of decision making.

- **Periodic mutual exercises** to build **mutual trust and understanding** amongst multiple agencies.

- **Lack of training as a tool to improve coordination** amongst various stakeholders. **NDRF needs to take onus** of the same with their role of training all stakeholders at the respective locations in each state.

- **Interoperability** in communications, maps, GIS

- NDRF giving **specialist equipment, communications** cover and outreach to all incoming agencies.

- Availability and **identification of safe and accessible areas for evacuation** and relief purposes.

- Ab-initio **siting of all essential services** like communication towers, electricity power generation stations, hospitals and other essential services at disaster safe locations.

- Adequate **stocking of essential items** like diesel, petrol, transportation, food items, medicines and medical equipment.

- **Inadequate preparation for relief effort** as the same was highly fragmented and uncoordinated with organisation acting independently without plans and with no priority for providing shelters, clothing, food items or medicines.

- Not catering for the **law and order situation** and allowing anti-social elements a free run in the aftermath of the disaster[20].

- A **common technological platform for timely and uniform distribution of relief material** and to **avoid duplicity** among all relief organisations working towards relief work.

Though there were many gaps in the issues of multi-agency operations during the disaster response as noticed during the Kashmir floods of 2014, the same have now been addressed and acknowledged to quite an extent in the final

---

[20] There were numerous incidents of local youth entering empty houses in their known neighbourhood on the pretext of providing relief packages to those stranded and instead looting the house on realising that it was empty.

J&K State DM Plans as envisaged in 2017, provided they are earnestly implemented on ground. The same are as follows: -

- A **full-fledged Emergency Operations Centre is the priority**, especially considering the recent Flood. While deciding on its permanent location, it must be **immediately made operational** at any possible location, with adequate floor space and the facilities and amenities that have been indicated in the Plan. A **main EOC and a backup EOC are required** as a clear operational requirement.

- Most importantly, the Emergency Operations Centre will also be the centrepiece of the implementation of the Disaster Management Plan. The **EOC will become the nodal point for facilitating and monitoring the process of implementation, under the supervision of the State Disaster Management Authority**. It would need to register, over time, the development of various components of the State Disaster Management Plan. At any given point of time, it would provide ready information of the progress of implementation, the available infrastructure, the level of readiness in human resources and capacities and a transparent view of the remaining gaps and deficiencies.

- **District-level Emergency Operations Centres must be set up following closely on the setting up of the State-level EOC**. The threshold for escalating a disaster threat or a disaster response from the district level to the State level must be laid down in an adequate manner.

- **The Disaster Management Plan projects several infrastructural requirements, operational structures and modalities of action for a safe and disaster-resilient state**. These will not become a reality immediately.

It **requires financial, technical and human resources to be deployed**, which will inevitably take some time. It would be a grave error to assume that, with an available Plan, the state machinery is ready to respond to the next disaster. With the receipt of the Plan, the government and its various departments need to plan a structured, time-bound process of implementation and realization. The battle is in the correct interpretation, its implementation and smooth execution of the SDMP.

- The importance of a clear, unambiguous framework for disaster governance at the State and district level cannot be overemphasised. **Currently, in the state of Jammu & Kashmir, some elements of the recommended framework are in place, whereas other elements are not**. Such ambiguities may hamper emergency response, operational readiness as well as long-term planning. It is also **essential to ensure that all statutory bodies in the disaster governance framework have an adequate secretariat and offices, ear-marked funds for specific activity and an adequate site from which they function**. The State government also has various functional arrangements for disaster management, already in place, with several senior and other officers, key government offices and various departments of the government tasked with various aspects of disaster management. Their role in the new framework with State and District level disaster management authorities needs to be adequately clarified or revamped.

- Among the **key issues that need to be clarified are the strengthening of the State Disaster Management Authority with adequate secretariat, clarification of the role of the Finance Commissioner (Revenue) and**

Divisional Commissioners in line with standard governance in all other matters, and the provision of designated funds for expenditure to enhance disaster preparedness and the designation of suitable authority for undertaking such expenditure.

- No Disaster Management Plan at any level will be of value if there is not adequately trained human resources to understand, implement and when necessary upgrade the Disaster Management Plan. Currently, **there is considerable need for enhancing the capacities of State Government officials, staff and employees in all departments in general aspects of disaster management and specific aspects of their work**. It is imperative that no allocated budget for training and capacity-building in disaster management be allowed to lapse and be utilised to the fullest. These trainings must be carefully designed, have the necessary inputs from suitable experts, utilise the expertise of agencies such as the NDMA and the NDRF, and avail of knowledge from best practices throughout the country.

- The implementation of a State-level disaster management plan will not be feasible without the co-operation of various sections of different stakeholders. While Government should take the lead, especially in major or critical situations, the extent of successful implementation of Jammu and Kashmir State Disaster Management Plan, requires careful co-ordination with all stakeholders. These may include teachers, medical personnel at all levels, craftsmen, technicians and skilled workers from various specific trades, large establishments in the service or industrial sectors, members of civil society organisations and so on. There is considerable scope and urgent need to sensitise key sections among such stakeholders. **Large-scale**

simulation exercises involving all, or several stakeholders are a must for coping with disasters in the future. Awareness generation, capacity building and simulation exercises must be rapidly undertaken to enable successful implementation of the disaster management plan.

Certain aspects in the J&K SDMP of 2017, that cover the gaps as highlighted by the CAG audit of 2016 are as follows: -

- The **SDMA which had not been fully constituted during the floods of 2014 with its full-time members has now been constituted and implemented** vide SRO No 225 dated 29 May 2017 and as published and uploaded vide http://www.jksdma.org/wp-content/uploads/2017/ 08/ SRO-225-dated-29.05.2017.pdf. (JKDMA, 2017)

- Further, as against the stipulation of holding at least one meeting in a year, the SDMA had met only once in 2012 in the last six years. The **stipulation now become more stringent and has been amended to once in six months vide para 4(4) of SRO No 225 dated 29 May 2017** (Govt of J&K, 2017). The last minutes of the meeting (6th Meeting) as such of the SDMA which is available online is dated 16 Aug 2017. (JKDMA, 2017)

- The **State Advisory Committee (SAC)** responsible for making recommendations on issues relating to disaster management which had not been constituted earlier during 2014 floods **has now been constituted**. Besides, **SDMA and SEC composition has been listed out** vide Government of J&K DMRRR notification SRO 471 dated 17 Oct 2018. (JKDMA, 2017)

- The new **State Disaster Management Policy** has been approved in Oct 2017 and is under **implementation**.

- The **J&K Department of DM is now held by Mr. Khurshid Ahmad Shah, IAS (JK:2000), Commissioner /Secretary to the Government, Public Works (R&B) Department**, besides holding the charge of Administrative Secretary, PHE, Irrigation & Flood Control Department and Department of Disaster Management, Relief, Rehabilitation and Reconstruction, in addition to his own duties **vide J&K Government Order No.237-GAD of 2019, dated 20 Feb 2019**. (JKDMA, 2017) J&K Government has also **accorded sanction to constitute various committees to ensure effective flood mitigation** in Kashmir Division vide Government Order No:36-DMRRR of 2017, dated 01 Jun 2017.

- Likewise, J&K Government has ordered that **Headquarter Assistants (HQAs) with Deputy Commissioners shall now function as District Disaster Management Officers, in the District DM Authorities (DDMAs)**, till further orders vide Government Order No: 69-DMRRR of 2017, dated 30 Aug 2017. (JKDMA, 2017)

- The J&K Government has also **approved the SDMA and nine DDMAs under the centrally sponsored scheme "Strengthening of SDMA and DDMAs"** vide Government Order No:77-DMRRR of 2017, dated 14 Sep 2017. (JKDMA, 2017)

- The J&K Government has **accorded sanction to the adoption of revised SOPs for State Disaster Response Fund (SDRF)** vide Government Order No:53-DMRRR of 2018, dated 17 Sep 2018 and **specialised training of trainers** for most personnel. (JKDMA, 2017)

- Besides, the **Administrative Department of J&K Government has released funds under sub-head 1076-State Disaster Response Fund to the extent of Rs. 110 crores through BEAMS, for further allocation to subordinate offices / Deputy Commissioners at the rate of Rs 5 crore as per decision taken by the SEC** dated 19 Jul 2018. (JKDMA, 2017)

With the above in mind the research will suggest the recommendations in the next chapter.

CHAPTER 4

RECOMMENDATIONS

RECOMMENDATIONS

During the course of this research there were certain **gaps that were identified in the aspects of multi-agency coordination during disaster management in the Indian context which were brought out towards the end of Chapter 2** and other **deficiencies during Kashmir floods of 2014**, in regards to the lack of institutional arrangements, policies and plan formulation as well as implementation of pre and post disaster response measures that were **brought out in the findings at Chapter 3**.

What **emerges from the analysis and findings of this research and case study is that there was a lack of coordination on part of the J&K State Government and the agencies involved, in earnestly implementing what was expected of them** vide the National DM Act 2005. The State Government failed to even prepare for any eventuality leave alone mitigate the impact of a huge disaster. The **onus also lies with the Centre and with NDMA besides the State, as they needed to have had checks and balances in place to ensure that the Plans and Policies published by the Centre from time to time had been implemented on ground, both in letter and spirit**. They needed to ensure that all the States establish and operationalize the institutional frameworks and disaster related policies envisaged in the Disaster Management Act 2005, for efficient and effective management of pre-and post-disaster activities.

It was evident from both the Disaster Management in the Indian context and the State response to the floods in Kashmir of 2014 that there was a lack of preparedness as well as inadequate institutional mechanisms for internal control and monitoring, which are so essential to ensure efficient and timely multi-agency coordinated response, on occurrence of any disaster. With that backdrop certain recommendations for

remedial measures are hereby made to address the multi-agency issues during disaster response operations for floods in India.

Recommendations

- **Implementation of DM Act and NDMP**. The first and foremost is the **implementation of the DM Act 2005 and the National DM Plan-2019 in its entirety and in the right earnest**. Had the State of J&K put in place the policies and guidelines as enunciated by the central government earlier, the handling of the 2014 Kashmir flood and its aftermath would have been hugely different. Closely related to the lack of warning and preparation at the state level was another narrative about the **widespread collapse of all branches of the administration during the first two weeks of the Kashmir floods**. All the **Committees that had been planned to function in such a situation were non-existent**. The civil administration was caught totally unaware and unprepared, even though there were adequate inputs and warnings of the rising levels of water in the Jhelum River. **The States and MoH at the Centre need to ensure that the requisite plans and policies have been instituted and implemented on ground, for operationalising the institutional structures and disaster related policies** envisaged in the Disaster Management Act, 2005 and for efficient and effective management of pre-and post-disaster activities. The necessary infrastructure like **EOCs, IRSs need to be made functional at safe zones with all stakeholders practiced on ground** by way of Mock Exercises. **What needs to be verified by third parties, across all levels, is the correct implementation and execution of the NDMP / SDMP,** to **check the synergy achieved amongst the designated institutions and agencies for**

discharging their vested roles and responsibilities, as have now been enunciated in NDMP 2019 and respective SDMP.

- **Command & Control Structure**.   All agencies and their members need to have a **clear understanding of the command and control structure at all levels** of the disaster response chain **to bring further clarity of their respective role, responsibility and accountability.** The state authorities would need to **ensure that those in command and control have the requisite knowledge, experience and abilities** to undertake these roles. **Strategic thinking or the lack of it** at the appropriate levels can make the **difference between success or failure** of operations. Clarity of aim and objective can only be achieved **by having a centralised command and control set up which lays down the common goals at the strategic level**. A common strategic goal may still be interpreted into conflicting actions at the operational and tactical levels, requiring the need for a single point of command across all agencies. **Command and control set up is of vital importance and the same should be crystal clear to all to build trust amongst all agencies and for ease of awareness, interoperability and real-time sharing of critical information**.

- **Leadership Issues**.   The Indian disaster response mechanism **needs to lay more emphasis on the leadership aspect in the command and control chain including at the staff level**. Lack of leadership could lead to a decision paralysis and result in loss of lives and property due to uncoordinated and delayed action on ground.

- **Delegation of Responsibility and Accountability**.   The leader in the form of the officer / **appointment mandated to execute a certain critical role and task on occurrence of a disaster, cannot be allowed to abdicate his**

responsibilities and accountability to another, that too at that very critical moment of a disaster having struck. The officers have been posted at that appointment keeping in mind their service profile, knowledge, aptitude, training and experience and they have had the time to hone their skills further with on the job training. **Delegating their responsibilities and accountability to someone else who may lack the same qualifications and that too at a critical moment of crisis is not recommended**.

- **Financial Allocation of Funds**.   The **financial allocations** given out by the Centre to the States through the Finance Commission is **recommended** to be **based on consideration of the States vulnerabilities and risk profile** and not on an equal yardstick for all. Besides, all states should **maintain the yearly data on disasters and the expenditures on relief operation and share the same with NDMA** which should act as a repository of all data related to DM.

- **Repository of Knowledge**. **Maintaining a repository of lessons learnt / case studies / after action reports post disasters / National status and statistics of implementation of National DM Plans etc don't find a mention either in NIDM website or that of NDMA**. It is recommended that one central organisation, preferably NIDM being the nodal agency for research, should maintain this repository which could be of immense use for all DM based research. Likewise, the **current status of implementation of the DM Plans across the states needs to be documented and updated with NDMA, and only then can it be reviewed**.

- **Well-rehearsed response to SOPs**. All **incumbents and agencies should be well versed with the relevant Standard Operating Procedures and be able to employ them** such that their response to any emergency is smooth and well-

coordinated. Multi-agency operations may well consist of groups and individuals who have never worked together before, are unfamiliar with each other's procedures and do not share a common language or SOPs for dealing with a disaster. **Effective and efficient coordination amongst such agencies can best be addressed by regularly practicing with one another, to get to learn and rehearse SOPs / drills and best practices**.

- **Advance Warning**. There was a total lack of advance warning or timely evacuation which had a clear impact on the extent of human suffering and economic loss which resulted from the Kashmir floods of 2014. Had the state correctly spent the allotted money from State DM Fund for an Advance Warning system in time and had the government machinery reacted to evacuate the population in time the history of deluge in J&K would have been different. The **states ought to spend the allotted amount for the purpose they are meant for and install the requisite early warning systems**.

- **Ab-initio Equipping of Incident Command Posts**.   It's vital that the **EOCs / ICPs along with its wherewithal like maps, GIS, communication equipment, internet and satellite systems are functional, checked and have a backup; all equipping of ICP should be done ab-initio,** to allow all stakeholders to achieve synergy and carry out timely coordination, **rather than to be set up after occurrence of a disaster** and as envisaged in the guidelines, in turn losing crucial time towards disaster response.

- **Communications. Credibility in information sharing with multiple agencies including public is crucial for a quick and efficient disaster response**. Communication is not guaranteed and requires organisational structures and technologies which support the sharing of information.

Commonality and redundancy in communication equipment with all the agencies for seamless passage of real time info is the most vital factor in disaster response. The same could be achieved by detaching a representative from NDRF, with the requisite means of communication and wherewithal, to all the incoming agencies. **Real time updates and passage of info is required with optimum use of technology** as the photos of 100 soldiers from Hyderabad waiting for over 10 hours for instructions from the Tamil Nadu government as Chennai sank, showed the civil administration in very poor light. There needs to be **central sharing of vital inputs to all agencies involved in disaster response, for commonality of information, speeding up operations** and for **keeping the public at large informed of the progress of operations.**

- **Joint Training for Multi-Agency Synergy.** **Regular mutual aid schemes with all concerned agencies needs to be institutionalised** as it will help them cooperate in a spirit of mutual trust and understanding and achieve greater synergy. Different perceptions on the nature of the problem and the role of each agency in disaster response can lead to misunderstanding of intentions and a lack of trust amongst agencies. This **may primarily be due to lack of experience of working together**, which means an **unfamiliarity with other agencies' working procedures, knowledge and requirements.** This lack of trust may adversely impact multi-agency cooperation during the critical stage of disaster response operations.

- **Interoperability in Equipment**. There needs to be **interoperability in means of communication, maps, GIS, language amongst all stakeholders and agencies for seamless passage of situational awareness** and the

subsequent coordinated response. All agencies like Army, NDRF, NGOs, international aid organisations have their integral communication equipment networked for their own technological requirements, which are not necessarily inter operable. Hence, it's **vital that NDRF caters for additional communication equipment with trained manpower and loans them to all incoming aid agencies** for maintaining commonality of equipment and compatible technology to achieve functional efficiency. Likewise, **Maps and GIS systems need to have a commonality amongst multiple agencies** to avoid duplication and ensuring speed of actions. **NDRF teams with all its wherewithal (Special equipment, Communication equipment, maps, GIS etc) need to be dovetailed with multiple agencies operating on ground** to ensure seamless passage of vertical and horizontal communication and assistance. This would ensure commonality of equipment for synergised and coordinated operations.

- **Technologies**.   It's a **must to develop effective training exercises for building trust and working SOPs designed into the process with the requisite technologies intended to support multi-agency operations**. Provision of relief material / evacuation of casualties from the required location, in the shortest possible time, is only possible if requisite technology is available i.e. GIS / riding on social media etc, to **build a common picture both horizontally and vertically for multi-agencies simultaneously**.

- **Coordination Aspects**.   During Chennai floods the political executive washed its hands off the matter the minute the forces landed. It became the Army's job, in isolation, to ensure that relief and rescue operations went smoothly. The **state must ensure hand holding for all external agencies for**

smooth coordination and effective disaster response. The states must ensure that personnel of the State Disaster Response Force (SDRF) undergo the mandatory trainings in a time bound manner and that they are thereafter **used solely for the intended purpose** besides **aiding and synergising efforts with all incoming agencies**.

- **Empowering the Local Volunteers.** **Empower the civil defence staff and local volunteers** who are invariably the first responders with **requisite training during peace time and some assured incentives during emergencies**. It is evident that local volunteers saved maximum of those affected during Kashmir floods and **are in most cases the first responders** often carrying out rescue within the first 12 to 24 hours, even before the emergency agencies get to the spot. The **local government in sync with the local population have the most important role to play in the disaster preparedness, disaster management as well as in meeting the post-disaster situations as only they have the requisite local knowledge about the available resources, facilities and support systems, and the alternative options in the limited time frame which are crucial factors** in disaster management.

- **Logistical Issues**. As the gravity of the Kashmir floods became known to the outside world, relief material, of all sorts, started arriving in mammoth proportions at the Srinagar Airport. There being no civil administration to manage this large quantity of relief material, most of it rotted in the rains and became useless, especially food items and Army units had to be deployed to take control of this task also. **The civil administration needs to have their 'Plan B' worked out to cater for all such contingencies, including for**

logistical issues. **Safe and accessible areas for erecting / existing shelters and medical facilities need to be earmarked beforehand for ease of evacuating casualties** during disasters. **Requisite reserves of fuel, spares, equipment and batteries for emergency services need to be stocked ab-initio or identified for procurement from closest source for timely employment** during road closure periods. During the Kashmir floods the power grid failed due to shortage of fuel and so did the crucial means of communication as batteries couldn't be charged.

- **Safe Locations for Essential Services. Hospitals, cell phone towers, communication towers and hubs, EOC, relief camps, helipads, storage facilities etc need to be located at safe zones** to negate being disaster struck in the initial stages itself. During Kashmir floods most of the hospitals, storage facilities, cell phone towers were inundated during initial days only.

- **Transportation Aspects**.   People who were rescued by the IAF and brought to a safe area, had no means of transport to go to other places, nor was there any central places where the civil administration had arranged for temporary or tented accommodation, with medical facilities. **States need to cater for emergency utilities / safe zones with adequate amenities for timely evacuation purposes**.

- **Relief Packages**.   While initial overall needs may be obvious, the needs of individual marooned families often vary more and more with time. The beneficiary needs and capacities grow in their range and complexity with time, making the typical "one size fits all" solution of standard kits or packs less appropriate. **Technology needs to be built into the procedures of relief**

distribution to ensure timely procurement of resources from the closest source and equal distribution of relief without duplication of effort.

- **Financial Issues**. The States **need to strengthen their mechanisms for pre-release scrutiny and post-release monitoring of SDRF funds** to ensure that funds are released and utilized only for the purpose of providing relief to persons affected by disasters and are not diverted for other purposes. Also strengthen **mechanisms for monitoring movement and distribution of financial assistance and relief materials** to ensure that they reach the intended duly identified beneficiaries. **Procedures should also be in place for accountability of administrative officials for any unjustified diversions or avoidable losses**. It needs to be insured that incoming multi agencies are not inconvenienced by lack of institutional help in terms of financial matters and that the same is provided and catered for by the local administration.

This research indicate that multi-agency emergency response may not be as easy or straightforward as the NDMP envisages; whilst the recommendations are entirely apt to the domain, the research found that there were a number of organisational and technological issues pertaining to multi-agency operations in disaster response that need to be addressed.

Whilst the response to the floods in Kashmir in its immediate aftermath were inadequate keeping the enormity of the deluge, several adaptations to standard organisational structures, processes and procedures were necessary. Not setting up of SDMA / EOC / IRS, not utilising the State DM Funds for the right intended purpose, failure to communicate warnings and disseminating evacuation plans, lack of trust and coordination between agencies, slow mobilization of response which was overwhelmed by the scale of the emergency, failure to share info between agencies, poorly defined

chains of command, interoperability failures and the indisposition of all branches of the civil administration during Kashmir floods were major issues that could have saved precious lives and loss of property. The fact that these issues recur so often imply that there are inherent challenges associated with the coordination of multiagency emergency responses.

CONCLUSION

CONCLUSION

Disaster losses in India have increased over the years and so have the reconstruction and rehabilitation of displaced population. The recovery cost of Kerala disaster (2018 floods), for instance, has been estimated at Rs 31,000 crores, whereas of Odisha (2019 cyclone Fani) is Rs 29,000 crores. **Annually, for the last 20 years, India on an average, has suffered economic losses of $ 10 billion to disasters**. Now, for the first time, based on the 15th Finance Commission recommendation, the **government has allocated huge funds for Disaster Risk Reduction (DRR) that aims at building resilient infrastructure and enhance mitigation efforts**. (Thakur, 2020)

The government has for the first time instituted a National Disaster Risk Management Fund (NDRMF) which would encompass response, mitigation, recovery and capacity building, all together (Thakur, 2020). In yet to be notified rules for disaster mitigation, it will be difficult for states to demand anything in terms of relief and rehabilitation in a post-disaster scenario. The Centre has proposed a mandatory joint study, post-disaster needs assessment (PDNA), **in case of disasters of rare severity** for allocation to states for reconstruction and rehabilitation. This will also help India **build an authentic database** for disaster losses. The PDNA will cover economic losses and estimation of funds needed for recovery and reconstruction of different sectors, including housing, infrastructure and livelihood. The Home Ministry is likely to issue detailed guidelines by July 2020 for recovery and reconstruction assistance.

Similarly, the **states will have State Disaster Risk Management Fund (SDRMF)**. In the next financial year starting April 1, 2020, the SDRMF have an allocation of Rs 28,983 crores as per the recommendation of the finance panel. The Centre has contributed Rs 22,184 crores towards its share, which is 114% more than

the Rs 10,344 crores provided for SDRF (State Disaster Risk Fund) in the previous year (Thakur, 2020).

As was **evident from this study that Jammu & Kashmir besides many other states in India have borne the wrath of natural disasters over years, not only due to the intensity and magnitude of the disasters itself but also due to the complex and dynamic issues attached with functioning of multi-agency disaster response mechanisms.** Major disaster response mechanism requires collaboration among multiple agencies which are geographically widely dispersed to enable a rapid and effective response to an unexpected event.

With the above in consideration, the **main objectives of the research were addressed** by studying the **existing disaster response mechanism during floods in the Indian context and procedures** laid down at the national and state level with special emphasis on multi-agency coordination issues. Secondly, by undertaking a **case study of the Kashmir floods of 2014** to analyse the mechanisms established for disaster response and related multi-agency issues faced during and post the said disaster. And lastly by giving **recommendations towards taking remedial measures** on the subject matter.

The **main insights into the issues of multi-agency operations in disaster response are multifarious and can best be addressed by development and sincere implementation of a well-tailored plan and effective training,** which are of paramount importance. A disaster response plan should **outline roles and responsibilities and prescribe a command structure as decentralized as necessary** and as centralized as possible. A good disaster **response strategy should also include what-if thinking**. Disaster response **plans should allow for contingencies** like break

down of communication infrastructure, absence of key command and control setup, inept and untrained personnel at key appointments etc. **Training provides skills, informs about roles and responsibilities, builds informal networks and serves as a stress test** for disaster response plans. The legislation of a workable plan and its implementation defining **the vital aspects of command & control, critical technology for closing the gaps in real time information sharing, compatible means of communication are of vital importance for successful disaster response**. **Mock exercises are critical for providing a platform to develop advanced work-related skills and decision-making capacities** in turn creating opportunities to learn the best practices from other organizations and agencies. Mock exercises provide the chance to **expose people to the disaster response plan, the roles of the participating agencies, duties and obligations, to information requirements and command structures of other agencies and for setting the ground for a successful plan enactment**. It also fosters acquaintance between key personnel of other inter-agencies while training together. Moreover, exercises also allow evaluation and improvement / revision of the disaster response plans.

There is also a strong need for **institutionalising the documenting of all 'Lessons Learnt' and 'After Action Reports' post disasters and mock exercises**. The same should be **available in the open domain as a repository of knowledge and to inculcate and imbibe the best practices** in the relevant scenarios. Presently, only few random reports are available with the NDMA / SDMAs and with NIDM as was observed on their web sites. The **responsibility for compiling the same chronologically could be given to NDMA /NIDM in their mandate**, to draw from the deep experience of many disaster struck States. These institutions should then **compile the best practices and disseminate the same** to States for including and

implementing them in their plans and guidelines. It is also important that **NDMA maintains data on implementation of its NDMP by the states and then institutes measures to inspect the same** at the State level **while integrating agencies of the neighbouring State to help inspect measures in place, which would add up to the synergy and shared working knowledge amongst them**.

In general, it seems **appropriate to think of multi-agency disaster response management in terms of contingencies and backup plans** as to what happens if one part of a pre-planned disaster response system fails, what happens if an important situation develops differently than what was expected. **Planning and jointly rehearsing for all types of situations in advance would substantially improve the resilience of a multi-agency disaster response operation**. An unresolved problem is the disruptive role of un-skilled personnel at key appointments. The **practical solution is to train key staff appointments holding key role in the DM chain and others in connected agencies to train together at regular intervals in order to establish a strong command structure and not allow any delegation of responsibilities and accountability thereafter**. Decision-makers especially in operational disaster response activities require extensive expertise and should thus be well-trained professionals from the field and not, for example, politicians or other non-professionals, as is mainly the case in India.

After a comprehensive case study, it is evident that Jammu & Kashmir and other states too had faced losses due to major natural disasters, but which were greatly accentuated by human inactions. The Centre and State authorities will have to do all they can to ensure remedial measures to guard against such recurrences. **Involving, motivating and training the local communities does play a pivotal role in not only reducing the disaster risk but also speeding up the disaster response**

and relief. With local ground knowledge, the hazard context, and the livelihoods options available, local communities must be intrinsically involved in disaster management plans from the very beginning and supported by projects to develop their capacity building. As people and communities are almost the first respondents in any natural disaster, comprehensive community-based disaster risk reduction plans need to be prepared at the district level on priority and communities given training on how to handle such emergencies. Several Indian states already have such trained community response teams. **The IRS has presently only been implemented in seven Indian states / UTs, the balance must be encouraged to execute the same at the earliest to minimise any future losses of life and property**. The disaster response plans are in place in most of the states however, its earnest implementation needs to be ensured by the centre and the states.

BIBLIOGRAPHY

ADGPI. (2014). *Facebook.* Retrieved from https://ar-ar.facebook.com/notes/adgpi-indian-army/armys-actions-were-spontaneous-and-not-with-selfish-thoughts-lt-gen-ds-hooda-nor/284224871774149.

Albores.P, &. B. (n.d.). *A multi agency perspective to disaster preparedness.*

Awasthi Suresh Babu, D. B. (2019). *Impact of Social Media in Dissemination of Information during a Disaster - A case study on Kerala Floods 2018.*

Bharisa N, L. J. (2010). *Challenges and obstacles in sharing and coordinating information during multi agenc disaster response.*

Brewster, C., Albores, P., & Rodriguez-Espindola, O. (2015). *A multi-agency perspective to disaster preparedness.*

CAG. (2016). *Report No. 4 of 2016 - Performance Audit of Disaster Management in the state of J&K, GoI.*

Dagur, C. O. (2008). *Armed Forces in Disaster Management- A Perspective on Functional Aspects of Role, Training and Equipment. .*

DMAct. (2005). *NDMA.* Retrieved from https://ndma.gov.in/images/ndma-pdf/DM_act2005.pdf.

Elisabeth, F. (2011). *Army Technology, 'Disaster Response; The Role of a Humanitarian Army'.* Retrieved from http://www.armytechnology.com/features/feature125223/ Land Warfare Studies (CLAWS), New Delhi. www.claws.in.

EurAsiaWatch. (2014). *Kashmir Floods: Rapid Assessment Peoples Report 1.* Retrieved from https://www.scribd.com/doc/241324957/Kashmir-Floods-Rapid-Assessment-Peoples-Report-1.

Gautam, P. (2013, Jul 5). *Role of the Indian Military in Disasters.* Retrieved from https://idsa.in/idsacomments/RoleoftheIndianMilitaryinDisasters_pkgautam_050713.

Ghosh, D. (2014, Sep 11). *NDTV.* Retrieved from https://www.ndtv.com/india-news/jammu-and-kashmir-floods-i-had-no-government-omar-abdullah-tells-ndtv-662622.

Govt of J&K, D. R. (2017, May 29). *STO 225.* Retrieved from http://www.jksdma.org/wp-content/uploads/2017/08/SRO-225-dated-29.05.2017.pdf.

Grimshaw, A. (1971). *RUSSEL R. DYNES. Organized Behavior in Disaster. Pp. vii, 235. Lexington, Mass.: D. C. Heath, 1970. $12.50. The ANNALS of the American Academy of Political and Social Science, 396(1), 192–193. https://doi.org/10.1177/000271627139600178.*

Gupta, K. (2017). *southasiadisasters.net, Long Term Disaster Recovery in Kashmir. Retrieved from https://www.preventionweb.net/files/56911_163 snetkashmirlongterm disasterrecov.pdf.*

Hall, R. A. (2008). *Civil-Military Cooperation in International Disaster Response: The Japanese Self- Defense Forces' Deployment in Aceh, Indonesia. Korean Journal of Defence Analysis, 20(4): 383-400.*

J&K State Disaster Management Authority: State DM Plan. (2017). Retrieved from http://www.jksdma.org/wp-content/uploads/2017/08/Plan.pdf.

JKDMA. (2017, May 29). Retrieved from http://www.jksdma.org/orders-and-circulars.

John, C. (2014). *Responding to Flood Disasters: Learning from previous relief and recovery operations. Retrieved from https://www.researchgate.net/puResponding_to_Flood_Disasters_Learning_from_previous_relief_and_recovery_operations.*

Krishna, A. a. (2017). *Armed Forces in Disaster Management in India: Need for Improving Civil – Military Coordination. International Journal of Innovative Research in Science, Engineering and Technology, 6(7): 13238-13243. Retrieved from http://www.ijirset.com/upload/2017/july/.*

Kumar, G., & Dimri, B. (2018). *Armed Forces and Disaster Management in India. Economic Affairs, 63(3), 753-760.*

Kumar, V. (2009). *Disaster Management in Himachal Pradesh: a Study of Mandi District, (Ph.D thesis), Department of Public Administration, Himachal Pradesh University, Shimla.*

Lee, J., Bharosa, N., Yang, J., Janseen, M., & Rao, H. (2011). *Group value and intention to use—A study of multi-agency disaster management information systems for public safety. Decision Support Systems, 50(2), 404-414.*

Mahalingam, V. (2013). *'Rescue Operations in Uttarakhand: Constitution Blocking Effective Relief Operations', The Times of India, (Jun 25, 2013), retrieved from, http://blogs.timesofindia.indiatimes.com/In-search-of-propriety/rescue-operations-in-uttarakhand-constitution-blocki.*

McMaster, R., Baber, & Christopher. (2012). *'Multi-agency operations: Cooperation during flooding.', Applied Ergonomics, vol. 43, pp. 38-47. https://doi.org/10.1016/j.apergo.2011.03.006.*

NDMA. (n.d.). Retrieved Feb 2020, from https://ndma.gov.in/images/guidelines/flood.pdf.

NDMP. (2019). *National Disaster Management Plan.* Retrieved from https://ndma.gov.in/images/policyplan/dmplan/ndmp-2019.pdf.

NDRF. (n.d.). Retrieved from National Disaster Response Force (NDRF), Ministry of Home Affairs, GoI, http://www.ndrf.gov.in/force-head-quarters.

Nedunchezhiyan, V., & R, A. (2019). Challenges in Disaster Mitigation Training for Natural Disasters, 'RESEARCH JOURNEY' International Multidisciplinary E- Research Journal.

NIDM. (n.d.). Retrieved from National Institute of Disaster Management (NIDM), Ministry of Home Affairs, GoI. https://nidm.gov.in/.

Nolte, I., Martin, E., & Boenigk, S. (2012). *Cross-sectoral coordination of disaster relief. Public Management Review, 14(6), 707-730.*

Norbert, S. (2015). *Long Paper – Collaboration and Network Theory Proceedings of the ISCRAM 2015 Conference – Kristiansand. .* Retrieved from https://pdfs.semanticscholar.org/0c38/7aaa0e78feca17ce5bb9028c4e308fb14c8d.pdf.

Parida, Y., & Goel, P. A. (2020, Jan 30). *The Hindu Business Line.* Retrieved from https://www.thehindubusinessline.com/profile/author/Yashobanta-Parida-Prarthna-Agarwal-Goel-132276/.

PK, G. (2013). *"Role of Indian Military in Disasters", July 5, 2013.* Retrieved from www.idsa.in/idsacomments/RoleoftheIndianMilitaryinDisasters_pkgautam_050713.

Power, N. (2018). *Extreme teams: Toward a greater understanding of multiagency teamwork during major emergencies and disasters. American Psychologist, 73(4), 478.*

Raj, A. (2008). *Armed forces in disaster response: role reappraisal. Centre Land Warf Stud J (Summer 2008), 163-182.*

Salmon, P., Stanton, N., Jenkins, D., & Walker, G. (2011). *"Coordination during multi-agency emergency response: issues and solutions", Disaster Prevention and Management, Vol. 20 No. 2, pp. 140-158. .* Retrieved from https://doi.org/10.1108/09653561111126085.

Shaluf, I. (2007). *An Overview on Disasters. Disaster Prevention and Management. 16.687-703.*

Smith, D., & D.M. (2011). *A study of command and control of multi-agency disaster response operations. University of Phoenix. 2011: 186 pages; 3467495.* Retrieved from https://pqdtopen.proquest.com/doc/884183957.html?FMT=AI.

Sphere, I. (2014). *Secondary Data Analysis: Jammu and Kashmir Floods. Relief Web.* Retrieved from https://reliefweb.int/report/india/secondary-data-analysis-jammu-and-kashmir-floods.

Thakur, P. (2020, Feb 20). *Times News Network. India Dedicates $2Billion a year to DRR.* Retrieved from https://timesofindia.indiatimes.com/india/india-dedicates-2-billion-a-year-to drr / articleshow / 74216309. Cms.

UNDP. (n.d.). Retrieved from https://www.in.undp.org/content/india/en/home/blog/equipping-states-for-disaster.html.

United Nations Office for Disaster Risk Reduction. (n.d.). Retrieved from https://www.undrr.org/terminology/disaster.

Venkatesh, S. (2018, Aug 23). *Kerala floods reveal the horror that is climate change.* Retrieved from https://www.downtoearth.org.in/news/climate-change/kerala-floods-reveal-the-horror-that-is-climate-change-61435.

Venugopal, R., & Yasir, S. (2017). *The politics of natural disasters in protracted conflict: the 2014 flood in Kashmir, Oxford Development Studies, 45:4, 424-442, DOI: 10.1080/13600818.2016.1276160.* Retrieved from https://www.tandfonline.com/action/showCitFormats?doi=10.1080%2F13600818.2 01.