पेयजल एवं स्वच्छता विभाग
जल शक्ति मंत्रालय
भारत सरकार
DEPARTMENT OF DRINKING WATER AND SANITATION
MINISTRY OF JAL SHAKTI
GOVERNMENT OF INDIA

सत्यमेव जयते

स्वच्छ भारत
एक कदम स्वच्छता की ओर

Har Ghar Jal
Jal Jeevan Mission

Disaster Management Plan

of Department of Drinking Water and Sanitation

Disaster Management Plan

of Department of Drinking Water and Sanitation

सत्यमेव जयते

Government of India
Ministry of Jal Shakti
Department of Drinking Water & Sanitation

New Delhi
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विनी महाजन
VINI MAHAJAN

सत्यमेव जयते

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भारत सरकार
जल शक्ति मंत्रालय
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Foreword

The importance of having a disaster management plan for the water, sanitation and hygiene (WASH) sector in India cannot be overstated. Given its geographical location, size and diversity, India is prone to a wide range of natural disasters including floods, droughts, cyclones, earthquakes, droughts, epidemics and pandemics – each of which can have a devastating impact on the availability of basic services like clean drinking water and access to sanitation facilities. If not responded to swiftly and in a planned manner, these can lead to outbreak of epidemics of waterborne diseases - a further detrimental impact on public health, over and above the direct impacts of the disaster itself.

A well-planned and executed disaster management plan for the WASH sector was, therefore, a must for India. This Disaster Management Plan (DMP) for the Department of Drinking Water and Sanitation is a framework to ensure uninterrupted provision of safe WASH services during and after disasters. The DMP aims to involve all stakeholders and is set in the context of the national flagship programs – the Jal Jeevan Mission (JJM) and the Swachh Bharat Mission Grameen (SBM-G).

The objectives of this DMP include the provision of immediate WASH response, building resilience of WASH systems in rural India, and creation of a strong enabling environment for climate and disaster-resilient WASH services and infrastructure. The scope of this document includes the various types of disasters common in India, their impact on WASH, institutional mechanisms, minimum standards, and funding mechanisms for WASH across the Disaster Management cycle, i.e., disaster preparedness, disaster response, recovery and reconstruction from disasters, and disaster mitigation.

The Department of Drinking Water and Sanitation, Ministry of Jal Shakti, is grateful for the support and collaboration provided by the National Disaster Management Authority and UNICEF India in the preparation of this Disaster Management Plan. I look forward to its wide dissemination across the country and capacity building of WASH personnel across the national, state, district and gram panchayat level in the key tenets of this DMP.

(Vini Mahajan)

विकास शील
VIKAS SHEEL

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Ministry of Jal Shakti
Department of Drinking Water and Sanitation
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Preface

Climate change is increasing the frequency and exacerbating the impacts of natural disasters all over the world. Aside from the unprecedented risk to life and property that this poses, it also puts a strain on WASH (Water, Sanitation, and Hygiene) infrastructure and services in all disaster-affected communities.

The WASH sector in India has two flagship programs led by the Department of Drinking Water and Sanitation, Ministry of Jal Shakti. The Jal Jeevan Mission aims to provide functional household tap connections so that a minimum of 15 litre per capita per day of drinking water reaches each and every rural Indian household by the year 2024. The Swachh Bharat Mission Grameen is in its second phase which aims to focus on solid and liquid waste management and to sustain the positive outcomes of Phase 1 under which all Indian villages declared themselves open defecation free.

However, disasters-both natural and human-induced-pose a threat to the progress made under these programmes, leaving rural communities without adequate access to clean drinking water and safe sanitation facilities. The situation is even more dire for those who are already marginalized and vulnerable, such as women, children, the elderly, people with disabilities and other backward communities who are disproportionately affected by the lack of access to WASH services during and after natural disasters.

Therefore, there was an urgent need for India to develop a comprehensive WASH Disaster Management Plan (DMP) that integrates disaster risk reduction, response, recovery, reconstruction, preparedness, and mitigation.

This DMP is a comprehensive document that includes measures for strengthening the resilience of WASH services, rapid restoration of WASH services after a disaster, rehabilitation of damaged WASH infrastructure, upgrading of services to make them more resilient to future disasters through mitigation measures – through community-centric approaches including behavioural change communication (IEC) and capacity building of communities.

The DMP focuses on needs and risk assessments of the community before, during, and after disasters to gauge the level of response and preparedness needed. It also defines minimum standards of WASH service delivery during and after a disaster, and lays down guidelines on inclusiveness keeping in mind the needs of the most vulnerable sections of society.

This DMP outlines the detailed steps and activities needed at all stages of the Disaster Management Cycle:

1. Disaster preparedness, to ensure that the WASH sector is ready to respond to disasters and minimize their impact on the population. This includes identifying potential risks and vulnerabilities, deploying early warning systems in place, and developing strategies to prepare for disaster.
2. Disaster response, which outlines the actions that need to be taken immediately following a disaster. This includes providing emergency water supplies and sanitation facilities, and immediate repair and reconstruction of damaged critical infrastructure.

Contd..2..

3. Post -disaster recovery and reconstruction, which focuses on rebuilding and restoring the WASH sector following a disaster. This includes the repair and reconstruction of demand infrastructure, as well as for the restoration of water and sanitation services with a focus on build back better (BBB).

4. Disaster mitigation, which focuses on reducing the impact of disasters on WASH infrastructure and services. This includes measures to reduce the vulnerability of the WASH infrastructure by using disaster-resilient technologies.

The Department of Drinking Water and Sanitation is thankful to the National Disaster Management Authority (NDMA) for the guidance provided by them over the course of the development of the DMP. We are also grateful to UNICEF India for the support provided by them in drafting and refining the DMP.

We look forward to working on the dissemination and use of this DMP so as to strengthen the disaster-resilience of WASH systems across the country, in order to sustain the gains made by the Jal Jeevan and Swachh Bharat Missions.

(Vikas Sheel)

Table of Contents

Table of Contents

List of Abbreviations

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AE	Assistant Engineer
BDO	Block Development Officer
CBO	Community Based Organization
CCTV	Closed Circuit Television
CGWB	Central Ground Water Board
CoR	Commissioner of Relief
CSIR	Council of Scientific and Industrial Research
CSO	Civil Society Organization
CWC	Central Water Commission
CWPP	Community Water Purification Plant
DC	District Collector
DDMA	District Disaster Management Authority
DM	Disaster Management
DMA	District Metering Area
DREF	Disaster Relief Emergency Fund
DWSM	District Water and Sanitation Mission
EE	Executive Engineer
GIS	Geographical Information System
GP	Gram Panchayat
HFL	High Flood Level
HGM	HydroGeoMorphological map
HRVA	Hazard Risk Vulnerability Assessment
IEC	Information, Education, and Communication
IMD	Indian Meteorological Department
IoT	Internet of Things
MHA	Ministry of Home Affairs
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoST	Ministry of Science and Technology
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NEC	National Executive Committee
NGO	Non-Government Organizations
NIC	National Informatics Centre
NRSC	National Remote Sensing Centre
OM	Office Memorandum
PHED	Public Health and Engineering Department
PPE	Personal Protective Equipment
PRI	Panchayati Raj Institution
PWD	Public Works Department
SDMA	State Disaster Management Authority
SDRF	State Disaster Response Force
SE	Superintending Engineer
SEC	State Executive Committee
SOP	Statement of Purpose/ Standard Operating Procedure
SS tank	Summer Storage tank
UN	United Nations
UT	Union Territory
VWSC	Village Water and Sanitation Committee
WASH	Water, Sanitation and Hygiene
WRD	Water Resource Department
WTP	Water Treatment Plant
ZP	Zila Parishad

Executive Summary

Executive Summary

The Disaster Management Plan (DMP) for the Department of Drinking Water and Sanitation has been prepared on the recommendation of the National Disaster Management Authority (NDMA). This document will provide a framework and guidelines for ensuring safety of critical WASH infrastructure, and uninterrupted provision of services at all stages of a disaster. This plan/ guideline should be useful at various levels in government departments, NGOs, and for the community to minimize loss and disruption of WASH (Water, Sanitation and Hygiene) assets[1] and services. It aims to do this by involving all stakeholders at the national/ state/ district/ village level.

Context, Objective and Scope of this DMP

The DMP is set in the context of the national flagship programmes in the WASH sector, including the Jal Jeevan Mission and the Swachh Bharat Mission.

The Objectives of the DMP are:

- To provide immediate WASH response to disasters as per agreed minimum emergency standards
- To build longer term resilience of WASH assets and services to reduce their vulnerability to disasters.
- To create a strong enabling environment and a funding and coordination mechanism to achieve these goals.
- To do the above across the DM cycle – preparedness, response, recovery and reconstruction, mitigation.

The scope of this document includes:

1. Types of disasters to which WASH assets and services are vulnerable
2. Impact of various disasters on WASH infrastructure and services
3. The DM cycle and a detailed (but not exhaustive) list of activities that could be undertaken across all the stages of it to build a disaster-resilient WASH infrastructure.
4. An institutional mechanism at the National, State/UT, District, Block, Panchayat/ Village level including NGOs and CSOs to build capacities for disaster preparedness, response, recovery and reconstruction, mitigation
5. Minimum standards for WASH service delivery during and after disasters
6. Financial mechanism to fund the integration of disaster-resilience in WASH assets and services

Prime Minister's Ten Point Agenda on Disaster Risk Reduction

The Prime Minister listed a 10-point Agenda on Disaster Risk Reduction during his inaugural speech at the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) in 2016.

The all-inclusive agenda presents a holistic approach to disaster risk management and addresses a whole range of issues, from community preparedness to use of technology and international cooperation. The Prime Minister's 10-point agenda on DRR, and its implications for the WASH sector are covered in this document.

Impact of disasters on WASH

Disasters – both natural as well as human-induced – directly and indirectly affect continuity and quality of WASH services and access for the community. This DMP covers some of the ways in which disasters affect WASH assets and services, including:

- Water Supply
- Sanitation
  - Toilets and Faecal Sludge Management
  - Solid waste and greywater management
- Hygiene

[1] WASH assets include pipelines, taps, water treatment plants, overhead service reservoirs, toilets, faecal sludge treatment plants, soak pits, compost pits, dustbins, collection vehicles, and other aspects of a decentralized waste and sanitation system.

The DM Cycle

This document explores the Disaster Management (DM) Cycle, including its four stages:

1. **Preparedness:** Preparing WASH assets and services for disasters includes ensuring that the system is geared to respond swiftly and effectively to a disaster. The key elements of WASH Preparedness include the 5Ss:
   a. Standards
   b. Supplies
   c. Surge (additional personnel)
   d. Strategic alliances
   e. Surveillance

   The above require infrastructural measures, capacity building, pre-positioning of supplies and service providers, community engagement, risk assessment, and early warning systems – all of which are explored in detail in the DMP.

2. **Response:** Disaster response includes emergency services provided during or immediately after a disaster to save lives, reduce health impacts, ensure public safety and meet the basic needs. In case of the WASH disaster response, this includes the immediate steps taken to restore water supply, correct water quality issues, provide solutions for sanitation and hygiene.

3. **Recovery and Reconstruction:** Recovery and Reconstruction includes the restoration – and improvement where appropriate – of the facilities, livelihoods and living conditions of the affected communities. In the context of WASH, this means the restoration of water, sanitation, and hygiene systems – not just to their pre-disaster levels, but to actually "build back better" so that they are less vulnerable to future disasters of a similar nature.

4. **Mitigation:** Mitigation includes the steps taken to minimize the vulnerability of WASH infrastructure and services to future disasters. This document explores these steps with a focus on Water, Sanitation, Capacity Building and Community Engagement.

Assessments

This document explores the three kinds of assessments that need to be conducted in order to take administrative steps which are in sync with the actual needs of the community:

1. **Before the disaster:** A Hazard-Vulnerability-Capacity mapping which throws up a WASH Risk Assessment that can guide the preparedness activities most needed for the concerned area.

2. **During Response:** A Rapid Needs Assessment (RNA) which can be completed in a day and throws up the immediate needs of the affected population.

3. **During Recovery and Reconstruction:** A detailed Post-Disaster Needs Assessment (PDNA) which highlights the long-term needs of the community and helps the administration "build back better" the damaged infrastructure and update the service delivery mechanisms to mitigate against future disasters.

Minimum Emergency Standards

This DMP also lays down the minimum standards for WASH services to be provided to the community during a disaster, using the Sphere standards as a benchmark for the following areas:

1. Hygiene promotion
2. Water supply
3. Excreta management
4. Vector control
5. Solid waste management
6. WASH in disease outbreaks and healthcare settings

Inclusion

The National Disaster Management Plan (NDMP) of the NDMA defines social exclusion as "all experiences of discrimination, deprivation and denial based on any attribute - be it caste, gender, differences in abilities, ethnicity, creed, religion, sexual orientation or any other attribute."

The DMP covers the need for inclusion in disaster management for:

1. Gender-based Vulnerabilities
2. Scheduled Castes and Scheduled Tribes (SC/ ST)
3. The Elderly
4. Children
5. Persons with Disabilities (PWD)

Institutional Mechanisms

There are a number of stakeholders at every level who need to work together during different stages of the Disaster Management Cycle in order to implement the Jal Jeevan Mission and Swachh Bharat Mission in a disaster-resilient manner. This includes the following stakeholders:

- National level
  - NDMA
  - DDWS
  - UN organizations/NGOs at the national level
- State level
  - SDMA
  - SWSM
  - Coordination Mechanisms at State level
  - Responsibilities of Secretary, State RWSS / PHED/ In charge of Rural Sanitation
  - Responsibilities of E-in-C / Chief Engineer (State Nodal Officer, RWSS/PHED)/ Mission director of rural sanitation
  - UN Organizations / NGOs at State Level
- District and block level
  - DDMAs
  - DWSM
  - Responsibilities of Member Secretary, DWSM
- Panchayat/ Village level
  - VWSC
  - Sub-Divisional Officer AE /AEE, RWSS/ PHED
  - Responsibilities of Junior Engineer (JE), RWSS/PHED
  - Responsibilities of NGOs/UN Organizations

Funding Mechanism

This DMP lays out the funding mechanisms that can sponsor disaster management activities in the WASH sector, including:

- Flexi-funds under JJM and SBM-G
- National and State Disaster Management Funds (NDRF/ SDRF)

Inter-departmental Co ordination

Since multiple departments are involved in disaster management work, inter-departmental coordination becomes an imperative during all stages of the disaster management cycle. This includes:

- National Disaster Management Authority (NDMA)
- Ministry of Jal Shakti
- National Executive Committee (NEC)
- State Disaster Management Authority (SDMA)
- State Water and Sanitation Mission (SWSM)
- District Disaster Management Authority (DDMA)
- Local Government Bodies

Legal aspects

The following sources that set the legal backdrop for disaster management when it comes to the WASH assets and services, which are explored in further detail in this document:

- Indian Judicial interpretation of Article 21 and right to water
- United Nations perspective
- Disaster Management Act (2005)

Chapter 1

Context, Objective and Scope of the DMP

Chapter 1: Context, Objective and Scope of the DMP

1.1 Context

A balanced and integrated WASH approach is essential to preventing and reducing mortality, especially among children in humanitarian crises. Recent empirical evidence shows that diarrhoea is one of the leading causes of death and illness for children in humanitarian crises. Every episode sets back growth and development. Almost 90% of diarrhoeal cases are preventable through safe drinking water, basic sanitation, and appropriate hygiene behaviour. Diarrhoeal episodes are reduced by 25% by improving the water supply, 32% by improving sanitation, 44% by handwashing with soap, and 39% by household water treatment. Water quality interventions could play a role in reducing diarrhoeal episodes by roughly 50-70% or more.[2]

In cognizance of this, the WASH programmes and policies of the Government of India strive to achieve the following objectives which are covered through two of government's flagship programmes the Jal Jeevan Mission and the Swachh Bharat Mission (Phases I and II).

[2] Core Commitments for Children in Humanitarian Action: UNICEF 2010

Table 1. WASH programmes and policies of the Government of India

Water: The Jal Jeevan Mission (JJM) was launched by the Prime Minister, Shri Narendra Modi, on August 15, 2019. The Mission aims at providing Functional Household Tap Connection (FHTC) to every rural household by 2024. The programme focuses on service delivery at household level, i.e., water supply on a regular basis in adequate quantity and of prescribed quality. This also includes provision of functional tap connection to Schools, Anganwadi centres, GP buildings, Health centres, wellness centres, and community buildings.

Sanitation: The Prime Minister of India launched the Swachh Bharat Mission on 2nd October 2014. Under the mission, all villages, Gram Panchayats, Districts, States and Union Territories in India declared themselves "open-defecation free" (ODF) by 2 October 2019, the 150th birth anniversary of Mahatma Gandhi, by constructing over 100 million toilets in rural India. To ensure that ODF behaviours are sustained, no one is left behind, and that solid and liquid waste management facilities are accessible, the Mission is moving towards the next Phase II of SBMG.

Swachh Bharat Mission (Grameen) [SBM(G)] Phase-II is being implemented during the period from 2020-21 to 2024-25 with the focus to sustain Open Defecation Free (ODF) status and to cover all villages with Solid and Liquid Waste Management. SBMG Phase 2 is based on the model of convergence between different funding sources viz. SBM(G) budgetary grants, 15th Finance Commission grants to Rural Local Bodies (RLBs), MGNREGS, etc.

Hygiene: SBMG Phase II also includes a focus on hygiene practices like promotion of handwashing with soap, visual cleanliness, minimal littering and stagnant water, menstrual hygiene management, and other hygienic practices depending on the context (e.g., masking and social distancing during the Covid19 pandemic).

The link between WASH and disasters

The losses and damaged incurred from disasters in our country are staggering, and this includes damage to and loss of WASH assets and services. With 2,267 fatalities and an economic loss of over 68,000 million dollars in just a year, India was ranked as the country 7th most affected by extreme weather events due to climate change in 2019.[3] Rapid changes in India's climate are putting stress on ecosystems, agricultural output and freshwater resources. They are also causing damage to critical infrastructure including those related to WASH services. Toilets and water pipelines in rural India are damaged and water sources get contaminated. This leaves people, previously covered by safe WASH services to 'slip back' to either practicing open defecation and/or accessing drinking water from polluted sources. For example, the Kerala Water Authority has estimated that 50% to 60% of piped water users (6.7 million people) had their water supply affected due to the damage caused by the 2018 Kerala floods[4].

Disaster management and WASH services are also deeply linked in the response, recovery, and reconstruction of disaster-affected people. According to a 2017 WaterAid report[5], "in the wake of increasingly severe climate impacts, access to water and sanitation services is one of the first things people need".

1.2 Objective of the DMP

The objective of this document is to lay down the systems, processes, activities, capacities, finances, and institutional mechanisms to ensure the safety of all community, particularly children, women and the most at-risk population by ensuring that:

[3] Global Climate Risk Index 2021 https://www.germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf

[4] Kerala Floods 2018 Post Disaster Needs Assessment (PDNA): https://www.undp.org/library/post-disaster-needs-assessment-kerala

[5] Lyons, Stephanie. 'WaterAid at COP 23: Pushing Water, Sanitation and Hygiene up the Adaptation Agenda.' WaterAid, 2017 (https://washmatters.wateraid.org/blog/wateraid-at-cop-23-pushing-water-sanitation-and-hygiene-up-the-adaptation-agenda)

1. To provide immediate WASH response to disasters as per agreed minimum emergency standards
2. To build longer term resilience of WASH assets and services to reduce their vulnerability to disasters
3. To create a strong enabling environment and a funding and coordination mechanism to achieve these goals
4. To do the above across the DM cycle – preparedness, response, recovery and reconstruction, mitigation

1.3 Scope of the DMP

The scope of this document includes:

1. Impact of various disasters on WASH infrastructure and services
2. The DM cycle and a detailed (but not exhaustive) list of activities that could be undertaken across all the stages of it to build a disaster-resilient WASH infrastructure
3. An institutional mechanism at the National, State/UT, District, Block, Panchayat/ Village level including NGOs and CSOs to build capacities for disaster preparedness, response, recovery and reconstruction, mitigation
4. Minimum standards for WASH service delivery during and after disasters
5. Financial mechanism to fund the integration of disaster-resilience in WASH assets and services

This document will apply to all departments responsible for providing water and sanitation services in rural areas including state PHED/ PRED/ RWSS/ Panchayati Raj department/ Rural development department/ any other department in charge of rural sanitation and water supply.

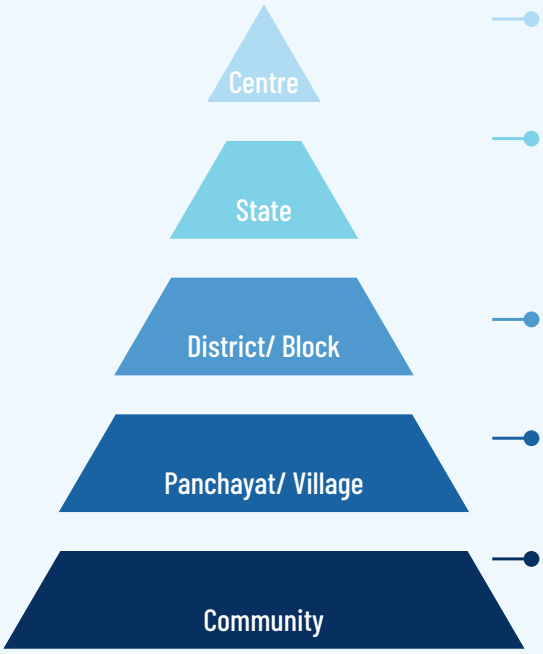
This DMP is a guideline based on which all states and districts should make WASH Disaster Management Plans to act before, during, and after a disaster or emergency occurs. This document will serve as a tool for all stakeholders to understand the institutional mechanism and the steps to be taken for coordinated disaster management at all levels.

Each State, district, and village must also locally develop a WASH disaster management plan. The local plans prepared should effectively address the local issues that cannot be anticipated in a national level plan.

In 2011, the Department of Drinking Water and Sanitation published the 'Standard Operating Procedures for responding to natural disasters: Rural drinking water supply and sanitation'[a]

1.4 Stakeholders involved

Following are the key stakeholders involved in WASH and disaster management at various levels of governance:



Department of Drinking Water and Sanitation, Ministry of Jal Shakti
- NDMA/ NIDM/ MHA/ NDRF
- Development Partners like World Bank, UNICEF, Water Aid

Line departments for water supply and sanitation (e.g., PHED, PRD, RDD, RWSS, Department incharge of Rural sanitation etc.)
- SDMA/ SIDM
- State-level WASH NGOs and Inter-Agency Groups for disaster management

District Water and Sanitation Mission (DWSM/BWSM)
- DDMA
- Grassroots NGOs, CSOs working in WASH and DM

Village Disaster Management Committee (VDMC)
- Village Water and Sanitation Committee (VWSC)
- Grassroots NGOs, CSOs working in WASH and DM

Community
- SHGs, school teachers, AWC, ANMs, ASHAs
- Swachhagrahis, Self-Employed Mechanics, Aapada Mitras

a. https://jalshakti-ddws.gov.in/sites/default/files/Standard_Operating_Procedures_for_responding_to_natural_disasters_0_0.pdf

Chapter 2

Prime Minister's Ten Point Agenda on Disaster Risk Reduction

Chapter 2: Prime Minister's Ten Point Agenda on Disaster Risk Reduction

The Prime Minister listed a 10-point Agenda on Disaster Risk Reduction during his inaugural speech at the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) in 2016.

The all-inclusive agenda presents a holistic approach to disaster risk management and addresses a whole range of issues, from community preparedness to use of technology and international cooperation. The Prime Minister's 10-point agenda on DRR, and its implications for the WASH sector are as follows:

1. All development sectors must imbibe the principles of disaster risk management

Development and Disasters are two sides of a coin. While planned development through WASH developmental programs like JJM and SBM-G can reduce the risks of disasters, the absence of proper planning can aggravate them. It is, therefore, essential to imbibe disaster risk reduction approach in all WASH schemes, with a focus on reducing disaster risks and not creating them.

2. Risk coverage must include all, starting from poor households to SMEs to multi-national corporations to nation states

Disasters result in loss of lives and damages to properties and assets. Those who survive face the challenges of their rehabilitation. This applies to WASH assets and services as well.

The PM has highlighted a need for:

- Development of disaster insurance mechanisms for home-owners in disaster prone area
- Development of parametric insurance for weather and climate related disasters
- Develop insurance products to cover major infrastructure projects

The above principles should also be kept in mind by local governmental bodies, financial institutions and the development and private sector while designing innovative schemes for WASH financing and insuring WASH assets.

3. Women's leadership and greater involvement should be central to disaster risk management

It is necessary to encourage greater involvement and leadership of women in disaster risk management to support special needs of women affected by disasters. This becomes much more important in the WASH sector because of the pivotal role women play in meeting the water, sanitation, and hygiene needs of the family.

Women are generally seen as vulnerable to the absence of WASH services, especially during disasters. But it is important to also remember that women can play an important role in disaster risk reduction at the household, society, community and beyond.

Active participation of women volunteers, engineers, masons, and mechanics in the decision making as well as post-disaster recovery and reconstruction phase will help mitigate future disasters as well. Women self-help groups can assist in livelihood recovery. Inclusion of more women in NDRF and SDRF, and training of elected women representatives at the VWSC level are also important to ensure holistic disaster management.

4. Invest in risk mapping globally to improve global understanding of Nature and disaster risks

Disasters know no boundary. Many natural hazards impact across countries, so there is a need for better understanding of such risks at global level. For example, every year, flooding of rivers in neighboring countries has devastating effects for the border districts of India.

With a shared understanding of the nature and severity of disaster risks globally, their impacts can be mitigated with better planning and preparedness. This requires undertaking multi-hazard risk assessments and developing maps for all major hazards in a standardized format to facilitate disaster risk reduction.

5. Leverage technology to enhance the efficiency of disaster risk management efforts

Efforts must be made to leverage technology to enhance the efficiency of our disaster risk management efforts.

This requires use of technology in resource planning, e.g., India Disaster Resources Network (IDRN), creation of e-platform to map expertise and resources on highly specialized aspects of disaster response and to increase the efficacy of early warning systems for all major hazards through the application of technology.

There is also an active investment required in disaster-resilient WASH technologies. During the recovery and reconstruction and mitigation phases, these technologies much be deployed to make the WASH assets and services resilient to future disasters.

6. Develop a network of universities to work on disaster-related issues

It will be helpful to develop a network of universities and academic institutions to work on disaster-related aspects of WASH, like design of disaster-resilient toilets, pipelines, and waste management systems. As part of this network, different universities could specialize in multi-disciplinary research on disaster issues most relevant to them.

7. Utilize the opportunities provided by social media and mobile technologies for disaster risk reduction

States and districts could utilize the opportunities provided by social media and mobile technologies to develop a social media strategy for Disaster Risk Management including leveraging these channels for effective dissemination of early warnings, WASH IEC messaging, dos and don'ts when it comes to hygiene behaviours during and after disasters, seeking feedback from the community, etc.

8. Build on local capacity and initiative to enhance disaster risk reduction

Disaster management must build on local capabilities and initiatives. Therefore, we must focus on developing local WASH and disaster management capacities, tapping into indigenous wisdoms, and disseminating best practices to key stakeholders as well as the community at large at every stage of the DM cycle **(Chapter 4)**.

9. Make use of every opportunity to learn from disasters and, to achieve that, there must be studies on the lessons after every disaster

After every disaster there is a need to undertake research studies to understand the best practices and learn lessons to improve the WASH practices and designs that can help mitigate the impact of the next similar disaster.

10. Bring about greater cohesion in international response to disaster

Across the globe, countries face disasters similar in nature and sometimes across the countries. This requires coordinated and unified response by affected countries. Pre-disaster planning and preparedness can result in effective and timely response; hence it is important to bring about greater cohesion in disaster response. International forums and protocols should be used in addressing WASH disaster risks for effective and coordinated response.

Chapter 3

Impact of disasters on WASH

Chapter 3: Impact of disasters on WASH

The Disaster Management Act 2005 defines the term 'disaster' as:

> *"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."*

Disasters – both natural as well as human-induced – directly and indirectly affect continuity and quality of WASH services and access for the community. **Tables 3 to 5** capture some ways in which disasters affect WASH assets and services.

Table 3. Impact of various kinds of disasters on Water Supply

Impacts of most disasters	• Total or partial destruction of intake, transmission, treatment, storage, and distribution systems • Rupture of distribution and transmission pipes, rupture of water mains, damage to joints between pipes or tanks with consequent loss of water • Destruction of water intakes for water supply systems like wells, handpumps, and other water sources that communities rely upon • Changes in the physical or chemical characteristics of intake water which affect water quality • The bridge structures that support pipelines over rivers, streams, low land, nallah etc may severely get damaged during disasters • Above ground structures like air valves, pressure relief valves, etc may get damaged. • The pipe alignment may get dislodged. The joints in the pipe may start leaking. • The pipes may get buried under huge debris, which will prevent accessibility for repair and maintenance. • Damage to the system due to lack of use

Photo Credit : Unicef / India / Biju Boro

	• The civil structure of the pumping stations, intake wells etc. may get damaged, thereby resulting in non-functionality of pumps and machinery • Power supply disruption will lead to non-supply of water due to non-pumping • Interruption of communication and access routes • The availability of manpower to run and repair the water supply system is greatly hampered, leading to disruptions of regular service • Other long-term impacts may include pollution from chemical and oil spills
Floods/ Cyclones/ Tsunamis	• Flooding of water supply systems, breach of embankments for water reservoirs, erosion of soil over pipelines, breach of pipeline crossover structures etc. • Flooding of on-site sanitation systems causing spillage and contaminating ground water • Damage to pumping house near flooding waterways • Excessive sedimentation leading to blockage of components • Saline water intrusion into wells, aquifers, causing contamination of ground water • Aquifer contamination by salt water is one of the severe long-term impacts and also the most difficult to treat. • Flash floods may carry away the over ground pipelines along with them. • Soil erosion due to floods exposes buried bulk water transmission pipelines • Flooding of on-site sanitation systems causing spillage and contamination of ground water • Overflow of toilet pits and septic tanks leading to contamination of land, environment, ground and surface water • Damage of access roads, residential structures, blockage of roads, inlet water channels, etc. due to uprooting of trees • Intermediate pumping stations and power stations may get flooded or submerged under water.
Earthquakes/ Landslides/ Mudslides	• The pipe alignment may get dislodged due to earth movements. • Total or partial destruction of intake and transmission components that lie in the path of landslides • Indirect impacts due to blocking of roads, disruption of power and communications • Blockage of water systems due to accumulation of mud and stones
Drought/ Reduced surface and ground water	• Decline in ground water table leading to reduced groundwater availability • A decrease in stream flow discharge leading to reduced surface water availability • Rock- water interaction may increase due to reduced aquifer level leading to water contamination
Epidemics/ Pandemics	• Consumption of water increases during a pandemic due to frequent handwashing, washing of clothes, number of baths etc. The increased household peak water demand has an impact on the distribution system. • Operation and maintenance of the pumping systems and transmission mains may get affected due to health of technicians being affected. • Repair and maintenance activities are badly affected during lockdowns and work restrictions, thereby leading to poor service delivery.

Human-induced disasters	• Contamination of water source due to chemical spills, radioactive spills, pollution and over extraction of ground water. • Contamination due to human negligence like excessive dose of chemicals, ingress of pollution in clear water tanks etc. • Water treatment plants in restricted areas are protected against disruptions in service due to hazards caused by terrorist attacks

Table 4. Impacts of various kinds of disasters on Sanitation

Impact on Toilets and faecal sludge	
Impacts of Most disasters	• Total or partial destruction of toilets including collapse of superstructure • Total or partial destruction of septic tanks / toilet pits • Total or partial destruction of faecal sludge intake, transmission, treatment, storage and distribution systems • Increase in incidence of open defecation due to lack of water to clean and use toilets • Repair and maintenance affected due to lack of manpower
Floods/ Cyclones/ Tsunamis	• Collapse of pit latrines due to rising water levels leading to open defecation • Leaching/soaking systems like pits will not prove efficient in areas with high ground water table or prone to frequent flooding • Unsafe distance between leach pits and groundwater levels, leading to contamination • Toilets filled with debris and soil after floodwater recedes leading to open defecation (OD) • Overflow or obstruction of septic systems if drainage pipes get choked by waste • Treatment plants receive flows that exceed their design capacities, resulting in flows bypassing the treatment processes • Flooding of FSTPs – Drying beds, deep row trenches, etc.
Drought/ Reduced surface and ground water	• Declining water supply impeding function of water-reliant sanitation systems (e.g., flush toilets, septic tanks, faecal sludge) leading to open defecation • Hardened sewage in pits impeding suction by machine leading to manual cleaning
Epidemics/ Pandemics	• Potential of faecal sludge and solid waste transmitting diseases, especially if not treated and disposed of safely • Repair and maintenance activities are badly affected during lockdowns and work restrictions imposed during pandemic, thereby leading to poor service delivery.
Impact on Solid waste and greywater management	
Impacts of most disasters	• Damage to solid and liquid waste management infrastructure and disruption of SLWM services • Repair and maintenance affected due to lack of manpower • Plastic waste management challenge posed by waste generated from relief material made of plastic, e.g., water bottles, hygiene kits, and other emergency supplies provided in plastic packaging • Large increase in generation of hazardous/infectious waste leading to collection and safe disposal issues

Floods/ Cyclones/ Tsunamis	• Flooding of on-site sanitation systems causing spillage and contaminating ground water • Submersion of garbage dumps • Flooding of NADEP / compost pits, biogas infrastructure • Widespread distribution of plastic waste in the environment due to floods
Droughts/ Reduced surface and ground water	• 'High strength wastewater' is formed as its solids content remains the same but the contaminant dilution capacity decrease
Epidemics/ Pandemics	• Disruption of SLWM services due to staff getting infected • Increased burden on SLWM systems due to the requirement to separate biomedical waste / PPE waste, separate waste from affected households, treatment centres near healthcare facilities • Repair and maintenance activities are badly affected during lockdowns and work restrictions imposed during pandemic, thereby leading to poor service delivery

Table 5. Impacts of various kinds of disasters on Hygiene

- Hygiene is one aspect of WASH that gets affected and needs immediate attention in case of all disasters.
- With disruption of services, lack of water supply, non-availability of soaps, unhygienic living conditions in shelters and relief camps, the affected community almost always becomes vulnerable to outbreaks of infectious diseases due to lack of hygiene.
- Spread of water borne diseases like cholera, diarrhoea, malaria, typhoid, lymphatic filaria-sis and dengue in the affected community due to the above
- Displacement of population and cattle leading to deterioration of health and hygiene due to lack of access to WASH services.
- Unhygienic conditions in disaster-affected households, anganwadis, schools, health centres etc.
- Lack of menstrual hygiene material and undergarments leading to compromise of personal hygiene of adolescent girls and women.
- Demand for soap, sanitizers, masks, PPE kits and other hygiene items rises significantly
- Contaminated water due to poor sanitation and waste management are linked to trans-mission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid, and polio.

Chapter 4

The DM Cycle

Chapter 4: The DM Cycle

The Disaster Management cycle (DM cycle) comprises the following four stages:

1. **Preparedness:** This includes the steps taken to enable an effective and timely emergency response to a disaster. In the case of this document, this includes the steps taken to enable a swift WASH response that meets at least the minimum standards. It is important to note that emergencies create additional workload for government staff and resources at all levels. Therefore, preparedness also demands anticipation of scenarios and needs, and building requisite response capability within development systems. This may demand prepositioning of various supplies, kits and consumables, surge human resources, etc.

2. **Response:** Emergency services and public assistance provided during or immediately after a disaster to save lives, reduce health impacts, ensure public safety and meet the basic needs of the people affected. This DMP will focus on the response to the WASH needs of the disaster-affected community such as temporary water sources, mobile toilets, distributing hygiene kits, etc.

3. **Recovery and reconstruction:** The restoration – and improvement where appropriate – of the facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce future disaster risk factors. In the case of this document, this will include the ways to rebuild damaged WASH assets and reinstate WASH services in a way that builds back better.

4. **Mitigation:** Mitigation refers to the steps taken towards lessening or limiting the adverse impacts of future disasters. In our context, this means the ways in which WASH assets and services can be built to make them as resilient to disaster impact as possible.

Chapter 5

Preparedness

Chapter 5: Preparedness

The Preparedness phase includes the steps taken before the disaster to enable a swift WASH response that meets at least the minimum standards once the disaster occurs. This comprises prepositioning of various supplies, kits and consumables, surge human resources, etc. Based on damages expected, in this phase one needs to prepare strategies and systems for rapid recovery of critical service levels, and reconstruction taking into account the need to increase resilience.

The key elements of WASH Preparedness include the 5Ss:

1. **Standards**: Delineation of WASH emergency programming priorities and corresponding programme benchmarks.
2. **Supplies:** Use of emergency kits and essential emergency supplies for timely lifesaving action. Ability to use of prepositioning (warehousing) of supplies, Long Term Agreements with suppliers, partnerships, and other modalities for the same should be institutionalised within line-department.
3. **Surge (additional personnel):** Mechanisms/SOPs to access additional technical resources during emergency response.
4. **Strategic alliances:** Partnerships that leverage emergency programming and operational capacity of various stakeholders to work with the government to deliver coordinated emergency response is a key priority in the Preparedness phase.
5. **Surveillance:** Regular monitoring of water quality and other WASH services to ascertain the issue of concern and need for urgent action.

The above require infrastructural measures, capacity building, pre-positioning of supplies and service providers, community engagement, risk assessment, and early warning systems.

5.1 Early Warning Systems

Use the following checklist to secure functional early warning systems in the disaster preparedness phase:

Table 6: Early Warning Systems for WASH services and infrastructure

Use the Risk Assessment Report (Chapter 9) to identify potential hazards and keep a close eye on each through relevant agencies that are tasked with tracking them. For example: • Preparation of detailed water maps (at SDMA level) to delineate vulnerability using best tools, field studies, and satellite data to ensure swift response • Real-time updation of maps / databases showing functional water supply systems • IMD State and WRD data, flood hydrographs and other historical data like High Flood Level (HFL) needs to be referred while planning the schemes.
• Set up/ activate an emergency preparedness service cell at headquarters, for coordina-tion of activities/ emergencies caused to heavy down pours or cyclones
• PHED/ RWSS to be close contact with meteorological department so as to assess the emergency needs well in advance
• Set up a toll-free number/ WhatsApp number and give them wide publicity for receiving the complaints from public and have dedicated teams to monitor them on 24 x 7 basis
• Encourage local officers to create social media groups to be in touch with GPs/ VWSC members for receiving emergency messages
• Active coordination with Information Department for issuing early warnings through mass media and all other communication channels

- Divide State into convenient operational areas and post nodal officers for taking up field Inspections periodically for identifying the vulnerable areas/ equipment/structures
- Develop formats for sending the inspection reports of nodal officers and the tour programme of these officers to be shared with the emergency cell for monitoring and follow-up
- Set up systems for early detection of all WASH issues e.g., water quality tracking through regular testing of water at distribution points

5.2 Pre-positioning of Emergency Supplies

Below is an indicative list of suggested supplies to be prepositioned in the disaster prepared-ness phase:

Table 7: Prepositioning of Emergency Supplies

Supplies for water supply	• Based on experience, identify and stock possible pipeline lengths required for rectifying damages in vulnerable areas and ensure availability of other spare parts like joining materials, valves, etc. required for carrying out repairs in short notice • Ensure hand pumps in villages are repaired and can be used as a standby, in case of failure of local source; test the water from these hand pumps for their potability and contamination, if any • High Density Polyethylene (HDPE) tanks and an inflatable water storage onion tank (~5000 litres) to facilitate temporary storage of the treated water and to protect against re-contamination • Tap stand sets with tap connections, for distribution of the treated water to the affected population. • Spares and supplies, including for solar installations, along with the usual hand pump, pipe network and pump spares at sub-division level • Identification of alternate sources of water in case of source failure due to any reason
Supplies for water quality	• Water purification tablets for household treatment and detailed user and safety instructions (IEC) in local language etc. ready in a shelter home. • Stock adequate quantity of bleaching powder for disinfection and water quality testing kits (e.g., chloroscopes for residual chlorine) • At least one diesel generator set, one portable water testing kit (with consumables) at Junior Engineer level • At least one mobile water treatment unit and water treatment chemicals at Subdivision Office (SDO) level • Generators for water filtration and purification • Ensure availability of FTKs with VWSCs/ Paani Samitis for testing, reporting and treatment of water supplied during the disaster
Hygiene supplies	• Hygiene kits including soap, buckets, basic non-perishable hygiene items including menstrual absorbents, masks, PPE kits, hand sanitizers, etc. (detailed list in Chapter 10)

Sanitation supplies	• Squatting slabs, pans, and traps and (locally available) super structure materials to construct temporary latrines • Mobile latrines • Mobile hand washing units • Desludging Units • Mobile treatment units for faecal sludge
Alternative arrangements in case of power failure	• Ensure that departmental generator sets are functional and adequate stock of diesel for running them is available • Portable generator sets with different capacities, tanker lorries with different capacities, tractors with trailers, earth work equipment, diesel pump sets for dewatering • List of fuel outlets who concur for supplying diesel without any interruption
Contingency human resources	• Repository of masons, HP mechanics, plumbers, motor mechanics, boat drivers to be made in advance • Technicians/ labour for handling electro-mechanical equipment and other works • Develop and formalize a surge roster to mobilize additional technical staff from nearby (not affected) districts, including drivers, technicians, SEMs
LTAs for prepositioning	• Long term agreements (LTAs) with suppliers for the above (and other) emergency WASH supplies following minimum standards as specified in Chapter 10 of this document. • Standing contracts with water agencies like water tanker suppliers, vehicles for transportation of people, water treatment units, supplies, waste, boats, life-jacket, water proof tent, fire extinguisher etc. and other services required

5.3 Water

5.3.1 Water Supply (Quantity)

Following are the measures to be taken to secure sufficient quantity of water supply in the disaster preparedness phase:

Table 8: Preparedness for Water Supply (Quantity)

General Preparedness Measures	• Monitor, repair, and maintain water supply infrastructure, protect exposed pipes • When a disaster event is imminent, take emergency protection measures (e.g., in case of a cyclone weigh down roofs and fill reservoirs to stabilise against wind) • Identify alternate sources of water to use at the time of failure of functional sources due to any reason • Identify and regular monitoring of alternative / standby water sources to ensure they are functional when required and are tested for water quality parameters • In case of villages/ locations where source and storage at separate places, repairing the damages to access roads to them should be taken up with maintenance authorities/GPs • Ensure that shelters home have access to adequate and safe drinking water and sanitation facility • In case of infiltration wells/ collector wells in river beds, the sand eroded portion near them needs to be rebuilt up with sand • Repair of damaged components of water supply infrastructure wherever there is threat of contamination, pipelines, ground level water storage structures etc. • Shelter homes, temporary shelter homes (schools, panchayat bhavans, community halls etc.), and relief camps to have provision for drinking water for large number of people during disasters according to the minimum standards as specified in Chapter 10 of this document.
Specific measures for flood/cyclone/tsunami prone areas	• Ensure water supply systems and traditional water sources are maintained and kept functional – especially ahead of monsoon / cyclone season High bunds and embankments to be constructed to protect surface water source near coastal water to prevent ingress of water during cyclone/tsunami. • Regular de-silting of ponds, reservoirs, collection chambers and intake works – especially ahead of monsoon / cyclone season • Be vigilant to prevent stagnation of rain water in pipe stacks • Ensure removal of silt/ debris, etc. from soak-pits/ community soak pits around public stand posts/ hand pumps • Dewatering pumping system should be in place. • Arrange for sand bags to prevent ingress of water into the plant. • Arrangements for Alum, Lime, Poly electrolyte, chlorine etc to resume water supply
Special measures for earthquakes	• Detailed study of earthquake prone zones, and assessment of impact on earthquake that may occur in long term • Sand bags, etc to be made ready to prevent breach of embankments. • Inspect the civil structures and make a list of the repair activities to be taken up.

Specific Measures for Drought prone areas	• Reviving, cleaning/ desilting and disinfecting of traditional water structures to facilitate optimum collection of rainwater, to help providing alternative arrangements and long-term sustainability of groundwater resources. • Identification of new bore wells, dug wells, sanitary wells of high yield using HGM maps • Undertake repairs of all tube-wells and hand pumps to make all tube-wells operational and install additional tube-wells after proper identification of sites with desired yield using HGM maps and geo-physical methods • Implement small schemes like bunding in river as relief work to augment water supply. • Take up artificial recharge structures to benefit the sources through MNREGS/ 15th Finance Commission, and other schemes. • Close monitoring of ground water level and assessing feasibility of drilling of tube wells at various depths. Regional Directors of CGWB should be contacted by State agencies in this regard. • Promote construction of check dams and rejuvenation of other traditional sources • Wherever surface sources of assured capacity are available, they should be preferred by putting infiltration wells in the rivers or by construction of summer storage (SS) tanks to store water during summer.
Electrical works	• Exposed electrical cables and connecting main should be fully insulated and armoured for any possible/ unforeseen damages in the river bed • For head-works, based on experience, carry out flood protection works so that water does not enter the pump houses/ sumps. This is mandatory for headworks in low lying areas in submergence or in valley reaches. • If necessary, lift the electro-mechanical equipment prone to damage by flood above the expected HFL to avoid their submergence. Also identify risks of flood water contamination into the distribution network/ water treatment units to ensure that the systems do not fail or O&M outages are avoided. • Check the earthing cables of electrical connections and repair them, if necessary. Also, ensure the electrical connections points are not exposed to rain/ excess moisture. • Check insulation of all the joints in the electrical cables and repair them, if necessary • In case of metal ladders affixed to over-head water tanks, pumps houses, etc. check the fasteners/ welding to ensure their stability • Repair of Broken hand pump platforms and surroundings of the ground level reservoirs and other structures where there is threat of rainwater/ wastewater contaminating the ground/ surface water sources • Make sure lightening arrestors are in place or in working condition (proper earthing is available) in all overhead tank/ reservoir

5.3.2 Water Quality

The following list lays down the steps to secure sufficient quality of water supply in the disaster preparedness phase:

Table 9: Preparedness for Water Quality

• Water quality testing and treatment, including regular chlorination, of drinking water sources (both at source and point of collection) should be taken up on priority
• Water quality monitoring system should be capable of detecting sudden quality varia-tions, especially turbidity and pathogen loading – especially during monsoon / cyclone season

- Ensure cleaning and disinfection of all water retaining structures
- Chlorination of hand pump during the monsoon is advised twice a month. Ensure online chlorinators are functional with adequate chemicals
- Avoid stagnation of water around sumps, OHTs, water treatment plants and public stand posts, ensure functioning soak pits
- Sanitary survey of all the water sources of community and institutions to check and stop all contamination points/ pathways
- Bacteriological testing of all water sources/ terminal points (preferably local level using H2S vials), conveying results to community/ institutions for facilitating corrective measures.
- Ensure access pathways inside the water treatment plants/ pump houses, over-head/ under-ground storage facilities are clear of vegetation/ obstructions/ debris

5.4 Sanitation and Hygiene

Below are the measures to be taken to secure sanitation assets and services in the disaster preparedness phase:

Table 10: Preparedness for Sanitation and Hygiene

Sanitation	• Monitor, repair, and maintain sanitation infrastructure like toilets, containment chambers, greywater management systems, compost pits, etc. • Install drainage channels, protect exposed pipes • When event is imminent, take emergency protection measures (e.g., in case of a cyclone, weigh down toilet roofs to stabilise against wind) • Prepare for changes in needs (e.g., prepare landfill site for quick disposal of large quantities of debris, especially if the regular sites are low lying in case of floods, cyclones, etc.) • Based on damages expected, prepare strategies and systems for rapid recovery of critical service levels, and reconstruction taking into account the need to increase resilience • Mapping of the excreta transportation, collection, and treatment facilities – availability, capacity, functionality, and institutional arrangement to quickly adapt in case of a disaster • Safe management of solid and liquid waste to prevent outbreak of disease and maintaining a clean environment • Regular desludging of community latrines and toilets in temporary shelters, especially ahead of monsoon / cyclone season • Identification of alternative sites for rapid deposit of large volumes of debris in case of disaster • Shelters, temporary shelters homes, and relief camps to have provision for bathing and toilet facilities for a large number of people as per **minimum standards as specified in Chapter 10 of this document.**
Hygiene	• Pre-positioning of hygiene supplies covered in section 5.2 above • Cover all air vents in sumps and overhead tanks with mosquito nets to prevent entry and breeding of mosquitoes • Shelters, temporary shelters, and relief camps are clean and have provision for hygiene facilities like soaps, menstrual hygiene products, etc. as per **minimum standards as specified in Chapter 10 of this document.**

5.5 Capacity Building and IEC

The list below outlines the measures to be taken to build WASH capacities and community engagement for IEC and behaviour change in the disaster preparedness phase:

Table 11: Capacity Building and Community Engagement during the Preparedness phase

Capacity Building	• Ensure local capacity for quick repairs (e.g., train community members in repair, operation, and monitoring; preposition generator with fuel stock-pile at external stations; preposition materials and tools) • Integration of disaster risk management and climate change components in the ongoing PRI trainings under JJM and SBM-G. This should include (but not be limited to): o major and minor repairs towards WASH infrastructure o identification and use of alternative water sources o cleaning and disinfection of all water retaining structures o water quality testing and sanitary assessments o Provision of Sanitation infrastructure and services, including toilets, faecal sludge management, solid waste management and greywater management o Maintenance of basic hygiene to limit the spread of diseases • Skill development to bridge gaps that exist among engineers, field func-tionaries and agencies on disaster risk management in WASH, including focus on repair and restoration of water supply systems during emergen-cies • Train the members of VWSC/ Paani Samiti for cleaning of water storage structures and ensure their disinfection. This part to be especially accorded priority in hilly areas since raw water in such areas appears pristine from protected spring sources, however, there could be bacteriological contam-ination carried from the upstream and which may not be removed just by boiling the water prior to consumption. • All relevant personnel must receive training on the critical role of hand-washing in emergency settings, and practice and promote good hand-washing habits. • Capacity building of Self-Employed Mechanics (SEMs) and other O&M personnel/volunteers to carry out emergency repairs and maintenance of piped water systems, hand pumps, tube wells, toilet superstructure, con-tainment structure, and other WASH assets. • Capacity building of frontline staff on evidence-based hygiene promotion during emergencies.
IEC	• Awareness generation efforts to educate the community about individual/household-level prepared-ness measures right before a disaster (e.g., weighing down the roof of a household toilet before a cyclone) • Create awareness to avoid water storage more than two days to avoid mosquito breeding • POU (point of use) treatment methods and safe water handling and storage to ensure that people know how to use and maintain the testing kits, and how to safely store their drinking water • Coastal area population must be advised by the authorities, not to use well water which gets flooded with water after cyclone/tsunami for drinking purpose. These wells will remain unsafe for some more time and in future the local authorities must drain all the wells before they can be used. • The importance of water purification (boiling) or taste / smell of treated water (chlorination) • Mock drills at community level, including school safety programmes to reinforce these messages • Critical sanitation and hygiene behaviours during disasters to prevent disease outbreak, especially during a disaster

Chapter 6

Response

Chapter 6: Response

Disaster response includes emergency services provided during or immediately after a disaster to save lives, reduce health impacts, ensure public safety and meet the basic needs. In case of the WASH disaster response, this includes the immediate steps taken to restore water supply, correct water quality issues, provide solutions for sanitation and hygiene.

This chapter will focus on the response to the WASH needs of the disaster-affected communi-ty by building temporary water sources, mobile toilets, distributing hygiene kits, etc. Minimum standards that the WASH disaster response should meet are detailed in **Chapter 10** and must be referred to while organizing such a response.

6.1 Water

The following table enlists some measures to be taken to ensure sufficient quantity of water supply and quality in the disaster response phase:

Table 12: Response for Water quality and quantity

Water Quantity Measures for most disasters	• Water supply to meet the drinking water and domestic use needs of the affected population as per **minimum standards as specified in Chapter 10 of this document.** • In case of dysfunctional or damaged piped water supply schemes, make provision of alternative water source and water treatment. • Immediate restoration of water supply. This includes repair of tube wells and other drinking water sources, identification of most appropriate water sources that are free from contamina-tion to ensure water supply. • In case of power outage, alternative energy sources to be provided to run piped water supply systems, this can include mobile generators. • In case water supply is disrupted, alternative water supply to be provided. This can include: water tanker services with community water points (storage tank with tap stand) instead of people collecting directly from the tanker (ensure exit strategy is in place before starting the activity)

Photo Credit: Unicef/ India/ Sanjit Das

	• Packaged drinking water (bottles or water pouches) should be avoided as possible as it become a waste management problem in the recovery period • Arrangement of amenities in shelters for drinking water, bathing water, and water for other domestic use as per **minimum standards as specified in Chapter 10 of this document.** Provide water facilities close to the toilets for hand washing, anal cleansing, and flushing.
Special Water Quantity steps during Floods, Cyclones, Tsunamis	• Alternate power supply to the pumps be made operational. • Switch off all electrical units to prevent electrocution. Arrangement against electrocution and power strapping to be made.
Special measures for Droughts	• Arrange water and fodder in shelters for cattle as well • Necessary chemicals and filtration system should be deployed to treat contaminated water • Community Water Purification Plants (CWPP) can treat water for lower capacities
Special measures for Epidemics/ Pandemics	• Isolate the area of contamination from water source by building temporary dams with sand bags, sheet piles etc. • Raw water intake stations and pumping arrangements should be built with remote operation technology. • Arrangement for Remote operation and control of essential equipment and machineries to be made to prevent disruption of services.
Measures for Water Quality	• Sanitary surveillance of all the affected water sources and corrective measures to make it safe. • In case of flood/cyclone, cover the mount of the hand pumps with watertight materials to prevent ingress of water. After the disaster, flush the bore with clean water and then with bleaching powder solution for disinfection. • Ensure appropriate waterpoint drainage at household and communal washing, bathing, and cooking areas and handwashing facilities
Steps for Testing and treatment at source	• Water should be regularly tested for faecal and chemical contamination and salinity. Gram Panchayat and VWSC to monitor the water quality testing conducted by Village water person (called Jal Surakshak in some states, MPW - multipurpose worker in others) • Protect existing water sources from contamination, consider chlorination of water to ensure higher levels of residual chlorine • In case water treatment at source is required, use the appropriate treatment process. Where water is turbid, potassium permanent solution or alum can be used to remove the TDS before chlorination. • If the water is not turbid, (NTU < 5) the water can be chlorinated directly. • Prepositioned water treatment units can be deployed. • Cleaning and disinfection of contaminated tube wells and drinking water sources. Follow standards and procedures to minimise the risk of collapse of wells during dewatering. Water quality testing should be carried out post cleaning of all water sources. • If tankering water, ensure appropriate treatment of water is done before distribution and residual chlorine levels are as per the standards for emergency water supply provision.

Steps for Testing and treatment at point of use	• Promote water quality testing and treatment at point of use • Treatment methods can include boiling or use of treatment chemicals including detailed user and safety instructions in the local language • Consider distribution of household level water treatment products (accompanied with IEC materials and campaigns for proper use) in case quality of water supply can't be guaranteed

6.2 Sanitation and Hygiene

Following are measures to be taken to ensure uninterrupted sanitation services and hygiene practices in the disaster response phase:

Table 13: Response for Sanitation and Hygiene

Sanitation: Toilets	• Immediate repair of damaged toilets and desludging of full septic tanks/ single pits with proper collection (ideally through mechanized desludging), treatment, and safe disposal of faecal sludge • Toilets should have menstrual waste disposal systems and water supply. • Construction of temporary/permanent, individual/community gender-segregated toilets with handwashing stations – locations prioritized as per the immediate need of the affected community • Toilets should be designed and placed (location) based on the situation and risk assessment of potential contamination of nearby water sources, accessibility, safety, etc. • Shelters, temporary shelters homes, and relief camps to have provision for bathing and toilet facilities for a large number of people as per **minimum standards as specified in Chapter 10 of this document.** • For drought, toilet technologies that use minimal water should be explored. Temporary dry pit latrines could be built while looking for longer term solutions. • Where possible, female bathing cubicles should be included in a screened courtyard design with toilets
Sanitation: Waste Management	• Ensure safe management of solid and liquid waste to prevent outbreak of disease • Provision for solid waste collection and safe disposal to be established • Remove debris and solid waste from public spaces and road and ensure safe disposal of the same. Segregation and safe disposal of biomedical waste, e-waste, and other hazardous waste immediately utilizing appropriate methods. • Cleaning of drainage channels by removing mud and garbage to ensure adequate flow. • Ecological process like dozing with enzyme or inoculum spray can also be deployed for faster decomposition of wastes and to stop any kind of vector breeding where collection and safe disposal are challenges. • Use of local solutions like Gappi fish or kerosene to ensure vector control measures at the breeding places of stagnant water. If required, ensure fogging of the houses in flood affected areas regularly for next 7 days for vector control • Deployment of additional sanitation workers / laborers / volunteers for the immediate sanitization and restoration of facilities as soon as flood water recedes. • While providing water to a drought-affected community, ensure that minimum standards for water for sanitation needs are also met.

Hygiene	• Provision of hygiene supplies (WASH dignity kit) for affected vulnerable households, including: o Bucket, Jerry can, Mug, Chlorine tablets, Bleaching powder, clean cloth o Sanitary absorbents and panties o Soap bar, laundry detergent, Toothbrush, toothpaste, etc. o Comb, Nail cutter, Hand sanitizer • Quality and quantity of products in the WASH Dignity Kit to match the needs of the affected population as per **minimum standards as specified in Chapter 10 of this document.** • Shelters, temporary shelters, and relief camps to have hand washing stations with soap and water in critical locations (including next to latrines) as per **minimum standards as specified in Chapter 10 of this document.** • In case of non-availability of soap and water, use a hand sanitizer with at least 60% alcohol • Disease surveillance in camps / shelters. • Reduce the transmission of faecal-oral diseases through promotion of good hygiene practices, the provision of safe drinking and access to safe sanitation • Avoid contact of food and water with floodwater as anything contaminated by floodwater can cause diarrheal disease. Do not allow children to play in floodwater areas. • Hand washing must be addressed for all latrines constructed – either at the latrine or at the household level – by the promotion and provision of soap and hand-washing devices. • Women must be consulted about their requirements for them to manage their own menstrual hygiene needs • Provision should be made to support adolescent girls and women to address menstrual hygiene management; especially when the communities are forced to leave home to stay in camps with very little belongings. Sanitary cloth/ disposable Sanitary napkin should be provided to Adolescent girls and women. The proper disposal system be established in form of incinerator or other mechanism. • Ensure sanitization (disinfection) of all flood-affected areas and relief camps twice everyday using spraying machines. Schools, Anganwadi, PHCs, Gram Panchayat buildings and other public utilities should be cleaned and sanitized immediately. • Clean and disinfect any living, learning, and working spaces contaminated with faeces immediately. • Ensure deep cleaning of all the available latrines thrice every day in the flood affected areas and relief camps

6.3 Capacity Building and IEC

Following are measures to be taken to build capacities in the disaster response phase:

Table 14: Capacity Building and IEC during the Response phase

Capacity Building	• The workforce involved in cleaning and disinfection should be protected from physical injury by the provision of masks, overalls, gloves, and boots. • Capacity building can be done as part of the response if required, to reach frontline workers, community members, and as refresher trainings. • Training service providers, sanitation workforce and hygiene promoters in WASH response to disasters, including the safe disposable mechanism of sanitation waste • Training community representative on key hygiene behaviours, use and O&M WASH facilities, equitable distribution • Training ASHAs, AWCs, women SHGs to lead IEC campaigns including promotion of menstrual hygiene management • Training local personnel on use of water treatment systems and equitable distribution of safe water • Training community members on use of chlorine for water purification, disinfection using bleaching powder, storage of bleaching powder and checking residual chlorine.
IEC	• Continuous IEC activities with community engagement components encouraging and motivating the individuals to use toilets, safe water handling and storage, critical handwashing moments. • Door-to-door messaging by frontline workers delivering key messages to households, near mobile toilets and community water points. FLWs can also check if all community members have received hygiene kits and other emergency supplies. • Provide pictorial representations of toilet use, quantum of water use, water treatment options at household level, hand washing and basic cleanliness • Use of mics, posters, wall paintings, community radio and other mixed media for IEC campaigns • Continuous IEC encouraging and motivating the individuals to use toilets. • Provide audio-visual aids for encouraging toilet utilization. • Provide pictorial representations of toilet use, quantum of water use, hand washing and basic cleanliness. • Disease surveillance and organizing hygiene promotion in camps / embankments must be done. • Systematic Feedback should be taken from the community regarding the quantum and quality of WASH response. Technology could be used to collate feedback through QR codes, IVR, WhatsApp, etc. • IEC campaigns should not only be one-way communication / dissemination of standard hygiene messages. It should be based on dialogue and interaction with the affected population to identify feasible, targeted, and impactful actions that can be taken during the emergency, motivating real behaviour change • Wherever possible, hygiene promotion activities should accompany the distribution of hygiene items and post distribution monitoring of the use of items should be carried out

Chapter 7

Recovery and Reconstruction

Chapter 7: Recovery and Reconstruction

Recovery and Reconstruction includes the restoration – and improvement where appropriate – of the facilities, livelihoods and living conditions of the affected communities, including efforts to reduce future disaster risk factors. In the context of WASH, this means the restora-tion of water, sanitation, and hygiene systems – not just to their pre-disaster levels, but actually to "build them back better" so that they are less vulnerable to future disasters of a similar nature.

7.1 Water

Following are measures to be taken to ensure sufficient quantity and quality of water supply in the disaster recovery and reconstruction phase:

Table 15: Recovery and Reconstruction of Water Supply

• Recovery and Reconstruction of water supply should consider risk reduction measures in flood / cyclone prone locations, following 'build back better' principles.
• Ensure immediate repair and restoration of the damaged piped water supply schemes. This includes desilting of jack well, repair of mechanical parts of pumps, repair of dam-aged valves and pipelines and other necessary operation and maintenance.
• Proper disinfection of wells including pumping out of the entire water followed by disinfection with alum and TCL. Keep the alum/TCL in the well water for 2 days, dis-charge, and post that start drinking potable water.
• Ensure chlorination of hand pumps and mechanized pumps as well as of ESR and/ or water sump before starting water distribution from these facilities after floods / cy-clones.
• Restoration of private and GP owned Water ATMs wherever available ensuring ade-quate and treated water supply to water ATMs.

7.2 Sanitation and Hygiene

Following are measures to be taken to ensure uninterrupted sanitation services, sustained hygiene practices, and continued IEC in the disaster recovery and reconstruction phase:

Table 16: Recovery and Reconstruction of Sanitation and Hygiene

Sanitation	• Recovery and reconstruction of sanitation systems should consider risk reduction measures in flood / cyclone prone locations, following 'build back better' principles. • Ensure immediate repair of toilets, prioritizing community toilets, schools, health facilities, shelter homes and most vulnerable households. • Mechanical desludging of choked septic tanks using desludging pumps, vans, etc. Safe disposal of the sludge collected from the vans away from water sources. • If there is no FSTP available in the vicinity, sludge should be disposed in a deep pit (at least 3m above water table) with the addition of lime and bleaching powder and covered by soil. • Assess any gaps in the sanitation value chain (containment, emptying, transport, treatment, reuse, and safe disposal) and plan to address those in the Reconstruction phase to ensure that sanitation is managed safely. • Solid waste management to prevent blocking of drains, choking of pipes and sewers, increasing debris and emergence of vector borne and water borne diseases

Hygiene	• Continued promotion of handwashing with soap through provision of handwashing stations with soap and water in all public spaces and schools, pre-schools, health care facilities, shelter homes and markets. • Regular Cleaning of community and surrounding places.

7.3 Capacity Building and IEC

Following are measures to be taken to build capacities and ensure continued IEC in the disaster recovery and reconstruction phase:

Table 17: Capacity Building and IEC during Recovery and Reconstruction

Capacity Building	• Integration of disaster management in the ongoing PRI trainings under JJM and SBM-G. This should include "build back better," i.e., building disaster-resilient toilet and piped water systems • The workforce involved in cleaning and disinfection should be protected from physical injury by the provision of masks, overalls, gloves, and boots. • Gram Panchayat and VHNC to conduct sanitary surveillance to identify the public health risks.
IEC	• Continued IEC to emphasize the importance of key hygiene behaviours. • Continued public awareness campaign on safe water handling and storage behaviours, household treatment (boiling) and water consumption. This also includes handwashing with soap at critical times. • Continued public awareness campaign on vector control measures to be followed by citizens. This includes messages on hand washing, use of mask, use of mosquito nets and following social distancing.

Chapter 8

Mitigation

Chapter 8: Mitigation

Mitigation includes the steps taken to minimize the vulnerability of WASH infrastructure and services to future disasters. This includes the ways in which WASH assets and services can be built to make them as resilient to disaster impact as possible.

8.1 Water

Below are some of the measures to be taken to mitigate the impact of future disasters on the quantity and quality of water supply in the community:

Table 18: Mitigation for Water Supply

Common steps for water supply	• Prepare and implement risk informed water safety and security plans in a community participatory manner. • Risk assessment of water supply systems in the disaster-prone areas and retrofitting/ upgradation.
Protection of water sources	• Identification of safe water sources, protection, and source sustainability measures and supply plan from those sources • Sanitary protection, platform for tube wells and covering of dug wells • Closure of unused (non-critical) drainage and overflow valves to reduce risk of backflow • Interconnection of reservoirs in flood-prone and non-flood-prone areas (inter-regional transfers)
Water quality	• Regular water quality monitoring and surveillance and water treatment (focus on chlorination) of water sources • Regular sanitary survey of the water sources and corrective measures
Special measures for Flood and Cyclone-prone areas	• A master plan to be prepared after assessing the IMD rainfall data, Hydrogeological maps, data on river flow, Central Water Commission data etc. and prepare a long-term strategy. • Detailed study on the recurrence of flood and cyclones in geographic regions. • A plan for protection of all structures which are vulnerable to the disaster needs to be developed and action to be taken accordingly over time. • Finding new sources, construction of new reservoirs, infiltration galleries etc for sustainability of water. • Submersible pumps to be preferred. • Water supply assets should not be built in low-lying parts to the extent possible – built in a resilient manner if unavoidable, like raised water infrastructure above the highest flood level • Raising tube-wells, hand-pumps, and platforms above flood water level to prevent contamination • Raising boundary walls at intake sites • Raising the level of borehole headworks (and ensuring headworks are sealed against surface water ingress) • Construction of water storage reservoirs at a height above flood plains • Increasing flood-resistance of buildings/assets by raising critical equipment and points of potential ingress above the maximum expected flood level • Building alluviums (human-made channels to divert water from flooding) • Planting vegetation to retain excess water, terrace slopes to reduce slope flow • Construction of dykes or holding tanks to store extra water during floods

Special measures for earthquakes	• Detailed study of earthquake prone zones. Assessment of impact on earthquake that may occur in long term. • Build a plan for activities to be carried out to mitigate impact of earthquake in future. • Remote operation and monitoring of the components of the transmission system should be installed. • Earthquake resilient pipeline system, having flexible jointing system and structurally strong pipe material to be preferred. • Stockpiling of sand bags, sheet piles, equipment and machineries to prevent breach of dams and reservoirs.
Special measures for Droughts	• The pattern of droughts of a particular region and the factors contributing to it needs to be studied. Its midterm and long-term impact on water availability to be studied. • A detailed midterm plan to be strategized and implemented to ensure sustainability of water in drought prone areas. • A detailed contingency plan for supply of drinking water in rural areas to be formulated with technical help from the Central Ground Water Board (CGWB) and utilising, if need be, the rigs and other capital equipment from the CGWB • Identify habitations/ villages indicating the month from which they are likely to face water scarcity. • Monitor continuously rural drinking water availability in drought affected areas. • Mega schemes can be planned to ensure water availability from long distances. • Source sustainability measures to be undertaken such as aquifer recharge, rainwater harvesting, increased storage capacity of water bodies, reservoirs, de-silting. • Traditional water collection systems to be renovated and maintained. • As a long-term plan, water supply from long distance sources to be planned.
Special measures for Tsunamis	• Strategies to be adopted to ensure that the water source at coastal region is not affected by tsunami. The ground water and surface water source should be so selected, that there is no contamination of water due to ingress of sea water. • Backup arrangements like cleaning of wells, borewells, ponds lakes etc. from saline water to be available. • Community water treatment plant having capability of saline water treatment to be made available. • Planting trees to reduce impact of tsunami at strategic locations. • Increasing general awareness in public through regular and continuous IEC activities. • Assessment of impact of Tsunami on vulnerable areas to be made. • Long term planning to reduce the effect of Tsunami
Special measures for Epidemics/ Pandemics	• Ensure all the prime movers and electro-mechanical equipment's can be remotely monitored and operated when needed • IoT based systems to be implemented for new projects • Training and capacity building of staff and technicians to be done on a regular basis • Remote operation and control of essential equipment and machineries to be made to prevent disruption of services

8.2 Sanitation and Hygiene

Following are measures to be taken to mitigate the impact of future disasters on sanitation in the community:

Table 19: Mitigation for Sanitation and Hygiene

Planning	• Prepare and implement risk informed sanitation plans in a community participatory manner. • Risk assessment of toilets in the disaster-prone areas and retrofitting/upgradation.
Disaster-resilient technologies in high-risk areas	• Raising the plinth height of toilet super-structure beyond the highest flood water level experienced in the area • For areas prone to floods, appropriate approaches to sanitation such as raised latrines, pit liners or rings, sealed pits / Eco-San toilets must be considered • Raising the leach-pit lining above ground level to the highest flood water level • Plastering the pit-lining above the ground level, both internal and external to ensure that leachate does not leak into the soil surface • Use of J-hook for the proper joining of roofing panels to steel frames for cyclone resilience • For drought, toilet technologies that use minimal water should be explored. Sanitary dry toilets could be built in water stressed areas which does not use water for flushing. This can be an interim solution to reduce water use.
Drainage	• Regular emptying of latrines / septic tanks to prevent overflows. • Regular clearing of drains to prevent blockages during flood/cyclone events. • Build bunds/ storm water drains to divert flow away from latrines • Site latrines and faecal treatment facilities away from areas of known disaster risk whenever possible

8.3 Capacity Building and IEC

Following are measures to be taken to build capacities and create awareness to mitigate the WASH impact of future disasters on the community:

Table 20: Mitigation through Capacity Building and IEC

Capacity Building	• Training and orientation programs for state govt. staff, and other direct stakeholders such as civil society, media-persons, elected representatives, professionals in disaster-resilient WASH • Capacity building of frontline workers, first respondents, block, and district level functionaries on Disaster Risk Resilient WASH
IEC	• Mass media and interpersonal communication campaigns to generate awareness about handling drinking water, water quality testing, waste management, and hygiene practices during a disaster • Mock drills at community level, including school safety programmes to reinforce these messages • Social messaging and capacity building to be conducted in an inclusive way to ensure that the needs of women, children, senior citizens, differently abled people are given special attention

Chapter 9

Assessments

Chapter 9: Assessments

Disasters cannot always be prevented, but the suffering associated with the impacts of various shocks and stresses on communities can be significantly reduced through strong, proactive and collaborative assessments.

Understanding the probability of various hazards, their patterns of exposure, and the most likely impacts on vulnerable groups is essential. It is also critical to consider why these risks occur with such frequency and severity, who is responsible for addressing them, and what capacities these actors need to fulfil their duties so that evidence and knowledge can be turned into programming practice.

Timely and regular assessments to develop a better understanding of risk can:

- Help leverage national (and international) resources for those programmes that make the greatest difference in reducing disaster risk and/or better equipping the areas that need it most
- Enable better protection of developmental gains and outcomes for children, women and vulnerable groups
- Close the gap between relief and developmental work by providing a common basis for targeting vulnerable communities, so that development programmes can also focus on reducing risks and enhancing resilience
- Avoid doing harm in situations where inequity and gender inequality already heighten vulnerability for many people.

There are three kinds of assessments that need to be undertaken in order to take administrative steps which are in sync with the actual needs of the community:

1. **Before the disaster**: A Hazard-Vulnerability-Capacity mapping which throws up a **WASH Risk Assessment** that can guide the preparedness activities most needed for the concerned area.
2. **During Response:** A **Rapid Needs Assessment** (RNA) which can be completed in a day and throws up the immediate needs of the affected population.
3. **During Recovery and Reconstruction**: A detailed Post-Disaster Needs Assessment (PDNA) which highlights the long-term needs of the community and helps the administration "build back better" the damaged infrastructure and update the service delivery mechanisms to mitigate against future disasters.

Each of these assessments need to be conducted locally - typically at the district or State level.

9.1 WASH Risk Assessment

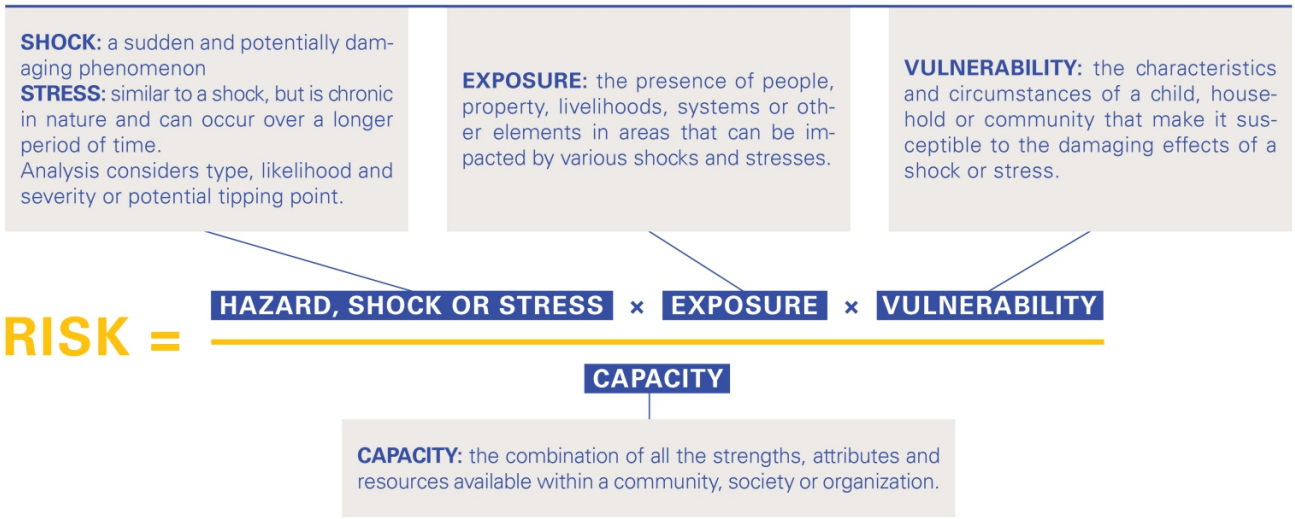
There are four key terms important to be understood before undertaking a Risk Assessment: Hazard, Exposure, Vulnerability, and Capacity. Here are their definitions as per United Nations Office for Disaster Risk Reduction (UNDRR) (formerly UNISDR, 2009):

1. **Hazard:** A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
2. **Exposure:** People, property, systems, or other elements in places or settings that could be adversely affected by hazards and that are thereby subject to potential losses.
3. **Vulnerability:** The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic and environmental factors.
4. **Capacity:** Capacity includes infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management. Capacity is the ability to prepare, respond, recover and learn.

A UNICEF Guidance Note on Risk-Informed Programming[6] published in 2017 summarizes the impact of hazard, exposure, vulnerability and capacity scores on the overall risk through the following diagram:

[6] https://www.unicef.org/media/57621/file

Graphic 4 - The risk formula



Risk assessment is defined as "a methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, including specific groups such as children, property, services, livelihoods and the environment on which they depend."

Risk assessments are important because they provide valuable evidence for decision-making, like:

- identifying any hazards that could have an impact
- identifying who and what is exposed to these hazards
- identifying the vulnerabilities of those exposed, which influences the damaging effects of a hazard;
- identifying and considering capacity to understand how it influences risk
- considering how and to what extent the risks can be reduced or mitigated.

Detailed forms, formats, questions to ask, and decision-making matrices can be found in the UNICEF Guidance Note linked in the footnotes below[7].

9.2 Response: Rapid Needs Assessment (RNA)

An initial rapid WASH assessment should be carried out within the first three days of any emergency / start of an emergency, to identify needs and resources. It should estimate the number of people affected, quantify immediate needs, the availability of local resources, and the need for external resources.

Depending on the scale of the emergency and the time and resources available, this exercise should be completed in **a maximum of one day**. Following the rapid WASH needs assessment, needs should be prioritized into those that are lifesaving and must be met on an emergency basis and those that need a medium- or longer-term approach.

The assessment should be coordinated and supervised by an officer with technical as well as bureaucratic experience because the process requires an expertise in water engineering, sanitation, hygiene, and in some cases environment as it involves identifying various options for supply system development on the basis of local physical features, topography and overall environment of the camp site.

Objectives of an initial rapid WASH assessment

- To identify available water sources (yield estimation, flow, seasonal variations, recharge, taboos, water quality and potential pollution risks) and soil conditions in the affected area (primary data collection)
- To assess ground conditions and environmental factors (e.g., presence of rocky ground, high ground water table, etc) which may affect decisions on appropriate sanitation options.

[7] https://www.unicef.org/media/57621/file

- To assess key hygiene practices in terms of water needs and sanitation habits (secondary data, key informants)
- To identify cultural habits among the affected population that might affect their hygiene / sanitation preferences, for example, sitting or squatting and - whether they would practice anal cleansing with water or with dry material (secondary data, key informants)
- To identify specific vulnerabilities, for example women, people with disabilities, the elderly, and people with specific diseases to tailor WASH services accordingly (secondary data, key informants).
- To assess national and local capacity to lead or support the response (key informants, observation).

Based on the assessment results, it is expected that a response plan is developed to provide immediate WASH services to the affected population. The RNA can also provide suggestions for longer term Recovery and Reconstruction, although it is suggested that a more detailed post disaster needs assessment is conducted to inform the recovery strategy.

Methodology

Information should be collected by carrying out the following activities:

- Key informant interview(s)
- Focus group discussion(s)
- Observation walk(s)
- Assessment of existing WASH infrastructure conditions
- Assessment of existing WASH management arrangements

A guidance note, suggested format for the WASH Rapid Needs Assessment report, and other supporting tools and forms have been put together by the World Health Organization in this note[8].

UNICEF India has also developed Rapid Needs Assessment tools for WASH RNAs at the village and household level, which are placed at **Annexures 1 and 2** respectively in this document.

9.3 Recovery and Reconstruction: Post-disaster Needs Assessment (PDNA)

A Post-Disaster Needs Assessment (PDNA) is a multi-sector exercise summarizing the damage and losses, human and economic impacts and recovery needs associated with a natural disaster, to facilitate an effective and timely transition from relief to development.6 The PDNA is a government-led process with integrated support from the UN, European Union (EU), World Bank and other national and international actors to identify the recovery needs associated with a humanitarian emergency.

The State government may use the PDNA reports for the 2018 Kerala floods[9] and the 2019 Odisha Cyclone Fani[10] as reference documents while developing their own PDNAs.

The 5 components of the PDNA methodology are:

1. Pre-disaster situation (baseline)
2. Disaster effects
3. Disaster impacts
4. Recovery needs
5. Recovery strategy

Within the context of the PDNA, WASH has been defined to include:

- **Water supply**: The systems for the collection, transmission, treatment, storage and distribution of water from the source to the point of consumption
- **Sanitation**: The facilities and services for safe management of human excreta from the toilet to containment, storage, conveyance, treatment and eventual safe end use or safe disposal.
    - **Greywater Management:** Management of rainwater and ice melt, surface and seawater, grey and groundwater.
    - **Solid Waste Management**: Generation, segregation, collection, transport, processing, and safe disposal of general household waste as well as animal, industrial, building, and biomedical waste.

[8] https://www.humanitarianlibrary.org/sites/default/files/2018/11/RAPID%20NEEDS%20ASSESMENT%20for%20WATER%2C%20SANITATION%20AND%20HYGIENE.pdf
[9] Kerala Floods 2018 Post Disaster Needs Assessment (PDNA): https://www.undp.org/library/post-disaster-needs-assessment-kerala
[10] Cyclone Fani 2019 Damage, loss and needs assessment: Odisha https://www.osdma.org/publication/cyclone-fani-2019-dlna-report/

- o **Faecal Sludge Management:** Management of the faecal waste collected in toilet pits, septic tanks, and other kinds of toilet substructures

- **Hygiene:** Conditions and practices that maintain health and prevent the spread of diseases.

The PDNA seeks to **quantify the damage to WASH assets and economic losses** associated with WASH service failures. It then derives the **WASH recovery needs** associated with the estimates of damage and losses, including the costs of:

- Reconstruction of damaged WASH assets (including build back better and disaster resilience)
- Resumption of WASH services (including improved operation and maintenance systems)
- Restoration of governance (including the regulation and training of service providers)
- Reduction of new risks and vulnerabilities as a result of the disaster (including modelling and planning to reduce the risks of repeat events and climate change mitigation).

In the PDNA methodology, WASH is generally placed in the infrastructure sector. However, WASH also has clear linkages with social sectors, looking at the tail-end management of water, sanitation and hygiene facilities in homes, schools and health facilities in the Housing, Education and Health subsectors. **Therefore, coordination with these sectors is important to avoid duplication or miss out to include information.**

The steps to guide a State government through undertaking a PDNA – specifically around developing the chapter on the WASH sector – are placed at **Annexure 3**.

Photo Credit: Unicef/ India/ David Hogsholt

Chapter 10

Minimum Emergency Standards

Chapter 10: Minimum Emergency Standards

The Disaster Management Act (Section 12) mandates that the National Disaster Management Authority (NDMA) will recommend Guidelines for minimum standards of relief to be provided to persons affected by disaster which shall include:

(a) The minimum requirements to be provided in the relief camps in relation to shelter, food, drinking water, medical cover, sanitation

According to Section 19 of the Act, the State Authorities shall lay down detailed guidelines for providing standards of relief to persons affected by disaster in the state and such standards shall in no case be less than the minimum standards in the guidelines laid down by National Authority. Hence, NDMA, as mandated by the Act, has worked out the basic minimum standards of relief to be provided to the persons affected by disaster.

The Sphere Standards[11]

The Sphere Project, now known as Sphere, was created in 1997 by a group of humanitarian non-governmental organizations and the Red Cross and Red Crescent Movement. Its aim was to improve the quality of their humanitarian responses and to be accountable for their actions.

The Sphere community sets standards for humanitarian action and promotes quality and accountability. The Sphere Minimum Standards for water supply, sanitation and hygiene promotion (WASH) are a practical expression of the right to access water and sanitation in humanitarian contexts.

10.1 Hygiene promotion

Standard 1.1: Hygiene promotion

People are aware of key public health risks related to water, sanitation and hygiene, and can adopt individual, household and community measures to reduce them. This includes handwashing with soap at critical times, use of latrines and proper disposal of child faeces, practices like social distancing to control spread of diseases, and use of masks, sanitizers, etc to control spread of diseases.

Key Indicators

- Percentage of affected households who correctly describe three measures to prevent WASH-related diseases
- Percentage of target population who correctly cite two critical times for handwashing
- Percentage of target population observed to use handwashing stations on leaving communal toilets
- Percentage of affected households where soap and water are available for handwashing
- Percentage of affected population who collect water from improved water sources
- Percentage of households that store drinking water in clean and covered containers
- Percentage of carers who report that they dispose of children's excreta safely
- Percentage of households using incontinence products (pads, urinal bottles, bed pans, commode chairs) who report that they dispose of excreta from adult incontinence safely
- Percentage of affected households who dispose of solid waste appropriately
- Percentage of people who have provided feedback and say that their feedback was used to adapt and improve WASH facilities and services
- Local environment is free of human and animal faeces
- One volunteer per 1,000 people is needed for promotion of hygiene activities

[11] https://handbook.spherestandards.org/en/sphere/#ch006_001

Standard 1.2: Identification, access to and use of hygiene items

Appropriate items to support hygiene, health, dignity and well-being are available and used by the affected people.

Key Indicators

- All affected households have access to the minimum quantity of essential hygiene items:
  - two water containers per household (10–20 litres; one for collection, one for storage)
  - 250 grams of soap for bathing per person per month
  - 200 grams of soap for laundry per person per month
  - Soap and water at a handwashing station (one station per shared toilet or one per household)
  - Potty, scoop or nappies to dispose of children's faeces
- Percentage of affected people who report/are observed using hygiene items regularly after distribution
- Percentage of household income used to purchase hygiene items for identified priority needs

Standard 1.3: Menstrual hygiene management and incontinence

Women and girls of menstruating age, and males and females with incontinence, have access to hygiene products and WASH facilities that support their dignity and well-being.

Key indicators

- Percentage of women and girls of menstruating age provided with access to appropriate materials for menstrual hygiene management
- Percentage of recipients who are satisfied with menstrual hygiene management materials and facilities
- Percentage of people with incontinence that use appropriate incontinence materials and facilities
- Percentage of recipients that are satisfied with incontinence management materials and facilities

Minimum Supplies

- For both menstrual hygiene management and incontinence:
  - a dedicated container with lid for soaking cloths and storing pads/cloths
  - rope and pegs for drying
- For menstrual hygiene:
  - either absorbent cotton material (4 square meters per year), disposable pads (15 per month) or reusable sanitary pads (six per year), as preferred by women and girls
  - underwear (six per year)
  - extra soap (250 grams per month)
- For incontinence, supplies will depend on the severity and type of incontinence and people's preferences. A suggested minimum is:

- o either absorbent soft cotton material (8 square meters per year), disposable incontinence pads (150 per month) or reusable incontinence underwear (12 per year)
- o underwear (12 per year)
- o extra soap (500 grams bathing and 500 grams laundry per month)
- o two washable leak-proof mattress protectors
- o additional water containers
- o bleach or similar disinfectant cleaning product (3 liters of non-diluted product per year)
- o bed pan and urinal bottles (male and female), toilet commode chair (as appropriate)

10.2 Water supply

Standard 2.1: Access and water quantity

People have equitable and affordable access to a sufficient quantity of safe water to meet their drinking and domestic needs.

Key indicators

- Average volume of water used for drinking and domestic hygiene per household
  - o Minimum of 15 litres per person per day
  - o Determine quantity based on context and phase of response
- Maximum number of people using water-based facility
  - o 250 people per tap (based on a flow rate of 7.5 litres/minute)
  - o 500 people per hand pump (based on a flow rate of 17 litres/minute)
  - o 400 people per open hand well (based on a flow rate of 12.5 litres/minute)
  - o 100 people per laundry facility
  - o 50 people per bathing facility
- Percentage of household income used to buy water for drinking and domestic hygiene: Target 5 per cent or less
- Percentage of targeted households who know where and when they will next get their water
- Distance from any household to the nearest waterpoint: <500 metres
- Queuing time at water sources: <30 minutes
- Percentage of communal water distribution points free of standing water
- Percentage of water systems/facilities that have functional and accountable management system in place

Photo Credit: Unicef/ India/ Shantanu Krishnan

Table 21: Sphere Standards on Water needs in different contexts

Surviving needs: water intake (drinking and food)	2.5–3 LPCD (depends on climate and individual physiology)
Basic hygiene practices	2–6 LPCD (depends on social and cultural norms)
Basic cooking needs	3–6 LPCD (depends on food type, social and cultural norms)
Health centres and hospitals	5 liters/outpatient, 40–60 liters/in-patient per day, 100 liters/surgical intervention and delivery, flushing toilets, etc.
Cholera centres	60 litres/patient per day | 15 litres per carer per day
Viral haemorrhagic fever centre	300–400 litres per patient per day
Therapeutic feeding centres	30 liters per in-patient per day | 15 liters per carer per day
Mobile clinic: infrequent visits	1 litre per patient/day (infrequest visits), 5 litre/patient/day (frequest visits)
Oral rehydration points	10 litres/patient/day
Reception/transit centres	15 LPCD if stay is more than one day | 3 LPCD if stay is limited to day-time
Schools	3 liters/pupil/day for drinking and hand washing (Use for toilets not included)
Mosques	2–5 LPCD for washing and drinking
Public toilets	1–2 liters/user/day for hand washing | 2–8 liters/cubicle per day for toilet cleaning
All flushing toilets	20–40 liters/user/day for conventional flushing toilets connected to a sewer 3–5 liters/user/day for pour-flush toilets
Anal washing	1–2 LPCD
Livestock	20–30 liters/large or medium animal/day, 5 liters/small animal/day

Standard 2.2: Water quality

Water is palatable and of sufficient quality for drinking and cooking, and for personal and domestic hygiene, without causing a risk to health.

Key indicators

- Percentage of affected people who collect drinking water from protected water sources
- Percentage of households observed to store water safely in clean and covered containers at all times
- Percentage of water quality tests meeting minimum water quality standards
  - o <10 CFU/100ml at point of delivery (unchlorinated water)
  - o ≥0.2–0.5mg/l FRC at point of delivery of delivery (chlorinated water)
  - o Turbidity of less than 5 NTU

10.3 Excreta management

Standard 3.1: Environment free from human excreta

All excreta is safely contained on-site to avoid contamination of the natural, living, learning, working and communal environments.

Key indicators

- There are no human faeces present in the environment in which people live, learn and work
- All excreta containment facilities are sited appropriately and are an adequate distance from any surface or groundwater source

Key Steps

- Immediately after crisis: Control indiscriminate open defecation, especially near water sources

- Establish defecation areas, site and build communal toilets/ provide temporary toilets, rehabilitate damaged toilets and desludge full toilets
- Bury excreta and cover it with sand/ash to control disease spread
- Conduct a hygiene promotion campaign to encourage safe excreta disposal and demand for toilets

Standard 3.2: Access to and use of toilets

People have adequate, appropriate and acceptable toilets to allow rapid, safe and secure access at all times.

Key indicators

- First phase of a rapid-onset crisis: 1 communal toilet per 50 people
- Medium-term: 1 communal toilet per 20 people
- 3:1 female to male toilets
- Differently-abled accessible toilets minimum ratio of 1 per 250 people
- Handwashing with water and soap
- Appropriate containers for the safe disposal of menstrual materials
- Distance between dwelling and shared toilet: Maximum 50 metres
- Percentage of toilets that have internal locks and adequate lighting
- Percentage of toilets reported as safe by women and girls
- Percentage of women and girls satisfied with the menstrual hygiene management options at toilets they regularly use

Standard 3.3: Management and maintenance of excreta collection, transport, disposal and treatment

Excreta management facilities, infrastructure and systems are safely managed and maintained to ensure service provision and minimum impact on the surrounding environment.

Key indicator

- All human excreta is disposed of in a manner safe to public health and the environment
- Initially, plan for an excreta volume of 1–2 LPCD
- Long term, plan for 40–90 liters/person/year
- Ensure that household water from cleaning/cooking does not enter the toilet, as excess water means more desludging
- Allow 0.5 meters at the top of the pit for backfill

10.4 Vector control

Standard 4.1: Vector control at settlement level

People live in an environment where vector breeding and feeding sites are targeted to reduce the risks of vector-related problems.

Key indicator

- Percentage of identified breeding sites where the vector's life cycle is disrupted
- Assess vector-borne disease risk for a defined area
- Local vector control plans or systems, with national guidelines, programmes or policies
- Inform the population about risks from chemical control of vectors and the schedule for application
- Train and equip all personnel handling chemicals with personal protective equipment (PPE) and clothing
- Often managed by the health team instead of the WASH team at the time of a crisis

Standard 4.2: Household and personal actions to control vectors

All affected people have the knowledge and means to protect themselves and their families from vectors that can cause a significant risk to health or well-being.

Key indicators

- Percentage of affected people who can correctly describe modes of transmission and effective vector control measures at the household level
- Percentage of people who have taken appropriate action to protect themselves from relevant vector-borne diseases
- Percentage of households with adequate protection for stored food

10.5 Solid waste management

Standard 5.1: Environment free from solid waste

Solid waste is safely contained to avoid pollution of the natural, living, learning, working and communal environments.

Key indicator

- There is no solid waste accumulating around designated neighbourhood or communal public collection points

Standard 5.2: Household and personal actions to safely manage solid waste

People can safely collect and potentially treat solid waste in their households.

Key indicators

- Percentage of households with access to a designated neighbourhood or communal solid waste collection point at an acceptable distance from their dwelling
- Percentage of households reporting appropriate and adequate waste storage at household level
- Assume that one person generates 0.5 kilograms of solid waste per day. This equates to 1–3 litres per person per day, based on a typical solid waste density of 200 to 400kg/m3.

Standard 5.3: Solid waste management systems at community level

Designated public collection points do not overflow with waste, and final treatment or safe disposal of waste is safe and secure.

Key indicators

- Percentage of schools and learning centres with appropriate and adequate waste storage
- Percentage of public markets with appropriate and adequate waste storage
- Percentage of solid waste pits or incinerators at schools, learning centres, public markets and other public institutions that are managed safely

10.6 WASH in disease outbreaks and healthcare settings

Standard 6: WASH in healthcare settings

All healthcare settings maintain minimum WASH infection prevention and control standards, including in disease outbreaks.

Key indicators

- All healthcare workers clean their hands, using soap or alcohol rub, before and after every patient contact
- All patients and carers wash their hands before handling or eating food and after going to the toilet
- All handwashing stations have soap or alcohol rub (or 0.05 per cent chlorine solution in outbreaks)
- Number of handwashing stations
  - Minimum: one station for every ten inpatients
- Drinking water quality at point of delivery
  - Minimum: 0.5–1mg/l FRC
- Quantity of safe water available
  - Minimum: 5 litres per outpatient per day
  - Minimum: 60 litres per patient per day in cholera treatment centre
  - Minimum: 300–400 litres per patient per day in viral haemorrhagic fever treatment centre
- Number of accessible toilets
  - Minimum: four in outpatient facilities (separated for men, women, children and healthcare workers)
  - Minimum: 1 per 20 inpatients (separated for men, women, children and healthcare workers)

Chapter 11

Inclusion

Chapter 11: Inclusion

The National Disaster Management Plan (NDMP) of the NDMA defines social exclusion as "all experiences of discrimination, deprivation and denial based on any attribute - be it caste, gender, differences in abilities, ethnicity, creed, religion, sexual orientation or any other attribute."

The NDMP lays emphasis on the need for inclusion in disaster management for:

1. Gender-based Vulnerabilities
2. Scheduled Castes and Scheduled Tribes (SC/ST)
3. The Elderly
4. Children
5. Persons with Disabilities (PWD)

11.1 Gender-based Vulnerabilities

The following steps must be taken to ensure that disaster management for WASH services is inclusive of all genders:

Table 21: Sphere Standards on Water needs in different contexts

• Ensure that special efforts are made to make all stages of disaster management – preparedness, response, Recovery and Reconstruction, and mitigation – gender inclusive and to ensure participation of women
• Since SBM-G and JJM focus on community engagement, it must be ensured that women are actively involved, not only in behaviour change activities, but also in the activities of institutions involved in the process of toilet construction (VWSCs, motivators, procurement committees, etc.)
• The SBM-G guidelines state that 50% of members of VWSC should be women. This must be ensured by the State government and local government bodies.

	• Behaviour-change messaging in WASH programmes often includes subjects like 'shame and dignity of women'. While these may be useful for entry-point messaging, they carry risks of lack of ownership by men and the reinforcing of gender stereotypes (like women should not step out of the house, men as the custodians of women's dignity, etc.) The IEC/BCC messaging should, therefore, be gender sensitive and targeted at both men and women, particularly focusing on men who are the often the primary decision makers in rural households where household expenditure is involved.
	• Following the trend of increasing women's leadership in local governance, women should also be represented in the leadership of WASH committees and institutions like Nigrani committees, Village Water and Sanitation Committees (VWSCs) and Village Water Sanitation and Health Committees (VWSHCs), so that their communities and villages can benefit not just from women's participation but also their leadership.
	• Rather, WASH IEC/BCC should portray and popularize stories of powerful women and successful women WASH and disaster management champions, to inspire and motivate women across the country to take charge of their own fate, health and safety.
	• Ensure that there are no discriminatory practices that marginalise sexual and gender minorities at any stage.
	• Recognise the additional vulnerabilities of sexual and gender minorities such as transgender people, queer communities, etc. and take conscious steps to ensure that the WASH disaster management is inclusive of their special needs in every phase, e.g., Risk Assessments should lay special focus on vulnerabilities of women and transgender people
	• Information and Data Management should support gender sensitive approach
	• Convergence of concerned departments to ensure gender sensitive WASH and disaster management
	• Funds under the SLWM components can be used for setting up of incinerators in community toilets, shelters and camps.
	• IEC plans should include MHM as a key component for raising awareness among girls as well as boys, women as well as men. The MHM guidelines of the Swachh Bharat Mission[12] have a description of possible interventions
	• Efforts must be made through the IEC activities, to rid the community of taboos and superstitions associated with menstruation. Involving of faith leaders in this context may be considered.
	• CSOs and SHGs should be engaged to inform the communities about safe menstrual hygiene practices and also develop economic models to meet the demand for low-cost sanitary napkins.
	• Training, Awareness, Mock drills, Vocational Training / Skill development curriculum should be developed with a gender-sensitive lens
	• Ensure joint ownership in the name of husband and wife for houses reconstructed and assets provided under post-disaster recovery assistance
WASH facilities at Shelters/ Temp Shelters/ Relief Camps:	• Gender Guidelines of Swachh Bharat Mission[13] delineate that transgender people should be allowed to use the toilet of the gender they identify as.
	• Toilet design in relief camps, shelters, etc. should ensure safe and private entrance to women's toilets, with ample lighting after evening hours. The location of the toilets should be decided through a participatory process that is based on the feedback of users. The approach to the toilet should feel and be safe for women and girls, e.g., ensuring that there are no pub-lic gathering spots on the path to the toilet where men gather socially.

[12] https://jalshakti-ddws.gov.in/publication/menstrual-hygiene-management-national-guidelines-december-2015

[13] https://jalshakti-ddws.gov.in/sites/default/files/Guidelines%20on%20Gender%20issues%20in%20Sanitation.pdf

• Funds under the SLWM components can be used for setting up of incinerators in community toilets, shelters and camps.	
• IEC plans should include MHM as a key component for raising awareness among girls as well as boys, women as well as men. The MHM guidelines of the Swachh Bharat Mission[12] have a description of possible interventions	
• Efforts must be made through the IEC activities, to rid the community of taboos and superstitions associated with menstruation. Involving of faith leaders in this context may be considered.	
• CSOs and SHGs should be engaged to inform the communities about safe menstrual hygiene practices and also develop economic models to meet the demand for low-cost sanitary napkins.	
• Training, Awareness, Mock drills, Vocational Training / Skill development curriculum should be developed with a gender-sensitive lens	
• Ensure joint ownership in the name of husband and wife for houses reconstructed and assets provided under post-disaster recovery assistance	
WASH facilities at Shelters/ Temp Shelters/ Relief Camps:	• Adequate water and space inside the toilet should be ensured for the women users to change napkins/cloth and to wash themselves.
	• Toilet cubicles should be provided with a shelf, hooks or niche to keep clothing and menstrual adsorbents dry.
	• Disposal bins with lids should be placed within the toilet, as the initial point of collection.
	• To avoid transport of menstrual waste, management solutions such as incinerators should be built within the toilet with chutes directly adjacent to the toilet building.
	• Elderly women face increased risks of injury in everyday tasks, including while using toilets and other public facilities. For many, squatting is uncom-fortable due to stiff joints, and many elderly people end up relieving themselves in a half-standing, half-squatting position. Similar difficulties can be experienced by pregnant women.
	• Toilets in relief camps, shelters, etc. should, therefore, adopt an inclusive design that makes them barrier-free. They should be well-ventilated and well-lit to avoid stumbling, the floor should have a gentle slope towards the drain to keep the floor dry and to prevent slipping.
	• Gender audit of disaster relief measures like camps, shelters, etc should be conducted regularly with the assistance of the State Women's Commis-sion
	• Ensure that a feedback mechanism accessible to people of all genders exists to capture feedback on the inclusiveness of the WASH facilities in relief camps, shelters, etc. and that any negative feedback received from them is taken seriously and acted upon swiftly to ensure inclusion across all stages of the disaster management cycle.

11.2 Scheduled Castes and Scheduled Tribes (SC/ST)

The following steps must be taken to ensure that disaster management for WASH services is inclusive of SC/ST communities:

Table 23: SC/ ST inclusion in WASH disaster management

- Disaster Risk Assessments to specifically include SC/ST vulnerabilities (locational, existing discriminatory practices, if any, creating hindrances in access to information and/or risk reduction resources
- Protect the tribal identity, traditions and customs in post-disaster situations in different phases of the disaster management cycle
- Ensure steps taken for disaster resilience do not cause irreversible damage to the community's culture, tradition, habitat and ecosystem, especially in case of tribal com-munities
- Convergence between concerned departments in schemes meant for SC/ST and for disaster management in WASH
- Shelters/ Temp Shelters/ Relief Camps should ensure enabling environment for partici-pation of all communities, especially the most vulnerable sections like SC/STs
- Review and amendment of existing regulations, norms and directives to address requirements of implementing WASH-related disaster management in SC/ST settle-ments (e.g., retrofitting of toilets, hazard resistant construction of WASH infrastructure, etc.)
- Training, Awareness, Mock drills, Vocational Training / Skill development curriculum should be developed with a focus on issues of SC/ST communities
- Non-discriminatory implementation of disaster relief should be verified regularly through social audits in relief camps, shelters, etc.
- Ensure that a feedback mechanism accessible to people of SC/ST communities exists to capture feedback on the inclusiveness of the WASH facilities in relief camps, shelters, etc. and that any negative feedback received from them is taken seriously and acted upon swiftly to ensure inclusion across all stages of the disaster management cycle.

11.3 The elderly

The following steps must be taken to ensure that disaster management for WASH services is inclusive of the special needs of the elderly:

Table 24: Inclusion of the Elderly in WASH disaster management

- Design of WASH services and assets in disaster relief camps, shelters, etc. to make them accessible to the elderly using WASH assets and services
- The Swachh Bharat Handbook on Accessible Household Sanitation for Persons with Disabilities (PWDs)[14] covers the special needs of the elderly and lays out design for toi-lets in an accessible way for them. These standards should be followed for design of toilets in all phases of the DM cycle
- It is important to sensitize local communities about additional vulnerabilities of the elderly in the communities
- Promote neighbourhood groups or responsible individuals to assist the elderly when it comes to accessing emer-gency WASH services

[14] https://swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/technical-notes-manuals/PWD-Guidelines.pdf

- Make special arrangements for disaster preparedness and safety of various institutions for the elderly, such as old age homes, retirement homes and shelter homes for the elderly
- Linking organizations working for the welfare of elderly with community initiatives for disaster resilience is important
- Prepare lists of all the elderly persons living without adequate support in disaster-affected communities, and periodically review their situation by checking the status of social networks (neighbours, relatives, friends) and other arrangements for their sup-port
- When there are early warnings, take measures to ensure that the elderly are informed, prepared, and supported to respond swiftly
- Involve elderly in disaster preparedness and planning to the extent they can contribute
- Assess medical and health support needs of the elderly in each area and maintain stocks of crucial items
- Special attention to the protection of property and assets of the elderly after evacuation or post disaster situations
- Ensure that a feedback mechanism accessible to the elderly exists to capture feedback on the inclusiveness of the WASH facilities in relief camps, shelters, etc. and that any negative feedback received from them is taken seriously and acted upon swiftly to en-sure inclusion across all stages of the disaster management cycle.

11.4 Children

The following steps must be taken to ensure that disaster management for WASH services is inclusive of the special needs of children:

Table 25: Inclusion of children in WASH disaster management

• Make special arrangements for disaster preparedness and resilience of WASH facilities in various children's institutions
• Schools must have segregated toilets that are kept open and accessible during school hours, and have the above systems in place for menstrual waste management.
• Badly designed toilets also deter children from using them due to fear of darkness or falling down the plughole etc. This must be avoided for all toilets constructed in all stag-es of the DM cycle.
• Studies show that when fathers of adolescent girls are made aware about the MHM needs of their daughters, they become their biggest champions and therefore specific communication to fathers should be included in the outreach to communities.
• Regulatory measures for ensuring school safety and disaster preparedness in schools, including disaster resilience of school WASH facilities like gender-segregated school toi-lets with handwashing and water supply
• Regular mock drills and other preparedness measures in all schools and children's institutions
• Pay special attention to children's institutions after early warning and post-disaster
• Promote hygiene practices and vector control to protect children from vector-borne and infectious diseases
• Ensure that a feedback mechanism accessible to children to capture feedback on the inclusiveness of the WASH facilities in relief camps, shelters, etc. and that any negative feedback received from them is taken seriously and acted upon swiftly to ensure inclu-sion across all stages of the disaster management cycle.

[15] https://swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/technical-notes-manuals/PWD-Guidelines.pdf

11.5 Persons with Disabilities (PWD)

The following steps need to be taken to ensure that disaster management for WASH services is inclusive of the special needs of people with disabilities:

Table 26: Inclusion of PWD in WASH disaster management

• Common toilet designs are often found to be unusable by the differently-abled, both men and women.
• The Swachh Bharat Handbook on Accessible Household Sanitation for Persons with Disabilities (PWDs)[15] covers the special needs of the elderly and lays out design for toi-lets in an accessible way for them. These technologies should be used to build an ade-quate number of accessible toilets at all stages of the DM cycle.
• In public toilets, care must be taken to ensure that a ramp with appropriate slope, handle-bar support, both inside and outside of the toilet cubicle with different heights for adults as well as children, raised toilet seats/commodes for the elderly, the young, and the differently abled are included in the design.
• Community/public toilets designs must be revisited to make them accessible by chil-dren, senior citizens, and the differently-abled to encourage them to use these toilets.
• If there is a user fee in community/public toilets, concessions must be provided for senior citizens, children, and the differently abled, to encourage them to avail of these services.
• Sensitize local communities about the PWD living in the community and their special needs particularly during disasters
• Prepare lists of all PWD, periodically reviewing their situation and check the status of social network (neighbours, relatives, friends) and other arrangements for their support
• In anticipation of a hazard or after early warnings, take measures to ensure that all PWDs are properly informed, prepared, and supported
• Ensure that a feedback mechanism accessible to people of all abilities exists to capture feedback on the inclusive-ness of the WASH facilities in relief camps, shelters, etc. and that any negative feedback received from them is taken seriously and acted upon swift-ly to ensure inclusion across all stages of the disaster management cycle.

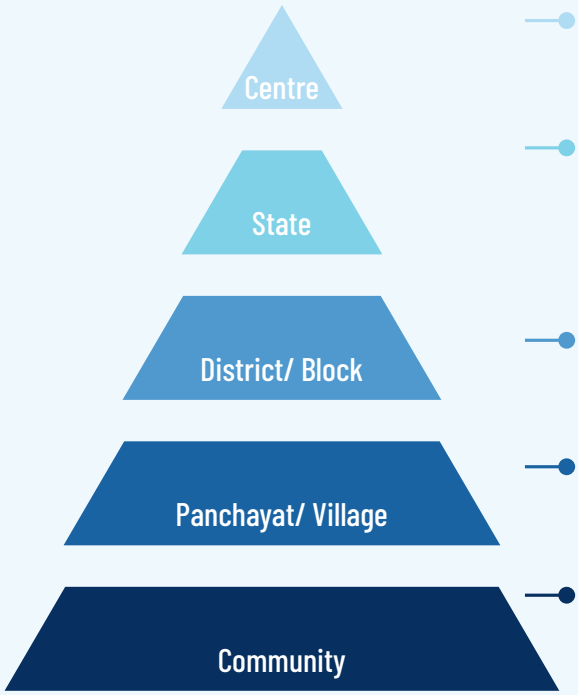
Chapter 12

Institutional Mechanisms

Chapter 12: Institutional Mechanisms

Using this document as a guideline, a WASH DMP will be prepared at the State, district and GP level every year, at the beginning of the financial/ calendar year. The DMP will run in parallel with the Gram Panchayat Development Plan (GPDP)[b]. At the State level, the WASH DMP will be prepared by the offices of the Principal Secretaries-incharge of the Water and Sanitation departments, and approved by the Chief Secretary. At the district level, it will be designed by the district water and sanitation mission (DWSM), and approved by the DDMA headed by the District Collector/ District Magistrate/ CEO(ZP). The WASH DMP preparation at district level should correspond with the provisions of the District Development Plan (DDP). At the GP level, the WASH DMP should be led by the Gram Panchayat members, and approved by the Gram Sabha, in parallel with the GPDP and VDMP exercises[c].

There are a number of stakeholders at every level who need to work together during different stages of the Disaster Management Cycle in order to implement the Jal Jeevan Mission and Swachh Bharat Mission in a disaster-resilient manner. Below is a schematic that shows the key players at every level.



Department of Drinking Water and Sanitation, Ministry of Jal Shakti
- NDMA/ NIDM/ MHA/ NDRF
- Development Partners like World Bank, UNICEF, Water Aid

Line departments for water supply and sanitation (e.g., PHED, PRD, RDD, RWSS, Department incharge of Rural sanitation etc.)
- SDMA/ SIDM
- State-level WASH NGOs and Inter-Agency Groups for disaster management

District Water and Sanitation Mission (DWSM/BWSM)
- DDMA
- Grassroots NGOs, CSOs working in WASH and DM

Village Disaster Management Committee (VDMC)
- Village Water and Sanitation Committee (VWSC)
- Grassroots NGOs, CSOs working in WASH and DM

Community
- SHGs, school teachers, AWC, ANMs, ASHAs
- Swachhagrahis, Self-Employed Mechanics, Aapada Mitras

b. (https://panchayat.gov.in/en/gpdp)
c. (https://www.panchayat.gov.in/documents/448457/0/DMP+ENGLISH.pdf/bea63ed0-a832-4583-9663-b5b38a5b1b9b?t=1648014882478)

12.1 National level

Under the Disaster Management Act, 2005, Government of India constituted National Disaster Management Authority (NDMA) at the national level to create an enabling institutional environment to ensure quick response to various types of disasters. NDMA acts as the apex body for disaster management in the country.

NDMA has put a national policy framework in place to help States to achieve disaster resilience.

The Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti will be responsible for providing technical and financial support to State RWSS / PHED/ Department in charge of Rural Sanitation while responding to natural calamities for restoration of damaged water supply and sanitation systems.

12.1.1 Key responsibilities of NDMA

Table 27

- The central role of NDMA is to promote a culture of prevention, mitigation and prepar-edness to manage disasters proactively.
- It also aims to achieve collaboration among communities, NGOs and the government/ administration at various levels.
- The impact of NDMA on rural water supply is also in community-based disaster man-agement, capacity develop-ment, consolidation of past initiatives and good practices, cooperation with agencies at the national, regional and international levels, compliance and coordination to generate a multi-sectoral synergy.
- NDMA has also constituted a national body of trained professionals, mostly drawn from army background, named National Disaster Rescue Force (NDRF). This is the first “point of call” for providing help and coordinating rapid response in case of disasters.

12.1.2 Key responsibilities of DDWS

Table 28

• At the National level, DDWS will participate in all technical coordination and linkages with NDMA and State Government SWSM, In charge of Rural Sanitation, PHED/RWS depart-ments, SDMA's, NGOs, international agencies etc.	
Preparedness	• DDWS will give technical advice to the State PHED/ RWSS/ Rural Sanita-tion departments about equipment/ resources to be stockpiled in prep-aration for emergency water and sanitation response • DDWS will identify key institutions/ resource centres/ ATIs including those run by non-governmental agencies for human resource develop-ment and training for the state departments. • In coordination with sectoral experts and the NDMA, DDWS will develop the capacity in DRR of WASH Infrastructure for 1 person for each DWSM.
Response	• DDWS will provide technical and financial support to State RWSS/PHED/Board/ Department in charge of Rural Sanitation while re-sponding to natural calamities for restoration of damaged WASH services. • If necessary DDWS will depute technical experts/ Officers to assist State RWSS/ Rural Sanitation department and also conduct a quick assessment of the situation
Recovery and Reconstruc-tion	• Advise States when it comes to conducting PDNAs • Technical advice for building back better after a disaster using disaster-resilient WASH technolo-gies

12.1.3 Key responsibilities of UN organizations/ NGOs at the national level

Table 29

• Support DDWS in setting up the Government-Nongovernment inter-agency Coordina-tion platform during non-emergency times to ensure appropriate coordination with key humanitarian actors during the times of disaster response.
• Support DDWS in identifying state-level NGOs for conducting a state-wide risk assess-ment on water supply and sanitation
• Assist DDWS towards development, piloting, validation and updating of National level water and sanitation contingency and preparedness plans.
• Support DDWS to standardize norms, designs and standards for emergency water and sanitation during emergency response.
• Facilitate and support detailed assessment on field driven needs and capacities at National level.
• Assist DDWS to establish linkages with authorities for GIS monitoring of Water points in states as part of prepared-ness measure to calamities and provide last mile connectivity for early warning dissemination.
• Support NDMA and DDWS in conducting various risk assessments, especially the most detailed Post Disaster Needs Assessment, and make recommendations on the Recovery and Reconstruction plan to build back better after a disaster.

12.2 State level

The NDMA has directed all the states to constitute State Disaster Management Authorities (SDMAs) as autonomous societies for responding to disasters. Headed by the Chief Minister, SDMAs serve as a platform for hazard monitoring, disaster forecasting, scientific data analysis, emergency operations, and response communications.

At the State level, State Water Sanitation Mission (SWSM) and State Executive Committees (SEC) will be responsible for coordination of emergency support relating to drinking water supply and sanitation.

12.2.1 Key responsibilities of SDMA

- SDMAs perform as multidisciplinary units coupled with handling complexity of statistics sharing and reporting.
- SDMAs are also required to constitute state level State Disaster Response Forces (SDRF) to execute and coordinate immediate rescue and rehabilitation efforts.
- They are aimed to establish essential systems, structures, capabilities and administra-tive principles for mitigating disaster risks and responding to unforeseen events.

12.2.2 Key responsibilities of the SWSM

In case drinking water supply and sanitation are dealt with by two departments, they should work in close coordination/consultation with each other. The key responsibilities of the State WASH departments include:

Table 30

• Support SDMA on overall coordination of emergency water and sanitation response.	
• Work under the overall direction of SDMA and in coordination with State Executive Committee convened by Secretary (DM).	
Preparedness	• Meet at least once before the expected normal commencement of a flood/ drought and thereafter as frequently as may be necessary. • Set up Disaster Control Rooms (DCRs) at the RWSS/ offices in State, District and other levels and monitor their functioning • Review RWSS needs and strategies for effective emergency response. • Review position of stock and arrangements for procurement of essential supplies.
Early Warning	• A detailed analysis of the hazards likely to impact the water and sanitation systems of the state will be carried out by the Public Health Engineering Departments / Water board/ department/ In charge of rural drinking wa-ter supply and sanitation, in consultation with the experts from the field. • Hazard assessment is concerned with the properties of the hazard itself. The Vulnerability Atlas of India, developed by Building Materials and Tech-nology Promotion Council (BMTPC), Govt of India, will be used as the base-line for all analyses. • The comprehensive hazard assessment of the State prepared by the SDMA should also be used for further reference.
Recovery and Reconstruction	• Monitor responses to the emergency and impact thereof

12.2.3 Coordination Mechanisms at State level

- The States will identify the human resources available for disaster management.
- The institutions for human resource development and training run by the Government and those run by Non-Governmental Organizations will be identified and a detailed plan for capacity building will be chalked out by the State department, involving all rel-evant institutions and departments.
- The State will also maintain a roster of professionals whose services might be required in management of disasters.
- At the State level, the Principal Secretary / Secretary, RWSS Department shall be the State Nodal Officer and shall coordinate the response to the disaster.
- The Engineer-in-Chief/ Chief Engineer, RWSS/ PHED/ rural Sanitation department shall implement the emergency support functions relating to drinking water supply and sanitation.

12.2.4 Responsibilities of Secretary, State RWSS/ PHED/ In charge of Rural Sanitation

Table 31

Preparedness	• Ensure formulation of state disaster management plan based on vulnerability analysis for each district for the rural drinking water and sanitation sector. • Coordinate vulnerability hazard analysis exercise conducted in districts. • Provide guidance for framing technical guidelines and IEC/ HRD strategy for managing disasters. • Ensure all necessary steps are taken before 30th June every year for drought preparedness. • Ensure that inventory of water supply and sanitation materials and spare parts as may be required by the district Superintending Engineer/ Executive Engineer/ District nodal officer of rural sanitation in an event of disaster is made available. • Have a roster of RWSS staff to be deployed from other areas to any affected region to cope with the requirements of the affected areas in consultation with EE/ SE/ District nodal officer of rural sanitation. • Ensure setting up of central/ divisional / sub-divisional/ sectional stores for emergency water and sanitation supplies. • Ensure all relief codes be strengthened to include measures for stockpiling of water disinfection tablets and essential water and sanitation equipment. These should be maintained at the govt. warehouse for the delivery of safe drinking water and sanitation during crisis.
Response	• At the State Level, the Principal Secretary/ Secretary RWSS Department shall be the State Nodal Officer and shall coordinate the response and relief operations of the RWSS department to the disaster. • Set up monitoring/ documentation mechanisms for situation reporting to the SDMA/ SEC.
Coordination roles	• IAG (Inter Agency Group) and United Nations for multi-layer coordination during emergencies.

12.2.5 Responsibilities of E-in-C/ Chief Engineer (State Nodal Officer, RWSS/PHED)/ Mission director of rural sanitation

Table 32

Early Warning	• As soon as the warning of impending disaster is received, the E-in-C / Chief Engineer (RWSS/PHED)/Mission director of rural sanitation) at the State must alert their counterparts in District and Block Levels. • On the basis of assessment of severity of the disaster, the E-in-C/ Chief Engineer (RWSS/PHED) /Mission director of rural sanitation shall issue appropriate instructions on actions to be taken to including restoration, augmentation of water sources to the SE/ Executive Engineers / Assistant Engineers, / District nodal officer of rural sanitation who will then supervise responses. • Must inform the respective District Level Member Secretaries (DWSM) upon receipt of weather warnings or reports of actual disaster • Coordinate with various nodal agencies at State / National Level mandated for disseminating early warning signals • Should share all emergency contingency plans with SDMA for effective coordination during emergencies.
Response	• The E-in-C / Chief Engineer (RWSS/PHED)/ Mission director of rural sanitation) shall implement the decisions taken by the State RWSS department and the SDMA/SEC. • Ensure setting up emergency control room in their office to collect, collate and transmit information relating to the natural calamities and relief operations undertaken. • Deploy staff for carrying out rapid assessment of damage caused to drinking water and sanitation infrastructure in affected areas and produce update for State Disaster Management Authority (SDMA) • Inform State Secretary (RWSS/PHED) on the situation update • Under the guidance of the SDMA, CE/ Mission director of rural sanitation will give instructions to DWSM on prioritization of response activities pertaining to water and sanitation • Identify alternate water sources and make necessary arrangements of supply to the affected community • Produce 'Daily Situation Report' for SDMA in the event of Disaster

12.2.6 Role of UN Organizations/ NGOs at State Level

At the State Level, NGOs will facilitate formation of water and sanitation task forces to support PHED/RWSS with rapid assessment reports to design water and sanitation response.

Table 33

Coordination	• Support State Level SWSM for setting up Government-NGO Inter agency coordination platform during non-emergency times to ensure appropriate coordination with key humanitarian during the times of disaster response.
Assessments	• With support of the national coordinating NGO, undertake a district-wide risk assessment on water and sanitation and share findings with the SDMA for planned action
Response	• Assist key PHED/ RWSS with the distribution of emergency relief supplies which includes ORS, chlorine tablets, sanitation infrastructure, hygiene kits and any related IEC materials
Capacity Building	• Support PHED/ RWSS with capacity building events on water and sanitation in emergencies

12.3 District and block level

12.3.1 Role of DDMAs

- District Disaster Management Authorities (DDMAs) have been formed in many States in the districts with District Collector concerned as Chairman of DDMAs to take care of the disaster management.
- DDMAs are the platforms to maintain the linkage between the SDMA and affected/ potentially affected population.
- District Disaster Management Authority (DDMA) may set up Disaster Control Rooms (DCRs) in district, block and lower levels and monitor their functioning.

12.3.2 Role of DWSM

At the District Level, DWSM will function under the supervision of District Magistrate/ Collector to carry out the actual implementation of water and sanitation projects during disasters.

Roles and responsibilities:

- Meet once before the expected normal commencement of disaster and thereafter as frequently as required.
- In case a common DCR is established, the DWSM will depute the staff to be a part thereof.
- Extend services during disasters as per requirement as decided by DDMA
- Review contingency water supply and sanitation plans submitted by RWSS/PHED.
- Review position of essential water and sanitation stock and will make arrangement for procurement of essential supplies under the SDRF/ normal funds.
- DWSM under the guidance of DDMA will monitor emergency responses at the district, block and village levels and impact thereof.

12.3.3 Responsibilities of Member Secretary, DWSM

The SE/ Executive Engineer, RWSS/ PHED/ District nodal officer of rural sanitation is also the (Member Secretary) of DWSM, and shall be the district level nodal officer for coordinating emergency operations with respect to delivering water and sanitation services.

The SE/ Executive Engineer (Member Secretary) of DWSM in this capacity is entrusted with the responsibility of ensuring that all Rural Water Supply and sanitation Works in the district are properly maintained in an event of disaster by carrying out timely repairs wherever necessary.

This includes the following roles and responsibilities:

Table 34

Prepared-ness	• Share all emergency contingency plans with DDMA for effective coordination during emergencies. • During the onset of monsoon, keep vigil on all water supply sources and schemes. • In the event of scanty / deficient rainfall over prolonged period, it is the responsibility of SE/EE to monitor drinking water levels on ground water and surface water sources in the concerned district and identify possible existing sources having relatively high yield and/or explore possibility of creating sources by using available information including HGM maps, etc. before 30 June. • Coordinate with Block DEE/ Panchayat AE / Village JE on vulnerability analysis to various forms of disaster with close support from VWSC. • Procurement and safe storage (warehousing) of essential water and sanitation essential supplies based on contingency plans • An inventory check list of water supply and sanitation resources in the district will be listed out and updated regularly. • All the EE / AE should be instructed to check up the PWS schemes, which are prone to disasters in their jurisdiction and compile a report on water supply position of concerned areas. This report should be placed before the DDMA. • Member Secretary, DWSM must conduct district level capacity building and training for line departments/ stake holders on utilization of maps, warning and watch advisories.

Early Warning	• Submit a special situation update to the DC indicating the position in respect of water and sanitation preparedness in the district when early signs of disaster appear in any part of the district. • Inform all concerned RWSS - JE /AE of blocks and panchayats to review essential emergency stocks and contingency plans to be able to respond in a timely manner. • Upon receipt of early warning signals from State, the Member Secretary must start the monitoring of all water and sanitation infrastructure in the affected parts of the district. • Be in constant touch with local IMD and other agencies in the district for information of impending disaster. • Ensure setting up district emergency Control Room in their office for daily monitoring of situation under the guidance of DDMA • Share all emergency contingency plans with district level DDMA for effective coordination during emergencies. • Coordinate with Block DEE / Panchayat, AE/ Village JE on early warning signs. • Instruct AEE/AE to check up the PWS schemes in their jurisdiction and compile a report on water supply position of concerned areas.
Trigger Mechanism	• DM/ DC will be responsible for proper triggering of the disaster management mechanism in the district. • Call a meeting with their staff after early warnings are received from concerned nodal agencies/ DDMA /DC • Identify crucial water and sanitation systems and earmark resources in their district as part of life saving intervention in case of onset of disaster • DDMA must lay down mechanism to respond to disasters with clear indication on the acceptable response time. • DM, in consultation with Member Secretary, must define the roles of VWSC, NGOs and CSOs while triggering disaster management mechanism. • DM should also be responsible for allocating land in a non-hazard prone zone for constructing shelter homes, centralized waste collection unit and FSTP.
Response	• Ensure supply of clean drinking water to the affected areas. • Ensure transportation of water with minimum wastage. • Ensure supply of water purification installations, mobile systems, halogen tablets, etc. for providing clean drinking water. • Ensure that sewer and drainage lines are kept separate from drinking water facilities. • Ensure availability of adequate number of toilets to prevent contamination of drinking water sources. • Ensure cleaning arrangement for toilets • Ensure daily situation reports to Chief Engineer/ Mission Director SBM-G • Coordinate with Block DEE/ Panchayat, AE/ Village JE for the restoration of water supply and sanitation infrastructure as per assessment • Contact potential suppliers to arrange for procurement of emergency water and sanitation materials in case of disaster • Take immediate actions for the restoration of water supply and sanitation infrastructure as per damage assessment

- Identify alternative sources of water and make necessary arrangements for supply to the affected population
- Ensure that affected people have adequate facilities and supplies to collect, store and use sufficient quantities of water for drinking, cooking and personal hygiene
- Ensure that drinking water supplied conforms to the prescribed quality standards (IS-10500)
- Ensure that water made available for domestic and personal hygiene should not cause any risk to the health
- Launch necessary awareness campaigns on safe water handling practices, environmental sanitation and individual hygiene along with hardware provision
- Visit as many areas as possible to have firsthand information of the situation
- Keep District Collector and E-in-C/ Chief Engineer, RWSS/ PHED informed daily about the action taken in the area
- Keep local MLA, MP and other community leaders informed on measures taken by RWSS/ PHED for an effective disaster response

12.4 Panchayat/ Village level

Local self-government institutions like PRIs and civil society play a vital role in emergency preparedness/ response, search and rescue, relief, shelter management and relief camps, recovery and reconstruction, preliminary damage assessment and finalization of action plans, etc.

The Block Resource Centres (BRCs) should assist the block Panchayat in ensuring full preparedness at grass root level and mobilizing trained manpower in the event of calamity.

12.4.1 Role of VWSC

- The Village Water and Sanitation Committee (VWSC) will take the lead for disaster preparedness at the local level.
- Village level orientation and sensitization should be done by VWSCs at regular intervals with specific objectives in a time bound manner.
- This will have to be led by the respective DDMAs.
- VWSC may also envisage capturing the emergency demand data to facilitate DDMA concerned.
- Furthermore, capturing of traditional wisdom to mitigate disasters in the past must be integrated with disaster planning and management.
- At the Panchayat/ Village Level community-based water and sanitation disaster management plans will focus on enhancing the community capacity in order to respond effectively to disasters, especially for the vulnerable communities and groups.
- The plan will focus on hazard mapping and identifying the vulnerable areas and population groups, identifying the resources and dissemination of early warning.
- The GPs/ VWSCs can request for support in terms of funds and functionaries to cope with the disaster.

12.4.2 Role of Sub-Divisional Officer AE/ AEE, RWSS/ PHED

- Ensure that supply of materials and spare parts as may be required by the JE, RWSS of the affected areas are available.
- PHED/RWSS to identify funding schemes available for toilet retrofitting post disaster, renovation of traditional water conservation structure, source sustainability and waste management
- Prepare a contingency plan for providing drinking water in case of failure of regular water distribution system during disaster.
- Ensure all public water sources in flood prone areas are disinfected/repaired post-disaster.
- Under the overall supervision of DDMA, JE / AEE will endeavour to ensure that, amenities in cyclone shelters such as drinking water, bathing and toilet facilities for large number of people during the disaster phase are in usable condition.
- Create a roster of technicians for carrying out immediate repairs and restorations of water supply facilities in the event of disasters.
- Utilize the services of Block Resource Centres (BRCs) to train staff, VWSC and GP members in disaster preparedness/response.

12.4.3 Role of Junior Engineer (JE), RWSS/ PHED

Table 35

Preparedness	• Create a list of potential suppliers to arrange for procurement of emergency water and sanitation materials in case of disaster. • Ensure availability of field test kits (both for chemical and bacteriological) and/ or refill so that GPs could test drinking water quality more frequently in emergencies. • Ensure sanitary survey of all drinking water sources so as to identify contaminated sources and take preventive actions in calamity prone areas. • Make prior arrangements in convergence with other relief parties and in consultation with the BOD/ Control room- to send materials in boats, etc. whenever necessary. • Depute designated staff and self-employed mechanics, individually or in teams with adequate spare parts and materials to repair the non-functioning wells/ piped water supply systems as a measure of preparedness.

	• Emphasize at Village VWSC/ Paani Samiti levels the need to include essential water and sanitation interventions in their community-based disaster preparedness plan. • Verify stock of equipment and material available with VWSC/ Paani Samiti for performing its function as per the emergency plan. • Ensure adequacy of hygiene, sanitation and water supply related material in the Rural Sanitary Marts/Production Centres. • Arrange systems for regular water quality monitoring from drinking water sources in the affected area in case of disasters. • Maintain data on repair status of water supply systems and potable water and sanitation systems for villages and panchayats. • Prepare plans for water distribution by water tankers/ mobile water purification units and other means of distribution and storage of water in an event of disaster. • BRC must maintain a list of trained staff, VWSC and GP members for utilizing their services. • Make prior arrangements in convergence with other relief parties and in consultation with the BDO/ Control Room to obtain and send materials in boats, etc as necessary.
Involvement of local communities/ Schools/ GPs/ VWSC/ SHGs/ Gender Perspectives	• Government and institutional interventions and response to hazard events are likely to be inadequate without the involvement of local communities, Schools, SHGs, communities at risk including all gender and inclusion perspectives. • To ensure an inclusive response, the JE must: oEncourage local community coping mechanisms for the detection of early warning systems. oEnsure that existing schools/ GPs/ VWSCs/ SHGs are involved in raising awareness among individuals and communities. oEnsure that all early warning systems must be people centered; and people are aware of hazards and potential impacts. oCoordinate the necessary response to an early warning, through the support of the VWSC, to ensure that the community is aware of the impending threat, and that their WASH needs are secured well in advance oWith support from VWSC, conduct the first assessment of damage related to water and sanitation infrastructure.
Trigger Mechanism	• Activate the quick response team of technicians, masons and others for carrying out quick repairs and restorations of water supply infrastructure in consultation with VWSC as soon as early warning is received. • BRC staff must be used to mobilize the trained manpower and work out tasks they can perform. • JE must personally contact the Block Control Room/ BDO once or twice daily, collect information on affected areas, pass on the same to sectional control room and act accordingly. • JE may request the concerned Assistant Engineer, RWSS for additional support, if required. • Ensure setting up of emergency Control Room in their office for daily monitoring of situation.

Response	• Ensure water distribution by water tankers/ mobile water purification units and other means of distribution and storage of water in an event of disaster. • Arrange for safe disposal of sanitation waste, provision of temporary and mobile toilet units. • Arrange for safe disposal of existing sanitation waste. • Arrange for regular water quality testing of drinking water sources in the affected area during disasters. • Arrange to depute designated staff and Self-Employed Mechanics (SEMs) individually or in terms with adequate spare parts and materials to repair the non-functional tube wells / piped water supply systems. • Organize regular water quality testing of water sources in the affected area in case of disasters. • Will arrange for continuous water quality monitoring and surveillance while transporting drinking water through tankers in filling stations, mobile treatment plants or in packaged pouches in the affected areas / relief camps. • Maintain data on repair status of water supply systems and potable water and sanitation systems for villages and panchayats. • Prepare plans for water distribution by water tankers, mobile water purification units and other means of distribution and storage of water in event of disaster. • Coordinate with the Sub-Division and Block level Civil administration on immediate actions to be taken. • Send requests of appropriate water and sanitation materials and spare parts as may be required to the BRC. • Take preventive measures against water borne diseases and enable chlorination of drinking water. • Keep the EE, RWSS informed once or twice daily or as frequently as required about the situation and action taken. • Liaise with BRCs effectively in public interaction and communication of activities being carried out.

12.4.4 Role of NGOs/ UN Organizations

At the Panchayat/ Village Level NGOs/ INGOs will support DWSM to establish quick water and sanitation infrastructure for the affected population. Their roles include the following:

- Support PHED/ RWSS with potable water distribution and protection of water sources from further contamination.
- Assist PHED/ RWSS in chlorination of water sources and monitoring of water quality parameters.
- Support PHED/ RWSS with the construction of safe toilets/ field latrines and soak pit latrines at relief camps and final safe disposal mechanism of excreta.
- Support PHED/ RWSS with community mobilization for efficient use of water and sanitation facilities and dissemination of information related to water borne diseases.
- Support PRI and VWSC in planning resilient WASH infrastructure basis the risk assessment carried out at state-level
- Support PRIs to make cost-effective, climate resilient and disaster responsive WASH plans as part of Village Sanitation Plan (VSP), VAP (Village Action Plan) and Gram Panchayat Development Plan (GPDP)

Chapter 13

Funding Mechanism

Chapter 13: Funding Mechanism

This Chapter covers the funding mechanisms that can sponsor disaster management activities in the WASH sector.

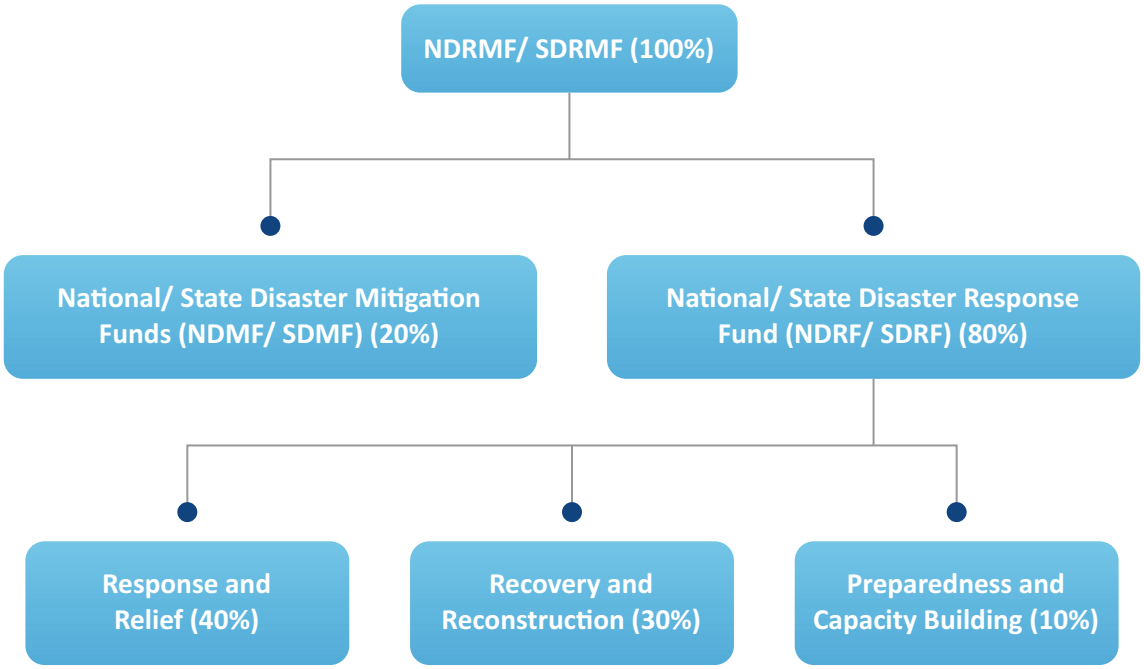
13.1 Flexi-funds under JJM and SBM-G

As per the instructions of Ministry of Finance, 25% of the Centrally Sponsored Scheme's annual fund allocation to the States can be used as flexi-funds. For meeting the immediate requirement of funds for post disaster recovery works, flexi-funds available with States under JJM and SBM-G can be used. States/ UTs are advised to set aside at least 5% of the annual allocation under both flagship programmes to take care of unforeseen challenges/ issues arising out of natural disasters/ calamities and internal disturbances, which may be used by the State for coverage at the end of the financial year, if unutilized.

13.2 National and State Disaster Risk Management Funds (NDRMF/ SDRMF)

Disaster-related Grants recommended by the 15th Finance Commission included the setting up of a State Disaster Risk Management Fund (SDRMF) and the National Disaster Risk Management Fund (NDRMF).

- The Commission recommended the continuation of the existing cost sharing ratio between the Union and State Governments of 75:25 for general states and 90:10 for North-East and Himalayan States.
- The Commission recommended allocation of disaster management funds to SDRMFs should be based on factors of past expenditure, area, population, and disaster risk index (which reflect States' institutional capacity, risk exposure, and hazard and vulnerability respectively).
- Assuming an annual increase of 5%, the Commission recommended the total corpus of Rs 1,60,153 crore for States for disaster management for the duration of 2021-26, of which the Union share is Rs 1,22,601 crore and States share is Rs 37,552 crore.
- The Commission also recommended that the total States allocation for SDRMF should be sub-divided into funding windows that encompass the full disaster management cycle as depicted in the figure below:



- While the funding windows of the SDRF and SDMF are not interchangeable, there could be flexibility for re-allocation within the three sub-windows of SDRF.
- The National Disaster Risk Management Fund (NDRMF) allocation would be based on expenditure in previous years.
- Assuming an annual increase of 5%, the total national allocation for disaster management is estimated to be Rs 68,463 crore for the duration of 2021-26.
- The Commission has recommended that all Central assistance through the NDRF and NDMF should be provided on a graded cost-sharing basis. States should contribute 10 per cent for assistance up to Rs 250 crore, 20 per cent for assistance up to Rs 500 crore and 25 per cent for all assistance exceeding Rs 500 crore.
- The Government has accepted these recommendations of the Commission.

The National and State Disaster Response Fund can also be used – through appropriate processes – to fund the repair or reconstruction of WASH infrastructure which was developed under the SBM-G and JJM through government incentives, but got partially or totally destroyed during disasters. The reconstruction so funded should be done using an appropriate disaster-resilient design or technology.

Chapter 14

Inter-departmental Co ordination

Chapter 14: Inter-departmental Co ordination

Since multiple departments are involved in disaster management work, inter-departmental coordination becomes an imperative during all stages of the disaster management cycle.

- **National Disaster Management Authority (NDMA):** The National Disaster Management Authority, or the NDMA, is an apex body for disaster management, headed by the Prime Minister of India. It is responsible for the supervision, direction, and control of the National Disaster Response Force (NDRF).

- **Ministry of Jal Shakti:** This ministry coordinates all the planning, funding and national level monitoring of rural water supply schemes and programmes. DDWS will ensure that proper coordination and linkages are developed with NDMA and State rural development department, NGOs, UN agencies etc. through control rooms, inter departmental co-ordination, field functionaries, PRIs and civil society network.

  The Office of AS and MD (JJM) will be the point of contact from this Department for the purpose of coordination between various inter departmental coordination as well as coordination to be done with the States. The technical team headed by the **Addl. Adviser** shall be providing inputs on technical matters. The coordination with the relief recipients in the States/ UTs shall be done in accordance with the Operational Guidelines of the Jal Jeevan Mission and Swachh Bharat Mission wherein the provisions for meeting emergency condition has already been stipulated using flexi fund component of Jal Jeevan Mission and Swachh Bharat Mission Grameen as per MoF guidelines on Flexi Fund utilization for Centrally Sponsored Schemes.

- The contact details of the O/o Addl. Adviser (PHE) are:
  Addl. Adviser (PHE),
  6th Floor, 'Antyodaya' Bhavan, CGO Complex,
  Lodhi Road, New Delhi 110003.
  e-mail: ddws_drsekhar[at]nic[dot]in.
  Telephone: (011) 24361656

- **National Executive Committee (NEC):** The NEC is composed of high-profile ministerial members from the government of India that include the Union Home Secretary as Chairperson, and the Secretaries to the Government of India like Ministries/Departments of Agriculture, Atomic Energy, Defence, Drinking Water Supply, Environment and Forests, etc. The NEC prepares the National Plan for Disaster Management as per the National Policy on Disaster Management.

- **State Disaster Management Authority (SDMA):** The Chief Minister of the respective state is the head of the SDMA. The State Government has a State Executive Committee (SEC) which assists the State Disaster Management Authority (SDMA) on Disaster Management.

- **State Water and Sanitation Mission (SWSM):** In the aftermath of a disaster, the primary responsibility for undertaking rescue, relief and rehabilitation measures rests with the concerned State / UTs.

- **District Disaster Management Authority (DDMA):** The DDMA is headed by the District Collector, Deputy Commissioner or District Magistrate depending on the situation, with the elected representatives of the local authority as the Co-Chairperson. The DDMA ensures that the guidelines framed by the NDMA and the SDMA are followed by all the departments of the State Government at the District level and the local authorities in the district.

- **Local Government Bodies:** Local Government Bodies: Local authorities include Panchayati Raj Institutions (PRI), Municipalities, District and Cantonment Boards, (where exists) and Town Planning Authorities. The exercise of making the WASH DMP at the GP level must be integrated with the exercise of designing the Village Disaster Management Plan[a]. The DMP must also be integrated with the exercise of developing the Gram Panchayat Development Plan (GPDP)[b].

- **Lists of all State-level emergency contacts for JJM and SBM are placed at Annexures 4 and 5**

a. (https://www.panchayat.gov.in/documents/448457/0/DMP+ENGLISH.pdf/bea63ed0-a832-4583-9663-b5b38a5b1b9b?t=1648014882478).
b. (https://panchayat.gov.in/en/gpdp)

14.1 Preparedness and Mitigation

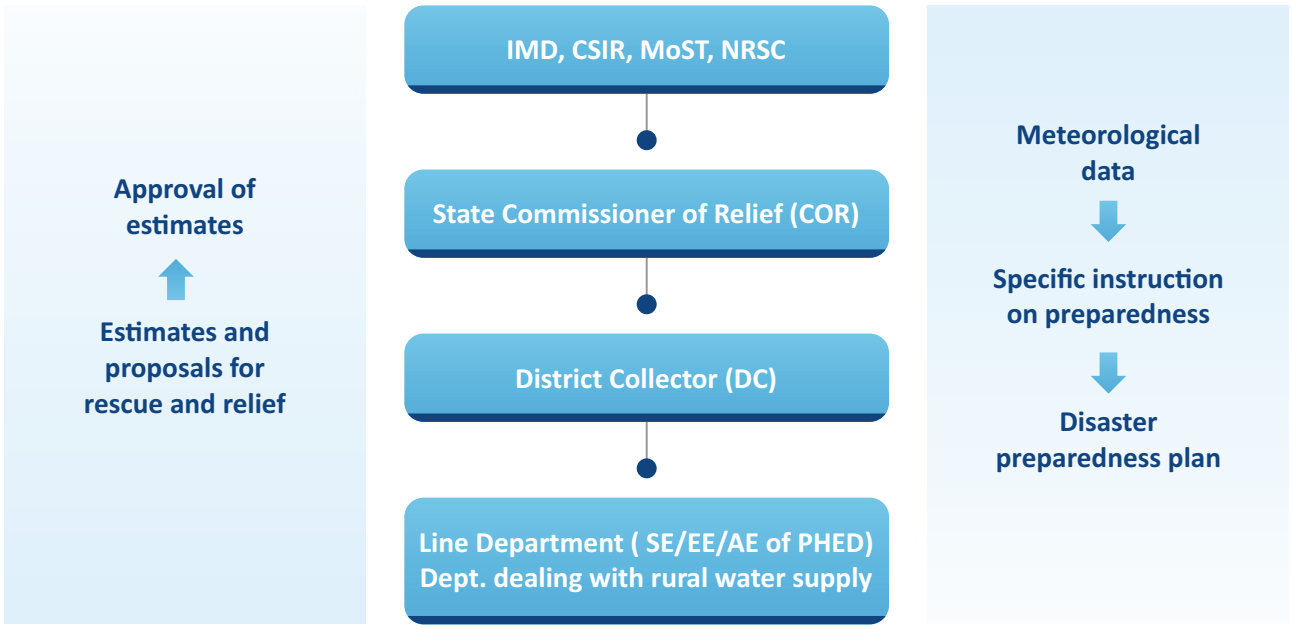
It is important to collect, analyze and interpret data from the relevant institutions to forecast the severity and impact of disaster. Since data interpretation is a technical task, it is advisable to depend on responsible agencies such as IMD, NDMA, Water Resources Department, Public Works Department, Department of Science and Technology, NRSC etc. The data required at planning stage include Geo-climatic data, Meteorological data, Hydrogeological data, GIS data, Historical incidences of disasters etc.

- Data from IMD, MoST, CSIR, NRSC and other departments will be collected by Commissioner of Relief (CoR)
- Specific information on the disaster will be given to District Collector (Chairman of DDMA).
- District Collector will co-ordinate with line department (PHED, Irrigation, PWD etc.) for preparing the plan for each sector affected.

Department involved:

Coordinating Department	Task	Responsibility
• NDMA, NIDM, MoST, DST, CSIR, NRSC, MoJS • IMD, NRSC, CGWB • State PWD • Irrigation and Water Resource department • State rehabilitation department • Town Planning department • Area Development Authorities • Water Supply Utilities (PHED/RWS)	• Promote studies, provide guidelines, provide access to actionable information • Studies on vulnerability covering social, economic, ecological, gender, and equity aspects • Change in vulnerability and risk due under climate change scenarios • Hazard Risk Vulnerability Assessment (HRVA) • Forecasting the occurrence and frequency of disaster • Planning for rescue and rehabilitation activities. • Hazard estimation and estimation of damage • Infrastructure damage assessment • Preparatory activities to be taken by state/district	• NDMA • SDMA (Commissioner of Relief)

The flow of information from the centre to district level is given in fig 6.1 below.



14.2 Response

- Line departments will prepare proposals and estimates for rescue and relief activity.
- PHED officials (as a part of SDMA) will prepare the implementation plan and estimates.
- District Collector will approve the estimates.
- Line department will engage agencies for relief and restoration works.

Department involved:

Coordinating Department	Task	Responsibility
• State PHED • State PWD • SDMA • State Irrigation and Water Resource Department • State Rehabilitation department • District Collector • District line departments	• Rescue activities • Allocation of funds • Prioritization of restoration activities	• SDMA • DDMA (Line departments)

14.3 Recovery and Reconstruction

Short term restoration works:

- Damage assessment and preparation of line estimates for repair and restoration is submitted by concerned Superintending Engineer/ Executive Engineer to the District Collector.
- On approval of line estimates by District Collector, agencies are deployed through short notice.

Long term Rehabilitation work

- **NDRF funds cannot be utilised for long term rehabilitation works.**
- The estimates for rehabilitation works will be prepared by line departments (part of DWSM) and submitted to SWSM for accord of approval.
- In case of SVS/ Retrofitting schemes approval of rehabilitation activities will be given by DWSM and placed in the agenda of SLSSC for information.
- In case of MVS schemes, the project proposal will be forwarded by line department (DWSM) to SWSM for according approval in SLSSC.

Department involved:

Coordinating Department	Task	Responsibility
• State PHED, State PWD • State Irrigation and Water Resource Department • State Rehabilitation department • State Revenue department • District Collector • District line departments and Block Development Officers (BDO), • ULBs, GPs and other PRI institutions • NGOs and CSOs	• Prioritization of Rehabilitation works, temporary shelters • Ensure rehabilitation works as per plan and budget. • Monitoring of rehabilitation works • Budget allocation and utilization activities	• DWSM • SWSM

Although PHED or RWS holds the primary responsibility to respond to disasters, seamless coordination with other departments ensures resource optimization and proper utilization of human, physical and financial resources.

Chapter 15

Legal aspects

Chapter 15: Legal aspects

This Chapter covers the following sources that set the legal backdrop for disaster management when it comes to the WASH assets and services.

15.1 Indian Judicial interpretation of Article 21 and right to water

The judiciary system in India has reiterated that 'the right to access to clean drinking water is fundamental to life and there is a duty on the state under Article 21 to provide clean drinking water to its citizens'. The State is duty bound not only to provide adequate drinking water but also to protect water sources from pollution and encroachment. Denial of water has been deemed by the Court to imply a denial of right to life.

Though not explicitly stated in the Indian Constitution as a Fundamental Right, it has been read into the interpretation to Article 21.

15.2 United Nations perspective

On 28 July 2010, through Resolution 64/292, the United Nations General Assembly explicitly recognized the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the realization of all human rights. The Resolution calls upon States and international organizations to provide financial resources, help capacity-building and technology transfer to help countries, in particular developing countries, to provide safe, clean, accessible and affordable drinking water and sanitation for all.[16]

In November 2002, the Committee on Economic, Social and Cultural Rights adopted General Comment No. 15 on the right to water. Article I.1 states that "The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights". Comment No. 15 also defined the right to water as the right of everyone to sufficient, safe, acceptable and physically accessible and affordable water for personal and domestic uses.[17]

15.3 Disaster Management Act (2005)

- **Section 12 (i)**: the minimum requirements to be provided in the relief camps in relation to shelter, food, drinking water, medical cover and sanitation
- **Section 24(d):** provide shelter, food, drinking water, essential provisions, healthcare and services in accordance with the standards laid down by the National Authority and State Authority
- **Section 30(2)(xi)(xxiv):** identify buildings and places which could, in the event of any threatening disaster situation or disaster, be used as relief centers or camps and make arrangements for water supply and sanitation in such buildings or places
- **Section 34(e):** provide shelter, food, drinking water and essential provisions, healthcare and services
- **Section 36(g)(v):** providing drinking water, essential provisions, health care, and services in an affected area
- **Section 37:** Every Ministry/ Department of Government of India shall prepare a DMP.
- **Section 39(i)(vi)**: Providing drinking water, essential provisions, healthcare and services in an affected area

[16] Resolution A/RES/64/292. United Nations General Assembly, July 2010

[17] General Comment No. 15. The right to water. UN Committee on Economic, Social and Cultural Rights, November 2002

Annexures

Annexure 1: Rapid Needs Assessment Tool for WASH in rural India: Village level

DEMOGRAPHICS

Name of Village :

No of households :

Gram Panchayat :

Block :

District :

WATER

1. What is the primary source of water supply in the village?
(Treated water means chlorinated/bleached or other type of disinfected water)

Pre-disaster	Post-disaster
Improved sources	**Improved sources**
◯ Piped water into compound	◯ Piped water into compound
◯ Piped water connected to public tap	◯ Piped water connected to public tap
◯ Borehole	◯ Borehole
◯ Protected well	◯ Protected well
◯ Protected rainwater tank	◯ Protected rainwater tank
◯ Protected spring	◯ Protected spring
◯ Bottled water	◯ Bottled water
◯ Potable water trucking	◯ Potable water trucking
◯ Other:	◯ Other:
Unimproved sources	**Unimproved sources**
◯ Illegal connection to piped network	◯ Illegal connection to piped network
◯ Unprotected rainwater tank	◯ Unprotected rainwater tank
◯ Unprotected well	◯ Unprotected well
◯ Unprotected spring	◯ Unprotected spring
◯ Tube well with sanitary risk	◯ Tube well with sanitary risk
◯ Surface water (river, dam, lake, pond, stream, canal)	◯ Surface water (river, dam, lake, pond, stream, canal)
◯ Other: _____	◯ Other: _____

2. Which statement would best describe the access to water for your community, in general, since the disaster?

- ◯ Everyone/nearly everyone has enough water for their needs (little to no problem)
- ◯ Everyone/nearly everyone has problems accessing enough water for their needs (ac-cess problem)
- ◯ Only people who can afford it have enough water (affordability problem)
- ◯ The situation changes all the time: sometimes water access is easy, sometimes it is hard (intermittent access problems)
- ◯ There is enough water for privileged groups, but not for the more marginalized groups

3. What are the ways members of the community cope with the lack of water, if any?

- ◯ They reduce drinking water consumption
- ◯ They reduce water consumption for hygiene practices (bathe less, etc)
- ◯ They spend money usually spent on other things to buy water
- ◯ They fetch water to a further water point than the usual one
- ◯ They borrow water from others who have better access
- ◯ They drink water usually meant for cleaning or other purposes
- ◯ Other(explain): _____

4. Do the following marginalized groups have access to enough water for their needs after the disaster?

Pregnant, lactating, or menstruating women	◯ Yes ◯ No ◯ No information available
People with disabilities	◯ Yes ◯ No ◯ No information available
Scheduled Castes	◯ Yes ◯ No ◯ No information available
Scheduled Tribes	◯ Yes ◯ No ◯ No information available
Minorities	◯ Yes ◯ No ◯ No information available

The elderly	◯ Yes ◯ No ◯ No information available
Transgender and non-binary people	◯ Yes ◯ No ◯ No information available

5. **Were any of the original water source(s) contaminated during or after the disaster?**
   - ◯ Yes
   - ◯ No
   - ◯ Not sure

   If yes, what is the source of contamination?

6. **Have there been any issues relating to taste, appearance or smell of drinking water available to some households of the community since the disaster?** *(tick as many as applicable)*
   - ◯ Bad smell
   - ◯ Bad appearance
   - ◯ Bad taste
   - ◯ No issues
   - ◯ Others: _____

7. **Are households in the community treating their drinking water?**
   - ◯ Yes, all or most boil the water
   - ◯ Yes, but only few boil the water
   - ◯ Yes, all or more use chlorine tablets, powder or liquid
   - ◯ Yes, but only few use chlorine tablets, powder or liquid
   - ◯ Yes, all or most use a filter
   - ◯ Yes, but only few use a filter
   - ◯ No, most households do not treat their water
   - ◯ Other: _____

8. **For the households that don't treat their water, why don't they treat it?**
   - ◯ There is no need as the water is clean and does not need to be treated.
   - ◯ They feel the water is clean and does not need to be treated, but it might not be as clean as they think.
   - ◯ They don't know any treatment methods.
   - ◯ They know treatment methods but do not have materials for water purifica-tion/treatment.
   - ◯ No such households
   - ◯ Other: _____

SANITATION AND HYGIENE

9. Were household toilets damaged in the disaster?

- ◯ Yes, many or almost all toilets damaged
- ◯ Yes, but not too many toilets damaged
- ◯ No or hardly any toilets damaged

If yes, enter the number of fully damaged household toilets:

Number of partially damaged household toilets:

10. Were institutional toilets (school, anganwadi, health centres, community/public toilets) damaged in the Disaster?

- ◯ Yes
- ◯ No

If yes, enter:

	No. of completely damaged toilets	No. of partially damaged toilets
School toilets		
Anganwadi toilets		
Health centre toilets		
Community/public toilets		

11. What is the most common defecation practice in the community?

Pre-disaster	Post-disaster
◯ Open defecation	◯ Open defecation
◯ Household latrine	◯ Household latrine
◯ Community or Public Latrines	◯ Community or Public Latrines
◯ Other: _____	◯ Shared latrines with other house-holds
	◯ Temporary Latrines
	◯ Latrines in shelters
	◯ Other: _____

12. Which statement would best describe the village with regards to access to functioning latrines since the disaster?

- ◯ Everyone has access to a latrine (100%)
- ◯ A minority of the population does not have access to a latrine (±15-30%)
- ◯ About half the population do not have access to a latrine (±50%)

- ◯ The majority of the population does not have access to a latrine (±75%)
- ◯ Nobody has access to a latrine (0%)

13. What are the problems related to latrines since the disaster? *(tick all that apply)*

- ◯ Nobody has access to toilets
- ◯ There are not enough toilets/ toilets are too crowded
- ◯ Absence/ insufficiency of water
- ◯ Latrines are unclean/ unhygienic
- ◯ Lack of privacy
- ◯ No segregation between men and women (in case of community or public toilets)
- ◯ Toilets are not safe (no door, no lock, etc)
- ◯ No disposal facilities for menstrual waste in toilets (like dustbin, incinerator)
- ◯ Toilet pits are full
- ◯ Pipes are blocked
- ◯ Connection to sewage blocked
- ◯ Structural damage to most toilets (like damaged roofs, walls, pans, etc.)
- ◯ Other (specify): _____

14. Do marginalized groups have access to toilets after the disaster?

Pregnant, lactating, or menstruating women	◯ Yes ◯ No ◯ No information available
People with disabilities	◯ Yes ◯ No ◯ No information available
Scheduled Castes	◯ Yes ◯ No ◯ No information available
Scheduled Tribes	◯ Yes ◯ No ◯ No information available
Minorities	◯ Yes ◯ No ◯ No information available

The elderly	◯ Yes ◯ No ◯ No information available
Transgender and non-binary people	◯ Yes ◯ No ◯ No information available

15. What is the most common way members of the community disposed of garbage since the disaster?

- ◯ Garbage is left in street by households and collected through public system
- ◯ Garbage is left in street containers by households and collected through public system
- ◯ Garbage is left in public areas and not collected
- ◯ Garbage is buried or burned
- ◯ Other (specify): _____

16. How frequently was garbage collected in most of the community since the disaster? *(Select one)*

- ◯ More than once a week
- ◯ Once a week
- ◯ Once every 2 weeks
- ◯ Once every month
- ◯ It varies a lot between areas of the community
- ◯ No garbage collection happens in the village currently

17. Which statement would best describe your community/site with regards to garbage management since the disaster? *(Select one)*

- ◯ Most areas of the community/site are clean (without garbage)
- ◯ Most areas of the community/site have a few piles of garbage in the street
- ◯ Most areas of the community/site have many piles of garbage everywhere in the street
- ◯ Some areas are clean, some areas have piles of garbage

18. Which statement would best describe your community/site with regards to sewage/wastewater management since the disaster? *(Select one)*

- ◯ Most areas of the community/ site do not have issues with sewage (no visible wastewater in the streets)
- ◯ Most areas of the community/ site have had issues with sewage once or twice (visible wastewater sometimes in the streets)
- ◯ Most areas of the community/ site have constant sewage problems (visible wastewater constantly in the streets)
- ◯ Some areas do not have wastewater problems (never), while other areas do (some-times or always)

19. How would you describe the level of access and affordability to the following hygiene items for most households in the village since the disaster:

Item	Available and affordable	Available but not affordable	Available but not enough water to use it	Not available at all
1. Bar of soap				
2. Jerry can/ Bucket				
3. Laundry detergent/ bar				
4. Handwashing facility				
5. Toothpaste and toothbrush or other dental hygiene solution like *daatun*				
6. Other:				

20. Do women and girls have regular access to menstrual hygiene products after disaster? *(ask ANM/ AWW/ ASHA worker)*

- ◯ Yes, they use cloth
- ◯ Yes, they use sanitary pads
- ◯ No, they don't have access to safe menstrual hygiene management solutions
- ◯ Other: _____

Annexure 2: Rapid Needs Assessment Tool for WASH in rural India: Household level

DEMOGRAPHICS

Name of Surveyor:

Name of Respondent:

Number of people in the household:

Any special category that the household falls under *(e.g. SC/ ST/ women headed household/ landless labourers, etc.):*

District:

Block:

Gram Panchayat:

Village:

1. **What is the gender of the respondent?**
   - ◯ Man
   - ◯ Woman
   - ◯ Non-binary

2. **What is the gender of the head of household?**
   - ◯ Man
   - ◯ Woman
   - ◯ Non-binary

3. **How many members in your household fall in the following category?** *(write the number next to category)*
   - ◯ _____ children under 5 years old
   - ◯ _____ persons with disability
   - ◯ _____ pregnant/lactating women
   - ◯ _____ people over 60 years old

4. **How many people currently live in your household?**
   - ◯ _____ Household members (including head of household)
   - ◯ ____ guests (friends, relatives or neighbours sharing resources due to displacement by disaster)

WATER

5. After the disaster, what are your main concerns related to Water, Sanitation and Hygiene (WASH)

- ◯ Non availability of safe drinking water
- ◯ Non availability of adequate drinking water
- ◯ Damage of water supply infrastructure
- ◯ Damage of solid waste disposal system/ infrastructure
- ◯ Damage of liquid waste disposal system/infrastructure
- ◯ Damaged toilets
- ◯ Limited or no access to bathing space with privacy
- ◯ Limited or no access to hand washing facilities (water and soap)
- ◯ Limited or no access to water storage containers with lid
- ◯ Issue with power supply for drinking water supply schemes
- ◯ Other: _____

6. What have been your primary sources of drinking water BEFORE and AFTER the disaster?
(Treated water means chlorinated/ bleached or other type of disinfected water)

Pre-disaster	Post-disaster
Improved sources	**Improved sources**
◯ Piped water into compound	◯ Piped water into compound
◯ Piped water connected to public tap	◯ Piped water connected to public tap
◯ Borehole	◯ Borehole
◯ Protected well	◯ Protected well
◯ Protected rainwater tank	◯ Protected rainwater tank
◯ Protected spring	◯ Protected spring
◯ Bottled water	◯ Bottled water
◯ Potable water trucking	◯ Potable water trucking
Unimproved sources	**Unimproved sources**
◯ Illegal connection to piped network	◯ Illegal connection to piped network
◯ Unprotected rainwater tank	◯ Unprotected rainwater tank
◯ Unprotected well	◯ Unprotected well
◯ Unprotected spring	◯ Unprotected spring
◯ Tube well with sanitary risk	◯ Tube well with sanitary risk
◯ Surface water (river, dam, lake, pond, stream, canal)	◯ Surface water (river, dam, lake, pond, stream, canal)
◯ Other: _____	◯ Other: _____

7. Did you have any issue relating to taste, appearance or smell of your main water source post-disaster?

- ◯ Bad smell
- ◯ Bad appearance
- ◯ Bad taste
- ◯ Other _____
- ◯ No issues

8. Since the disaster, does your household treat water before cooking and drinking?

(Example- boiling, use chlorine tablets, powder or liquid, use a filter, others)

- ◯ Yes, we boil the water
- ◯ Yes, we use chlorine tablets, powder or liquid
- ◯ Yes, we use a Filter
- ◯ I don't know
- ◯ No, we don't treat our water
- ◯ I am not sure

9. If you answered "no" to the last question, why don't you treat your water before drinking or cooking?

There is no need as I feel the water I collect is clean and does not need to be treated

We don't have materials for water purification/treatment

I don't know any treatment methods

I don't have the time

Other: _____

10. Do you have enough water to meet your household needs since the disaster?

- ◯ Yes
- ◯ No

11. If you answered "yes" in the last question, how do you adjust for the lack of water now?

- ◯ We have reduced our drinking water consumption
- ◯ We have reduced our water consumption for hygiene practices (bathe less, etc)
- ◯ We spend money usually spent on other things to buy water
- ◯ We fetch water to a further water point than the usual one
- ◯ We borrow water from neighbours, or other sources
- ◯ We drink the water usually used for cleaning or other purposes
- ◯ Other (please explain): _____

12. **Since the disaster, if someone from your household fetches water to drink (no functional household water supply), how many person-hours a day does your family spend in going to your main water point, fetching water, and returning (at peak time)?**

(If the respondent has problem calculating this, the surveyor should ask the number of people who fetch water and how many hours each spends, and add them up to select the appropriate option)

- ◯ 1 person-hour or less
- ◯ 1 to 5 person-hours
- ◯ 5 to 10 person-hours
- ◯ More than 10 person-hours

13. **Since the disaster, do you feel the activity of fetching water (distance and queuing time) constitutes a problem for your household? Please select as many options as applicable:**

- ◯ No problem
- ◯ Distance is a problem
- ◯ Queuing time is a problem
- ◯ Both distance and queuing time are problems
- ◯ It reduces time usually spent on other tasks
- ◯ Women are disproportionately affected
- ◯ It prevents children from attending classes
- ◯ It reduces amount of water accessible to household
- ◯ It forces household to us closer, less desirable water sources
- ◯ Other (please specify): _____

SANITATION AND HYGIENE

14. **Do all household members have access to a working/functional after the disas-ter?**

- ◯ Yes, all members have access to a functional household toilet and use it
- ◯ All members have access to a functional household toilet but only some use it
- ◯ All members have access to a shared toilet (with another household) and use it
- ◯ All members have access to a shared toilet (with another household) but only some use it
- ◯ All members have access to a community / public toilet and use it
- ◯ All members have access to a community / public toilet but only some use it
- ◯ No members have access to a functional toilet
- ◯ Other: _____

15. **Describe the kind of toilet used by member of the household who do use a toilet:**

- ◯ Flush latrine to the open (unimproved)
- ◯ Flush latrine to a tank/sewer system/pit (improved)
- ◯ Pit latrine-covered/with slab (improved)
- ◯ Pit latrine-open/without slab (unimproved)
- ◯ Other: _____

16. What, if any, are the problems with the household/community toilet you use (tick as many as applicable):

- ◯ There are not enough facilities/too crowded
- ◯ Absence/insufficiency of water
- ◯ Latrines are unclean/unhygienic
- ◯ Lack of privacy
- ◯ It is not safe (no door, no lock, etc)
- ◯ No separate toilets for men and women
- ◯ No way (dustbin, incinerator etc.) for women to dispose menstrual waste
- ◯ Toilet pit is full
- ◯ Pipes are blocked
- ◯ Connection to sewage blocked
- ◯ Structure is damaged – door
- ◯ Structure is damaged – roof
- ◯ Structure is damaged – walls
- ◯ Structure is damaged – commode
- ◯ Other: _____

17. Where are children's feces disposed?

Pre-disaster	Post-disaster
◯ In the open or in open drains	◯ In the open or in open drains
◯ Household toilet	◯ Household toilet
◯ Community / Public Toilet	◯ Community / Public Toilet
◯ In the garbage/dustbin	◯ Shared toilets with other households
◯ Other: _____	◯ Temporary toilets
	◯ Shelter toilets
	◯ In the garbage/dustbin
	◯ Other: _____

18. Please share your level of access and affordability to the following hygiene items since the disaster:

Item	Available and affordable	Available but not affordable	Available but not enough water to use it	Not available at all
1. Bar of soap				
2. Jerry can/ Bucket				
3. Laundry detergent/ bar				
4. Handwashing facility				
5. Toothpaste and toothbrush or other dental hygiene solution like *daatun*				
6. Other:				

Data collector to observe the hygiene conditions of the household and add observations/ comments/ suggestions/ additional Information:

19. What, if any, are the constraints in soap availability post-disaster?

- ◯ It is unavailable at the local market
- ◯ We prefer a substitute (ex: ash)
- ◯ We are waiting for the next distribution
- ◯ We ran out of soap
- ◯ The market is too far
- ◯ We cannot afford it
- ◯ Soap is not necessary / We never used soap even pre-disaster
- ◯ Other: _____

20. Please name specific activities before or after which you wash your hands.

Surveyor should specify the focus on activities (ex: before eating), not times of the day (ex: in the morning) but not read out options. Select all that apply:

- ◯ I never wash my hands
- ◯ When my hands are dirty
- ◯ Before preparing food
- ◯ After defecating
- ◯ Before prayer
- ◯ Before eating
- ◯ Before feeding baby
- ◯ After eating
- ◯ After disposing of baby's feces
- ◯ Other: _____

21. What difficulties do the women/ adolescent girls in your household face around menstrual hygiene management since the onset of the disaster?

- ◯ No water and soap available for washing and cleaning
- ◯ Unavailability of pads/menstrual hygiene products
- ◯ No space to change pads (privacy concern)
- ◯ Hesitant to dispose the pads/cloths
- ◯ No difficulty
- ◯ No women/girls present at household
- ◯ Other: _____

22. What is the most common way you dispose of your household garbage (solid waste) after the disaster?

- ◯ Garbage collected by designated sanitation worker from home
- ◯ Garbage disposed in designated disposal area in community and collected from there
- ◯ Garbage disposed in designated disposal area but not collected
- ◯ Garbage thrown out in the street with no collection
- ◯ Garbage is buried or burned
- ◯ Other: _____

23. If you answered that garbage is collected from your home or a community spot, how frequently was garbage collected in the last 30 days?

- ◯ Multiple times a week
- ◯ Once a week
- ◯ Once every 2 weeks
- ◯ Once every month
- ◯ Garbage not collected at all

24. Since the disaster, have you noticed any visible wastewater in the vicinity (30 meters or less)?

- ◯ No
- ◯ There is sometimes visible wastewater in the vicinity of my household (a few times a month)
- ◯ There is often visible wastewater in the vicinity of my household (almost every week)
- ◯ There is always visible wastewater in the vicinity of my household (almost daily)

25. Did you get any message or information through radio, TV, posters, wall paint-ings, loudspeakers and/or government functionaries about do's and don'ts related to managing clean water, sanitation, and hygiene before or during the disaster? Were they easily understandable and useful?

- ◯ Yes, we received messages but they were not clearly understandable (because of language barriers, literacy issues, or wording of the message)
- ◯ Yes, we received messages and understood them but they were not useful
- ◯ Yes, we received messages, understood them, and found them useful
- ◯ No, we did not receive any communication from the government
- ◯ Other: _____

Annexure 3: Steps to Undertake the WASH Sector PDNA

Step 1: Leadership and coordination mechanism for the PDNA

Identify all agencies (government, UN, WB development partners, etc.) to be involved in the PDNA through a partner mapping, including their specific role. A suggested list is given below.

Name department/ agency	Role
PHED/ Department in charge of Rural Sanitation (water and sanitation)	Ensure safe drinking water and safe sanitation as well as hygiene practices in villages during disaster
SDMA (Disaster)	Coordinate with district administration and other departments for preparedness and response
Line Deptt incharge of Nutrition	Enhanced capacity of ICDS functionaries on WASH response with focus to hygiene will ensure better hygiene practices amongst camp inmates in relief camps.
Line Deptt incharge of Education	Enhanced capacity of SmSA functionaries on WASH response with focus to handling and storage of drinking water, safe sanitation, hand hygiene and food hygiene will ensure better camp management as most of the identified relief camps are schools in Assam. Schools which are identified relief camps, can devel-op/construct- • disaster resilient toilets, • MHM friendly spaces, • safe disposal of solid and menstrual waste
Line Deptt incharge of Health	Prepositioning and ensuring availability of safe menstrual absorbents with service providers in villages, with medical teams and in relief camps
Development Partners like UNICEF, etc.	• Strengthening partnership, convergence and coordination, advocacy with State Govt and district administration • Preparedness plan and sharing the same with state and district to avoid duplicacy.

State Government must appoint the PDNA lead agency and nodal person for the WASH sector – these could be separate for water and for sanitation components. They must also identify the nodal persons at district levels to be involved in data collection and field visits.

Step 2: Conduct orientation on for all WASH sector stakeholders

Conduct a PDNA orientation session for all WASH sector stakeholders. PDNA WASH lead and co-lead can facilitate this.

Step 3: Decide on the scope of the sector assessment

The scope of the assessment should consider the following:

- Agree on the **geographical** scope:
  - Number of districts and district names to be included
- Agree on the **sectors and subsectors** to be included:
  - Water supply
  - Sanitation
  - Drainage
  - Solid waste
  - Hygiene
- Agree on level of focus **(household, community, institutional)** to be included and co-ordinate with other sectors before starting the assessment:
  - Community level
  - Shelters/ camps
  - Household level (coordinate with housing sector)
  - WASH in schools (coordinate with education sector)
  - WASH in anganwadis (coordinate with education/ child welfare)
  - WASH in health care facilities (coordinate with health sector)
  - Water quality monitoring and treatment (coordinate with health sector and PHED)
  - Ground water and rivers/ ecohydrology not covered under WASH sector (can be included by environment/ irrigation)

Step 4: Review the Damage and Loss and Recovery Needs template

Review the standard damage and loss and recovery needs template with the respective departments involved in data collection and analysis and make any changes if needed.

Step 5: Review baseline and disaster effect data available for the WASH sector

Identify all sub sectors that require data for baseline and post-disaster situation, list them in the tables below, identify the data source for baseline and disaster effect data and add any remarks.

Identify data gaps and follow up with departments to gather all available data to be reviewed by the sector lead.

Water supply

#	Sub sector	Baseline data (enter data source)	Disaster effect data (enter data source or mention if gap)	Remarks
1	Piped water supply			
2	Bore wells			
3	Handpumps			
4	Rainwater harvesting structures			
5	Springs			
6	Water trucking			
7	Well rehabilitation and disinfection			
8	Water quality testing			

Sanitation

#	Sub sector	Baseline data (enter data source)	Disaster effect data (enter data source or mention if gap)	Remarks
1	Centralized piped sewers and STP/ leach pits			
2	FSTPs			
3	Household sewage treatment/ management solutions like twin pits, septic tanks etc.			
4	IHHL			
5	Public toilets/ CSC			
6	Institutional toilets in schools, anganwadis, PHCs, etc.			

Sanitation

#	Sub sector	Baseline data (enter data source)	Disaster effect data (enter data source or mention if gap)	Remarks
1	Centralized greywater treatment systems			
2	Decentralized systems like Soak pits			
3	Drainage channels			

Solid waste

#	Sub sector	Baseline data (enter data source)	Disaster effect data (enter data source or mention if gap)	Remarks
1	Community level: Aerobic, Gobar-dhan biogas plants			
2	Debris removal after floods			
3	Household level units			
4	Resource recovery centers			

Hygiene

#	Sub sector	Baseline data (enter data source)	Disaster effect data (enter data source or mention if gap)	Remarks
1	Handwashing stations at household level			
2	Handwashing stations at school/ AWC/ HCF			
3	Hygiene kits			
4	Hygiene awareness			

Step 6: Plan to collect additional disaster effect data

Based on the data gaps identified in step 5, divide the tasks amongst your sector team mem-bers to collect additional disaster effect data as per the agreed scope of the PDNA. This can be done separately at district level and / or be covered by dedicated field visits (see step 7).

Step 7: Plan field visits for data collection and verification

Discuss and agree on the following and include all in a TOR for field visits (sample attached):

- Objectives of the field visit
- Districts to be covered
- Dates and schedule for the visit
- Key informants list
- Key questions for discussion

Objectives of the field visit could include the below:

- Validate / verify data already available
- Collect new damage and loss data
- Focus group discussions and key informant interviews – focus on disaster impact and recovery needs and strategy recommendations

Step 8: Prepare Tables with disaster effect data on damage and loss

Develop the tables with disaster effect data on damages and losses. This is based on the data identi-fied in step 5 and 7. Damages can be both partial and total.

Examples of damages include:

- Cost of total/ partial destruction of infrastructure and assets:
  - o repair of water distribution network

- repair of water treatment plant
- repair of sewage pipeline
- repair of drainage system
- repair of pumping equipment
- collection and safe disposal of solid waste, etc.

- Cost of damage to other assets:
  - administrative buildings
  - laboratories
  - warehouses
  - spare parts
  - treatment chemicals and reagents, etc.

- Cost of demolition or dismantling of damaged components of water, sanitation and solid waste management systems

Examples of losses include:

- Cost of provision of temporary water
- Cost of cleaning of blocked drains
- Cost of restoration of water and sanitation services
- Billing differences in water, sanitation and solid waste services
- Decline in operational revenues until services are restored
- Increase in operational costs due to use of alternative sources of water supply, wastewater and solid waste safe disposal
- Disruption of human and financial resources, supplies and equipment
- Damage to documentation and baseline data
- Disruption in key decision-making and coordination mechanisms
- Risks of contamination of water sources

Step 9: Develop list of disaster impacts

Disaster impacts can be identified in focus group discussions and key informant interviews during field visits.

The disaster impact in the Water and Sanitation sector is analyzed in economic and human terms:

Macroeconomic: The sector should discuss how the total or partial destruction of infrastruc-ture and disruption of water and sanitation services may affect the 4 key indicators - GDP, Fiscal Situation, Inflation, Employment (for example, increase in living cost due to increase in cost of water, decrease in production sector due to limited availability of water, etc.)

Human: How the effects in the Water and Sanitation sector have created additional socio-economic burden to the affected population (for example, increase in water-borne diseases, food insecurity and increase in malnutrition of children, migration and displacement, insecurity issues affecting women, children, elderly people, etc.)

Step 10: Develop table with recover needs for short, medium and long term

This should be based on estimates of damages and losses.

Before identifying recovery needs, assumptions on rates and costs need to be agreed upon. This should include rates for things like construction of latrines, cleaning of latrines / septic tanks, cleaning / disinfection of wells / boreholes, % of latrines or piped water supply systems that require resilience component (building back better), estimated additional cost for resili-ence component, etc.

Damages: Reconstruction of infrastructure and physical assets

Value of Damage + Cost of Building Back Better (Quality improvement + Technological modern-ization + DRR features) + Multi-annual inflation

Losses:

Resumption of production of and access to goods and services

- Cost of provision of temporary water
- Cost of provision of temporary communal latrines
- Cost of desludging and O&M of communal latrines
- Cost of cleaning of blocked drains
- Cost of provision of temporary garbage collection and safe disposal services

Restoration of governance and decision-making processes

- Review of recovery policies for water and sanitation sector
- Cost of restoration of the administrative functionality of governmental institutions at central, regional and local levels
- Cost of additional human resources with improved technical skills to undertake the recovery process
- Cost of replacing lost records, documentation, baseline data, etc.
- Capacity building

Risk reduction

- Additional cost for water quality testing and provision of water treatment chemicals and reagents
- Awareness campaigns on safe water and sanitation practices and hygiene
- Provision of safety measures in the affected areas to avoid robbery or social unrest

Step 11: Develop recovery strategy

The recovery strategy should be based on the disaster effects (damages and losses), disaster impact, and recovery needs. The following are components of the recovery strategy.

- **Vision and principles**
- **Expected outcomes**
- **Elements of the recovery strategy:** policy and regulatory framework, institutional ca-pacity building, needs for reconstruction and recovery to improve access to services and goods, catalyze the economy, build livelihoods, strengthen DRM of the govern-ment and communities to reduce risks and vulnerabilities for future disasters.
- **Partnerships/ stakeholders' consultation**
- **Cross-sectoral themes**
- **Monitoring and evaluation**

Step 12: Hold WASH sector consultation

This consultation should include all relevant stakeholders and technical experts from govern-ment, UN, WB, development agencies, etc. that have been identified in step 1.

Present the damages and losses, disaster impacts, recovery needs and strategy, and incorpo-rate any feedback.

Discuss cross sectoral issues with other sectors (health, education, housing, gender, environ-ment, DRR, etc.).

Step 13: Develop the WASH sector PDNA chapter

Develop the final WASH sector chapter. This should include the pre-disaster situation (base-line), disaster effects, disaster impacts, recovery needs and recovery strategy. The suggested length is 5-8 pages maximum.

Annexure 4: State-level emergency contacts for water

Contact details of Additional Chief Secretaries, Principal Secretaries, Mission Directors in charge of Jal Jeevan Mission in all States/ UTs (as of February 2023)

ACS/ Principal Secretary/ Special Chief Secretary/ Secretary in charge of Jal Jeevan Mission				
Sr. No.	**State**	**Name & Designation**	**Telephone**	**Email:**
1	Andhra Pradesh	Special Chief Secretary	0863-2347289	prlsecy_pr@ap.gov.in
2	Arunachal Pradesh	Secretary	0360-2218638	comnrphe2018@gmail.com
3	Assam	Additional Chief Secretary	0361-2237259	s.abbasi@nic.in
4	Bihar	Secretary	0612-2547087	secy-phed-bih@nic.in
5	Chhattisgarh	Secretary	0771-2535434	secybgovtcg@gmail.com
6	Goa	Chief Secretary	0832-2419402	cs-goa@nic.in
7	Gujarat	Secretary	079-23251683	secws@gujarat.gov.in
8	Haryana	Additional Chief Secretary	0172-2548110	psphedharyana1@gmail.com
9	Himachal Pradesh	Secretary	0177-2621715	iphsecy-hp@nic.in
10	Jammu & Kashmir	Principal Secretary	0194-2506090	pscsphe@gmail.com
11	Jharkhand	Secretary	0651-2491410	dwsdacs@gmail.com
12	Karnataka	Additional Chief Secretary	080-22032446	principalsecretaryrdpr@gmail.com
14	Kerala	Secretary	0471-2518822	secy.wrd@kerala.gov.in
15	Madhya Pradesh	Principal Secretary	0755-2708598	psphed@mp.gov.in
16	Maharashtra	Principal Secretary	022-22626407	psec.wssd@maharashtra.gov.in
17	Manipur	Secretary	0385-2444470	kheda08irs@gmail.com

ACS/ Principal Secretary/ Special Chief Secretary/ Secretary in charge of Jal Jeevan Mission				
Sr. No.	**State**	**Name & Designation**	**Telephone**	**Email:**
18	Meghalaya	Secretary	0364-2226352	andaleeb.razi@nic.in
19	Mizoram	Secretary	0389-2328895	secyphedmz@gmail.com
20	Nagaland	Principal Secretary	0370-2270111	pattonem@nic.in
21	Odisha	Principal Secretary	0674-2536680	prsec.or@nic.in
22	Punjab	Principal Secretary	0172-2741291	secy.wss@punjab.gov.in
23	Rajasthan	Additional Chief Secretary	0141-2227063	acs.phed@rajasthan.gov.in
24	Sikkim	Secretary	03592-202659	secretaryrmddsikkim@gmail.com
25	Tamil Nadu	Additional Chief Secretary	044-25670491	mawssec@tn.gov.in, psmaws@gmail.com
26	Tripura	Secretary	0381-2415706, 0381-2415058	splsecyudd@gmail.com, secretar-yswse010422@gmail.com
27	Uttarakhand	Secretary	0135-2711227	secynkjha@gmail.com
28	Uttar Pradesh	Principal Secretary	0522-2236117	psmigoup2016@gmail.com
29	West Bengal	Principal Secretary	033-29520141	secy@wbphed.gov.in
30	Telangana	Secretary	040-23455940	secy-cm@telangana.gov.in
		Special Chief Secretary	040-23450606	secy-irg@telangana.gov.in
31	Andaman & Nicobar	Secretary	03192-233014	secyplg.and@gmail.com
32	D & N Haveli, D & D	Secretary	0260-2230468, 0260-2230926	secretary-pwd@ddd.gov.in, secy-agri-dd@gov.in
33	Puducherry	Secretary	0413-2233307	secylad.pon@nic.in
34	Lakshadweep	Secretary	04896-263002	secretary-utl1@utl.gov.in

ACS/ Principal Secretary/ Special Chief Secretary/ Secretary in charge of Jal Jeevan Mission				
Sr. No.	**State**	**Name & Designation**	**Telephone**	**Email:**
35	Chandigarh	Secretary	0172-2740008	hs-chd@nic.in
36	Ladakh	Secretary	01982-259220	pstocomsecutl@gmail.com
37	Delhi	Chief Secretary	011-23392100	csdelhi@nic.in

Note: The name and contact details of state level secretaries are likely to change due to various reasons including transfer posting. You are advised to cross verify the contact details from our departmental websites: jjm.gov.in

Annexure 5: State-level emergency contacts for sanitation and hygiene

Contact details of Additional Chief Secretaries, Principal Secretaries, Mission Directors in charge of Swachh Bharat Mission (Grameen) in all States/UTs (as of February 2023)

ACS/ Prl Secy/ Secy/ MD in charge of Swachh Bharat Mission (Grameen)			
State/UT	**Designation (ACS/PS/ Secretary)**	**Landline Number**	**Email ID**
A&N Island	Secretary Rural Development	03192- 233089	rd.ut.and@gmail.com
Andhra Pradesh	Special Chief Secretary PR & RD	0863-2445507	prlsecy_pr@ap.gov.in
Arunachal Pradesh	Secretary-PHED	0360-2292335	wssoap@gmail.com
Assam	Secretary-P&RD cum MD-SBM-G	0361-2237281	sbmg.assam@gmail.com
Bihar	Secretary, Rural Development Department	0612-2217496	rlrsec-bih@nic.in
Chhattisgarh	Addl Chief Secretary, Panchayat and Rural Development Department	0771-2510702 0771-2510322	acsprd21@gmail.com
DNH & DD	Joint Secretary (PRI)	0260-2230726	ceodp-dmn-dd@ddd.gov.in
Goa	Secretary Panchayat & Rural Development	0832-2419407	secpanch-sect.goa@nic.in
Gujarat	Principal Secretary, Rural Development Department	079-23253461	secrd@gujarat.gov.in
Haryana	Additional Chief Secretary, Development and Panchayat Department	0172-2740884	malikanil@hry.nic.in psdpharyana@gmail.com
Himachal Pradesh	Principal Secretary, Rural Development and Panchayat Raj	0177-2621867	ruraldevsecy-hp@nic.in
Jammu & Kashmir	Commissioner/Secretary, Rural Development Department	0191 2564763	secyrdd11@gmail.com
Jharkhand	Secretary DWSD	0651 2491410 0651 2491069	dwsdacs@gmail.com
Karnataka	ACS (RD & PR)	80-22353929	principalsecretaryrdpr@gmail.com
Kerala	Addl. Chief Secretary, Local Self-Government Department	0471 -2327994	prlsecy.lsgd@kerala.gov.in
Ladakh	Secretary, Department of Rural Development	01982-255567	ladakhdivcom@gmail.com
Lakshadweep	Secretary, Department of Panchayat & Rural Development	0489 - 6263720	secy-home@utl.gov.in
Madhya Pradesh	ACS, P&RD	0755-2551114	acsprdmp@mp.nic.in
Maharashtra	Principal Secretary, Water Supply & Sanitation Department	022-617388	Psec.pubhealth@maharashtra.gov.in

ACS/ Prl Secy/ Secy/ MD in charge of Swachh Bharat Mission (Grameen)			
State/UT	Designation (ACS/PS/ Secretary)	Landline Number	Email ID
Manipur	Secretary-PHED	0385-2452519	wssomanipur.gmail.com
Meghalaya	Secretary-PHED	0364 2226352	mdsbm.meg@gmail.com
Mizoram	Secretary, PHED	0389-2322532	secyphedmz@gmail.com
Nagaland	Secretary, PHED	0370-2271106	wssophednagaland@gmail.com
Odisha	Principal Secretary, Panchayati Raj and Drinking Water Department	0674-2536680	prsec.or@nic.in
Puducherry	Secretary, RD	413-22333281	secyrd.pon@nic.in
Punjab	Principal Secretary, Water Supply and Sanitation	9417621001	secy.wss@punjab.gov.in
Rajasthan	ACS, Rural Development and Panchayati Raj Department	0141- 2227795	rdpr@rajasthan.gov.in
Sikkim	Principal Secretary, Rural Development	3592202659	secretaryrmddsikkim@gmail.com
Tamil Nadu	Principal Secretary, Rural Development & Panchayat Raj Department	044-25670769	ruralsec@tn.gov.in
Telangana	Principal Secretary Panchayati Raj & Rural Development Department	4023450742	splcs_pr@telangana.gov.in
Tripura	Secretary, PWD(DWS)	3812415706	secretaryswse010422@gmail.com
Uttar Pradesh	ACS, Panchayati Raj	0522-2238082	apcofficeup@gmail.com
Uttarakhand	Secretary DWS and PR	0135 2711227	secynkjha@gmail.com
West Bengal	Secretary P&R Dept	033-2335-5501 033 2359 2929	secy.prd-wb@bangla.gov.in

Note:

Note:

सत्यमेव जयते

Government of India

Ministry of Jal Shakti

Department of Drinking Water and Sanitation

New Delhi 110 003

July, 2023