PRAGYA

DMS HIMALAYA

USER MANUAL

INTRODUCTION

This manual has been prepared by **Pragya** (www.pragya.org), a not-for-profit, development organization working for the appropriate development of the vulnerable communities and sensitive ecosystems of the world.

The Himalayas represent one of the world's most disaster-vulnerable zones. Challenging terrain, poor infrastructure and the remoteness of the Himalayan villages render timely warning and response process difficult. Lack of information also results in higher toll on life, livelihood and property and assistance for relief and recovery often turn out to be inadequate and inappropriate.

Pragya has long experience of working in some most remote and marginalized regions in the country. Based on rigorous consultative research, it has come up with an area-specific, cost-effective, decentralised system: "**DMS Himalaya**" for two critical components of the Disaster Management cycle:

i. Early warning and grassroots preparedness;
ii. Post-disaster damage and needs assessment and communication system

These process innovations and tools supplement the capacity building efforts and communication resources/networks in pilot locations and help in the mainstreaming and effective execution of Disaster Management plans of the local authorities.

DMS Himalaya is being implemented across 2100+ villages in India across 5 states/UTs Ladakh, Himachal Pradesh, Uttarakhand, Assam and Meghalaya. DMS Himalaya is funded and supported by **Elrha**'s **Humanitarian Innovation Fund (HIF)**, Pragya UK and other donors. Elrha's HIF is a grant making programme which improves outcomes for people affected by humanitarian crises by identifying, nurturing and sharing more effective and scalable solutions and is funded by the **Netherlands Ministry of Foreign Affairs**.

ACCOLADES:

Initial research phase supported by Elrha's Humanitarian Innovation Fund (HIF)

Recognised among Top 20 Innovations in Risk Award by UNISDR and Munich Re foundation at the Third UN World Conference on Disaster Risk Reduction, Sendai - 2015

Showcased at World Humanitarian Summit Innovation Marketplace, Geneva - 2015, Istanbul - 2016

Showcased at the Seventh Annual Conference of University College London Institute for Risk and Disaster Reduction, London – 2017

Selected among Top 25 CBDRM cases in Asia by Asian Disaster Preparedness Center, Bangkok, 2018

WHY DMS-HIMALAYA?

- DMS Himalaya catalyzes effective, composite disaster response at 3 windows of opportunity: pre-disaster preparedness, early warning, and immediate post-disaster relief - that can reduce the toll of extreme events considerably.
- It incorporates 2 tools – "**Go-Risk**" (early warning tool with grassroots measurement grids and communication channels for pre-disaster use) and "**RnR-Comm**" (relief & response information-sharing tool to help multi-agency response coordination for post-disaster use) to enhance local self-reliance and improve effectiveness of humanitarian support.
- DMS Himalaya develops structures and networks to connect communities with state and civil society responders, ensuring flow of information and effective coordination.
- It adopts the approach of risk governance for dynamic management of hazards, vulnerabilities, disasters, and to facilitate linkages for people-state collaboration for timely action/support.

Pragya has worked extensively on Disaster Management, and based on rigorous participatory research, designed an area-specific, decentralized system for facilitating disaster management processes in the Himalayan region. **DMS-Himalaya** empowers remote and marginalised communities to take charge of disaster management at the local level, whist enabling seamless community-state collaboration.

This citizen-led initiative has been active in Uttarakhand, India since 2016 and we are currently expanding the implementation to new geographies including Assam, Himachal Pradesh, Ladakh and Meghalaya in India. Our aim is to improve community capacities for disaster risk reduction and response, make communities more resilient with effective disaster preparedness and risk identification and to support local authorities with improved early warning and relief information tools.

The DMS Himalaya app facilitates decentralised information generation. It has three main components:
• **Go-Risk** is a location-specific pre-disaster early-warning tool using grassroots measurement grids. The data parameters monitored through the app are specific for each hazard. The relevant authorities are alerted in case of a threshold breach (potential early warning).
• **RNR-Comm** is a relief and response information communication tool for post-disaster damage and needs assessment. It documents the age and gender-specific needs of disaster affected populations to facilitate rescue and relief operations.
• **Emergency Contacts** section offers the contact information of the nearest Control Room and local responders, who can help in coordination with local authorities, emergency relief and rescue operations.

The app is used by customised disaster communications networks that link even the remotest corners right through to government responders for timely pre-disaster warning and efficient post-disaster needs assessment and information-relay. The network consists of:
• **Disaster Response Teams (DRTs)** - local youth responsible for: weather and geological data monitoring and reporting; assisting in community evacuations; acting as first responders in emergency; and post-disaster needs assessments.
• **Points of Presence (POPs)** - proximal communications points, typically police or forest outposts equipped with satellite or radio communications technologies responsible for: relaying information across the network and assisting in emergency relief and evacuation.
• **District Disaster Management Support Unit (DDMSU)** or Local Disaster Management Unit (LDMU) or District Control Room- local government authorities responsible for: anchoring the network and managing information flow.
Effective communication between all stakeholders is of paramount importance, and the DMS Himalaya app plays a key role in facilitating the communication. All data, observations, photos from both Go-Risk and RNR-Comm reports are collated on the DMS Himalaya web interface, which is monitored and used by local authorities and responders.

WHO ARE INVOLVED?

- **All members of community:** All residents of a settlement.

Role:
- Participate in village-level awareness sessions and drills
- Cooperate with Disaster Response Teams (DRTs) and Points of Presence (PoPs), as well as Panchayat, Block and Tehsil level officials by providing required information.
- Participate in village level mapping of vulnerabilities, safe spaces and evacuation routes.
- Follow instructions of DRTs and PoPs when disaster warning is sounded and during Relief and Response (RnR).

- **Disaster Response Teams (DRTs):** Local youth with high level of physical fitness, basic digital literacy are identified and trained to conduct village level vulnerability mapping and safety drills, monitor and report on various parameters for enabling early warning, report on damages and relief needs post-disaster. They represent a hamlet/settlement/cluster of houses and act as the communication linkage between the settlement and the nearest Point of Presence (PoP). They would also function as First Responders for the settlements they serve, arriving and assisting at the scene of an emergency in coordination with Panchayat, Block and Tehsil level officials.

Role:
- Undergo training on DMS Himalaya tools – "Go-Risk" and "RnR-Comm" and emergency response.
- Hold awareness meetings with community members to explain the process and benefits of DMS Himalaya implementation and their roles.
- Conduct village-level vulnerability, safe space and evacuation route mapping and display it prominently.
- Conduct regular emergency drills / evacuation exercises involving all community members.
- Regularly measure and report using "Go-Risk" tools as per schedule.
- Communicate damage and needs assessment data to PoPs using "RnR-Comm" tools.
- Act as First Responders in case of a disaster event as per training provided.

- **Points of Presence (PoP):** Facilities with relevant ICT equipment that function as proximal broadcast / communication centres for isolated habitations (e.g, police outposts with advanced telecom facilities) to act as effective communication channels for risk monitoring, early-warning and post-disaster response coordination.

Role:
- Cooperate in sending data collected by DRTs in neighboring settlements to District Disaster Management Support Units (DDMSUs) / Local Disaster Management Units (LDMUs) using "Go-Risk" tool
- Communicate early warning alerts issued by DDMSU/LDMUs to neighboring villages through DRTs
- Communicate request for emergency rescue/evacuation requests, damage and needs assessment data/ updates to DDMSU/LDMUs using "RnR-Comm" tools post disaster.

- **District Disaster Management Support Units (DDMSUs) / Local Disaster Management Units (LDMUs):** Facilities at district headquarters anchored with the nodal govt agency, with dedicated human resource, equipped with relevant ICT kit and software, 24x7 power backup to function as the resource hub for implementing the DMS Himalaya. The unit would liaise with technical institutions and responder agencies, facilitate regular community awareness, anchor the structures and processes for issuing alerts and evacuation instructions, and coordinate effective emergency response.

Role:
- Support the District Disaster Management Authorities (DDMAs), Panchayat, Block and Tehsil level officials to implement their District Disaster Management Plans (DDMPs) more effectively and efficiently through the network (Responder, PoPs, DRTs) and the tools ("Go-Risk" and "RnR-Comm")
- Develop a map of communications points / PoPs across the district
- Prepare and continually update DM resource directory for the district and make it accessible to all
- Build capacity of Responders, DRTs, communities, state and civil society actors
- Share data from "Go-Risk" tools with technical institutions for validation to prevent false warnings
- Issue and communicate Early Warnings to PoPs based on "Go-Risk" / DDMA / technical advisory alerts
- Collate regular updates on hazards, damage, needs from all settlements using "RnR-Comm" tool
- Disseminate "RnR-Comm" data to all govt and civil society agencies and responders and liaise with Panchayat, Block and Tehsil level officials for validation of data
- Develop and disseminate awareness-material for communities, response agencies.

- **Responders:** Individuals / agencies (both state and civil society) present in the target district with the capacity and the mandate to provide emergency rescue, evacuation, relief and response services. The Responders potentially include armed forces, police, paramedics, local / international / regional NGOs, local youth and community members present in the district.

Role:
- Participate in regular networking and capacity-building events organized by DDMSU/LDMUs
- Access "RnR-Comm" data from DDMSU/LDMUs
- Respond to requests for emergency rescue/evacuation, relief needs from specific locations in coordination with Panchayat, Block and Tehsil level officials

- **District Govt Agencies:** Govt functionaries from DDMA and associated departments, Panchayat, Block and Tehsil level officials with capacity and the mandate for early warning, mitigation, capacity building, risk reduction, emergency rescue, evacuation, relief and response at district headquarters. They receive continual support in coordination, data collection / sharing through the DDMSU/LDMU. Access to information and network of DRTs and PoPs would enable them to undertake effective preparedness and response actions.

Role:
- Access support from DDMSU/LDMU and utilise the network (Responder, PoPs, DRTs) and the tools ("Go-Risk" and "RnR-Comm") to implement DDMPs effectively and efficiently.
- Access information from DMS Himalaya Resource Directory and DMS-Digital database for facilitating timely mitigation, alerts and decision-making on relief and response.
- Collaborate towards building capacity of Responders, DRTs, Communities, state and civil society actors
- Facilitate identification and equipping of PoPs as necessary.

- **Network Agencies:** Technical / Knowledge Resource Institutions with dedicated expertise in monitoring specific environmental parameters and hazards, to validate data from grassroots monitoring sites to avoid triggering false alerts and to enable real-time monitoring of hazards once a threat is validated, to enable swifter, informed emergency response.

Role:
- Access data from DDMSU/LDMU, collected using "Go-Risk" tools
- Validate data and if appropriate, issue early warning
- Use the data trends of environmental parameters from across the districts for further research
- Collaborate to build capacity of DRTs; provide guidance for identifying, setting up monitoring sites.

DMS-HIMALAYA TOOLS

DMS Himalaya has two key components as described below.

Go-Risk:

This is a local-level Early Warning tool which functions based on measurement / monitoring of various parameters at the grassroots and communication networks established for timely pre-disaster warnings. It comprises simple measurement processes & instruments for citizen-based, real-time monitoring of local environmental / weather parameters at the grassroots, surveillance of hazard-markers / thresholds for potential early-warning. It integrates liaison with technical institutions for threat-validation before issuing alerts. Grassroots awareness and capacity building, mapping and strategic stockpiling of resources and timely relay of information enables community preparedness and risk-reduction.

The tool facilitates early warning for the following frequent and high impact hazards in the Himalayas:

Rapid Onset	Slow Onset
• Landslide • Flood / Cloudburst • Earthquake • Avalanche • GLOF (Glacial Lake Outburst Flood)	• Drought • Desertification

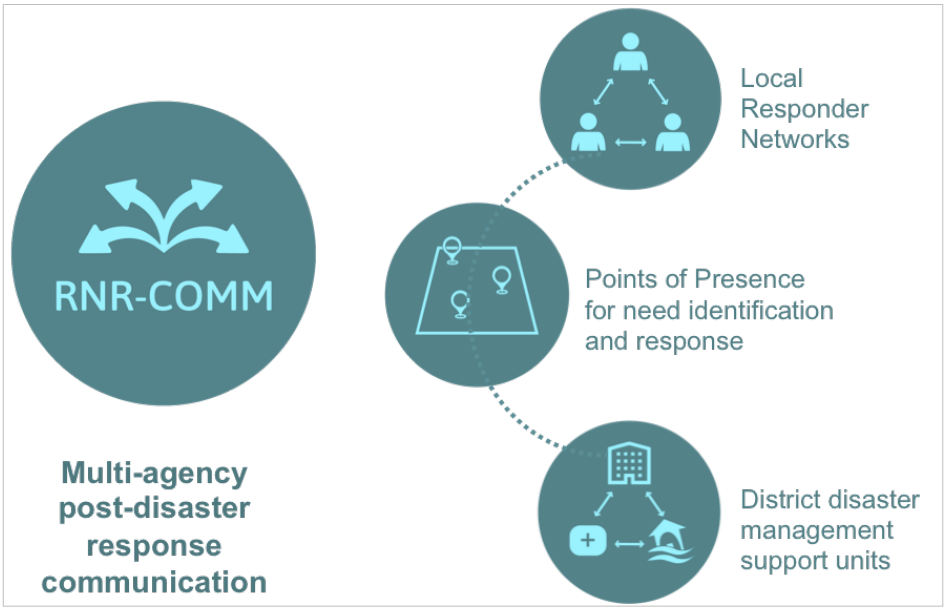
Please refer to **DMS HIMALAYA TOOLKIT** for more details.

The **Go-Risk** tool incorporates:

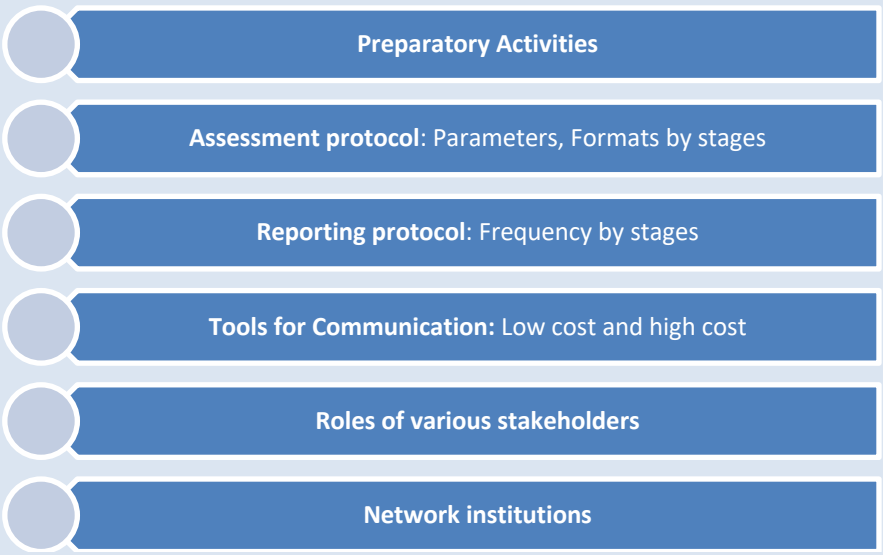
- **Preparatory Activities**
- **Tools for Measurement**: Low cost and high cost
- **Measurement protocol**: Parameters, Thresholds, Frequency, Sites
- **Reporting protocol**: Frequency, Formats
- **Tools for Communication**
- **Roles of various stakeholders**
- **Network institutions**

RnR-Comm:

This is a local-level relief and response information-communication tool that facilitates multi-agency response coordination at post-disaster stage. It includes tools and processes for grassroots post-disaster damage and relief needs assessment, incorporating process for validation and structured communication of age and gender-specific needs of disaster-affected populations (by sector – e.g. food & nutrition, shelter, health, WASH, protection) to responders through pre-established communication channels. This, in turn, facilitates: targeted relief coordination and delivery, shorter response time, minimum wastage of resources.



The **RnR-Comm** tool incorporates:



Please refer to **DMS HIMALAYA TOOLKIT** for more details.

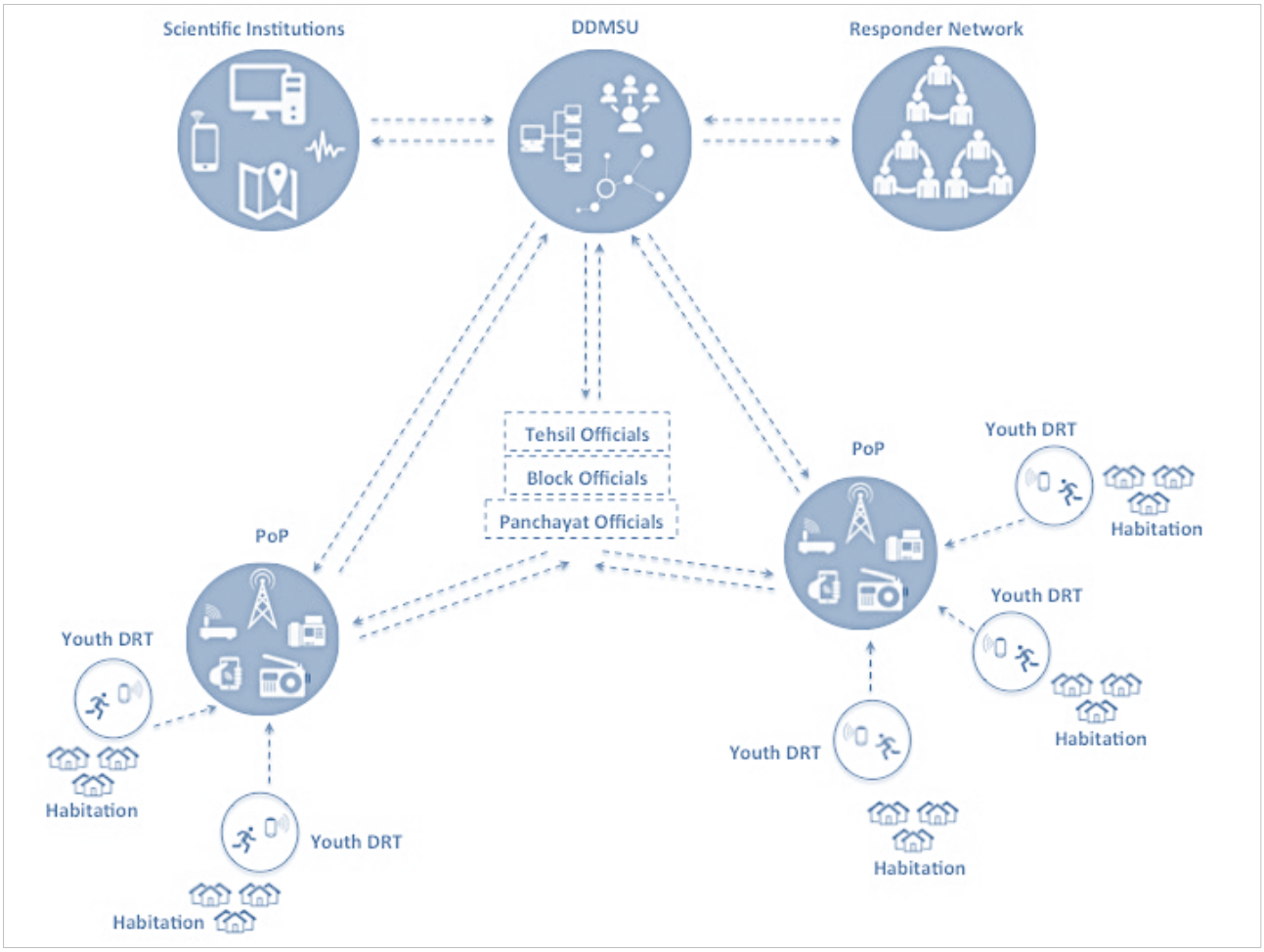
Digital DMS:

This is a web interface that facilitates collating and sharing data from "Go-Risk" and "RnR-Comm" tools. It integrates SMS and IVR platforms for data sharing and alert messages (including alerts for reporting frequency). The digital platform has specific authorization protocols for viewing and updating datasets. The Digital DMS is housed at DDMSU/LDMUs for regular updates and real-time data sharing with DDMAs, technical institutions and responder agencies. It integrates tools for tracking temporal change across datasets, digital tools to view clustered as well as disaggregated datasets, and the depiction of datasets on maps.

Please refer to **DMS HIMALAYA TOOLKIT** for more details.

HOW DOES IT WORK?

The image below depicts the **DMS Himalaya Communication Pathway**.



GO-RISK

STEP 1 – PREPARATORY ACTIVITIES

• DDMAs and other stakeholders (district and state governments, Panchayat, Block and Tehsil level officials, local and international NGOs, research institutions and, communities) are briefed about DMS Himalaya and its benefits.
• Youth are identified for each settlement unit across the entire district for the role of a DRT.
• A designated PoP with relevant facilities is identified for each settlement unit taking into account distance, terrain, etc. In case there are settlement clusters without access to such facilities, we liaise with the government to install a communication facility at a state facility, to be accessed by the cluster.

• Responders (individuals / agencies) are identified for the district.
• DRTs, PoPs, Responders are linked to DDMSU/LDMU.
• A Resource Directory mapping existing resources, infrastructure and provisions is prepared and made available at the DDMSU/LDMU, with Panchayat, Block and Tehsil level officials, with PoPs and online.
• Govt agencies are liaised with for validating data from "Go-Risk" for issuing timely alerts.
• Local media agencies are liaised with for awareness campaigns and broadcasting timely alerts.

STEP 2 – CAPACITY BUILDING

• Training conducted for PoPs and Responders on DMS Himalaya tools and processes.
• Training conducted for DRTs on DMS Himalaya tools and processes.
• Calendar of hazards prepared through district-level consultations.
• Monitoring and reporting schedules fine-tuned for the DRTs.
• Methods for communicating warnings (using drums, megaphones etc) are finalized for each settlement.

STEP 3 – REGULAR MONITORING & ENGAGEMENT

• Sites identified, instruments/signage for environmental parameters monitoring set up.
• Baselines and threshold levels of parameter are recorded and demarcated for each site.
• Regular reporting initiated by DRTs with data communicated to DDMSU/LDMUs by PoPs.
• Primary school teachers and community healthcare workers are mobilised to build disaster-awareness in the community.
• Demo-sessions are conducted by DDMSU/LDMU with DRTs using "Go-Risk" tools and involving all stakeholders including Panchayat, Block, Tehsil and district level officials/agencies.
• Focus group discussions on Village Disaster Management plans and drills conducted by DRTs involving the DDMSU/LDMU, PoPs, Panchayat, Block and Tehsil level officials and the communities using "Go-Risk" tools.
• Liaison continued with govt agencies and network institutions for effective functioning of DMS Himalaya.
• Regular events are conducted by DDMSU/LDMU to inform stakeholders about the process, progress and continued pre-disaster engagement.

STEP 4 – COMMUNICATION & DATA COLLATION

• Awareness-raising programme for the 'Go-Risk" tools, Village Disaster Management Plans, emergency evacuation process and safe places are designed.
• A public awareness campaign is conducted by DRTs in all settlements, involving local media.
• Data is collated by DDMSU/LDMU using unique DRT and PoP location IDs and settlement/monitoring site profiles.
• Data is summarised and shared by DDMSU/LDMU with Panchayat, Block, Tehsil level officials, district level stakeholders, network agencies over online platform and regular e-mail updates, SMS based updates.

STEP 5 – VALIDATION & ISSUING WARNING

• Data is collated and shared by DDMSU/LDMU with network institutions for validation.
• Data is shared online and with DDMA, PoPs and Responder Agencies by DDMSU/LDMU post-validation for alerts and risk warnings.
• Alerts/warnings are communicated to DRTs by the respective PoPs as per DDMSU/LDMU guidance.
• Alerts/warnings are communicated to communities by the respective DRTs as per DDMSU/LDMU guidance, along with reiteration of relevant safety measures / evacuation routes etc.
• DDMSU/LDMUs carry out data collection/evaluation to develop a strong knowledge base on effectiveness of "Go-Risk" tools and implementation process.

RnR-COMM

STEP 1 – PREPARATORY ACTIVITIES

• DDMAs and other stakeholders (district and state governments, local and international NGOs, research institutions and, communities) are briefed about DMS Himalaya and its benefits.
• Youth are identified for each settlement unit across the entire district for the role of a DRT in consultation with Panchayat, Block and Tehsil level officials.
• A designated PoP with relevant facilities is identified for each settlement unit taking into account distance, terrain, etc. In case there are settlement clusters without access to such facilities, liaise with the government to install a communication facility at a state facility, to be accessed by the cluster.
• Responders (individuals / agencies) identified for the district.
• DRTs, PoPs, Responders are linked to DDMSU/LDMU, as well as Panchayat, Block and Tehsil level officials.
• A Resource Directory is prepared by mapping existing resources, infrastructure and provisions and made available at DDMSU/LDMU, with PoPs and online.
• Responder agencies are liaised with for accessing data from "RnR-Comm" for timely response.
• Govt agencies are liaised with for pre-positioning of essential resources.
• Local media agencies are liaised with for raising awareness campaigns and for broadcasting accurate information on needs, access conditions and challenges once disaster strikes.

STEP 2 – CAPACITY BUILDING

• Training conducted for PoPs and Responders on DMS Himalaya tools and processes, emergency search and rescue, evacuation, emergency medical aid and relief.
• Training conducted for DRTs on DMS Himalaya tools and processes, emergency search and rescue, evacuation, emergency medical aid and relief.
• Community members are facilitated by DRTs to carry out village level mapping of vulnerability, safe spaces, evacuation routes etc. using the NIDM Manual on Village Disaster Management Plan.

STEP 3 – ASSESSMENTS

• Settlement profiles (gender and age disaggregated population data etc) are recorded for each settlement.
• Regular profile reporting initiated by DRTs with data communicated to DDMSU/LDMUs by PoPs.
• Primary school teachers and community healthcare workers, Panchayat, Block and Tehsil level officials are mobilised to provide effective emergency support.
• Demo-sessions are conducted by DDMSU/LDMUs with DRTs using "RnR-Comm" tools.
• Evacuation drills conducted by DRTs involving the DDMSU/LDMU, PoPs, Panchayat, Block and Tehsil level officials and the communities using "RnR-Comm" tools.
• Liaison continued with govt agencies and network institutions for effective functioning of DMS Himalaya.
• Regular events are conducted by DDMSU/LDMU to inform stakeholders about the process, progress and continued pre-disaster engagement.
• Post-disaster event – SOS messages from grassroots are communicated by DRTs and PoPs marking the respective settlements safe or in need of support (including the level of emergency).
• In case the DDMSU/LDMU is alerted of an incident, alerts would also be sent out to DRTs and PoPs to trigger a response to the situation.

• Post-disaster event – Stage 2 communications by DRTs and PoPs provide detailed need and support requirements (disaggregated by age and gender, vulnerable groups), access conditions, infrastructure damage, and available stock supplies/resources for the respective settlements, along with information on changes in disaster context.
• Post-disaster event – Stage 3 communications by DRTs and PoPs provide detailed need and support requirements for the respective settlements regarding emerging needs/concerns in terms of displacement, Gender Based Violence (GBV), Psyco-social Trauma, Disease outbreak, etc.

STEP 4 – COMMUNICATION & DATA COLLATION

• Awareness raising programme for the 'RnR-Comm" tools are designed.
• A public awareness campaign is conducted by DRTs in all settlements, involving local media, Panchayat, Block and Tehsil level officials.
• Data is collated by DDMSU/LDMU using unique DRT and PoP location IDs and settlement/monitoring site profiles.
• Details from Resource Directory, contact details of PoPs, DRTs and Responders are shared online, circulated through emails and SMS.
• Data is summarised and shared by DDMSU/LDMU with responders, Panchayat, Block, Tehsil level officials, district level stakeholders over online platform and regular e-mail, SMS based updates.
• Updated profile of all settlements and their needs are maintained online along with time of last updation.
• Post-disaster event – SOS messages are collated and communicated to DDMAs and responders for necessary action.
• Post-disaster event – Stage 2 communications by DRTs and PoPs are collated, structured by specific sectors (Food, WASH, Shelter etc) and communicated to DDMA and responders for necessary action.
• Post-disaster event – Stage 3 communications by DRTs and PoPs are collated, structured by specific sectors (GBV, Child Friendly Spaces etc.) and communicated to DDMA and responders for necessary action.

STEP 5 – INFORMATION SHARING & COORDINATION

• Data is collated and shared by DDMSU/LDMU with PoPs, DDMAs, with Panchayat, Block, Tehsil level officials and Responder Agencies for validation.
• Data is shared online for mobilising support and informing resource allocation.
• DDMSU/LDMUs liaise with Responders to map type and quantity of support provided by location to identify gaps and support needs for unattended settlements and share the data online.
• DDMSU/LDMUs share data on type of support offered by various responders with the PoPs and DRTs, as well as with other responders, Panchayat, Block, Tehsil level officials to facilitate rescue / response operations.
• Regular briefing meetings are conducted by DDMSU/LDMU to inform stakeholders about the progress and continued post-disaster engagement.
• DDMSU/LDMUs carry out data collection/evaluation to develop a strong knowledge base on effectiveness of "RnR-Comm" tools and implementation process.

ANNEXURE

GLOSSARY OF ABBREVIATIONS USED

- DDMA – District Disaster Management Authorities
- DDMP – District Disaster Management Plan
- DDMSU/LDMU – District Disaster Management Support Unit / Local Disaster Management Unit
- DMS –Disaster Management System
- DRT – Disaster Response Team
- GBV – Gender Based Violence
- NIDM – National Institute of Disaster Management, India
- PoP – Points of Presence


PRAGYA