

# Report on Awareness cum Participatory Rural Appraisal (PRA) Exercise

Teesta River Basin, Sikkim (September–October 2025)

## 1. Introduction

The Glacial Lake Outburst Flood (GLOF) event in the Teesta River Basin underscored the critical need for community-centric disaster risk reduction and preparedness mechanisms. Communities residing along the river corridor are repeatedly exposed to multiple hazards such as floods, landslides, earthquakes, and infrastructure disruptions. In this context, an Awareness cum Participatory Rural Appraisal (PRA) exercise was undertaken to actively involve vulnerable communities in understanding risks, documenting local knowledge, and contributing to disaster preparedness planning.

The Awareness cum PRA exercise was conducted during September 2025 to October 2025 with the objective of strengthening community resilience through participatory hazard assessment, vulnerability identification, and resource mapping. The initiative emphasized inclusive participation, ensuring that voices of the most vulnerable groups were adequately represented in the planning process.

## 2. What is Participatory Rural Appraisal (PRA)?

Participatory Rural Appraisal (PRA) is a set of participatory tools and techniques that enable local communities to analyze their own living conditions, identify risks, and propose solutions based on indigenous knowledge and lived experience. Unlike top-down approaches, PRA places communities at the center of the assessment and decision-making process.

Key principles of PRA include: - Community participation and ownership of the process - Respect for local knowledge and traditional practices - Inclusiveness, especially of vulnerable and marginalized groups - Visual and interactive methods such as mapping, diagramming, and group discussions

In the context of disaster risk reduction, PRA helps in: - Identifying hazard-prone locations - Mapping vulnerable households and infrastructure - Locating local resources and safe areas - Strengthening awareness and preparedness at the grassroots level

### 3. Objectives of the Awareness cum PRA Exercise

The key objectives of the initiative were: 1. To create awareness on GLOF-related risks and associated hazards among riverine communities 2. To engage local communities in identifying hazards, vulnerabilities, and available resources 3. To document community knowledge through participatory mapping exercises 4. To develop GIS-based hazard, vulnerability, and resource maps 5. To generate base maps for evacuation planning, identification of safe routes, relief camps, and resource centers

### 4. Area Coverage

The Awareness cum PRA exercise was conducted across multiple districts along the Teesta River Basin. The locations covered are as follows:

#### 4.1 Mangan District

- Chungthang
- Phidang
- Sangakhalang
- Thangu
- Lachen
- Lachung

#### 4.2 Gangtok District

- Dikchu
- Singtam
- NHPC School, Shirwani

#### 4.3 Pakyong District

- Rangpo
- IBM
- Golitar
- Bardang
- Majitar

#### 4.4 Namchi District

- Melli
- Adarsh Goan
- Mamring
- Samardung
- Jholungey

These locations were selected based on their proximity to the Teesta River, past exposure to flood and landslide events, and concentration of vulnerable populations.

## 5. Stakeholder Participation

The success of the PRA exercise relied heavily on broad-based community participation. The following groups actively participated in the awareness and mapping activities: - Local vulnerable households and riverine communities - Panchayati Raj Institution (PRI) members - Elderly persons with historical knowledge of past disasters - School students and youth volunteers - Community leaders and local volunteers

This inclusive approach ensured inter-generational knowledge sharing and strengthened collective understanding of disaster risks.

## 6. Methodology and Steps Followed

The Awareness cum PRA exercise was implemented in a structured and phased manner as detailed below:

### Step 1: Awareness and Sensitization Programme

The process began with an awareness cum sensitization programme at each identified location. Sessions focused on: - Understanding GLOF events and their impacts - Flood, landslide, and earthquake risks in the Teesta Basin - Importance of preparedness, early warning, and evacuation

Interactive discussions, local examples, and visual aids were used to ensure clarity and engagement.

### Step 2: Participatory Mapping by Communities

Following the awareness sessions, participants were encouraged to prepare community maps using participatory techniques. The mapping exercise involved: - Drawing maps on the ground using locally available materials - Preparing sketch maps on sheets of paper

Community members collectively identified and marked: - Hazard-prone zones (flood paths, landslide areas, erosion zones) - Vulnerable households (elderly, children, persons with disabilities) - Critical infrastructure (schools, bridges, roads, health centers) - Local resources (water sources, community halls, open grounds) - Traditional safe locations used during past emergencies

Special emphasis was placed on ensuring active involvement of vulnerable groups during discussions and decision-making.

### Step 3: Documentation and Digitization

The community-drawn maps were systematically documented and later converted into digital formats. The process included: - Transferring participatory maps into GIS platforms - Geotagging of identified features using Google Earth - Collection of location-specific data during field visits

### Step 4: Ground Truthing and Validation

To ensure accuracy and reliability, the digitized data underwent ground truthing. This involved: - Field verification of mapped hazards and resources - Cross-checking information with community members - Refinement of spatial data based on on-site observations

### Step 5: Preparation of Final GIS-Based Maps

Based on validated data, final GIS-based hazard, vulnerability, and resource maps were prepared. These maps serve as foundational planning tools and were further utilized for: - Preparation of evacuation maps - Identification of safe routes during emergencies - Selection of relief camps and resource centers - Supporting district-level disaster management planning

## 7. Key Outcomes of the PRA Exercise

- Enhanced awareness and understanding of disaster risks among local communities
- Active community ownership in hazard and vulnerability identification
- Creation of reliable GIS-based resource and vulnerability maps
- Strengthened coordination between communities and disaster management authorities
- Availability of base maps for evacuation and emergency response planning

## 8. Sustainability and Way Forward

The Awareness cum Participatory Rural Appraisal (PRA) exercise has laid a strong foundation for sustained community-based disaster risk reduction in the Teesta River Basin. To ensure long-term effectiveness and relevance, the following sustainability measures and future actions are proposed:

- The PRA documentation, including hazard, vulnerability, and resource information, will be periodically updated through continued community engagement to reflect changes in settlement patterns, infrastructure, and risk profiles.
- The Awareness cum PRA programme will be conducted annually to reinforce community awareness, refresh preparedness knowledge, and induct new community members, especially youth and school students.

- All participatory maps, records, and related activities will be systematically digitized and maintained in GIS-enabled databases for ease of access, analysis, and integration with district and state disaster management systems.
- The digitized outputs will be utilized for dynamic updating of evacuation plans, safe routes, relief camp locations, and resource inventories.
- Mock drills related to GLOF hazards will be conducted frequently in coordination with local communities, line departments, and district authorities to test preparedness levels, evacuation procedures, and response coordination.

These measures will ensure that the PRA process remains a living, adaptive mechanism contributing to enhanced preparedness, timely response, and resilient communities along the Teesta River Basin.

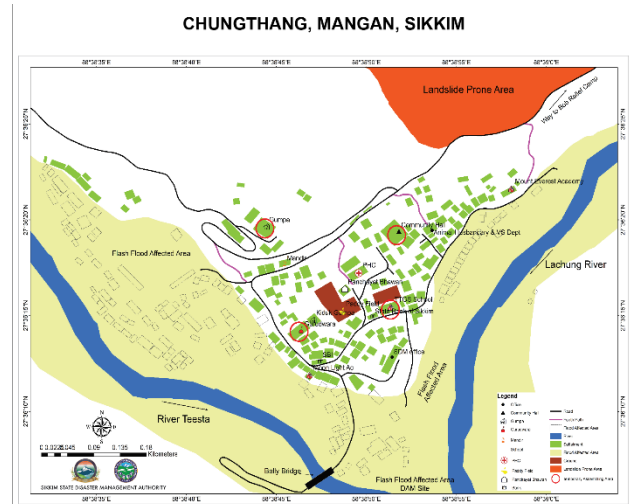
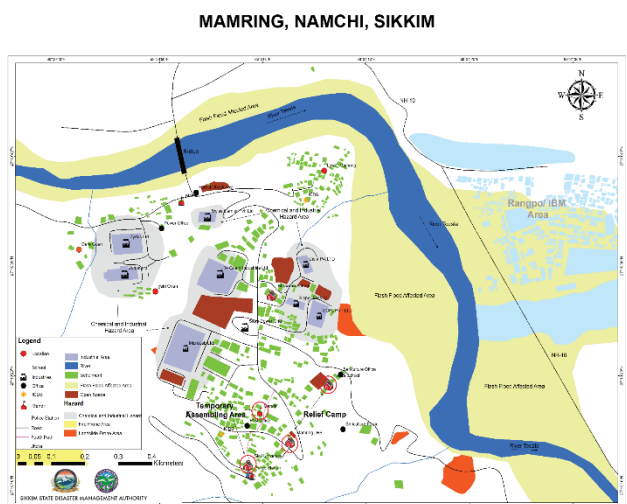
## 9. Photographs and Maps



**Photograph 1: Awareness and Sensitization Programme**



**Photograph 2: Community Participatory Mapping Exercise**



**Map 1: GIS-Based Resource and Vulnerability Map**

