



**Project Report**

**AP-PLAT Capacity Development Programme:  
Development of Local Guidebook on  
Compound and Cascading Disaster Risk Management in Bangladesh**

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AP-PLAT Capacity Development Programme: Development of a Local Guidebook on Compound and Cascading Disaster Risk Management in Bangladesh

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# 1. Background

This project is part of the Asia-Pacific Climate Change Adaptation Information Platform (AP-PLAT) Capacity Development Programme, which aims to strengthen the Asia-Pacific region's resilience to disasters. Under the capacity development programme in AP-PLAT, we have organized international workshops and developed E-learning materials on several topics, including compound and cascading disaster risk management (CCDRM). The project "Development of a Local Guidebook on Compound and Cascading Disaster Risk Management in Bangladesh" is a continuation of a series in the capacity development programme of AP-PLAT that is focused on CCDRM and aims to strengthen the disaster management capacity of the target countries in order to enhance resilience to disasters at the national level.

In recent years, the world has been affected by various aspects of climate change, such as floods, typhoons, and other extreme weather events, as well as rising sea levels; therefore, there is an increasing demand for disaster risk reduction efforts that take climate change into account. Furthermore, as the global outbreak of COVID-19 has raised the world's sense of urgency regarding the impact of diseases on daily life, people all over the world have recognized the need to prepare for the combined risk of infectious diseases and natural disasters occurring simultaneously. The possibility of multiple natural disasters coinciding has created an urgent need to strengthen the capacity of countries vulnerable to natural disasters to prepare for compound and cascading disaster risks.

## 2. Designing Capacity Development Program

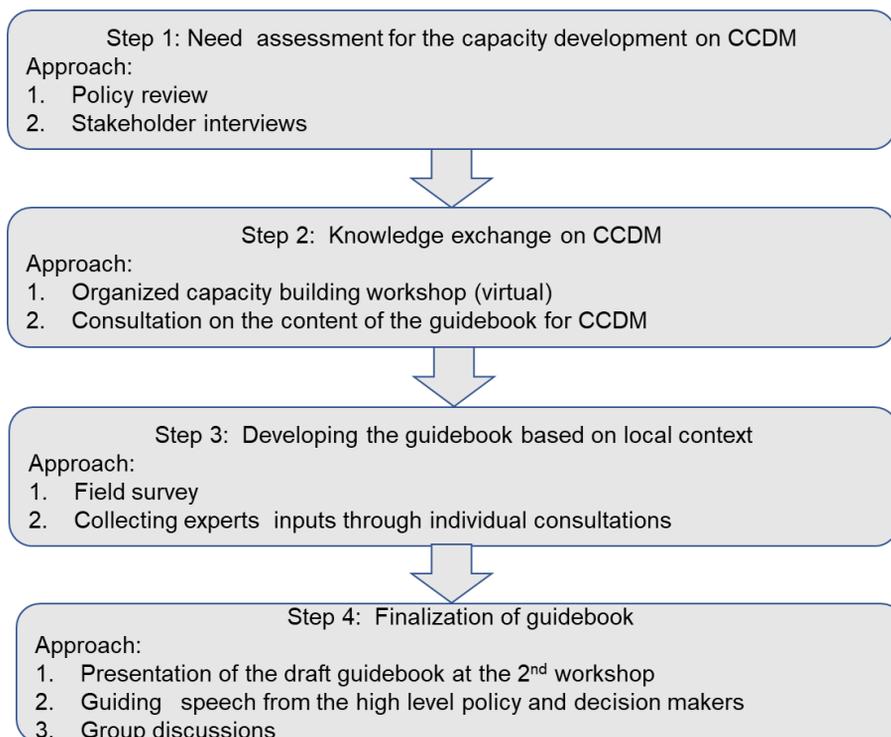
Bangladesh is one of the most disaster-prone countries in the world. The country has made good progress in disaster preparedness. However, when it comes to cascading and compound disaster management, the country needs further capacity development to build resilience to cascading disasters. The design of the capacity development program under this project consisted of four steps, as shown in Figure 1. In step 1 a need assessment was conducted to understand the current status of CCDRM in the existing disaster management policies and actions. This exercise was performed through policy review and key stakeholder interviews, including with the Department of Disaster Management, the Department of Fire Service and Civil Defence, and members of academia, including from the University of Dhaka and Brac University. This exercise found that CCDRM has not been integrated into any of the important disaster management-related policy

This document is a report on the capacity development programme on compound and cascading disaster risks in Bangladesh, which is a country vulnerable to various types of compound disasters. Bangladesh is home to 170 million people and about half of its population is affected by climate change due to its geographic location, low elevation, high population density, poorly developed infrastructure, high poverty rate, and high dependence on natural resources. In order to develop capacity and enhance resilience a framework for cascading and compound disaster risk reduction is critical. This project conducted two capacity development workshops that engaged key stakeholders and experts in the discussions on cascading and compound disaster risk in Bangladesh, discussed relevant issues and challenges, analysed real cases of cascading and compound disasters in the country, and co-developed a guidebook for cascading and compound disaster management. This project is the first step of the capacity development program on cascading and compound disaster management in Bangladesh, which provided a foundation for developing a cascading and compound disaster management framework and for planning CCDRM actions in Bangladesh.

\* The Institute for Global Environmental Strategies (IGES) Japan and Brac University in Bangladesh collaborated to implement the project in cooperation with the Department of Disaster Management, Bangladesh. The final output of this project is the "Cascading and Compound Disaster Management Training Guidebook (in Bengali) which has been approved by the Ministry of Disaster Management and Relief, Bangladesh.

documents; thus, it is important to develop capacity for the emerging challenges of CCDRM. In Step 2, knowledge of CCDRM was shared with key stakeholders via the first capacity building workshop that utilized the AP-PLAT E-learning materials. This workshop facilitated CCDRM knowledge sharing with over 40 participants and also facilitated consultation with stakeholders about the outline of the CCDRM guidebook.

In Step 3, field surveys were conducted in the disaster-prone areas of Bangladesh and experts were consulted so that the content of the guidebook would be relevant to the country's context. In step 4, the draft guidebook was presented at the second stakeholder workshop and feedback was received via guiding speeches from high-level policymakers and group discussion exercises.



**Figure 1:** Designing the capacity development program through a step-by-step approach

### 3. Summary of Literature Review

#### 1. Need assessment of capacity development for CCDRM

A number of major policy documents were reviewed to understand how cascading and compound disaster management is integrated into the existing disaster and climate change adaptation policies (Table 1). It was found that CCDRM is not integrated

into any of the important policy documents. The stakeholder interviews showed that lack of knowledge on cascading and compound disasters is one of the main reasons for the absence of CCDRM in the existing policies and actions.

**Table 1:** List of major policy documents on disaster management in Bangladesh

|   |
|---|
| <ul style="list-style-type: none"> <li>• Bangladesh Delta Plan (BDP 2100)</li> <li>• Disaster Management Act, 2012</li> <li>• National Disaster Management Policy</li> <li>• Standing Orders on Disaster, 2019</li> <li>• National Plan for Disaster Management (2021-2025)</li> <li>• Disaster Management (Fund Operation) Rules, 2021</li> <li>• National Strategy on Internal Displacement Management, 2021</li> <li>• Cyclone Shelter Construction, Maintenance and Management Policy, 2011</li> <li>• Disaster Management Guideline, 2020</li> <li>• Urban Volunteer Management Guideline</li> </ul> |
|---|

## 4. The First Workshop (Virtual)

### Overview

On November 5, 2022, the kick-off workshop was held, and over 40 participants from various disaster risk reduction related-stakeholders in Bangladesh participated, such as government agencies, international organizations, research institutes, and civil society. The workshop consisted of two parts: an introduction of the baseline of the project, followed by a discussion on the observed compound and cascading disasters in Bangladesh and on the possible contents of the localized guidebook.

The purpose of organizing the first workshop was threefold. First, to create a common understanding among those involved in disaster management in Bangladesh of the importance of addressing risk management for compound and cascading disasters in Bangladesh. The second objective was to increase understanding of the effectiveness of the capacity development programs in Bangladesh by using the guidebook as an approach to managing the risk of

compound and cascading disasters. Finally, the third objective was to gather ideas on the structure of the guidebook in order to produce the most meaningful guidebook in the context of Bangladesh.

The affiliations of participants include: American Red Cross Cox's Bazar, Bangladesh Meteorological Department, Bangladesh Police, Bangladesh Water Development Board, BRAC Bhasan Cahar Rohingya Camp, Christian Aird Bangladesh, Department of Agricultural Extension, University of Barisal (Department of Coastal Studies and Disaster Management), Department of Disaster Management and Relief, University of Dhaka (Department of Geography and Environment), Brac University (Postgraduate Program in Disaster Management), Prime Minister's Office (Skill Development Program), Start Fund Bangladesh, USAID Bangladesh, etc.,



### Key Discussion

In the first part, after an introduction to AP-PLAT's capacity development program and an explanation of the importance of addressing compound and cascading disasters in Bangladesh, the significance of creating a training module using the guidebook was explained. The main objectives of the training module were explained as: 1) to inform and give adequate knowledge to participants about compound and cascading disasters, 2) to train the participants in a planned, disciplined, and efficient way to manage and respond to these disasters, and 3) to build capacity and resilience to compound and cascading disasters.

In the second part, a lively discussion was held by participants on the following topics: 1) the status of CCDRM in Bangladesh, and 2) the expected contents of the guidebook.

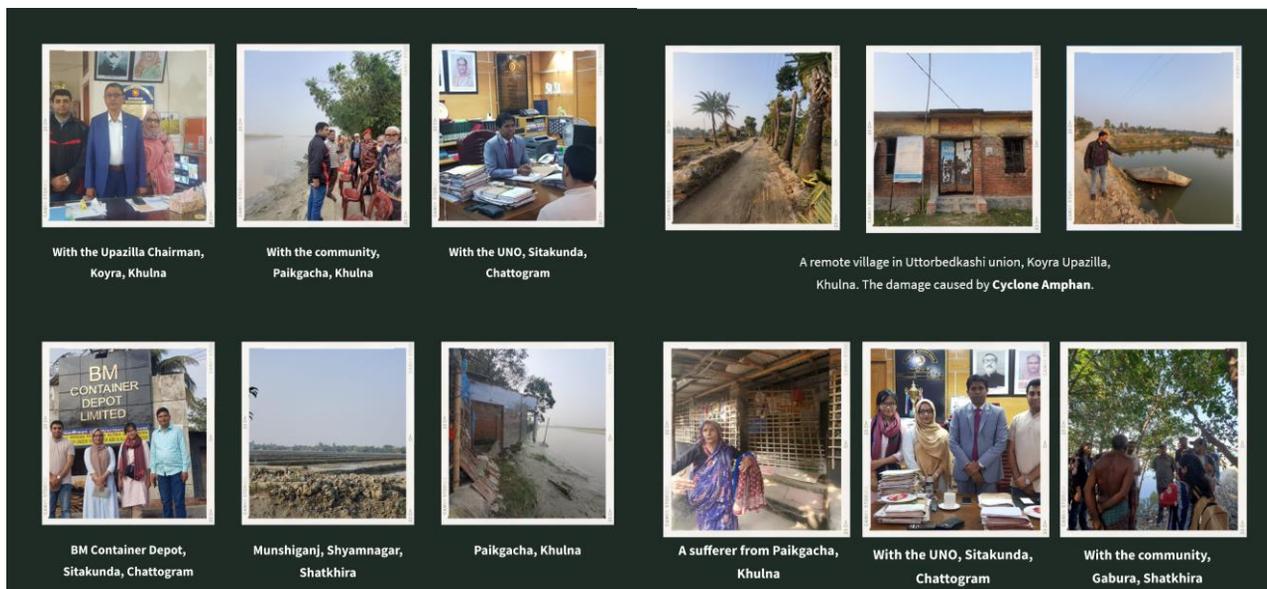
First, with regard to compound or cascading disasters experienced in Bangladesh, most participants agreed that cyclones can trigger other disasters, such as landslides and waterborne diseases, and can occur simultaneously with other disasters, such as infectious diseases and heat waves. Cyclone Anphan, which occurred during the response to COVID-19, was also highlighted as an example. Regarding the content of capacity development programs for compound and cascading disasters, it was suggested that it would be important to develop training materials in local languages, not only for officials of the Ministry of Disaster Management and Relief and the Fire and Disaster Management Agency but also for citizen volunteers and students. In addition, one expert mentioned the importance of enhancing "public perception" through a "professionalism approach" when dealing with complex issues such as compound and cascading disaster risks.

## 5. Field Assessment and Consultation

A field study was conducted before the workshop, partly because disaster management experts recommended introducing case studies to deepen understanding of what compound and cascading disasters actually are and under what circumstances they occur. The main purpose of conducting the field survey was to listen to the real voices of those who were actually affected by the compound and cascading disasters and to collect data on the situation when it happened. By including this raw data in the guidebook, we aimed to make the content more contextual and in-depth for Bangladesh.

The following locations were visited:

- Koyra, Khulna
- Paikgacha, Khulna
- Upazilla, Khulna
- Sitakunda, Chattogram
- Shyamnagar, Shatkhira
- Gabura, Shatkhira



## 6. The Second Workshop

### Overview

On January 26, 2023, the second workshop was held at the Hotel Bengal Canary Park, Dhaka, Bangladesh. For this on-site workshop, a total of 50 participants from various institutes, including government agencies, non-governmental organizations, research institutes, and universities, attended and actively contributed to the discussions. Some of those who attended the first workshop participated, but there were also many who attended for the first time. The participation of people on the front lines of disaster management in Bangladesh provided an opportunity to discuss how to further improve the contents of the guidebook. In addition, the workshop was concluded with remarks from the chief guest, Dr. Md. Enamur Rahman MP, State Minister, Ministry of Disaster Management and Relief, and special guest, Mr. Md Kamrul Hasan, Secretary, Ministry of Disaster Management and Relief, whose words cheered all of the participants engaged in disaster management.

The workshop had four objectives. First, to introduce the partnership initiatives of AP-PLAT and the capacity development program, including the E-

learning tool. Second, to introduce the current capacity development program in Bangladesh and understand its vulnerability to disasters. Third, to understand basic concepts of compound and cascading disaster risks in the context of Bangladesh. Finally, to gather direct input and feedback on the draft guidebook, in terms of its content from both national and local perspectives, through group discussion exercises.

The affiliations of participant include: Brac University, Centre in Disability in Development, Coastal Development Partnership, Cyclone Preparedness Programme, Dhaka University, Department of Disaster Management, Freelance Consultant, International Federation of Red Cross and Red Crescent Societies, Ministry of Disaster Management and Relief, Save the Children Bangladesh, University of Barishal, University Grants Commission Bangladesh, Youth Club of Bangladesh etc.



## Session Outline

Because participants came from all over Bangladesh, the workshop had to be as meaningful as possible in the limited time of one day. For this reason, the first half of the presentation was as brief as possible, and the format was to take questions and answer them as they arose through actual group work and other

activities. The two breaks also provided an opportunity for participants to interact and exchange ideas and update themselves on the latest information from people working around the country.

**Table 2.** Programme of the second workshop

| Time                                 | Activity   | Responsibility   |
|--------------------------------------|--|--|
| Day 2: 9 <sup>th</sup> December 2022 |  |  |
| 09:00                                | Start preparation for the workshop   | Organizer (Brac University and IGES)   |
| 10:00                                | Opening and welcome remarks  | Mr. Md. Mijanur Rahman, Mr. Yasuo Takahashi, Mr. Gen'ichiro Tsukada                        |
| 10:30                                | Explanation of AP-PLAT Capacity Development Programme, current capacity development program on disaster risk management in Bangladesh, and outline of the workshop | Kei Kurushima, Mr. Md. Abdullah Al-Mamun, Bijon Kumer Mitra                                |
| 11:00                                | Break  |  |
| 11:30                                | Explanation of the guidebook   | Ms. Tunazzina Rahimu   |
| 12:00                                | Group discussion and presentation  | Participants   |
| 14:00                                | Lunch Break  |  |
| 15:30                                | Overview of the module   | Mr. Muhammad Ferdaus   |
| 16:00                                | Closing remarks  | Mr. Kamrul Hasan, Dr. Md. Enamur Rahman MP, Mr. Osamu Mizuno, Mr. Netai Chandra Dey Sarker |
| 16:30                                | Closing and photo session  |  |

## Key Discussion

The second workshop took advantage of the face-to-face meeting and allowed time to break into groups to discuss the set topics. The discussion was very active, and we were able to receive first-hand opinions on the guidebook and training modules from people who are deeply involved in disaster management and other development projects in Bangladesh.

For the group discussion, participants were divided into six discussion groups to discuss how to enrich the content of the guidebook. Each group was assigned one of the following questions and asked to discuss it for one hour and then present their ideas.

1. How do you perceive compound and cascading disasters? Describe the characteristics of each disaster.
2. Do you think there's a direct cause-effect relationship between climate change and compound and cascading disasters happening all around the world? If yes, please justify. If not, please justify.
3. Make a comparative distinction between compound and cascading disasters from your own perspective.
4. What could be a possible risk reduction mechanism/framework to alleviate the risk of compound and cascading disasters?
5. In your opinion, what kind of initiatives can be taken by the government to build resilience to compound and cascading disasters in Bangladesh?
6. In your opinion, what kind of initiatives can be taken by non-governmental organizations and other stakeholders to build resilience to compound and cascading disasters in Bangladesh?
7. In your opinion, what kind of assistance do you expect from academic/educational institutions to build resilience to compound and cascading disasters in Bangladesh?

Some key points raised in the group discussions were:

- Characteristics of compound disasters are individual and independent from other disasters, have various sources, occur in the short-term, result in mass destruction, and are challenging to respond to quickly (e.g., earthquake, flood, fire, lightning, landslide). On the other hand, cascading disasters create secondary or continuous disasters, have a single source, are sequential, and can be responded to with time (e.g., earthquake followed by tsunami, flood followed by damage of infrastructure).
- In terms of hazards, there is no relationship between climate change and compound and cascading disasters, but compound and cascading disasters may occur because of climate change. Compound and cascading disasters are more complex to manage and are unpredictable.
- More research collaborations on CCDRM should be encouraged both at the national and international level.
- The guidebook could be designed so that volunteers from different educational institutions could be trained in CCDRM and then they could provide introductory training to others.
- In order to cope with various disasters, there should be a unified framework designed by experts from different backgrounds.
- It is important to build a structure of small-scale risk reduction measures with support from non-governmental organizations.
- In order to develop capacity against disasters, it is important to secure economic resilience, social resilience, institutional development, and environmental adjustments.



**Figure 2:** Breakout discussion at the workshop

## 7. Guidebook on CCDRM in Bangladesh

Valuable feedback from the stakeholders at the 2nd workshop helped to finalize the guidebook on CCDRM. All important feedback and input from the 2nd workshop was integrated into the final guidebook on CCDRM.

Here is a brief description of the contents of the guidebook, with an introduction to what is written in each chapter.

There are eight chapters:

1. General discussion on cascading and compound disasters
2. Cyclone Amphan and its impact
3. Rana Plaza accident and its impact
4. Sitakunda BM container fire
5. Compound and cascading disasters and their impacts on COVID-19 and related issues
6. Supporting guidelines for training
7. Supporting information: Pre-training activities
8. Post-training activities

The first chapter starts with the actual training module. The first part provides general information and discussion on compound and cascading disasters.

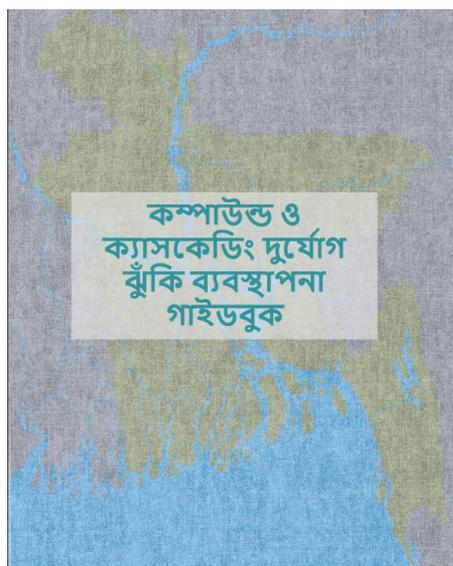
The second to fifth chapters are case studies on compound and cascading disasters in Bangladesh. The case studies are on Cyclone Amphan, the Rana Plaza factory collapse incident, the chemical explosion in Sitakunda, and the compound effects of COVID-19. These chapters are designed to first explain what a compound and cascading disaster is, and then illustrate a real case study to help the trainee better understand the concept.

The sixth chapter is supporting guidelines for training. It describes for what purpose the guidebook was created, who it is intended for, what it is expected to accomplish, etc. It also describes the significance of deepening understanding through the

contents of this guidebook as it provides discussion topics, role-playing examples, and individual and group presentations for conducting interactive training using the contents of this guidebook.

The seventh chapter provides information about pre-training activities. In short, it includes ideas on what to say in the introductory portion of the training, and how to conduct self-introductions and icebreakers among participants since the training involves group work that needs smooth communication.

The last chapter is information regarding post-training. It includes a guide on how to follow up after training to make it more effective and how to conduct training assessments. The intention is to enhance participants' understanding by providing pre-training and post-training sections along with the main training module section.



**Figure 3:** Guidebook on Compound and Cascading Disaster Risk Management in Bangladesh



## 8. Conclusions and Way Forward

The number of cascading and compound disasters has increased in recent years and the management of CCDRM has been recognized as one of the emerging challenges for strengthening resilience to disasters. However, in most cases, disaster management plans have been formulated to respond to a specific type of disaster but not for managing multiple disasters that may happen at the same time in the same place. Considering the above needs AP-PLAT launched the capacity development program on Cascading Disaster Management for supporting vulnerable countries. Under the capacity development program of AP-PLAT, IGES in collaboration with BRAC University and the Department of Disaster Management implemented a project on capacity development for CCDRM for national and local disaster management agencies. The capacity development project activities consisted of assessing the need for CCDRM capacity building, sharing CCDRM knowledge with policymakers and stakeholders, and developing the country context-based guidebook by incorporating case studies of cascading disasters in Bangladesh.

The achievements of the capacity development activities during the first year include:

- Provided knowledge of cascading and compound disasters and their management to more than 40 participants from key disaster management agencies.
- Co-development of the Guidebook on CCDRM in Bangladesh. The guide will be used as official

capacity development material by the Department of Disaster Management. The guidebook has been developed in the local language (Bengali) to make it user-friendly, particularly for the frontline agencies at the local level.

- This guidebook elaborates on CCDRM by highlighting examples from Bangladesh. Therefore, it will be a key capacity development document for CCDRM in Bangladesh. After getting capacity development the policymakers, practitioners, and local disaster management agencies will be able to integrate CCDRM into the framework of preparedness, response, and recovery.

These outcomes of the first year's capacity development activities will be useful for designing future capacity development for the local governments in the natural disaster-prone regions of Bangladesh. As a follow-up, the guidebook can be piloted for the capacity development of the local government agencies and the results of the workshop can be used for updating the guidebook. Experience of capacity development in Bangladesh can be exchanged with other countries through AP-PLAT regional events and a twinning program can be developed to enhance partnerships on CCDRM in the region.



## KEY RECOMMENDATIONS FOR STAKEHOLDERS INVOLVED IN DISASTER MANAGEMENT

### **The first step should be need assessment.**

In the case of Bangladesh, although the country is vulnerable to cascading disasters, the management of the CCDR has yet to be incorporated in the relevant policy documents. Furthermore, consultation/interviews with disaster management experts and practitioners revealed that there is a high need for a capacity development program on CCDRM in Bangladesh to incorporate CCDRM in pre-disaster preparedness, response during disaster, and post disaster recovery. Hence, development of a guidebook on CCDRM is necessary and it will be used as a basic document for the capacity development of policy makers and disaster management frontline agencies and local communities.

### **Involve the national government agencies from the earliest stages.**

The guidebook is intended to be used as a basic document for capacity development programs that will be organized by the relevant governmental agencies as well as disaster management frontline agencies, organizations, and volunteers. Both national and local government officials are the primary audience for the guidebook. For the purpose of making the guidebook an official training document, it is important to co-develop the guidebook by engaging central government officials, experts, and frontline workers from the early stage. In the case of Bangladesh, the guidebook was co-developed in close collaboration with the Department of Disaster Management, the focal agency for disaster risk management under the Ministry of Disaster Management and Relief.

### **Enhance basic understanding of CCDR and its management.**

Since CCDR is a relatively new term for disaster management policy makers and practitioners, it is necessary to provide knowledge on CCDR and its management by taking real experiences of CCDRM from different regions. AP-PLAT E-learning materials can be used as a good source of knowledge for enhancing understanding on CCDRM.

### **Incorporate local experiences on CCDR and voices of local people.**

Compound and cascading disasters are not only what is about to happen, but also what has already happened. Information on local cases of compound and cascading disasters should be collected through field surveys and analyzed based on the six steps of disaster risk assessment, including hazard analysis, exposure assessment, vulnerability assessment, risk assessment and mapping, risk scenario development, resources, and capacity mapping. Incorporating local experiences of CCDR will help to reflect the country context in the guidebook.

### **Effective engagement of key stakeholders and experts is essential.**

It is important to ensure effective engagement of key stakeholders in the process of guidebook drafting and finalization. A stakeholder consultation workshop can be a good approach to bring all important stakeholders and experts together to facilitate interactive group discussions and get necessary input and feedback on the guidebook.

### **Design the capacity development program for effective use of the CCDRM guidebook.**

The goal is not just to create a guidebook but to envision what will be done in the long-term. Therefore, it is important to design capacity development programs for national government agencies, local government agencies, local disaster management committees, and volunteers, particularly in disaster-prone areas. After receiving capacity building training on CCDR, the participants will be able to contribute to CCDRM policy/strategy development and project formulation for enhancing resilience to cascading disasters.

### **Promote regional partnerships for CCDRM.**

Taking AP-PLAT as a regional platform, bilateral or multilateral partnerships can be promoted for capacity development on CCDRM. For example, Bangladesh can share its experience of developing the guidebook on CCDRM at an international workshop under the AP-PLAT initiative. Furthermore, a twinning program can be considered to promote bilateral projects that encourage both parties to support each other during CCDR capacity development through knowledge and information sharing.