

Landslide Risk Prevention and Mitigation – Advocacy Note

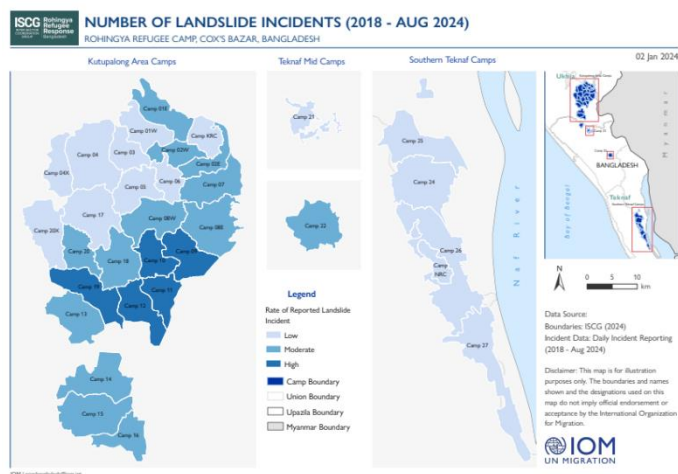
I. BACKGROUND and NEEDS ANALYSES

Extreme weather events, influenced by climate change, are becoming more frequent and intense. The monsoon season in Bangladesh, in particular, is now highly unpredictable, with erratic rainfall patterns exacerbating the severity of landslides, flooding, and waterlogging. This increasing severity underscores the urgent need for action. The impact of these events has been devastating, particularly for the already vulnerable Rohingya refugees, leading to increased displacement and fatalities during monsoon-induced natural calamities. This has further deepened their humanitarian needs, highlighting the additional layers of challenges that climate change introduces to their already dire situation.

The ISCG data analysis shows the Rohingya camps in Cox's Bazar are highly exposed and sensitive to any changes in weather phenomenon, with unfavorable living conditions in highly dense and hazard-prone areas. 19% of the area across the 33 camps (88% in Ukhiya and 12% in Teknaf camps) is highly and

moderately susceptible to landslide risk ¹.

Figure 1: Landslide Impacted Locations.



Approximately 8,281 shelters (39,750 individuals) live in these high-risk landslide locations². Given the evidence, the scale of the risk is alarming. Also, reports from 2018 to August 2024 show a significant increase in landslide occurrences with 2,758 landslides have been recorded across 33 camps, resulting in 727 fully damaged and 6,739 partially destroyed shelters. The incidents have affected 13,141 families (61,600 refugees), causing 131 injuries and 26 fatalities (Figure 1). In addition, 1,183 common facilities, including WASH, health, education, and protection, have been

destroyed, leading to significant monetary losses. While heavy rainfall has been a major contributing factor, it also emphasizes the precarious living conditions of the Rohingya refugees, highlighting the human cost of these disasters.

The Rohingya Refugee Response Inter-Sector Coordination Group (ISCG)³ and its partners have been at the forefront of the efforts to mitigate landslide risk. Their work, which includes stabilizing slopes, using nature-based solutions (NbS), and in some cases, masonry and concretes, has been in line with the Site Development Catalogue 2.1⁴. However, the increasing number of landslide extremities has prompted the ISCG⁵ to re-strategize the measures for comprehensive medium- to long-term sustainable results. These proposed actions are crucial to safeguard lives in the Rohingya camps. Without new strategies, this seasonal threat will continue to endanger the refugees every monsoon. Acting early, before a disaster and before its peak, is critical to protect against the further deterioration of the lives of the Rohingya refugees.

¹ Analysis was based on the NASA model and the shelter footprint data. This data also informs the scale of needs to prevent and mitigate landslide risk per camp.

² Ibid

³ Site Development actors and the Energy and Environment Network

⁴ Signed by the Refugee Relief and Repatriation Commissioner in April 2023

⁵ including key sectors and cross-cutting platforms

II. PROPOSED ACTIONS

In 2024, inclement weather and sustained episodes of heavy downpours during the monsoon period increased the number of landslides, flash flooding, and waterlogging. Preventing and mitigating the potential impacts of these threatening disasters is crucial. Therefore, the ISCG recommends scaling up and advancing the following actions as a priority and immediate agenda to implement.



Community Engagement and Social Behaviour Change Actions

Relocation initiatives for refugee households affected by landslides and living in high-risk locations encountered high resistance. The resistances were reasoned, stating that those families do not feel safe regarding security and do not want to be away from their families and friends. Addressing the current community's refusal to protect their lives needs greater buy-in and strengthened engagement. The activities laid out below are intended to ensure that households living at high risk are aware of the potential danger and to influence their behavior to make the right decisions to prevent casualties, loss, and damage to assets.

- i. **Produce and distribute audio-visual landslide-focused information, education, and communication (IEC) materials** with pragmatic, inclusive and easy to understand messages to increase awareness and understanding of the impact of landslides and ways to mitigate risk and reduce the negative consequences. The messages from these materials should consider the use of the RRRC approved Guidebook for Multi-Hazard Risk Communication and Community Engagement in Camp Settlement.
- ii. **Strengthening capacities to communicate and disseminate landslide early warning messages and information** for the PERU Teams, DMUs, EPR partners, CiCs, and camp DMC members. A Training of Trainers (ToT) shall be organized for a later rollout at camp levels.
- iii. **Effective localized/camp-based landslide early warning system should be ensured.** A key step is to review the existing landslide early warning signage in landslide-prone areas, as well as the communication and dissemination of the early warning messages. A review of the model is needed to increase the predictability and forecasting of landslides and their potential impacts, including defining the thresholds and triggers for community EPR actions.
- iv. **Mass awareness sessions can help bring the communities together.** A short film can be screened for mass audience reflecting on the perils of landslides and ways to mitigate landslide risk and emergency response at the household level for the 33 camps. The show will allow refugees for an interactive questions and answers session before and after the shows. The show will also provide platforms for dialoguing to influence joint actions between humanitarian actors.



Site Development Landslide Prevention and Mitigation Approaches

Landslide risk prevention and mitigation measures to exposed hills, shelters and facilities required medium to long-term interventions. Options to slope protection shall not limited only to terracing using bamboo, and construction of protection walls (bamboo and geotex). While these measures are considered economical, they require regular repair and maintenance, hence, expensive in the long run. Considering the evolving landslide risk context in the camps, the S-CCCM sector recommends the following:

- i. **Approval for the use of more durable materials like masonry bricks and reinforced concrete cement** in areas with slopes from 30 degrees and higher. The masonry retaining walls together with bio-engineering techniques are considered most effective interventions to restore the environment on steep gradients and or were deemed necessary for technical reasons.
- ii. **Timely approval of proposed site development works from the Government** (i.e, Camp in Charges (CiCs) for the immediate completion of landside risk prevention and mitigation works.
- iii. **Increase resource allocation.** Implementing long-lasting landslide risks measures requires

significant funding. Augmentation of resources is vital to carry out sustainable and effective landslide risk measures timely to safeguard lives.



Nature-based Solutions (NbS) and Climate Change Adaptation for Landslide Prevention and Mitigation

To date, EEN partners have implemented a cumulative **720 hectares of reforestation/plantation activities in the camps, including Nature-based Solutions (NbS) for Slope Stabilization**⁶. In 2024, the deadly landslides triggered the EEN to take steps to assess the challenges and successes of NbS and to identify a way forward to strengthen NbS methods.

The current list of species for plantation in the camps approved by the Bangladesh Forest Department categorizes plantation types and species into slope gradients of under 30 degrees and between 30 and 60 degrees. However, **strengthening NbS will require a closer look at the interplay between various factors including** but not limited to slope degree, soil structure composition, biodiversity, types of plantations (trees, shrubs, bamboo, grasses etc.), and species (deep-rooted, fast-growing, soil enforcing etc.).

Furthermore, specific methodologies will be explored, such as mixed species compositions, hedgerows to secure micro-terraces, and optimal plantation placement based on attributes like shade-loving or fast-growing species. Once methods are determined, a **guideline will be developed for EEN partners to begin implementing from** the next planting/monsoon season.

It should be noted that **NbS is the most sustainable and cost-effective way forward to address slope stabilization** while rehabilitating the environment for biodiversity and human settlement.



Relocation and Resettlement

Given the extent of landslide risk vis-a-vis the available resources inside the camps, the ISCG is proposing both temporary and permanent relocations while embedding in the process to address the evolving housing, land, and property (HLP) issues that could cause potential conflict and recurring displacements. The below essential considerations for actions by the Government are expected.

- i. **Additional camp space for the permanent relocation of families living in landslide high-risk areas.** For sites that have extreme slopes beyond 30 degrees and highly susceptible to landslides, where use of new materials is not possible or practical, no human settlement should be recommended. Households and facilities exposed to extreme landslide risks where site development landslide mitigation work is not an option should be permanently relocated. These locations will be subjected for a robust slope stabilization using engineering construction materials and designs. Understanding the limitation of land available to construct new shelters for permanent relocation of families living in high-risk areas, the Government with support from ISCG, should identify additional camp spaces. This requires a new allocation of land to accommodate the construction of the new shelters. The sites can be rehabilitated through reforestation works in coordination with the Energy & Environment Network (EEN).
- ii. **Temporary relocation** once intensive civil engineering works commence. Meanwhile, an assessment for the vacant shelters should be carried out in parallel to determine the required repair and habitability needs before they can be allocated and occupied. This will ensure the temporary relocation of affected families and individuals.
- iii. **Continued leadership of Camp in Charge** in the process, supported by Site Management teams, in order to ensure relocation can effectively happen.

⁶ Excluding the ongoing plantation activities in 2024

- iv. **Preparation of emergency relocation plan and protocol** to guide the CiCs and SM during the relocation once the hazard-based standard operational procedures (SOP) are activated. Emergency preparedness remains central, including the readiness for emergency relocation during the monsoon period.
- v. **Proper due diligence** on the alternative land/place before any relocations take place, ensuring no potential HLP issues arise that could trigger potential tension and conflict.
- vi. **Develop clear regulations/agreements on rental issues** to protect refugees vulnerable to eviction and arbitrary rent increases. Data shows that once evicted, refugees decided to live in landslide-prone areas due to unsettled rent.
- vii. **Improve security of tenure** by ensuring that refugees obtain a written document (occupation certificate or rent agreement) for the land/shelter they are relocated to. This will help prevent HLP disputes and effectively support safe settlement processes.



Water Sanitation and Hygiene (WASH)

In total, the Rohingya camps have 52,638 latrines and 25,874 showers. However, many of these facilities are built in either landslide high risk or landslide prone areas. Similarly, 768 water reservoir tanks with a significant weight of over 100 tons are located at the top of the hill in many camps, thus highly exposed to landslides. During the monsoon period with intense and frequent erratic rains, WASH facilities are destroyed and damaged, resulting in a usual water and sewage pipe system breakdown. WASH is fundamental for human health and well-being. In this context, the following actions shall be prioritized.

- i. **Implementing special reinforcement measures** can significantly reduce the risk of WASH facilities being destroyed by landslides in areas with moderate risk. This proactive approach can help us safeguard these crucial facilities and ensure the continuity of WASH services.
- ii. **Relocation of WASH facilities** from high-risk locations to suitable and safer places.
- iii. **Continuation of the existing mitigation efforts** to prevent the damage of WASH facilities in the landslide high risk or landslide prone areas.
- iv. **Mobilise and allocate funding.** Currently, WASH is underfunded, to carry out the necessary actions to establish an improved WASH system.

Way Forward

To propel and substantially progress the proposed actions. The critical steps for the next three months are planned as follows:

- Carry out dialogues for Government, ISCG, and Donor to present landslide risk new strategies.
- Develop a detailed action plan, underpinned by a comprehensive risk, financing, and investment analysis of the proposed actions, to ensure the best possible outcomes.
- Project proposal development for sector landslide risk prevention and mitigation.