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Sticks are used to transplant rice in flooded fields, Bilin township, Mon State

BRIEFING PAPER 4: COMMUNITY-BASED DISASTER RISK MANAGEMENT PLANNING

BACKGROUND

The coastal area of the Gulf of Mottama is not an easy place to live. Constant erosion shifts the pattern of the mud banks and the land itself; storms, tidal surges and floods from the rivers entering the Gulf are all hazards to be faced. The coastal communities are used to living with risk, and to relocating their homes and whole villages when necessary. They are also aware that their livelihoods depend on an ecosystem that is healthy, and well adapted to harsh conditions. Yet they observe that extreme events are increasing in frequency and intensity; forecasts of the impact of climate change (see Briefing Paper 3) indicate that they will only further increase. Planning for such eventualities and preparing at the individual and community level is thus crucial.

Disaster Risk Management (DRM) was part of the project from the outset, receiving strong technical support throughout phase I and II. This began with the training of a community-nominated DRM focal person from each village. This person went on to play a key role in the development of Community-Based Disaster Risk Management (CBDRM) plans in their village – a process described further below. By February 2020, just before the Covid-19 pandemic arrived and movement was restricted, the project had supported the development and completion of CBDRM plans in 33 (out of 60) villages. The intention was that the DRM recommendations would be integrated into the Village Action Plan, allowing for the allocation of budget and streamlining of DRM-activities with comprehensive village development. This was achieved in 18 villages of Mon State and 14 villages in Bago region, making 32 in total.

The original project intention was also to support the institutionalization of Disaster Risk Reduction (DRR) within government planning processes at township and Regional/State level. In Mon State the project coordinated closely with the Department of Disaster Management (under the Ministry of Social Welfare, Relief and Resettlement) – becoming co-chair of the multi-actor Disaster Risk Reduction Working Group from November 2018 until February 2021. The government approach at the time focused mainly on preparedness and coordination in responding to disasters, whilst the project additionally aimed to address structural drivers of disaster risk – in line with wider international norms of avoiding the creation of new risks. This difference of perspective was not, however, a matter of friction but of open discussion. Rather than working separately, participants from Bago joined in the DRM workshops conducted in Mon. Although the project was not directly active at national level, its experiences of bottom-up, participatory planning were fed into the national DRR Working Group, of which SDC was a member.

The military takeover in February 2021 halted all project collaboration with the government and thus put an end to its support for the institutionalization of DRM beyond the village level. Instead, in the last years of operation the project re-focused on reinforcing community-based DRM as far as possible. The CBDRM plans were reviewed and revised in 50 villages (work in others not being possible for security reasons), placing greater emphasis on strengthening climate resilience and healthy ecosystems within the CBDRM plan. This meant that substantial support was provided during the final project phase for (emergency) water supplies and infrastructure construction or renovation through cash for work. Mangrove planting and/or restoration was also supported wherever possible.

THE CBDRM PLANNING PROCESS

The elaboration of CBDRM plans followed a standard process that was tried and tested in a few villages before being rolled out more widely, and which was also slightly modified several times subsequently. For example, rather than using evaluation criteria, a system of ranking DRM measures by order of prioritization was introduced in 2019 to harmonize with government processes. As already mentioned, greater emphasis was placed from 2022 onwards on climate change and ecosystems. Nevertheless, the planning process has retained the same basic content and structure, as shown in the text box and described further below.

Structure of the CBDRM planning process

- Introduction
- Objectives in developing a CBDRM Action Plan
- Explanation of the CBDRM Action Plan Process
- Definition and discussion about the Ecosystem, Climate Change and Disaster Risk Reduction
- Group Work
 - o Historical profile of disasters (previous 10 years – both lived experience and with reference to risk mapping conducted through the project)
 - o Seasonal calendar of disasters
 - o Mapping the hazards and vulnerabilities within the village
 - o Climate change impacts on agriculture
 - o Climate change impacts on fisheries
 - o Climate change impacts on the ecosystem
 - o Frequency and level of impact of different disasters
- Activity prioritization
- Development of the CBDRM Action Plan

STEPS 1 – 4: INTRODUCTION, OBJECTIVES, THE PLANNING PROCESS, AND EXPLANATION OF KEY CONCEPTS

CBDRM planning was always conducted in villages that had already received project support and had an established Village Development Committee, VDC. Thus, it was never necessary to introduce the project as such. Yet as in any village planning exercise, it is important to first invite key persons such as the Village Administrator, VDC executive members and other opinion leaders such



Elevated pathways in flood-prone village, Thanatpin township, Bago Region

as religious authorities) to explain the exercise and gain their support. The objectives are outlined – notably, that they are to understand the local community's perception of disasters, identify ways to reduce them and to plan accordingly, enhance the capability of people to cope with an extreme event and at the same time preserve the coastal natural resources. The steps for doing this, and the likely amount of time needed, are also outlined in order for individuals to decide whether to participate. Although participation is open, nominated key individuals are requested to remain for the entire process. Generally, at least six to eight persons participate – ideally a mix of women and men of different ages, including older persons who have a longer time perspective. In the updated process since 2023, a discussion is launched at this stage of the meeting into what an ecosystem comprises, what are ecosystem services, and why it is important to conserve the ecosystem in its entirety. Similarly, greater focus is given to discussing climate change, its likely local impacts and adaptation measures, as well as the terminology used for different disasters and types of hazards. This paves the way for group work.

STEP 5: GROUP WORK

To illustrate this process, the example of one village is taken: that of Zee Gone, in Paung township (Mon State). Zee Gone comprises a Buddhist community of mixed fishing and farming households situated immediately on the coast.

Historical profile of disasters

The group first discusses the different disasters experienced by the village over the past ten years, listing everything that has happened. If necessary, they are reminded to consider all types of disasters – including storms, coastal erosion, floods, drought, and associated problems. They also list the impacts of each type of disaster and consider possible solutions. The table shows the disasters identified by the villagers of Zee Gone. In their case, a large tidal wave in 2017 eroded part of the village lands leaving the village very exposed. Since then, they have experienced disasters on a yearly basis.



Developing Community-based Disaster Risk Management (CBDRM) action plan, Bilin Township, Mon State

Disasters in the past 10 years listed during group work in Zee Gone village

Year	Disaster	Damage/Impact	Possible solution
2018 - every year	Cyclone	Damage to homes Livestock deaths Damage to fishing nets	Planting of mangroves and trees as wind brakes
2019 - every year	Flood (sea water)	Livestock deaths Damage to homes Damage to roads Damage to paddy fields	Road renovation Renovation of retaining wall
Every year	Coastal erosion	Loss of homes/ farmland/ other land	Mangrove planting
Every year	Water shortage	Reduced income Sickness - diarrhea	Water storage tank collection

The next step is to consider the timing of disasters to produce a seasonal calendar. Again, the example of Zee Gone is given. The calendar begins in April in keeping with the Buddhist year, which starts around this time (following the lunar calendar). The peak season for disasters is April to August, which coincides with the hottest period of the year (April – May) and then the main monsoon rains (June – August). This pattern of disaster seasonality is shared with the rest of the Gulf of Mottama, with minor differences related to topography. Some villages also consider disasters to be prevalent throughout the year, but simply to a lesser extent in the cooler period of November through to January.

Village hazard and vulnerability map

This step entails drawing a map of the village and marking on it the main features, such as the houses, school, religious buildings, roads, ponds, embankments, and paddy fields.

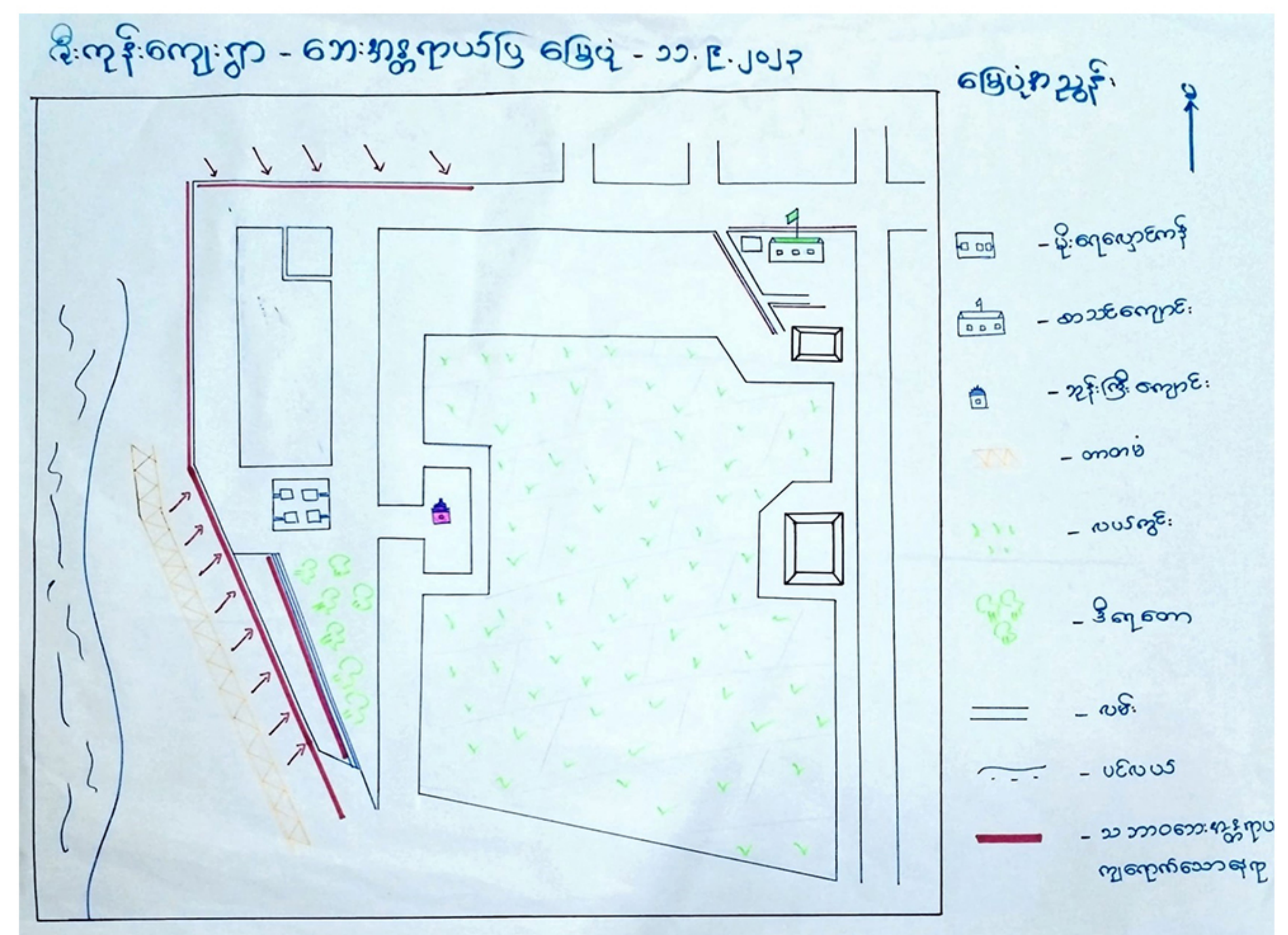
Seasonality of disasters according to group work in Zee Gone village

No.	Disasters	April	May	June	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
1	Cyclone			XXX	XX	XX	X						
2	Flood				X	XX		X					X
3	Erosion			X	XX	X	X						
4	Water Shortage	XX	XXX										X

Climate change impacts on agriculture, fisheries, and the ecosystem

Villagers are then asked to list out separately the impacts of climate change on their livelihoods and the ecosystem. This varies considerably by village, depending on the surrounding resources. Some villages have extensive flat lands and derive their main income from farming, especially paddy. In this case, droughts and floods are generally a particular concern – especially saltwater intrusion during floods. Another disaster (considered to be linked to increasing temperatures) is the advent of new pests and diseases, chief of these being the golden snail – a rapacious exotic species that inflicts major damage on paddy seedlings. In villages that comprise predominantly fisher households (usually those located right on the coast), cyclones and storms are of special concern, causing damage to boats and nets and restricting income-generating opportunities. This is also true for the poorer households which do not own a boat, and which often collect mud crabs and clams as part of their living. They may be

also concerned about coastal erosion removing the mudflats on which they depend. In villages with mixed livelihood practices, a variety of climate change impacts may be listed. Water shortages during the hot, dry season are commonly reported across all villages as a result of increasing temperatures. More on the “slow onset” impacts of climate change – especially those associated with changing temperatures and rainfall patterns - and responses supported through the project can be found in Briefing Paper 5.



Zee Gone village hazard and vulnerability map

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Frequency and level of impact of different disasters

The next step in the CBDRM planning is for village participants to rank the frequency of the different disasters that they have identified against the impact felt – that is, the level of damage caused. Here the example of Zee Gone serves once more to illustrate the type of ranking obtained. The impact level is ranked from 1 to 5, with level 5 being “Very high impact” with 80-100 % damage and level 1 being “Very low impact” with 0-20% damage. If a given disaster has occurred more than once over the previous 10 years, the impact level is assessed based on the greatest damage

Frequency and impact of disasters in Zee Gone (last 10 years)

	Disaster	Frequency (past 10) years	Damage/Impact Level						
			Infrastructure (road, school, houses, etc.)	Social (People, Animal Husbandry)	Economic (Agriculture)	Economic (Fisheries)	Environment (Mangrove)	Environment (Mudflats)	Environment (Grassland)
1	Flood	5	1	2	1	1			
2	Erosion	5	1	1	1	1	2	1	1
3	Cyclone	10	1	1	1	1	2		
4	Water shortage	10		1					

caused. Fortunately for Zee Gone, damage was never higher than just below 40%, but even this level is still very significant as it is rarely felt equally across a community. Other villages have been less fortunate, with coastal erosion or floods causing damage up to level 5 - forcing relocation.

The disaster ranking is important for prioritizing subsequent actions, and for emphasizing that action is possible; villagers are not simply passive actors. Furthermore, local knowledge of the topography and precise village characteristics are important in identifying the greatest probable risks. At the same time, it is known that climate change is altering the pattern of disasters, including the frequency and intensity of extreme events. This must be considered.

STEP 6: ACTIVITY PRIORITIZATION

In this step, the group participants are asked to identify activities that can contribute to managing or reducing the risk of disaster. Typical examples are those listed by Zee Gone villagers (see below). Infrastructure tends to be prioritized as it benefits the whole community rather than specific interest groups; in addition, it is a visible intervention and thus a readily justified investment. Other infrastructure projects identified in different villages include upgrading the land on which the village school is built; pond digging or renovation; the construction of a cyclone shelter; and (where technically feasible) the boring of a tube well for drinking water. In some cases, a need for greater awareness of disasters amongst community members (through training) was identified. In villages in which one form of livelihood dominates, activities related to the associated risks have been prioritized. These in-

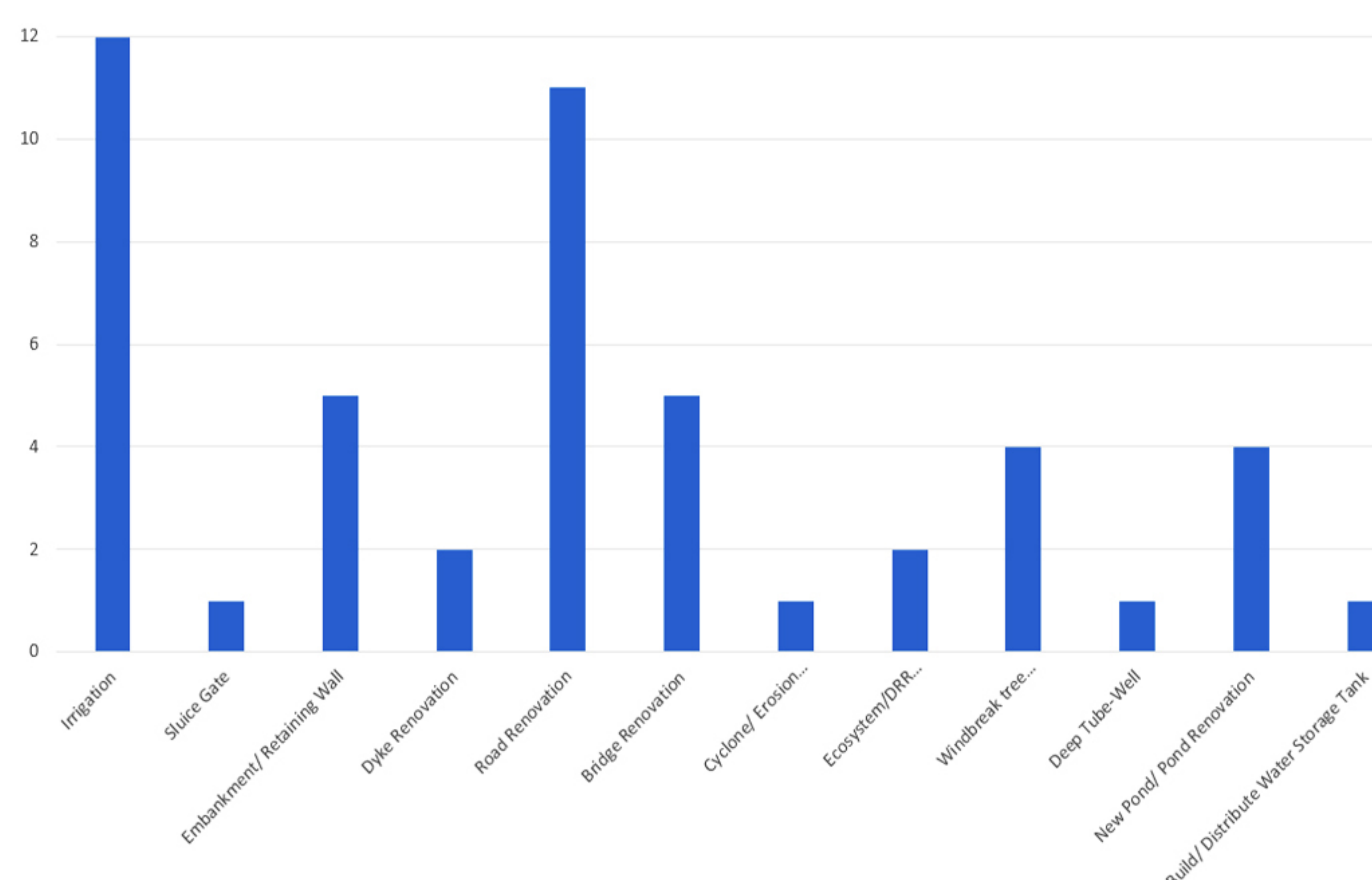
Prioritization matrix for DRM activities in Zee Gone village

Activity code	Activity	A	B	C	D	E	Score	Rank
A	Tree planting for wind breaks (on land)	X	A	C	D	E	1	IV
B	Mangrove planting (on mudflats)	X	X	C	D	E	0	V
C	Construction of a retaining wall	X	X	X	D	C	3	II
D	Road renovation	X	X	X	X	D	4	I
E	Water storage tank distribution	X	X	X	X	X	2	III

clude, in farming communities, seed banks and drainage ditches and in fishing communities, insurance for fishers who lose their boats or fishing gear. The scoring is done by considering each activity in turn and scoring it by its importance against the other activities. In this way a prioritized ranking is obtained.

The graph below shows clearly how infrastructure activities of different types were prioritized by most villages in their CBDRM plans. Overall, irrigation channels were prioritized most frequently (ranked first in 12 villages), followed by road renovation (ranked first in 11 villages). As numerous activities were considered, those that were never given top priority are not listed.

Graph: Activities ranked as priority 1 in the CBDRM village plans



STEP 7: DEVELOPMENT OF THE CBDRM PLAN

The last step in the CBRDM exercise is to develop the plan itself, following the prioritization of activities. This also needs to consider feasibility (regarding the seasonal nature of work, the availability of funds, and the necessity of any preparation) and to determine the responsible persons or authority. This is shown for Zee Gone, below. In any infrastructure activity, the Village Administration must be involved; post February 2021, this must be negotiated via the VDC as the project cannot engage directly with government institutions. The same is true where any government line agencies are concerned (Departments of Forest, Irrigation, Agriculture, and similar). Wherever possible, infrastructure activities are enhanced through ecological approaches such as the planting of trees along roadsides or of mangroves close to retaining walls.

Zee Gone village CBDRM plan

Ranking	Activity	Need Assessment (budget, technology)	Year	Location	Responsible persons/ organization	Organization (External)	Ecological Approach
1	Road renovation	Funds & Technical support	2024	Within village	Village Administration/ VDC	GoMP Dept. Rural Development	Tree planting
2	Retaining wall building	Funds & Technical support	2024-25	Outside village	Village Administration/ VDC	GoMP/ Irrigation Dept	Mangrove planting
3	Water storage tank distribution (to individual households)	Funds	2023	Within village	Village Administration/ VDC	GoMP	
4	Tree planting as wind breaks	Funds & Technical support	2023-24	Around village	Village Administration/ VDC	GoMP	
5	Mangrove Planting	Funds & Technical support	2023-24	Along coast	Village Administration/ VDC	GoMP/ Forest Dept	

IMPLEMENTING THE CBDRM PLAN

Plans are only of use if they can be implemented, and this generally requires funds. It is not expected that all activities will be funded by the project – funding also needs to be sourced from elsewhere, notably the relevant government line agencies, internal village sources and potentially other external organizations. The CBDRM plan is integrated into each Village Action Plan, as overseen by the Village Development Committee (VDC). This should have at its disposal 25% of the funds generated through interest paid on the village revolving fund to use for community purposes (also including conservation activities). It also has the status to request funds from the relevant government authorities. This occurred to some extent in the past. However, in current circumstances, few funds are available at village level for DRM activities. Funding has instead come from the project humanitarian budget (especially as cash for work) or has been supported through project-related bodies, notably the CFDA (for farming) or the FDA (for fisheries).

DISASTER PREPAREDNESS AND EMERGENCY RESPONSE TRAINING

The project has coordinated with the local branch of the Red Cross in Mon State and Bago Region to facilitate training in disaster preparedness and emergency response in those villages that are at particularly high risk of disaster. The training covers the following aspects.



Using boats to access flood-affected households, Kawa township, Bago Region

- **Sources of information for early warning:** These include the radio; Township of Village Administrators; announcements by the Dept of Meteorology and Hydrology; Red Cross staff; and the Myanmar Radio and Television (MRTV) information center.

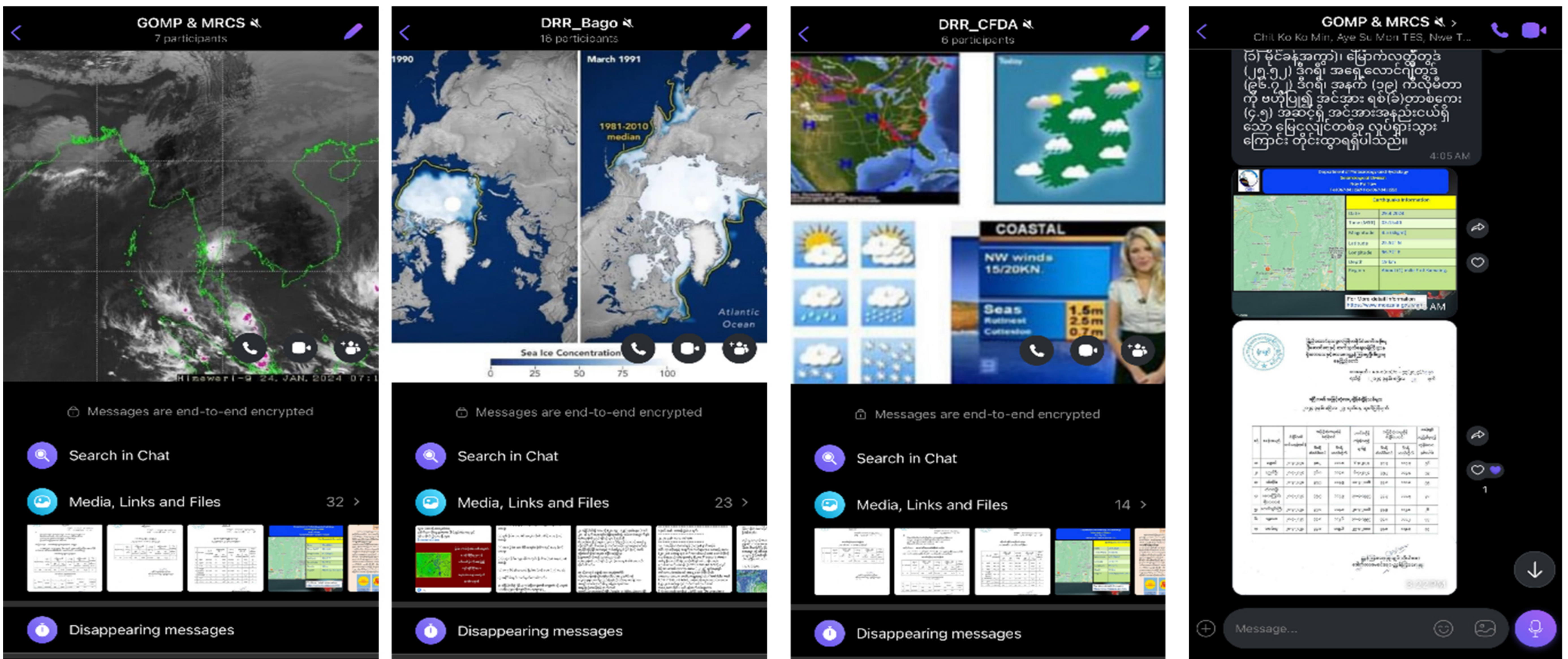
- **Response activity:** Included under this heading are damage and need assessment, first aid, sources of purified water, coordination with relief teams and similar matters.
- **Recovery activity:** These activities include those that have been covered under the project as regular support, such as the establishment of seed banks and livelihood support. Other activities, however, such as the renovation of damaged buildings, must be organized following a disaster according to need.
- **Relevant stakeholders:** Villagers are often not aware of all the different government and non-government agencies that can be contacted for assistance in the event of a disaster. Even if in practice they may only be able to access support from a few, it is nevertheless important for them to know which stakeholder is supposed to do what; they are listed out accordingly.



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Water collected in the rainy season in ponds is the primary source of water, Bilin township, Mon State

Social media is used to establish the early warning system, with the formation of a group on Viber for sharing information (see illustration).



In addition, as one-time support, an emergency kit was supplied to nine high-risk villages in Bago Region. Emergency drills were also supported. One such drill conducted in Zee Gone village was explained by a member of the disaster preparedness committee (a man aged around 50) as follows.

“We received training regarding what to do in an emergency. This will be announced in the village over loudspeaker. We decided who amongst us would be responsible and designated one person per ten households. That person must give priority to evacuating any elderly and disabled persons first. Everyone must go to the designated safe place, which is the monastery – chosen as it is on slightly higher ground and is a well-constructed, solid building with a large hall in which many people can gather. A [rooftop collected rainwater] drinking water supply has also been established there, and we regularly check that supplies are adequate. What the training emphasized was the need for us to work together, considering those with different needs. Before we were not so organized – it was more a matter of every person for him or herself. Now we are organized in how to help each other.”
Man aged about 50, Zee Gone

Whilst it is likely that disasters such as floods and cyclones will occur with increasing frequency and intensity in the Gulf of Mottama, the coastal inhabitants are now at least more aware of what to do in such emergencies, and better prepared to face them. The activities for reducing and managing the risks of these disasters are further described in Briefing Papers 5 and 6.

Highlights of experience

- CBDRM plans are an important tool for supporting local people to reflect on the risks associated with climate change and to prioritize interventions. More than this, they also serve to empower them in acting, rather than passively accepting that disasters are likely to occur.
- Infrastructure is generally prioritized by communities, both because it is visible and because it tends to serve the majority of the population. Nevertheless, care must be taken to consider actions that will specifically benefit disadvantaged groups – whether infrastructure or otherwise – as they often live in less desirable locations at highest risk of disaster.

Highlights of experience

•Whilst recognizing the importance of infrastructure, emphasis should always be given to thinking more broadly about long term resilience to climate change, incorporating nature-based solutions. These include mangrove protection and planting, windbreaks, establishing vegetative cover along embankments, and similar actions.

•Coordination in response to a disaster is crucial. The better this is prepared in advance with all concerned parties, the more efficient the response is likely to be. Nevertheless, in Myanmar's current context, it is especially important that local people have the knowledge and readiness to act themselves if or when disaster strikes.

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ENDNOTES

ⁱ Studer, Eveline and GoMP staff (2020) Community Based Disaster Risk Management GoMP Fact Sheet SDC, Helvetas, NAG and IUCN, 17 June 2020.