POLICY BRIEF

Localizing DRR Actions: Public, Private, Academic, and Community Collaboration

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KEY MESSAGE

The frequency and intensity of environmental hazards, such as floods and landslides, have been increasing both in Malaysia and globally due to climate change and developmental activities. Although the vulnerability to and impacts of hazards have also increased, the damage they cause can be mitigated by building disaster risk reduction (DRR) capacity at the local level.

BACKGROUND

Malaysia experienced a tragic flood in 2021, which led to the loss of more than 50 lives and displaced 70,000 individuals, in total affecting over 125,000 people. Furthermore, annual seasonal floods frequently affect Malaysian residents, although at a smaller scale. Global challenges, such as climate change and the increase in development activities, will likely worsen this situation in the future.

In this context, a project titled “Strengthening Disaster Risk Reduction Capacity to Improve the Safety and Security of Communities by Understanding Disaster Risks (SeDAR)” was initiated in 2018 in cooperation with the Selangor State Government, Tohoku University, Universiti Technologi Malaysia, and Malaysia Civil Defence Force (APM), with funding support from the Japan International Cooperation Agency (JICA). This project aimed to equip local governments, community leaders, and community members with the skills and know-how to build a DRR program at the grassroots level using a bottom-up strategy. SeDAR also emphasized the need to utilize science and technology to identify risks and prepare for and respond to future disasters.

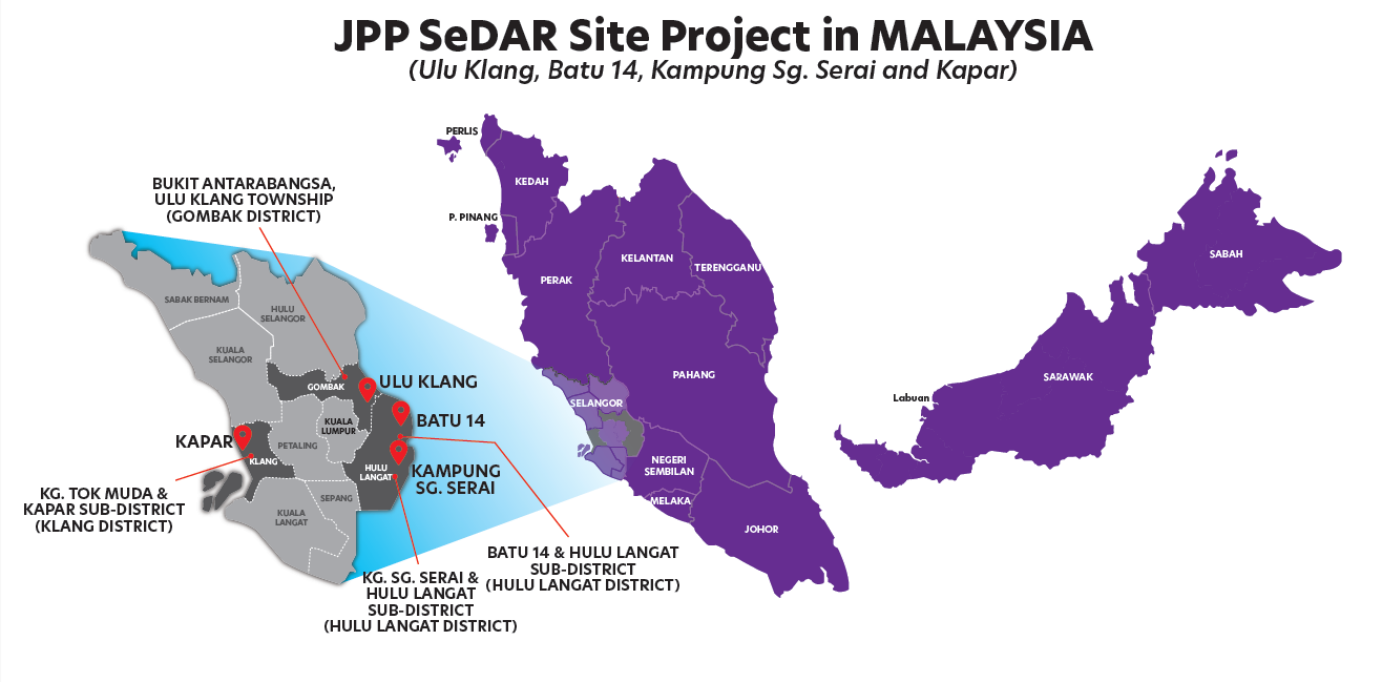
The key concepts of the program included:

1. Understanding of disaster risks by local governments and communities,
2. Leadership and ownership by communities to lead DRR projects, and
3. Continuity and sustainability of the program by local governments and communities.

The program adopted the following phases to achieve these goals:

1. Understanding risks through scientific evidence/analysis,
2. Training local leaders,
3. Increasing community knowledge of disaster risk and preparedness,
4. Planning and implementing DRR activities by communities, and
5. Localizing and sustaining DRR programs.

The project targeted four areas: Kapar (Klang District), Kg. Sungai Serai and Batu 14 (Hulu Langat District), and Ulu Klang (Gombak District). Floods are the main hazards in Kapar and Sungai Serai, while landslides are the primary risks in Ulu Klang and Batu 14.



PROJECT ACHIEVEMENTS

The major achievements of this project included:

1. **Identifying and providing information on risks** through the "Disaster Risk Report: Understanding Landslides and Flood Risks for Science-Based Disaster Risk Reduction in the State of Selangor".
2. **Organizing risk communication sessions for local government officials and community leaders** at all four target areas for which 58 local government officials and community leaders attended.
3. **Developing training modules** and the "Training of Trainers Guidebook for Planning and Implementing Community-based DRR Programs".
4. **Instructing 31 trainers at the government level and 81 trainers at the community level**.

5. **Organizing community workshops on DRR and hazard risks**. A total of 173 community members participated and became familiarized with DRR.
6. **Conducting town-watching exercises in all four target areas**, and 167 community members participated in the exercises. Through these exercises, the strengths and weaknesses of hazard preparedness were identified.
7. **Organizing community DRR planning workshops** with the government, community leaders, and experts on DRR activities.
8. **Organizing DRR activities** in each target area as follows:
    - **Kapar:** Evacuation centre location posters and fridge magnets, signages for evacuation centres, and drill for evacuation route identification
    - **Kg. Sg. Serai:** Plogging, evacuation drill, evacuation centre location posters and fridge magnets, signages for evacuation centres
    - **Ulu Klang:** DRR resource centre, emergency response training, science talks
    - **Batu 14:** Community training for landslide monitoring, DRR session at school, providing DRR resources for school.

CHALLENGES

DRR requires the involvement of various stakeholders for both structural (e.g., infrastructure such as dams, seawalls, dykes) and non- structural (e.g., education, effective response systems, drills) measures. It is also crucial to invest in adopting these measures and mechanisms. However, it is noted that several countries face various challenges owing to a lack of resources, technical support, and knowledge. While working together in the DRR project in Malaysia, the government, academia, civil society organizations, and communities have found specific issues that required urgent action and improvement:

1. Collecting and accessing the data necessary for risk identification and modelling

Identifying, analysing, and understanding risks through collection of relevant data is the first step of DRR. The results from these data can be used to make decisions on how best to prepare for, respond to, and recover from disasters. Disaster risks can be understood through the lens of science and technology, for instance through the application of remotely sensed and real-time digital data. However, several countries have difficulties tracking and maintaining records of disasters and damage from these disasters, as well as sharing the data among policy makers and government agencies due to the lack of resources and staff turnover.

2. Changing the mindset that DRR and management is solely the responsibility of the government

Governments are responsible for taking the initiative to reduce and manage disaster risks, allocating budgets for DRR activities, training human resources, adopting science and technology for improvement, establishing networks and coordination mechanisms among various stakeholders, installing early warning systems, implementing disaster awareness and education programs, among others. However, it is not possible for governments to carry out all these activities on their own. Communities can also take the initiative on numerous activities as they are familiar with the local situation and are therefore in the best position to propose solutions.

3. Access to early warning and clear risk communication

Early warning is a major element in DRR, as it could help in making the decision to evacuate and take timely action to protect lives. Early warning systems are integrated systems for hazard monitoring, forecasting, prediction, disaster risk assessment, communication, and preparedness activities and processes. Therefore, it is essential for government agencies to collaborate in issuing timely and accurate warning signs. However, warning alerts often do not reach the communities at risk, owing to technical problems and a general lack of knowledge of what these alerts mean. Thus, early warning systems are more effective when implemented through effective risk communication using multiple and clear communication channels and steps.

4. Understanding the relationship between environmental issues and disasters

Climate-related hazards such as floods and landslides have been increasing recently due to climate change. However, the link between environmental issues and DRR is not clearly understood by the public. One of the target communities in the project identified solid waste dumping and the accumulation of dumped garbage, which increases flood risk by blocking flood water from receding. There is also the possibility of small fires in the garbage. By properly disposing garbage and maintaining a clean and safe environment, they could reduce these disaster risks.

5. Low interest in pre-disaster (DRR) and high interest in post-disaster (rescue and relief efforts) by government agencies

It is essential for governments to respond urgently and effectively to any emergency. They must also strengthen their capacity to save lives and provide immediate support. However, they need to understand that investing in and conducting DRR before an emergency occurs are an effective means of reducing its impact. Merely strengthening response capacity is not sufficient to mitigate damage or save people's lives from future disasters. DRR efforts require a varied, multi-prong approach, and risk reduction is a long-term process. Therefore, it is important for governments to understand the importance of DRR, initiate efforts urgently, lead related processes, and establish a platform or mechanism for effective collaboration among stakeholders.

POLICY RECOMMENDATIONS

1. Set up a data hub to ensure the collection and storage of data, sharing them for risk analysis and identification, and strengthening the application of science and technology

Data collection is critical for identifying potential hazards, assessing vulnerabilities, and developing effective strategies to reduce risks. The collected data can be used to create risk maps, identify high-risk areas, and conduct simulations and modelling to identify future disaster risks and develop early warning systems. For example, it is common for these data to be collected by disaster management authorities at different levels, universities, and research institutes. Without these data, it is not possible to develop evidence-based, reliable, and robust emergency management and DRR plans. However, as these valuable data are stored and managed by different agencies and departments, it is often not easy to determine which agencies have the required data. In addition, the data are sometimes not shared. It is vital to have a department, office, or agency to understand the broader spectrum of data collection and management and coordinate and monitor the related processes. Data collection is an ongoing process and requires continuous monitoring and evaluation to ensure effectiveness. Additionally, ensuring that the collected data are accurate, reliable, and up to date is crucial.

2. Increase disaster education at schools and public awareness raising on DRR

Disaster education aims to educate individuals and groups to take action to reduce their vulnerability to

disasters. Children in particular must have knowledge and learn about various hazard types, the mechanism behind hazards, what kind of damage is caused, how the impacts can be reduced, and what they can do to contribute to DRR. Schools at all levels are encouraged to include classes, sessions, and seminars on DRR in their curriculum. It is also in the interest of public safety to be able to protect lives in case of emergencies. At the same time, it is essential to organize awareness-raising events for the public. Government agencies, academia, and civil society organizations can take the lead in sharing their experiences and knowledge on disasters and what types of DRR and response mechanisms they can offer in case of emergencies. Unlike infrastructure building, education and awareness-raising activities do not require a significant budget but are instead facilitated by leadership and expertise. Disaster damage and vulnerability can be reduced through individual efforts, and there are many collective actions that can be taken to tackle future disaster risks, thus not relying solely on government support.

3. Strengthen early warning systems and risk communication

Early warning systems are not only for monitoring, identifying, and predicting potential hazards and risks but also for communicating potential or upcoming hazard risks to the public to respond to approaching threats. Even if effective early warning systems are put into place, if the public does not hear the sound or understand the meaning of warnings or sirens, the systems are not effective. In one community, more than 80% of residents stated that they did not hear sirens in the past. Through this project, some issues regarding early warning systems were identified: the sound of a siren is difficult to reach a wider community and the meaning of the warning and what kind of action should be taken for different alerts are not clear. The crucial messages and information need to be consistent, clearly communicated to the public, and open access. Additionally, drills and exercises to become familiar with evacuation routes and locations need to be conducted regularly.

4. Government support to communities for initiating CBDRR and communities to combine DRR into their everyday lives

This project emphasized the need for community-based DRR (CBDRR) activities and for communities to take the initiative in DRR efforts into their everyday lives such as '*gotong royong'*. The main steps toward CBDRR include understanding hazards and risks in communities, developing hazard and risk maps, and planning and taking action. In the SeDAR project, the four target communities decided what DRR activities they would like to initiate such as setting up a resource centre, conducting response training and visual slope monitoring workshop, creating an exercise to check the evacuation route and location of the centre, plogging (picking up litter), and DRR awareness sessions in schools. This initiative showed that there are a variety of CBDRR activities whereby communities can take initiative with initial support and guidance from experts. These initiatives were effective and efficient because decision-making and implementation was carried out by members who had knowledge of risks, disaster history and available local resources within their communities.

5. Increase communication between local governments and communities

In many cases, governments engage in their own DRR-related actions without informing the communities, and communities do the same. There are also often gaps in the understanding of hazard risks and what can and needs to be done to mitigate and prepare for risks. A lack of information-sharing

and dialogue often leads to misunderstanding and mistrust of each other's initiatives and efforts. In particular, governments have access to evidence, data, and scientific knowledge, while communities often do not. Science communication by scientific agencies is extremely helpful and valuable for communities to understand the risks and signs that require action based on scientific evidence and data. There are multiple things that the public can learn from science and use as a basis for decision making; however, they rarely get such learning opportunities. This project proposed to establish an information platform or application to share and post information on approaching hazards, damages caused by hazards, and issues that need urgent action by both governments and communities using smartphones. In this way, both the government and communities can share information. Collaboration among the government and communities is indispensable to planning and implementing localized, effective, and efficient DRR efforts.

6. Allocate a budget for or invest in DRR activities for both structural and non-structural measures

One of the priorities for action included in the Sendai Framework for Disaster Risk Reduction adopted in 2015 at the United Nations World Conference on Disaster Risk Reduction is 'investing in disaster risk reduction for resilience.' This emphasizes that investment in DRR is essential to enhance the economic, social, health, and cultural resilience of people, communities, countries, and their assets, as well as that of the environment. To initiate DRR activities, a certain amount of budget allocation or investment is required. Infrastructure normally requires high cost. However, if it is a non-structural measure, the required budget is not always as high. Rather, it requires technical knowledge and support from various agencies, academia, civil society organizations, and even the private sector. The budget allocation or investment in DRR is the responsibility of governments and depends on their understanding of the importance of DRR, leadership, and determination. As it is widely recognized that DRR saves lives by reducing vulnerability and exposure and increasing capacity, it is an effective way to maximize the budget for increasing safety and community resilience.

7. Design a DRR program with a timeframe at least for 2-3 years

DRR is a long process and can best be achieved through a systematic series of actions and steps. It is highly recommended to design a DRR program with a timeframe of 2-3 years for full inculcation of DRR concepts at the local level. Although it is still effective to carry out only one of the activities in the process to raise awareness on DRR, its impact and effectiveness will be limited. Key success factors are strong partnerships among the project team, local governments, relevant agencies, and the communities; leadership and coordination by local government and leaders; sense of ownership of CBDRR programs by the communities; and guidance and input from DRR experts. (Refer to **Annexe** for more information).

8. For future considerations: 'Inclusivity'

One aspect to be considered is "inclusivity." DRR is often planned and implemented by targeting the majority of people while overlooking the needs of women, children, the elderly, persons with disabilities, foreigners, indigenous people and marginalized groups within society. This led to the 'no one will be left behind' principle being included in the 2030 Agenda for Sustainable Development. While it is not easy to incorporate all the needs in DRR and develop a tailor-made strategy for each group, it is crucial to invite and involve all these groups in discussions for DRR planning to understand their needs and challenges.

RECOMMENDED ACTIONS

1. Set up a data hub to ensure the collection and storage of data, sharing them for risk analysis and identification, and strengthening the application of science and technology
2. Increase disaster education at schools and public awareness raising on DRR
3. Strengthen early warning systems and risk communication
4. Government to support communities to initiate CBDRR and communities to combine DRR into their everyday lives
5. Increase communication between local governments and communities
6. Allocate a budget for or invest in DRR activities for both structure and non-structural measures
7. Design a DRR program with a timeframe at least for 2-3 years
8. For future considerations: 'Inclusivity'

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ANNEXE

Design a DRR program with a timeframe at least for 2-3 years

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SeDAR Process for CBDRR

1. Secure the budget to initiate the CBDRR program and design the course of activities for at least 2-3 years' timeframe.
2. Assign a team or designated office to coordinate, implement, and manage the CBDRR process and program.
3. Ensure the involvement of both community leaders and local government as well as relevant agencies involved in the sciences and emergency response (i.e., civil defence, police, or fire dept) and build relationships between the key players. Enhance their knowledge on DRR and risk management.
4. Train leaders at the local level who can effectively educate on DRR to the public.
5. Conduct science-based risk assessment/ identification and have leaders communicate the risks to the public.
6. Conduct town-watching (familiarizing with the risks surrounding the community), create community maps to identify hotspots, safe zones and other areas of interest, and identify solutions to address the risks.
7. Have communities understand early warning systems and communicate how it works with the public.
8. Create maps to show evacuation centres and actions to take when warning sirens activate and conduct evacuation drills (make them a regular event yearly or every six months)
9. Plan and implement DRR activities together with the local government and communities with support from experts and ensure sustainability of the activities with local community ownership.
10. Share experience and knowledge with other districts/states.
11. Engage trainers at government and community levels who have been trained throughout the project for DRR activities and use them as an asset.