Institutional and Legislative Systems for Early Warning and Disaster Risk Reduction

Thailand Summary

Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction
1. Introduction

The Indian Ocean Tsunami of 26 December 2004 was one of the most devastating disasters in recorded human history. Within minutes, almost 200,000 lives were lost; populations were displaced; and livelihoods, homes and infrastructure were destroyed, setting back hard-earned development gains. After the tsunami, possibly the most disturbing realization was that many, if not most lives could have been saved had an effective Early Warning System (EWS) been in place. The development of EWS has therefore attracted an exceptional amount of attention and resources in the affected region. The main focus, however, has been on technical and instrumental arrangements and needs, and less on system reform and development.

This brochure argues that EWS needs to be embedded in a wider disaster risk reduction (DRR) strategy permeating governance and development thinking and practice at national and local levels. A sustainable EWS requires the formulation, enactment and implementation of institutional, policy and legal changes that emphasize preparedness and prevention. This includes the need to devote more attention to community-based or ‘people-centred’ and gender sensitive approaches in the establishment of EWS. Ultimately the success of EWS must be measured by the degree to which vulnerable communities are empowered to receive, understand and respond to warnings in an effective manner. Unless women and men participate actively in these systems, little progress can be made.

2. Background

UNDP has a long track record in supporting the capacity development of national risk reduction institutions and government agencies. Between 1984 and 2004 alone, UNDP engaged in over 50 DRR programmes in 63 countries. In 2004, the Disaster Reduction Unit of UNDP’s Bureau for Crisis Prevention and Recovery conducted a review of UNDP’s support to Institutional and Legislative Systems (ILS) for DRR. The review highlighted linkages between good governance including effective administration, risk reduction and the mitigation of impacts from recurring disasters. EWS are an intrinsic component of DRR and an important function of governance.

Since the 2004 tsunami, several disasters revealed the persisting shortcomings of national warning and response mechanisms in South Asia. There is a need to understand and analyse existing DRR strategies, policies, organizational relationships, mechanisms and processes,
laws and regulations, resources and procedures at all levels of administration. Responding to this need UNDP’s Regional Programme on Capacity Building for Sustainable Recovery and Risk Reduction commissioned a review of its support to ILS for Early Warning and DRR in Indonesia, Sri Lanka and Thailand in 2007. This brochure summarizes the main findings and recommendations of the report with the expectation that these may feed into further regional and national discussions amongst major stakeholders and strengthen EWS development in the region.

3. Institutional and Legislative Systems for Early Warning

The United Nations International Strategy for Disaster Reduction (UN/ISDR) defines Early Warning as:

“The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.”

In March 2006, the Third International Conference on Early Warning sponsored by UN/ISDR and the German Government identified the following areas as critical for establishing a people-centred EWS. These areas provide a structured approach to EWS that this report follows:

1. Governance and Institutional Arrangements — The aim is to develop national institutional, legislative and policy frameworks that support the implementation and maintenance of effective EWS.

2. Risk Knowledge — The aim is to establish a systematic, standardized process to collect and assess data, maps and trends on hazards and vulnerability. This area includes the establishment of organizational arrangements, identification of natural hazards, analysis of community vulnerability, assessment of risk, and storage and accessibility of information.

3. Monitoring and Warning System — The aim is to establish an effective hazard monitoring and warning system with a sound scientific and technological basis.

4. Dissemination and Communication — The aim is to develop systems to ensure local, national and regional coordination and information exchange.

5. Response Capacity — The aim is to strengthen the ability of communities to respond to natural disasters through enhanced education of natural hazard risks, community participation and disaster preparedness.

The effectiveness of any EWS depends upon political will, the administrative and technical capacity of a given country and the degree of acceptance and awareness of rules by the population. EWS therefore require a people-centred approach where formal mechanisms such as laws, protocols and standards complement informal mechanisms such as the engagement and participation of communities. EWS become effective and sustainable when citizens can easily access credible information on hazards and on the performance of EWS, and when they realize their own rights and duties in early warning. Indicators of good institutional and legal systems for EWS are related to:

1. Gender equality. DRR measures consider the needs of women and men, girls and boys and protect the most vulnerable groups.

2. Policy priorities and commitment. National policies, plans and legislation assign clear mandates and adequate resources to undertake early warning activities.

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3. **Multi-sector responsibility.** The EWS is shared across all relevant sectors, levels of governance and society and addresses all of the hazards that threaten the population.

4. **Accountability for warning.** The design and coverage of the EWS matches transparent criteria of vulnerability prioritizing most at-risk areas. Clear roles and responsibilities are defined.

5. **Resources.** The level of resources allocated is appropriate and available resources are used efficiently.

6. **Application.** The EWS functions as part of a DRR system that is incorporated into longer term development planning and practice, including land use planning, human settlement development, environmental protection, etc.

7. **Civil society and private sector participation.** Civil society and the private sector are mobilized to participate in the design, implementation and monitoring of the system.

8. **Decentralization of EWS.** Resources are decentralized to support early warning activities, and decision-making is decentralized, and local actors have the necessary knowledge and tools to carry out their roles in EWS.

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4. **Main Findings of the Study**

4.1 **Governance and Institutional Arrangements**

The Thai Government started altering its approach to disaster management in 2002 and shifted from an emphasis on relief and rehabilitation to a more proactive integration of mitigation and preparedness. The Bureaucratic Reform Act of 2002 restructured the institutional arrangements and created the Department of Disaster Prevention and Mitigation (DDPM) under the Ministry of Interior. The DDPM is the main agency for disaster management coordination and serves as the Secretariat to the National Disaster Prevention and Mitigation Committee (NDPMC). DDPM’s description of duties includes studying, analyzing, researching and developing information technology systems for prevention, warning and disaster mitigation. The DDPM is also responsible for mobilizing, awareness raising and arranging training and exercises in disaster prevention and mitigation.

Since the tsunami the Thai government has demonstrated its commitment to the development of an integrated EWS by investing in the establishment of a new, dedicated focal point for warning (the National Disaster Warning Center or NDWC) and by adopting a new law on Disaster Prevention and Mitigation in January 2008. However, time has been too short for the consolidation of new organizations and mandates, and for the implementation of legislation. Monitoring and warning responsibilities are spread out over a larger number of agencies, often with hazard-specific roles and capacities. Figure 2 provides a tentative overview of how the four main early warning functions are distributed across the main institutional actors in the Thailand EWS.
Major government actors in the Thailand EWS are the NDWC, DDPM, Thai Meteorological Department (TMD), and the Ministry of Natural Resources and the Environment, which includes the Departments of Mineral and Water Resources. The system lacks a comprehensive policy framework and corresponding legal provisions that would clearly define the mandates of all contributing agencies and actors, their inter-relationships in general, and the relationships with the NDWC in particular. This gap has resulted in overlaps in EWS coverage as well as confusion over authority, roles and responsibilities. The NDWC requires a stronger human resource base and formalized relationships with national level agencies, as well as mechanisms that would enable it to receive feedback from communities. Overall resources for EWS are still disproportionately focused upon the tsunami hazard and less on more frequent hazards with cumulative impact such as floods and droughts.

4.2 Risk Knowledge

Responsible organizations in Thailand have put considerable efforts into strengthening the systematic collection, sharing and analysis of data on hazards and vulnerabilities with integrated risk mapping underway. Notably the DDPM has initiated the development of a comprehensive disaster database that is intended to act as the national clearinghouse for disaster risk information. However, the gathering and analysis of information on social, economic and environmental vulnerability factors require strengthening. A wide range of different tools are currently used for the historical analysis and prediction of future disasters that would benefit from synchronization across the region. Very few risk assessments have been conducted at the community level, and the awareness and knowledge of risks is scattered with a few vulnerable communities benefiting from dedicated projects while others remain uncovered. Risk knowledge is not or insufficiently used to inform land use and development planning, and/or to promote the revision and enforcement of safety codes.
4.3 Monitoring and Warning System

Thailand is making significant progress towards strengthening hazard monitoring and disaster EWS. While investments in information and communications technology have already improved the reception of warning information from regional and international monitoring networks, more needs to be done to improve transfer and exchange of relevant information within the country, across agencies, and to and from remote and vulnerable areas. The TMD, which is the main recipient and provider of hazard data to national counterparts, requires further capacity strengthening to process input information and issue more timely warnings. Due to a combined impact from climate change, environmental degradation and changes in land use, disasters – floods, landslides and droughts in particular — are on the increase. Setbacks caused by these hydro-meteorological disasters threaten to overtake the pace of development. Monitoring and early warning capacities at local levels are not ready to deal with these challenges and require urgent capacity development, particularly in vulnerable communities.

4.4 Dissemination and Communication

The regional and national Indian Ocean tsunami EWS have been forerunners in enhancing dissemination and communication systems, and in identifying technical and institutional gaps. In Thailand, gaps include the lack of formalization of institutional roles in multi-hazard early warning. Responsibilities for information exchange across government, with civil society and the media, as well as for informing the general public require clear centre(s) of authority and standard operating procedures (SOP). Current confusion over government roles and inadequate cooperation amongst various information holders and providers threatens to undermine the credibility of warnings with the media and the public. Due to a lack of general awareness and understanding, central and provincial authorities are nervous to issue warnings that may prove to be false and expose them to criticism and public outrage. There is a lack of decision support systems that could help to avoid overcautious and inefficient cross-checking of data. This includes the need for real time connections rather than reliance on the Internet. In general, information and communication systems are not yet up to international standards for efficient exchange of data. The dissemination system relies largely on a system of warning towers but the additional use of non-technical means and the involvement of social networks are required to reach all at risk. More can be done to enhance the critical role of the media in the dissemination of early warning messages. An adequate feedback mechanism from the community to the national level that could help to analyse the effectiveness of warning messages is currently not in place.
4.5 Response Capacity

Successful warnings should activate an orderly movement of people out of harm’s way and motivate them to seek shelter and secure their assets. Efforts are underway in Thailand to improve the ability of people to respond to warnings and—more broadly—to disasters. However, while public education and awareness activities are increasing their coverage is still relatively low. Motivating over 20,000 villages to participate in the preparedness effort exceeds the capacity of the DDPM and requires the use of external resources and participation of local administrations, civil society, private sector and the media. As of yet local administration capacity to consult with and identify special needs among communities is still quite low. Overall, there is limited proactive preparedness planning to address the assistance needs of vulnerable people in case of disasters. This applies to government, non-governmental organizations (NGOs) and businesses alike. Requirements for evacuation plans, maps and routes as well as evacuation procedures require clarification. There is a lack of regulations that would set standards for drills and simulations, determine their frequency, and measure their success.

4.6 Gender Aspects

Thailand has achieved many Millennium Development Goals (MDGs) and has set MDG-plus goals. Women have made progress in life expectancy, education and literacy, and economic opportunities but still lack adequate political representation, realization of their rights and attention to their interests. The uneven impact of the tsunami revealed some of the systemic challenges around gender equality. Women suffered disproportionately and found it harder to access appropriate assistance. Gender issues included property rights; patterns of exclusion from and/or participation in assistance; increased vulnerability to the sex industry and trafficking; and increased gender-based and domestic violence. There was an overall shortage of gender-specific data in the aftermath of the tsunami that made it hard to programme appropriate interventions.

The establishment of an effective EWS requires the participation of women and also offers opportunities to address some of the mentioned endemic gender issues. However this potential is currently not realized. No specific efforts have been undertaken to analyse gender specific vulnerabilities and early warning needs. The awareness of gender issues amongst relevant officials and system operators requires further strengthening. From a positive perspective it occurs that the new DRR and EWS policies and plans offer opportunities to involve far more women. Women are well placed to participate in risk assessments, the design of EWS and the promotion of DRR, and require targeted capacity development. They can help to ensure that warning messages, processes and procedures employ a gender sensitive approach and consider specific concerns such as physical strength, security and protection.
5. Main Recommendations for Stakeholders

5.1 Governance and Institutional Arrangements

Develop a comprehensive policy and legal framework to cover EWS in structural and operational detail, and define roles and responsibilities of governmental and non-governmental actors.

Provide legislative support to the NDWC so that it commands the necessary authority and resources.

Agree on a prioritized plan for EWS capacity development that covers all major hazards and encompasses all member agencies of government, civil society and assistance providers. Develop a mechanism for assigning resources to cover the needed inputs.

Ensure feedback into the EWS development process by sharing results from evaluations of EWS activities and outputs of workshops.

5.1.1 Including women and men in governance and institutions for EWS

- Support the review of DRR and EWS laws, policies and plans through a gender lens, and increase equity in EWS participation and decision-making.

- Ensure that the plan for EWS capacity development encourages participation of women from different sectors (government, civil society, communities, etc.)

  - Include a quota for women on EWS steering committees, and place emphasis on increasing women staff in the NDWC and DDPM.

- Encourage national women’s NGOs and community-based organizations to advocate with ministries to incorporate gender specific vulnerabilities and capacities in preparedness and response planning and programming.

  - Strengthen systems for enforcing gender inclusiveness, and monitor progress utilizing community-based organizations and networks.

5.2 Risk Knowledge

Increase efforts to build capacity for database management, sharing of data analysis and standardization of methodology across the country and in the region.

- Strengthen the collection and analysis of information on social, economic and environmental vulnerability.

- Further promote and strengthen the use of the DesInventar tool for the historical analysis and prediction of disasters.

- Increase risk knowledge on small-scale disasters and their cumulative impact.

Promote community-based vulnerability mapping nationwide, using networks of trained volunteers or NGOs to reach isolated communities and groups requiring urgent protection.

Strengthen risk communication methods and access to risk knowledge to ensure that different target groups understand the risks they face.

Review building and land use codes and practices in light of up-to-date knowledge of risks.
5.2.1 Strengthening understanding of gender-based vulnerability and capacity

- Build awareness of relevant officials and practitioners on gender aspects in DRR and EWS. Ensure awareness is also built into education programmes at primary, secondary and tertiary levels, in community-based programmes and into public information for various target groups.

- Ensure that preparedness and planning in DRR and EWS draws attention to the post disaster vulnerability of women, including violation of their rights, trafficking, the sex industry and gender-based violence, and put into place preventive policies. There is also need to build awareness of possibly harmful practices by response organizations and individuals.

- Provide capacity development support to community groups and networks to help change attitudes and promote empowerment of women through risk knowledge.

5.3 Monitoring and Warning System

Conduct policy discussions to determine how an all-hazards early warning mandate can be effectively transferred to the NDWC.

Develop a multi-hazard early warning plan outlining the NDWC’s linkages for monitoring and sharing data. Develop and sign Memorandum of Understandings between the NDWC and all relevant stakeholders.

- Enhance data reliability and interagency data sharing by assessing and prioritizing needs for each organization participating in the system to improve access to real time data and to provide effective analysis to decision makers.

Support the TMD to enhance its network and storage facilities to enable more timely analysis to back warnings.

Provide more resources to the flood monitoring and warning system and support the national flood mitigation plan.

Support the Department of Mineral Resources (DMR) and DDPM to accelerate village level monitoring and EWS, particularly for floods and landslides.

Create a national policy for drought monitoring and warning.

5.3.1 Promoting the potential of women as EWS and DRR actors

- Increase research on the impact of current monitoring and warning systems on women and minorities.

- Empower women through training and replication of good practices to become actors in community-based DRR and EWS (to strengthen community-based monitoring and early warning in particular).
5.4 Dissemination and Communication

Unify the concepts and practices of warning dissemination and communication across organizations through development of a clear strategy/plan and flow-chart supported by cross-organizational SOP.
- Ensure 24/7 operation of communication systems at provincial and district levels for night time warnings.

Enhance technology to support interagency data sharing by assessing and prioritizing the needs of each participating organization to improve access to real time data and provide a reliable analysis to decision makers.

Strengthen communication networks, particularly to and from and within communities, while ensuring that NDWC’s systems as well as those used in provinces and in villages have the necessary levels of security and redundancy. Also strengthen and map feedback communications from relevant agencies and communities to the NDWC.
- Support development of media partnerships in EWS, such as with the NDWC and at local levels.

Develop a policy and necessary legislation on protecting decision makers from liability when false alarms are issued. Strengthen public perception of warnings as protective mechanisms.

5.4.1 Ensuring warning messages reach both genders

- Prepare actionable warning messages that employ a gender sensitive approach in conjunction with community disaster preparedness and awareness programmes. Consider the specific needs of less developed provinces, and of minorities and tourists.

5.5 Response Capacity

Develop laws, regulations and SOP that mandate the:
- Frequency of evacuation drills in high risk areas;
- Evaluation of drills according to specific indicators of success and feedback from participants;
- Clear identification and realistic mapping of evacuation routes;
- Identification of designated places for evacuation; and
- Development of specific procedures for where to seek shelter and how to reach these safe areas considering the needs of particularly vulnerable groups.

Prepare early warning guide- or handbooks that collect all the currently fragmented pieces of information in a practical format for use by government staff, communities, NGOs, media and the private sector.

Update and activate evacuation plans and maps together with provincial governments and municipalities. Ensure that NGOs and businesses have plans to support the response of the people they serve to warn. Synchronize with government and community plans.

Undertake lessons learned exercises after evacuation drills or actual warnings, and ensure a responsible coordinating body captures and analyses results for follow-up and incorporation into preparedness plans and training.

Evaluate pilot projects undertaken by the DDPM and supported by UNDP, Japan International Cooperation Agency and German Technical Cooperation Agency, preferably jointly, and expand to other areas and disasters.

Develop partnerships with NGOs, the private sector and the media.
5.5.1 Learning to design EWS that work for women and men

- Develop gender sensitive guidelines for Thailand that focus on all aspects of DRR and EWS.

- Use gender-related lessons learned and good practices from the tsunami response and other recent disasters to prepare a gendered response to future disasters. Involve communities in planning for protection of women and vulnerable groups.

- Evacuation drills, routes and procedures should be mapped taking into account gender considerations such as access, security, etc. for women.