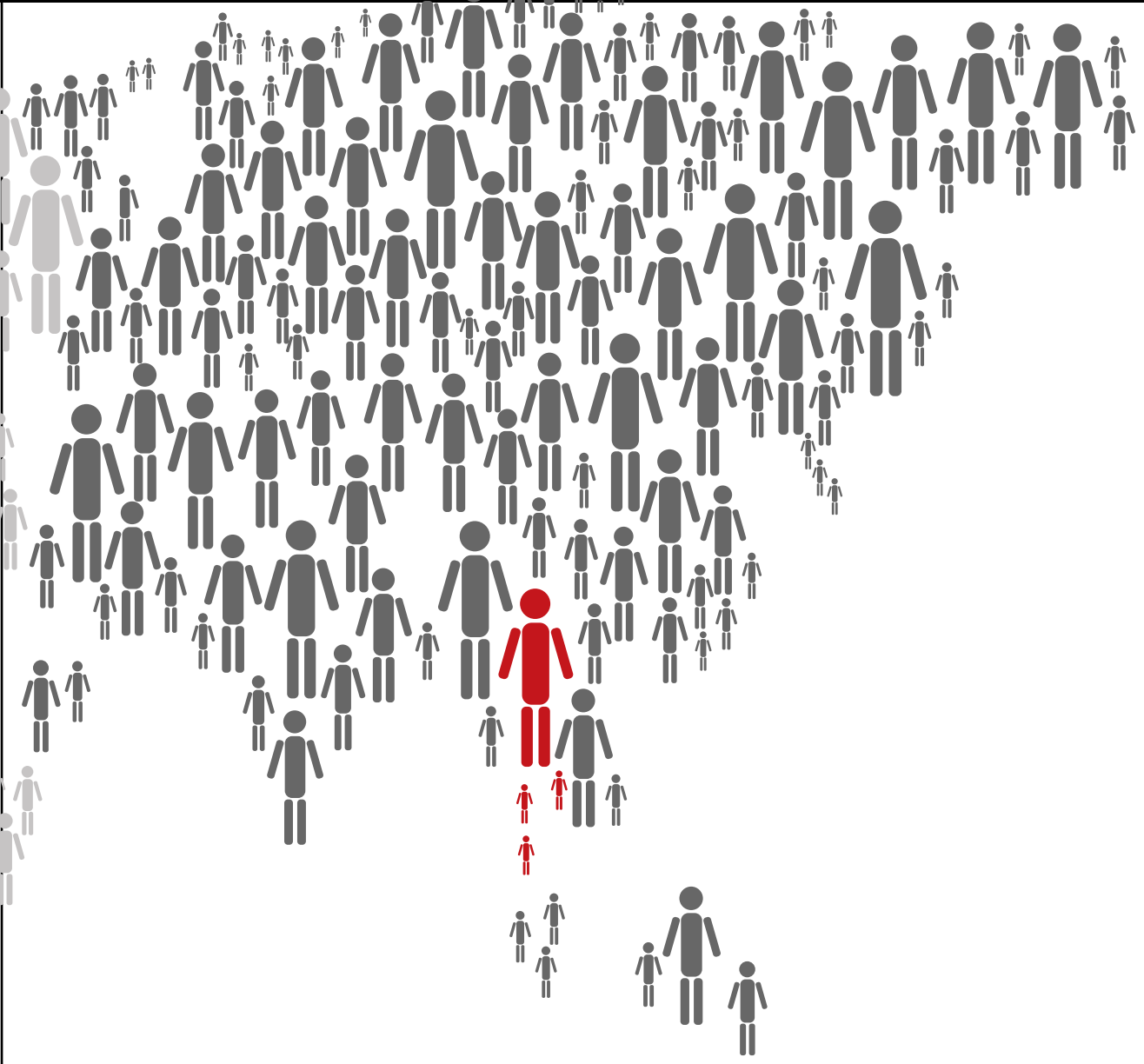
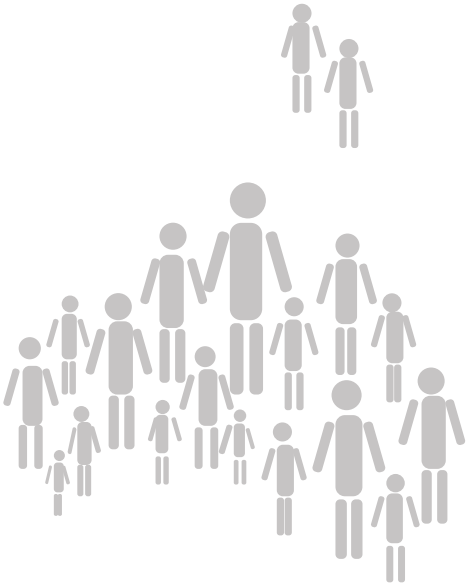


« EMPOWERING COMMUNITIES & STRENGTHENING RESILIENCE »



THAILAND

PARTNERSHIPS FOR DISASTER RESILIENCE

Asian Disaster Preparedness Center
Head Office
SM Tower, 24th Floor
979/69 Paholyothin Road
Samsen Nai Phayathai
Bangkok, 10400
Thailand
www.adpc.net

Disclaimer:

This document is informed by the implementation experience of Asian Disaster Preparedness Center (ADPC) and its partners as well as existing reports and publications. Care has been taken to ensure that descriptions, facts and data contained in this publication are accurate and fair. Any discrepancies are unintended. The document remains open to any suggestions for corrections and improvements. For more information, please contact Ms. Thitiphon Sinsupan (thitiphon@adpc.net).

Credit for icons sourced from the nounproject.com: Aha-Soft, Daniele Catalanotto, Iconathon, Linda Yuki Nakanishi, OCHA Visual Information Unit, Wilson Joseph.

Design & Layout: Mr. Danate Donparadorn and Mr. Chatchai Petchtamrongchai.

« EMPOWERING COMMUNITIES & STRENGTHENING RESILIENCE »

THAILAND

PARTNERSHIPS FOR DISASTER RESILIENCE

Lead Authors

Mr. Aslam Perwaiz
Ms. Thitiphon Sinsupan
Mr. Kilian Murphy

Foreword

Dear readers,

I am delighted to present to you the *Empowering Communities & Strengthening Resilience series*, the first publication of which focuses on activities carried out by Asian Disaster Preparedness Center and its partners in Thailand. The series serves to document activities to build community resilience in five Asian countries in which ADPC has worked in recent years: Bhutan, Lao PDR, the Maldives, Mongolia and Thailand.

Risk reduction and preparedness efforts which ADPC helps carry out at the community level are a crucial component of strengthening individual and collective resilience to disasters and have played an important role in creating a more secure and disaster-resilient Asia. As we begin the post-2015 era under the guidance of the Sendai Framework for disaster risk reduction, it is particularly pertinent to take stock of the successes and challenges encountered as part of past activities, including those associated with the Hyogo Framework for Action.

By reviewing the activities and implementation experience in each of these national contexts we can consider the impact our efforts have had thus far. Importantly, this will allow us to identify the key lessons upon which we can base our future endeavors not only in the countries featured as part of this series but across the region.

Fittingly, the series begins with a focus on Thailand where our organization has comprehensive experience of working alongside a range of partners on community-based disaster risk reduction. We hope this publication and the wider series can provide a valuable resource in guiding ADPC's ongoing efforts to empower communities and strengthen resilience throughout Asia.

Shane Wright
Executive Director
Asian Disaster Preparedness Center

Preface

On behalf of Asian Disaster Preparedness Center it is my great pleasure to present to you *Empowering Communities & Strengthening Resilience - Partnerships for Disaster Resilience for Thailand*. This publication serves to document the lessons learned by ADPC and its development partners during their work in Thailand, with a focus on the implementation experience of projects following the 'Great Floods' of 2011. Importantly, these lessons are considered in the wider context of previous community-based disaster risk reduction work carried out by ADPC whilst considering the future directions of community resilience for the country.

Over the past two decades, ADPC has worked towards its vision of safer communities and sustainable development through disaster risk reduction across Thailand. Key projects and interventions implemented by the Center over this period have been designed to help address the main hazard risks faced by local communities in order to better safeguard lives and livelihoods as well as infrastructure, services and businesses at the local level.

As this publication demonstrates, projects have been implemented in line with the vision of the Center and in support of global frameworks on disaster risk reduction. Activities have included working towards safer schools, building the capacity of local responders, establishing and maintaining systems for early warning, improving health facility preparedness as well as aiming to engage the private sector in disaster preparedness efforts.

Significantly, ADPC has placed a focus on 'empowering communities' to develop their capacity and ability to take the initiative in view of disaster preparedness efforts. By considering the lessons learned from recent project activities, this document can help inform the direction of future action at the local level to further strengthen the disaster resilience of at-risk communities in Thailand.

We at ADPC look forward to continuing our community-based work and maintaining the strong partnerships, which have been the foundation of our successes here in Thailand.

Prof. Dr. Krasae Chanawongse
Chairman
Asian Disaster Preparedness Center

Thailand has experienced the severe impacts of disasters; the Indian Ocean Tsunami of 2004 and the 'Great Floods' of 2011 are still vivid in the minds of people in the country. Following the destruction caused by these events relevant agencies in Thailand, including the Department of Disaster Prevention and Mitigation (DDPM), responded by striving to improve the country's ability to reduce the impact of such hazards on local communities.

In particular, community-based disaster risk reduction work carried out by DDPM and its partners in Thailand's southern provinces following the tsunami served to emphasize the value of working at the local level to strengthen the resilience of communities to prevalent hazard risks.

Utilizing the knowledge and awareness of local people was recognized as an important tool in addressing specific vulnerabilities of communities. This approach was subsequently rolled out across the country by key disaster preparedness agencies including DDPM and partners such as ADPC in projects implemented following other disasters such as the 2011 floods.

In the period covered by the Hyogo Framework for Action (2005-2015) Thailand emerged as a regional leader in view of disaster preparedness efforts. Following the recent adoption of the Sendai Framework for Disaster Risk Reduction and the National Disaster Risk Management Plan for Thailand 2015, it is important to maintain progress in terms of community-based action with strong support and commitment at the national and regional level.

Here at DDPM we endeavor to be at the forefront of our country's efforts to further strengthen the resilience of communities across Thailand to a range of hazard risks.

Mr. Chatchai Phromlert
Director General
Department of Disaster Prevention and Mitigation

Table of Contents

Acknowledgements

Our appreciation goes to the following individuals at ADPC for their valuable guidance, contributions and feedback in compiling this document:

Prof. Dr. Krasae Chanawongse
Dr. Bhichit Rattakul
Mr. Shane Wright
Mr. N.M.S.I. Arambepola
Mr. Sajedul Hasan
Dr. Peeranan Towashiraporn
Mr. Frederic John Abo
Mr. Bill Ho
Ms. Chanidabha Yuktadatta
Mr. Atiq K. Ahmed
Ms. Sirikarn Kahattha
Dr. Soravit Vitoontus
Mr. Kittiphong Phongsapan
Mr. Weerapon Sripongchai
Ms. Warittha Wannathong
Ms. Sunisa Soodrak

ADPC is grateful to the following organizations, agencies, partners and groups across Thailand for their efforts in contributing to community resilience building efforts as documented throughout this publication:

Implementation partners

Department of Disaster Prevention and Mitigation (DDPM),

Royal Irrigation Department (RID)

Thai Meteorological Department (TMD)

Department of Water Resources (DWR)

Office of the National Water and Flood Management Policy

Office of the National Economic and Social Development Board (NESDB)

National Disaster Warning Center (NDWC)

Office of Basic Education Commission (OBEC), Ministry of Education and its Educational Service Offices

Thai Red Cross (TRC)

Office of Small and Medium Enterprises Promotion (OSMEP)

Tambon Administrative Offices (TAOs) and target communities

Schools

Tha Luang Wittayanukul school, Wat Kaijone school, Wat Hua Hin school and Wat Champa school

Hospitals

Sawanpracharak Hospital, Ayutthaya Hospital, Pathumthani Hospital and Klang Hospital

NGO partners

**Plan International,
Japan Foundation, NPO Plus Art, Design for Disasters (D4D) and Club Creative Co., Ltd.**

Background

Thailand is affected by a wide range of natural hazards including flooding, storm events/typhoons, earthquakes, landslides, tsunami, droughts and forest fires. Exposure to these hazards combined with conditions of vulnerability and insufficient capacity to cope with such shocks or stresses have resulted in disasters, which can bring about loss of lives, damage to infrastructure and widespread disruption to services, businesses and livelihoods.

Recent disasters in Thailand have proven significant in drawing attention to the need to strengthen disaster preparedness and enhance risk reduction efforts across the country. The Indian Ocean Tsunami which occurred in December 2004 severely affected a number of Thailand's southern provinces. With this disaster still fresh in the minds of those affected, the 2nd World Conference on Disaster Risk Reduction was held in Kobe, Japan in January 2005 where the global community agreed upon the Hyogo Framework for Action (HFA) as a blueprint for disaster risk reduction (DRR) efforts for the 2005-2015 decade.

In Thailand, the devastation of the Tsunami and commencement of the HFA process acted as a catalyst for the drawing up of the Strategic National Action Plan (SNAP) for Disaster Risk Reduction covering the period 2010-2019. The plan profiled the hazard risks facing the country, set key objectives for DRR at the national level, outlined institutional arrangements and responsibilities for relevant agencies and drew up performance indicators as well as provisions for monitoring and evaluation under the strategy. This signaled a key acknowledgement from disaster practitioners in Thailand that more could be done to prevent losses arising as a result of disasters.

Disaster Risk Level	Prevalent Natural Hazards in Thailand
High	Flood
High	Storm Event*
Moderate	Earthquake**
Moderate	Drought
Moderate	Landslide

*Including incidences of Typhoons
**Including 2004 Tsunami
Data adapted from EM-DAT - The OFDA/CRED International Disaster Database (2015) for the period 1960-2015

In the same way the Tsunami of 2004 had encouraged national agencies such as the Department of Disaster Prevention and Mitigation (DDPM) to strengthen disaster management provisions, the 'Great Floods' of 2011, which affected vast areas of central Thailand and Bangkok, highlighted that work was required to strengthen the ability and capacity of communities and actors at the local level to cope with prevalent hazard risks in Thailand. Asian Disaster Preparedness Center (ADPC) and its partners recognized the need to empower communities to work towards strengthening their ability to cope with large-scale disaster events.

With a focus on projects implemented following the 2011 floods, this document provides an overview of efforts carried out by ADPC and its partners in strengthening community resilience for flooding and other hazard risks. Particular emphasis is placed on lessons learned throughout the implementation process of these various initiatives. community-based disaster risk reduction (CBDRR) efforts carried out prior to the 'Great Floods' of 2011 are considered as well as the next steps for community resilience building efforts in Thailand at the national, regional and global level.

Geographical coverage of ADPC community resilience interventions in Thailand since 2000

Community Preparedness

Ang Thong, Ayutthaya, Bangkok, Chai Nat, Krabi, Nakhon Phanom, Nakorn Sawan, Nonthaburi, Pathum Thani, Phuket Phang-Nga, Phetchaburi, Prachinburi, Prachuap Khiri Khan, Ranong, Samutprakan, Satun, Sing Buri, Songkhla, Trang, Uthai Thani

School Safety

Ayutthaya, Nakhon Phanom

Disaster-Ready Health Facilities

Ayutthaya, Bangkok, Nakhon Sawan, Pathum Thani

Private Sector Engagement

Country-Wide

Key Interventions: Community Resilience Building in Thailand

This section offers an overview of CBDRR and community resilience building activities carried out in Thailand by ADPC and its partners over the course of the past two decades. This includes programs and projects operationalized following major disasters in Thailand such as the Hat Yai floods of 2000, Indian Ocean Tsunami of 2004 and ongoing Mekong River basin flooding. Initiatives implemented following the 2011 flooding events are covered under six relevant projects, namely: the Program for Reduction of Vulnerability to Floods in Thailand, Program for Enhancement of Emergency Response, Flood Risk Management Capacity Building in Thailand, Community-based Approaches to Flood Management, Strengthening Capacity of Vulnerable Schools for Flood Preparedness and Response, and Private Sector Engagement in Natural Disaster Risk Reduction for Resilient Economies through Business Continuity Planning and Management.

ADPC's community-based disaster resilience activities in Thailand

ADPC has carried out CBDRR and community focused projects since the mid-1990s, with these gaining particular momentum in the last decade. The organization is therefore well-placed to note the successes and challenges in regards to community-based disaster management efforts over this period.

Prior to 2011, **the floods of November 2000 which affected Hat Yai** - one of southern Thailand's key commercial and tourist centers - was widely considered to be the worst flooding disaster in the country's history. The flooding was recognized as a serious ongoing disaster risk which underlined the need for actions to minimize future economic and social losses. Notably, under the Thailand Urban Disaster Mitigation Project (TUDMP) initiated in 2002, ADPC worked with partners to develop sustainable operational strategies at the city level. The primary target location was Hat Yai in Songkhla Province with other initiatives implemented in Klong Luang Municipality in Pathumthani Province outside of Bangkok.

TUDMP was implemented in the context of the Asian Urban Disaster Mitigation Program (AUDMP), an initiative with the goal of developing a regional methodology for mitigation planning and sustainable development[1] . AUDMP placed local people at the heart of decision making processes to identify an appropriate mix of structural and non-structural mitigation measures for target locations. Community training workshops facilitated local input into the development of community-level emergency management and response plans which were integrated into wider municipal plans. This was supplemented by practical activities including flood evacuation drills, first aid as well as rescue and fire safety.

During the implementation of AUDMP, ADPC recognized the importance of minimizing the destructive impacts of hydro-meteorological events on vulnerable urban communities. With this in mind, the **Program for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia (PROMISE)**[2] was launched. PROMISE interventions in Thailand included a strong focus on CBDRR. In Patong City, located on the west coast of Phuket Island, unchecked development and urbanization had increased the level of hazard risk in view of flooding and landslides. Specifically, under the **Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM) project** assessments and risk mapping exercises helped identify suitable mitigation measures including adaptation of drainage methods as well as engineered and vegetation to encourage slope stabilization.

RECLAIM highlighted that community-level capacity building, awareness creation and advocacy were effective tools in reducing vulnerability to prevalent hazard risks and strengthening disaster risk management processes. Furthermore, the implementation experience in Patong underlined the importance of engaging relevant institutions as part of the assessment and decision making process at the local level.

2000
Hat Yai Flooding

Asian Urban Disaster Mitigation Program (AUDMP)

Thailand Urban Disaster Mitigation Project (TUDMP)

Program for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia (PROMISE)

Regional Capacity Enhancement for Landslide Impact Mitigation (RECLAIM)

1 Activities were carried out in Bangladesh, Cambodia, India, Indonesia, Lao PDR, Nepal, Philippines, Sri Lanka, Vietnam as well as Thailand

2 With support from USAID/OFDA from 2005-2010 with city demonstration projects across the Asia Pacific region focused on urban communities and economic infrastructure through enhanced preparedness and mitigation.

2004
Indian Ocean Tsunami

End-to-End Early Warning System and Preparedness for Tsunamis and Other Natural Hazards (EWSP)

Indian Ocean Tsunami Warning and Mitigation System (IOTWS): Coastal Community Resilience (CCR)

Sustainable Coastal Livelihoods (SCL)

The Indian Ocean Tsunami of 2004 resulted in huge human losses and infrastructural damage in Thailand's southern region, stressing the need to establish more effective systems for warning and response. Alongside UNDP and Thailand's DDPM, ADPC initiated **the End-to-End Early Warning System and Preparedness for Tsunamis and Other Natural Hazards (EWSP)** project in Ranong, Phang-Nga, Phuket, Krabi, Trang, Phetchaburi, Prachuap Khiri Khan and Satun provinces from July 2005 until mid-2006.

It emphasized the need to strengthen technical elements of warning systems whilst building the capacity of relevant authorities and vulnerable communities to operate and maintain established warning mechanisms. A participatory approach to CBDRM was implemented in three selected project sites in Phang-Nga, Krabi and Phuket provinces to encourage local people to play an active role in disaster risk preparedness and develop a clear understanding of multi-hazard early warning systems. The wider significance of EWSP was building the capacity of DDPM in implementing CBDRM, Crisis Management, Damage Assessment and Needs Analysis and Basic Emergency Response for first responders which was subsequently rolled out in communities across Thailand.

Another notable post-Tsunami initiative was the **Indian Ocean Tsunami Warning and Mitigation System (IOTWS)**[3] which formed part of the international effort to develop tsunami warning system capabilities in the Indian Ocean following the December 2004 disaster. An important component was the **Coastal Community Resilience (CCR)** initiative, which sought to identify methodological steps to assess the strengths, weaknesses and opportunities of specific locales. This accounted for elements such as governance, social/economic conditions, land use management, local risk knowledge as well as warning, evacuation and emergency response provisions to address the question: *'How Resilient is your Coastal Community?'*[4] .

The applicability of the CCR Guide was tested under a corresponding USAID funded project, the **Post-Tsunami Sustainable Coastal Livelihoods (SCL)** initiative[5] . The SCL demonstration project was designed to assist these coastal communities to rehabilitate livelihoods, strengthen resilience to future natural disasters, and adopt livelihood practices that use natural resources more sustainably with a focus on 'building back better'. Using the IOTWS assessment methodology, levels of community resilience of Tsunami affected villages in the Kampuan Tambon, Ranong Province in southern Thailand were ascertained. This evaluative process entailed consultations with villagers as well as officials from the Tambon Administrative Organizations (TAO), Provincial Agriculture organisations, Department of Disaster Prevention and Mitigation, Department of Fisheries and local Non-Governmental Organizations (NGOs).

3 USAID funded Program in partnership with the National Oceanic and Atmospheric Administration (NOAA), IRG-Tetra Tech, ADPC and the University of Rhode Island

4 (US-IOTWS, 2007) 'How Resilient is your Coastal Community?' - A Guide for Evaluating Coastal Community Resilience to Tsunamis and Other Hazards http://www.coast.noaa.gov/regions/pacific/resources/resilience/coastal_community_resilience_guide.pdf

5 In partnership with the Coastal Resources Center, University of Rhode Island and the Asian Institute of Technology

Other projects with a strong community-based aspect included the **Flood Emergency Management Strengthening (FEMS)** component of the Mekong River Commission's (MRC) **Flood Management and Mitigation Programme (FMMP).** From 2003-2011 FMMP[6] contributed to the reduction of civil and socio-economic losses in flood prone provinces and districts of Cambodia, Lao PDR, Thailand and Vietnam in the Mekong river basin. FEMS activities were implemented in the districts of Nakhon Phanom and Tha Uthen (Nakhon Phanom Province) with partners, the Thai National Mekong Committee (TNMC) and DDPM. Interventions included strengthening the capacities of local authorities in flood risk reduction, promoting community awareness of local flood risks and efforts to encourage participation of children and women in flood risk reduction.

Prevalent
Mekong River Basin Flooding

Flood Management and Mitigation Programme (FMMP): Flood Emergency Management Strengthening (FEMS)

The 'Great Flood' of 2011

In 2011, Thailand was affected by major flooding which occurred during and after the annual monsoon season, most severely in the Chao Phraya river basin in the country's central areas and across the Mekong river basin. Beginning in late July, and continuing for over three months, the floods impacted more than one million people and caused economic damages and losses estimated by the World Bank at over US$45 billion. Flooding inundated about six million hectares of land in Thailand (over 300,000 hectares of which was farmland) in 58 provinces, from Chiang Mai to parts of Bangkok. Provinces containing industrial and manufacturing areas were among the most seriously affected parts of the country.

The impact of the flooding was wide ranging. Local infrastructure and livelihoods were badly affected, business operations were disrupted and in many cases emergency response efforts were overwhelmed by the scale of the disaster. The flooding highlighted that Thailand was ill-prepared to cope with such a hazard which affected the country on a national scale. It was evident that many communities lacked experience of facing a disaster of this magnitude and did not possess the necessary capacity in terms of preparedness and response to cope.

This disaster was felt most immediately and intensely at the local level. Therefore, ADPC set out to implement a number of projects to enhance the ability of communities to cope more effectively with flooding and other prevalent hazards. These community resilience initiatives were aimed at reducing the vulnerability and strengthening the capacity of at-risk communities. The key interventions, achievements and notable implementation experiences and challenges from six primary projects in which ADPC played an active role are outlined in the following pages.

2011
Great Flood

Program for Reduction of Vulnerability to Floods in Thailand

Program for Enhancement of Emergency Response (PEER): Community Action for Disaster Response (CADRE)/ Hospital Preparedness for Emergencies (HOPE)

Flood Risk Management Capacity Building in Thailand

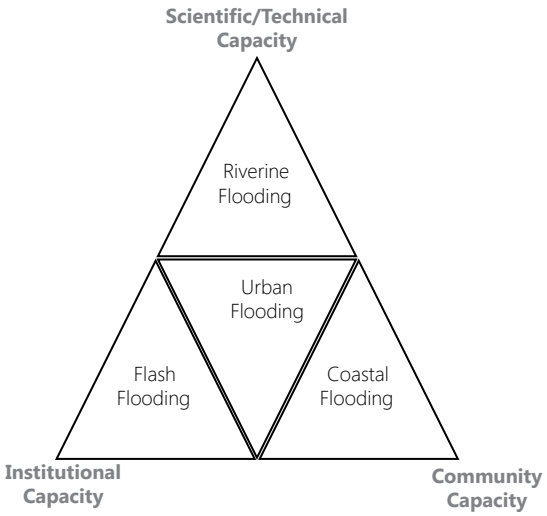
Community-based Approaches to Flood Management

Strengthen Capacity of Vulnerable Schools for Flood Preparedness and Response

Private Sector Engagement in Natural Disaster Risk Reduction for Resilient Economies through Business Continuity Planning and Management

6 With funding support from the European Commission Humanitarian Aid Department (ECHO) and the Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ).

Characterizing ADPC's community-based resilience work



Much of ADPC's community-based resilience work has been focused on flood-related disasters, including urban, flash, riverine, as well as coastal flooding (in the cases described associated with Tsunami). Despite this, it is important to note that although community-based approaches, including CBDRR, may be primarily designed in view of a specific hazard they in fact represent an approach which endeavors to strengthen the overall resilience of communities to a variety of shocks and stresses.

Broadly, ADPC's work in view of community resilience can be seen to have been characterized by a focus on three key strands: building the capacity of communities in view of the scientific or technical resources which they can draw on for support; enhancing the institutional capacities of relevant agencies and organisations in a locale; and building up the capacity of community members themselves in view of awareness, knowledge and basic skills to be better prepared for prevalent hazards they may encounter.

Program for Reduction of Vulnerability to Floods in Thailand

Geographical Coverage:
19 provinces on the Chao Phraya River Basin from Nakhon Sawan to Samutprakan provinces; as well as Bangkok Metropolitan Administration.

First phase: Thaluang TAO

Second Phase: Banmai TAO, Banpho TAO, Pongpeng TAO and Thangam TAO

Duration:
February 2012 - December 2016

Funding Support Agencies/Donor:
Office of U.S. Foreign Disaster Assistance of United States, Agency for International Development (USAID/OFDA)

Partners:
- Department of Disaster Prevention and Mitigation (DDPM)
- Department of Water Resources (DWR)
- Thai Meteorological Department (TMD)
- Royal Irrigation Department (RID)
- Thai Red Cross (TRC)
- Office of the National Water and Flood Management Policy
- National Disaster Warning Center (NDWC)
- Tambon Administrative Organization (TAOs)

Key Interventions

Training and capacity building

- Conducted integrated flood disaster risk management training courses that met the specific needs and requirements identified for Thailand - targeted representatives from organizations within the flood-prone provinces in the Chao Phraya River Basin. This training course was developed and organized in partnership with DDPM.
- Development of ToT guidelines and training curriculum and organization of ToT training courses.
- Conducted Integrated Flood Disaster Risk Management Trainings with DWR, TMD, and RID.

Demonstration activities

- Provided Technical support to the Tha Luang TAO to develop flood preparedness and emergency response plans.
- Community members received assistance in installing structural and non-structural mitigation measures from the project interventions.
- Trained community representatives in flood monitoring and flood EWS through response table top exercises and simulations. Five local government authorities joined the table top exercises.
- Developed standard operating procedures (SOPs) for riverine flood early warning for Tha Luang and Ban Po TAOs in Ayutthaya, and Pong Peng TAO in Ang Thong.

Achievements

Information and networking

- Conducted flood forum workshop to support collaboration and flood risk information sharing with the participation of all stakeholders and to strengthen the network of organizations working for flood disaster mitigation and management.
- Organized National and International Flood Forums.
- Developed case studies on: "Striking Gender Balance to Build a Flood-Resilient Community"; "Building Community Flood Preparedness: Implementing early warning systems in Ayutthaya"; and "Bringing Collaborative Governance in Community Early Warning System for Flood Risk Reduction."

- DDPM, DWR, RID and TMD contributed to the development of integrated flood management curriculum for each agency with officers trained.
- Early warning equipment (staff gauge, flood early warning board, loud speakers) was installed in target communities - representatives were trained to use hardware and software equipment.
- Two community flood preparedness and response committees were set up.
- Capacity of more than 150 Community representatives were built on flood monitoring and forecasting (under the "Mr. Warning" initiative).
- 26 government officials from DDPM, DWR, RID and TMD were trained as "Mr. Warning" trainers.
- Experts from more than 10 different countries shared experiences in flood risk reduction at flood forums focused on the international, regional, national as well as local/community levels.
- Experience sharing at three National flood forums with participation from DDPM, RID, TMD and DWR from national and provincial levels.
- Pilot community leaders represented the community in Thailand to present their experiences in flood program implementation at the 6th Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR).
- The project activities and interaction at various level of government reaffirmed the importance of a participatory process. The impact of such community empowerment was demonstrated during the 2013 flood in Ayutthaya province where the targeted communities were actively involved in flood forecast monitoring and response coordination in their district. Empowerment of the community through improved knowledge helped local officials in conducting their work as the public were better informed about interventions.

Implementation Experience and Challenges

- Working with several agencies at the same time helps generate a better understanding of the local community on the part of local government and help generate a sense of ownership from their perspective.
- It was imperative to establish strong relationships with local government, Tambon Administrative Organizations, and villagers to increase the likelihood of their participation and involvement in the project activities. For instance, demonstration activities required active involvement of villagers at the community level.
- Efforts utilizing technology were able to bring all players closer, as informal communication become a platform for technical agencies and communities to share information especially for flood and weather forecast information (e.g. 'LINE' application group chat , Facebook, and internet).
- It is necessary for project teams to understand the socio-economic character of the communities when implementing interventions.
- Improved early warning information systems and coordination for flood response were demonstrated during 2013 floods when residents actively contacted the local administration for support.

Program for Enhancement of Emergency Response (PEER)

Geographical Coverage:

Community Action for Disaster Response (CADRE)

NakhonSawan:
Bangtangai TAO, Kaingkai TAO, Khaothong TAO and ThapKrit TAO

Ayutthaya:
Nam Tao TAO, ThaLuang TAO, Ban Paom TAO and Sam PhaoLoum TAO

PathumThani:
Thaklong Town Municipality, Bang Luang Subdistrict Municipality, Nong Sam Wang TAO and Klong Haa TAO

Bangkok:
NongChok district, Sai Mai district, Don Mueang district and Thawi Watthana district

Hospital Preparedness for Emergencies (HOPE)

4 hospitals in Nakhon Sawan (Sawanpracharak Hospital), Ayutthaya (Ayutthaya Hospital), Pathumthani (Pathum Thani Hospital) and Bangkok (Klang Hospital)

Duration:
April 2009-August 2014

Funding Support Agencies/Donor:
USAID/OFDA with supplemental funding from American Red Cross (ARC)

Partners:
- Department of Disaster Prevention and Mitigation (DDPM)
- Thai Red Cross Society (TRCS)
- Bangkok Metropolitan Authority (BMA)
- Emergency Medical Institute of Thailand (EMIT)
- Ministry of Public Health (MPH)
- Tambon Administrative Organizations (TAOs)

Key Interventions

Community Action on Disaster Response (CADRE)

- Conducted National Pilot Course including national workshop and training for instructors (TFI)
- Community/local level training at Tambon (administrative unit) level which trained community responders across the four target areas of Bangkok, Pathum Thani, Ayutthaya and Nakhon Sawan.
- Equipped CADRE teams: training equipment sets for CADRE were supplied to DDPM following completion of in-country national courses. Basic Response Kits comprising emergency medical and life-saving equipment were distributed to communities.
- Adaptation and translation of training package.
- 15 community simulation exercises conducted across four provinces involving over 500 community participants.

Achievements

Hospital Preparedness for Emergencies (HOPE)

- Held Consultation workshop with Emergency Medical Institute of Thailand (EMIT), MPH and BMA stakeholders.
- Adaptation and translation of training package.
- National Pilot Course was conducted and attended by participants from hospitals in the four target sites namely Bangkok, Pathum Thani Province, Ayutthaya Province and Nakhon Sawan Province.
- Conducted National Training for Instructors via Instructors Workshop.
- Provincial level training: HOPE courses were conducted in each of the provinces with participation from 32 provincial and district level Hospitals.
- Technical Support for provincial hospitals - support for the establishment of model hospitals in Klang Hospital (Bangkok), Pathum Thani Provincial Hospital, Pra Nakhon Sri Ayutthaya Hospital and Chumseng District Hospital (Nakhon Sawan Province).

CADRE

- Capacities for community-based first response enhanced: 134 participants graduated having completed basic CADRE training whilst 27 CADRE instructors were also trained.
- The National Course along with provincial trainings in Nakhon Sawan, Bangkok, Ayutthaya and Pathum Thani enhanced community-level responder capacity, specifically targeting non-professional emergency responders.

HOPE

- Healthcare facilities were prepared to manage emergencies and remain functional to provide emergency health care to affected population: 151 participants completed basic training with a further 18 instructors trained under HOPE.
- Engaged with administrative as well as medical healthcare personnel to help prepare healthcare facilities in Thailand to develop well-designed, facility-specific plans for effective emergency response.
- Assisted in setting up Hospital Incident Command System (ICS) together with equipment (i.e. generator, emergency lights, command vest, monitoring boards) in four model hospitals along with practise exercises.
- Completed hospital risk assessment using WHO Hospital Safety Index at Klang, Ayutthaya, Chumsaeng and Pathum Thani Hospitals.
- Full scale exercise conducted in Pathum Thani Hospital and Ayutthaya Hospital with participation from more than 100 hospital staff.

Implementation Experience and Challenges

- Disaster Management needs to be promoted as the responsibility of everyone in society. Communities should be engaged as part of collaborative efforts in this regard. CADRE training targeted participants of various ages and occupations as part of training activities.
- Community engagement can be facilitated by support from community leaders and local administrations which recognize the importance and benefits of projects. These factors contribute to the effectiveness of projects in achieving comprehensive goals and creating connections with partner agencies.
- If a community has the strength and capacity to cope with damage and disruption caused by disaster and emergency situations systematically through the utilization of adequate resources and equipment, they can help other communities nearby in reducing the impact of flooding and other disasters.
- There was a clear need to develop hospital ICS as an integral part of the hospital response plan.
- There should be greater advocacy with participating Red Cross National Societies (RC-NS) and MOH and other national partners targeting high-level decision makers to ensure that there is full organizational interest and support for the program. This may include specific activities such as executive courses and developing advocacy materials like PEER packages and short informational videos.
- More efforts should be made to incorporate CADRE into wider CBDRM planning. This can be achieved through proper accreditation of CADRE by RC-NS and IFRC for developing community responders so that it can be implemented nationwide. A good example is what VNRC has accomplished in Vietnam.

Flood Risk Management Capacity Building in Thailand

Geographical Coverage:
Ayutthaya Province, Central Thailand

Duration:
May 2012 - January 2014

Funding Support Agencies/Donor:
JTI Foundation

Partners:
- Department of Disaster Prevention and Mitigation (DDPM)
- Thai Red Cross Society (TRCS)

Key Interventions

Training of communities on community disaster risk planning

- Comprehensive community risk and evacuation plans were produced by working closely with the target communities.

Training for Instructors (TFI)

- 12 new instructors were trained and graduated under the TFI course. They were selected from the pool of 48 participants from the CADRE training - after eight days of coursework, exercises and simulations they were certified as CADRE instructors in order to conduct training in Thailand in other communities.

Hazard Ready Toolkit

- Toolkit was developed and tested in hazard prone communities to measure disaster preparedness in target locations.

Achievements

Training of community preparedness and response teams

- A pool of 48 CADRE responders were trained, comprised of participants from local communities, volunteer groups and also the local DDPM and administrative offices.
- Emergency response kits were distributed to the target communities - these were utilized by participants from local volunteer groups who were active in flood emergency response in 2013 helping other communities in the Ayutthaya province.
- Capacity of two pilot communities was improved in community-based disaster risk reduction and planning.
- Capacity of local community volunteer groups in Ayutthaya was strengthened under the CADRE course.
- Community disaster response team was set up with proper disaster response equipment and was active during flood emergency response in 2013.
- Selected community volunteers were trained and certified as CADRE instructors for future community trainings.
- Flood ready toolkit was developed, refined and tested in the target communities in collaboration with DDPM and TRCS and will be used for future work on CBDRR.

Implementation Experience and Challenges

- The importance of close coordination with government officials, especially at the local level, is crucial for any kind of work with local communities. It is imperative to work closely with target communities in order to provide them with the necessary information, thus enabling them to take the initiative in addressing their needs in terms of flood risk management.
- Engagement with local government officials and the communities to strengthen knowledge of flood risk management can help ensure the long term sustainability of the project outcomes both in terms of commitment and ongoing access to necessary resources and equipment.
- Awareness of the EWS approach needs to be elaborated and explained to officers concerned with DRR as many officers of flood disaster risk reduction agencies were not familiar with the concept of EWS.

Community-Based Approaches to Flood Management

Geographical Coverage:

Riverine flood:

Talad Kao community, Kabinburi district, Prachinburi province

Flash flood:

Ban Buphram, Nadee district, Prachinburi province

Duration:
May 2013 - November 2015

Funding Support Agencies/Donor:

- World Meteorological Organization (WMO)

Partners (Thailand):

- Department of Disaster Prevention and Mitigation (DDPM)
- Thai Meteorological Department (TMD)
- Department of Water Resources (DWR)
- Royal Irrigation Department (RID)
- Thai Red Cross (TRC)
- Office of the National Economic and Social Development Board
- National Disaster Warning Center (NDWC)
- Tambon Administrative Organization (TAOs)

Key Interventions

Capacity building in Community-Based Approach to Flood Management (CBFM) in the target communities

- Conducting of participatory flood risk assessments.
- Rapid Assessments in target communities concerning flood-related problems, existing capacity and self-help potential and requirements in flood risk management.
- Formation of Community-Based Flood Management Committee (CBFMC).
- Development of community flood management plans including simulation activities.
- Established links between community-based organizations and institutions at district and national levels including for forecasting and early warning.
- Testing of CBFM manuals by the CBFMC and community members.

Achievements

Sustainability and phasing out of pilot CBFM interventions in the target communities

- Provided support for mainstreaming of CBFM into local, provincial and national development and action plans.
- Supported and facilitated the establishment of community flood/ disaster management funds.
- Linked CBFMCs to existing district and national institutions including local government authorities for flood forecasting and early warning.
- Familiarised CBFMs with flood/disaster management concepts and activities required for adaptations which come about as a result of climate change.
- Supported the installation of flood risk reduction demonstration equipment.
- Local government and two target communities in Prachinburi province were assisted to build capacity on participatory risk assessment (PRA) and flood risk reduction planning.
- The target communities were assisted to establish community-based flood management committees (CBFMCs).
- Community-based flood management plans for the two communities were developed and tested by simulation exercises.
- Capacity of CBFMCs of two target communities was enhanced on flood preparedness and early warning through trainings and simulation exercises.
- Coordination and cooperation among national and local government was encouraged by ADPC to build capacity of two target communities on flood monitoring and early warning.
- Talad Kao community supported to install demonstration equipment to reduce flood risks in community (12 CCTVs, 3 spot lights).

Implementation Experience and Challenges

- Communicating language needs to be precise and easy in order for the community to understand the project. Formal academic language can often be hard for local villagers to understand. As such, it is best to use fun activities and teaching materials to engage with communities and to develop greater understanding.
- When communities realize the importance of the activities, they can help to develop activities and material appropriate to the local context. Therefore, it is important to foster community project ownership which contributes to the achievement of projects and, in doing so, expands the knowledge of the wider community.
- Project activities should involve local administrations as they can provide information for communities which fall under their jurisdiction. In turn, this can help strengthen the relationship between community and local administrations which benefits the community in the long run.
- Projects should consider applying other activities from different organizations to integrate development activities which take pace in selected local areas. This also prevents duplication of activities and helps to expand networks between organizations for further development of projects.

Strengthen Capacity of Vulnerable Schools for Flood Preparedness and Response

Geographical Coverage:
Tha Rua district, Ayutthaya province:

- Tha Luang Tambon Administrative Organization; Tha Luang Wittayanukul School, Wat Kaijone School, and Wat Hua Hin School
- Champa Tambon Administrative Organization; Wat Jampa School

Duration:
August 2013 - October 2014

Funding Support Agencies/Donor:
Seagate through Give2Asia

Partners:

- Office of the Basic Education Commission, Ministry of Education (MoE)
- Ayutthaya Provincial Disaster Prevention and Mitigation Office
- Primary Educational Service Office Area 1, Phra Nakhon Si Ayutthaya
- Secondary Educational Service Office area 3, Nonthaburi - Phra Nakhon Si Ayutthaya
- Tambon Administrative Organizations (TAOs)

Key Interventions

Training and capacity building for flood preparedness and response

- The Office of the Basic Education Commission, Ministry of Education (MoE), Department of Disaster Prevention and Mitigation (DDPM) and two Tambon Administrative Organizations in Ayutthaya province were assisted to build capacity of four schools on flood risk assessment, flood risk reduction planning and integration of DRR into school curricular.

Achievements

Integration and facilitation of flood risk reduction into school curricular

- Disaster risk reduction principles were integrated across subjects including science, mathematics, social and cultural studies, foreign languages, health and physical education, music and art, vocational studies and school student development programs.
- Awareness raising conducted through school flood safety campaigns: schools were provided with materials to promote flood risk reduction activities including IEC materials, first aid kit, activity posters, copies of case study, speed card game and a pocket flood advice manual.
- Four schools were supported to develop flood risk action plans.
- Teachers' and students' flood safety knowledge enhanced through study visit program, awareness activities and flood simulation exercises.
- Awareness of teachers, students, parents and communities as well as local authorities on flood preparedness and response was raised through project activities so as to facilitate them in continuing the activities in the future independently.
- The MoE and its NGO partners (Plan International, Save the Children and UNICEF) were assisted by ADPC in disseminating their new guidelines on DRR integration into the school curriculum.
- Japan Foundation, NPO Plus Art, Design for Disaster (D4D) and Club Creative Co. Ltd were assisted in disseminating their disaster education initiatives in Ayutthaya.

Implementation Experience and Challenges

- Disaster resilience activities should be flexible in order to align with school curriculum plans and should avoid adding to the workload and responsibilities which teachers face. Project activities should not affect normal studies and need to be implemented alongside regular school activities.
- Schools were particularly good entry points as teachers are receptive to the concept of disaster risk reduction and are able to expand this knowledge to children. In many cases, it is easier for the implementation team to communicate the project to school teachers compared to the villagers in a community.
- Like communities in general, the school population is not always completely homogenous. Activities should be designed to serve a range of students of different ages, education levels and backgrounds.
- School activities should be fun and creative for students to enjoy learning practical skills and knowledge, and to encourage them to share the knowledge with their parents and communities.
- Disaster risk reduction in schools should aim for sustainable outcomes by promoting project ownership on the part of schools in order for them to integrate knowledge and skills as part of the school curriculum to apply these to local contexts.
- Projects implemented over a long duration should be aware that school personnel (i.e. directors and teachers) can change which may impact on the continuity of the project and the level of internal support it may receive over time.

Private Sector Engagement in Natural Disaster Risk Reduction for Resilient Economies through Business Continuity Planning and Management

Geographical Coverage:
Country-wide

Duration:
June 2013 - ongoing

Funding Support Agencies/Donor:

- JTI Foundation (2013-2014)
- Asian Development Bank (ADB) under the Integrated Disaster Risk Management Fund, financed by the Government of Canada and administered by ADB (2015-2016)
- German Government through Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) (2015-2016)

Partners:

- Office of Small and Medium Enterprises Promotion (OSMEP)
- Department of Disaster Prevention and Mitigation (DDPM)

Key Interventions

Organized workshops and training on business continuity planning (BCP), risk assessment and cost-benefit analysis for local SMEs and relevant agencies

- Training and workshops based on business continuity management systems standard ISO22301.
- Development of Training Package on BCPs for SMEs based on the APEC Guidebook.
- Provided direct support to selected SMEs on DRR-related topics.

Supported national partners to identify priority actions to strengthen the enabling environment and formulate a roadmap for strengthening SME resilience

- Surveyed and developed assessment reports on SME resilience across Thailand.
- Conducted an analytical review of existing policies, legislation, institutional set-up, and incentives related to promoting SMEs.

Achievements

Facilitated the sharing of knowledge on SME disaster resilience through various platforms including forums, publications and web portal

- National and regional forums to raise awareness on SME resilience, notably the Thailand Business resilience Forum in October 2014.
- Held an in-depth study on Improving SME Resilience in Thailand.
- Developed a document on Good Practices from APEC Economies on the use of BCP.
- Produced an ADPC Newsletter Special Edition on Engaging the Private Sector in DRR.
- Developed the iPrepareBusiness Web Portal.
- SME awareness of the importance of disaster preparedness was increased through national consultative workshops and trainings.
- SME capacity on BCPs was enhanced through knowledge, information and practical training.
- SMEs from across the APEC region were able to exchange knowledge and share best practices through the SME community forum.

Implementation Experience and Challenges

- Many SMEs were of the view that disaster management plans such as BCP would bring additional cost to their budgets rather than viewing them as an investment.
- Gaps between public and private sectors resulted from lack of trust and misinformation in some cases leading to unwillingness to cooperate with each other.
- It was found that the one-day workshop or forum is the most desirable option to raise awareness of SMEs on DRR as SME entrepreneurs are often busy with their businesses.
- Providing publications in local languages was able to help attract a wider audience including media partners.

Post-2011 Floods: ADPC's efforts to enhance disaster resilience and empower communities in Thailand

ADPC's approach to local level resilience building following the 2011 floods focused on engaging local actors to participate in processes designed to improve their safety and well-being and that of the livelihoods upon which they rely. Communities were 'empowered' to take the initiative in strengthening disaster resilience. The projects were multi-dimensional in nature as they involved working alongside a range of partners to address underlying vulnerabilities, mitigate disaster risk and reduce exposure to hazards in terms of flooding and other hazards.

Broadly, ADPC's community resilience activities in Thailand following the 2011 floods concentrated on the themes of Community Preparedness, School Safety, Disaster Ready Health Facilities and Private Sector Engagement:

- Communities are at the frontline of attempts to prepare for, respond to, and mitigate the effects of disasters. Community members are often the first responders in a disaster scenario before external assistance can be provided. Well-trained, competent and adequately equipped emergency responders are an important asset for communities. Developing the skills of and capacity of individuals is paramount to enhancing the overall resilience of a community. The development and implementation of Early Warning Systems (EWS) remain important in establishing resilient communities to facilitate timely and decisive response to disaster risks at the local level.

- Integrating knowledge of disaster risk reduction into the education system can help children (who are amongst the most vulnerable groups in a community) to be better prepared during disaster situations. Schools are a common entry point for CBDRR initiatives and can be utilised as a focal point for enhancement of disaster preparedness in the community. Teachers can be enlisted as 'champions' to promote disaster risk awareness principles and knowledge. Furthermore, experience shows that lessons learned in the classroom by students can be disseminated across a community and contribute to wider awareness of hazard risks and specific vulnerabilities in a locality.

- Well-prepared, adequately equipped health facilities are an important component of a community's ability to cope with disasters. Hospital preparedness can be enhanced by strengthening the capacity of health facility staff to manage large scale disasters through specialized training and provision of medical equipment. The ability of hospitals to remain functional during disasters by strengthening structural, non-structural and functional capacities is imperative to ensure that emergency healthcare can be provided to the affected population. Development of policies and SOPs can improve co-ordinated emergency medical response and preparedness, help reduce mortality and increase the survival rate of disaster victims.

-Engaging the private sector in disaster preparedness activities can contribute to strengthening the resilience of at risk communities. In Thailand, where Small and Medium Based Enterprises (SMEs) represent over 95% of businesses, the private sector is inextricably linked to the livelihoods and economic wellbeing of communities. Businesses are frequently underprepared for natural hazards meaning that the private sector often bears the brunt of disaster damages and losses. Local efforts can focus on raising awareness of the importance of disaster preparedness and assisting business owners to prepare risk assessments and Business Continuity Plans (BCPs).

Moving towards holistic community resilience building in Thailand

The variety of projects demonstrates how the conventional concept of 'community' in view of disaster management work has developed beyond traditional concerns such as school safety, efforts to safeguard livelihoods and the establishing and maintaining of EWS (although these all remain important components of a resilient community). Contemporary disaster risk management work with communities encompasses aspects such as improving the capacity of individual community members to cope more effectively in the midst of an emergency scenario (e.g. learning emergency response skills) and helping businesses maintain and recover their operations when affected by disaster.

By implementing projects and engaging in activities across these different areas, ADPC has worked to help communities increase their resilience in a holistic and integrated manner. The next section of this document explores the lessons learned by ADPC which can be carried forward for future interventions so as to ensure that the most vulnerable can continue to receive effective and meaningful support in their efforts to develop more resilient communities across the region.

Key Lessons towards Empowerment and Resilience

This section explores lessons learned by ADPC based on the implementation experience of different projects aimed at enhancing the resilience of communities across Thailand post-2011 floods. These lessons were considered under the themes of: Local Governance and Flood Resilience; Developing Community Capacities on Risk Assessment; Community Involvement in Disaster Risk Reduction Planning; Community Capacity Development; Enhancing Early Warning Systems; Community Asset Development for Flood Risk Reduction; Community Engagement in School Flood Safety; Community Empowerment through Private Sector Engagement; Networking and Partnerships. Specific examples from across community resilience projects carried out in Thailand by ADPC and its partners have been cited. Perspectives and insights from community members, practitioners and local officials who were involved in the implementation of projects are included throughout. The ways in which communities were empowered as a result of project activities are also considered under each theme.

01 Local Governance and Flood Resilience

For effective community resilience interventions to be realized (including those aimed at strengthening flood resilience) local and national Governments should be readily involved. Successful interventions tend to be well integrated into planning at higher scales and are able to mobilize the necessary finances and resources to be utilized for the benefit of communities. Moreover, the need to engage with those who hold power and decision-making authorities required to engineer change at the local level was identified as an important characteristic of effective resilience building.

Mr. Wirachart Buacham, Director of Ayutthaya Meteorological Station and Mr. Likhit Sakrasae, Head of Kabinburi District Meteorological Station, demonstrated rainfall measurement as part of Flood Early Warning System training in Prachinburi Province.

Establishing strong relationships with local government officials is crucial

Close coordination with government officials proved crucial for work involving communities. Engaging local administration and local line government agencies in disaster risk reduction activities helped in terms of the provision of relevant information concerning communities which fell under their jurisdiction. In Talad Kao and Ban Buphram (Prachinburi province) projects helped foster relationships between Community-Based Flood Management Committees (CBFMCs) and relevant district and national institutions including local government authorities. Significantly, this interaction assisted communities to mainstream their flooding plans into existing local, provincial and national development and action plans.

Another example was that of Mr. Prasit Taitan, a Royal Irrigation Office Engineer who delivered training sessions to six communities and officials of Tha Luang Tambon Administrative Organization (TAO). The community was able to improve their understanding of why and how the irrigation office and upper areas release water from different dams and water gates to their area to manage local water levels. They developed practical skills to monitor water levels such as estimating the time taken for water to reach their community and the potential depth it may reach.

"We attempted to enhance the knowledge of the community so that they can more independently interpret early warning information and share this information in a simple format,"

Mr. Thanaroj Worraratprasert, Chief of Water Planning and Problem Solutions, Regional Irrigation Office 12.

Community resilience building is more effective when carried out as an inter-scalar endeavor

Project activities underlined that effective community resilience building should be an inter-scalar endeavor, enlisting the participation of actors at a variety of scales. On one hand, the project interaction at various level of government reaffirmed the importance of engaging with those with the means to mobilize resources and make key decisions. Nonetheless, involving community members was maintained as an important part of these efforts, tapping into the in-depth understanding which local people possess in terms of their surrounding areas.

The practical impact of engaging with stakeholders from both the community itself as well as those involved in local governance - and strengthening relationships between these different sets of actors - was demonstrated during the 2013 flood in Ayutthaya and Prachinburi provinces where target communities were actively involved in flood forecast monitoring and response coordination in their districts. This demonstrated how communities had been empowered through improved knowledge to help local officials in conducting their work as the public were better informed about the processes for early warning and flooding response in their community.

TAO representatives work with community leaders to complete a Flood Emergency Response table top exercise in Tha Luang Subdistrict

In what ways were communities empowered?

Target communities received greater levels of support from local authorities for resilience building

Engaging local government organizations in disaster risk interventions helped ensure that those with the means to enact change and mobilize necessary resources were included in the implementation of resilience building initiatives. This strengthened the position of community members as they were able to draw upon and mobilize greater levels of resources, logistical support and funding from their local authorities. They were also more informed about local hazard risks and how to respond to these through simple actions such as moving possessions to higher ground ahead of water level rises.

Equally, those in positions of power at the local level became more aware of the issues and challenges which local people faced, both in view of hazard risks and wider societal challenges. Furthermore, an enhanced awareness of disaster risk fostered greater levels of support and buy-in from local government agencies and officials thus consolidating the long term sustainability of project initiatives beyond their stated duration.

Flood focused disaster risk management planning curriculum development and trainings at the national and local level for DDPM, DWR, RID, TMD helped officials from these agencies improve their understanding of flood risk reduction concepts. This enabled them to work with local government authorities and communities to build their capacity on flood monitoring and Early Warning as well as flood risk reduction in line with their individual mandates.

02 Developing Community Capacities on Risk Assessment

Each of the communities where interventions were implemented possessed different risk factors meaning that flood impacts often varied significantly from one locality to the next. Participatory Risk Assessments (PRA) proved to be an invaluable means of helping both communities and local authorities to develop a better understanding of specific local risk factors. As a participatory process, the PRA engaged with a range of groups across each community to share their thoughts, reflect upon their needs and develop ownership of the planned intervention process. The process encompassed hazard assessment, vulnerability assessment and capacity assessment. People's perceptions of risk within a community were also considered. Risk assessment results were compiled and presented as community risk profiles and hazard maps which can be further used by the community for identifying flood risk reduction solutions.

Youth participation in community risk assessment in Ayutthaya

Risk assessment results proved key in the selection of suitable pilot sites

In Tha Laung sub-district, Ayutthaya province, the TAO and six villages were trained on community risk assessment. The community utilised PRA tools to develop their understanding of hazards, vulnerability and capacity. Risk assessment results revealed that among the six communities, Moo 2 (Ban Hua Hin) and Moo 3 (Ban Mai Pattana) were most vulnerable to flooding but at the same time evidenced strong leaders and cohesive community members. Moo 10 was also deemed to be a vulnerable community but evidenced a transient, non-permanent population in which engagement may have proven difficult. Therefore, Moo 2 and Moo 3 were selected by Tha Luang TAO as the pilot communities in which flood risk reduction activities in the Chao Phraya River Basin would be implemented.

Rapid assessments informed the overall implementation strategy for projects

Rapid PRAs were utilised as a tool to develop understanding of the community context in view of flood impacts and flood risk management as well identifying relevant stakeholders ahead of implementing interventions. The assessments assisted in identifying appropriate plans and approaches as well as key partners to provide capacity building support to the community to meet project objectives.

In Prachinburi, the rapid assessment was conducted by the project team and local authorities in Talad Kao community (a community at risk from riverine flooding) and Ban Buphram (a community prone to flash flooding). In Talad Kao, strong community leadership, community committees and development teams were able to raise high levels of community awareness of the initiative ensuring high levels of participation. In Ban Buphram a different approach was taken by working closely with the Buphram TAO. The local authority already possessed a close relationship with the community in view of stressing the importance of flood risk management in the area and was therefore able to guide the assessment process. In addition, the provincial offices of the Department of Disaster Prevention and Mitigation (DDPM) and its Academy, the regional office of water resources, the provincial hydro-meteorological and its Kabonburi station also provided support to both target communities.

Community Flood Risk Assessments are best led by local 'champions'

A community leader of Talad Kao, Prachinburi province, Ms. Darunee Tharathippayakul led the participatory risk assessment for her area which was conducted at a community recreation area near Hanuman canal. Community members including men, women, older people, young people and children were separated into different, mixed groups. The community map was developed, highlighting safe and flood prone areas in different symbols and colors. Lists of vulnerable groups and community members including elderly, patients, people with disabilities, pregnant women and small children were prepared. Details of available resources, important people and networks as well as their contact information were also collated. Flood impacts based on past community experiences were identified and prioritized. Locations of community leaders, vulnerable groups and community resources (e.g. loud speakers, evacuation center, meeting area etc.) were marked on maps so that the community would be aware of who and where to help first. Finally, all PRA tools which had been developed were presented and agreed upon by community members.

Schools in flood prone areas can benefit from specialized interventions informed by Flood Risk Assessment

Schools form an important part of communities. As such, school risk assessments involve a similar process to that of more general community risk assessments, but involve a specific focus on the school context with the process strongly supported by school management and teachers. Historic floods, impacts on buildings, existing school property, the capacity of teachers and students, regular school activities as well as previous school hazard experiences are taken into consideration. In Ayutthaya province, school surveys were conducted at each target school and nearby areas to understand water direction, previously flooded and unaffected areas, water height, building size and construction materials and which specific classrooms and equipment had required repairs in the past. School hazard maps were developed based on the survey.

"I have gained new and interesting knowledge from the project activities...we can certainly apply these innovative ideas in school activities for flood safety in the future,"

Mr. Thawat Sangtoneng, teacher at Wat Champa school.

"Hospital assessment proved to be a wake-up call for health care personnel like us to think about the impact of disasters on hospital work,"

Ms. Peerapong Tangjitjaroen, registered nurse responsible for emergency response plan at Pathum Thani Hospital.

Hospital Risk Assessments were crucial in identifying vulnerabilities, technical needs and gaps in capacity

Ahead of Program for Enhancement of Emergency Response (PEER) implementation, ADPC conducted a capacity and needs assessment of flood affected communities, health facilities and local partners from the local branches of the Disaster Prevention and Mitigation Department (DDPM). Assessment results informed the design of proposed activities including those for HOPE.

Furthermore, planning for model hospitals proposed in each of the target areas included consultation meetings with hospital teams and a risk assessment using the WHO Safe Hospital Index. ADPC partnered with the Ministry of Public Health to conduct assessments of Thai hospitals in flood-prone areas. Trained (HOPE) instructors were able to carry out the evaluation process aimed at improving capacity of hospital and health care facilities for emergencies and mass casualty events. The evaluation covered four key components - structural, non-structural, functional and human resource management - crucial aspects for ensuring that effective hospital services are maintained during emergencies.

Basic risk assessment tools were a valuable component of BCP development guidance for SMEs

The 'SME Business Continuity Planning' Guidebook was developed to help small and medium-sized enterprises (SME) prepare basic business continuity plans (BCP). It presents 10 easy steps that SME readers can follow to develop their own BCPs. Crucially, this tool was presented in a non-technical and easy to understand format, making the materials accessible and useful for non-experts. Nonetheless, it still required users to consider important factors such as estimated damage costs and how long repairs and restoration to operations could take in the event of a disaster event. An important step of this process required business owners to rank risk likelihood and impacts, allowing them compare which risks they considered to be most relevant to their organisation and encourage them to make more risk sensitive investments.

Risk - Likelihood/Impact Scoring Scale

Rank	Likelihood	Impact
High	Likely	Disastrous/Severe damage; Threatening the company; Death; Multiple injuries
Middle	Moderate likely	Medium level damage affecting operations, Multiple injuries
Low	Unlikely	Insignificant damage; Minor injuries

Risk Impact and Likelihood Comparison Chart (sample)

Risk	Impact	Likelihood	Priority
Earthquake	H M L	H M L	1
Flood	H M L	H M L	2
	H M L	H M L	
	H M L	H M L	

Basic risk assesment tools included as part of SME Business Continuity Planning materials

In what ways were communities empowered?

Local people were given a first-hand role in the development of community risk-profiles

Involving local people as part of risk assessments developed their awareness of particular vulnerabilities and exposed areas which exist within their community. Collecting this locally-based knowledge was crucial in supplementing the expert and technical knowledge which external practitioners can provide. External input often proved crucial in establishing suitable forums and platforms at which local knowledge could be imparted. Importantly, assessments were presented and conducted in ways which were easily understandable and accessible to community members.

This allowed local insights to be harnessed in selecting the most applicable interventions for each flood resilience project. The assessment skills of a wide range of community members was enhanced with school teachers, hospital staff and local businesses owners all engaged in interventions in communities across Thailand. Notably, enlisting the support and influence of local 'champions', helped in mobilizing communities to contribute to the process. Community members were empowered by way of their first-hand roles in mapping specific characteristics of their local area including known hazards, particular vulnerabilities and existing capacities.

03 Community Involvement in Disaster Risk Reduction Planning

Communities and health facilities, having participated in risk assessment efforts, were able to develop a better understanding of the challenges they face and were able to play a key role in identifying appropriate risk reduction solutions. Risk assessment results were utilised to inform the development of community action plans and hospital emergency response plans. Specific elements of risk planning included the setting out of project objectives, identifying required resources, determining individual tasks and responsibilities for community members and/or partner organizations and establishing a timetable for the completion of activities. It was important to work with communities in order to establish their expectations of resilience building programs and ascertain acceptable levels of risk in order to select the most appropriate interventions for each locality.

Community members in Moo 2, Ban Hua Hin, Ayutthaya engaged in participatory CBDRR planning

Community Flood Risk Management Planning helped identify cost-effective, sustainable interventions

Disaster Management Plans are a tool to help communities systematically prepare and respond for disaster events. Firstly, communities should understand existing problems, weakness, gaps and capacity by undertaking risk assessments (such as PRAs discussed previously). The results of risk assessments were used to develop community action plans before, during and after emergency events as well as to identify possible measures and options to reduce disaster impacts in the community. The implementation experience showed that consulting with community members encouraged them to consider the root causes of local problems related to hazards. This allowed communities to identify solutions based on behavioural changes or adaptation of practices as opposed the implementation of more costly approaches such as the installation of structural mitigation measures or flood defenses. Experience indicates that the adoption of interventions selected by a participatory approach also proves beneficial in view of the sustainability of projects, helping to foster a sense of ownership and responsibility on the part of communities.

Challenges/ Advantages posed by flooding and other community issues	Challenges/ Advantages posed by flooding and other community issues	Identified solutions
• Transportation difficulties	• High water levels affecting local transportation	• Repair boats in advance before flood season • Request for assistance from local government
• Houses and property damaged	• Difficulties coping with sudden water flow particularly in the case of flash flooding from upper stream	• Monitor flood situation and move property to higher place in advance • Request for compensation from relevant government agencies to repair houses
• Robbery prone area (may discourage affected community members from moving to safe zones, particularly elderly)	• Problem of drugs in the community and insufficient lighting in some areas	• Install CCTVs to enhance community security • Install spot lights to improve visibility in poorly lit areas
• Movement of animals from normal habitats	• Flash flooding may cause dangerous animals (e.g. snakes, centipedes, crocodiles, scorpions) to move from regular habitats towards households and community areas	• Increase awareness and vigilance to the risks posed by movement of animals following flooding
• Solid waste problem	• Flood water can cause the movement of garbage and waste affecting households and community areas	• Rubbish should be disposed of at allocated areas • Avoid disposing of waste directly into water
• Lifeline facilities (water & electricity) cut off	• Electricity meter needs to be moved to a point higher than flood level	• Contact provincial electricity authority to move electricity meter to higher ground
• Sanitation facilities affected by flooding	• 1st floor toilets typically flooded during flood seasons • Septic tanks can get filled with water	• Some houses are not affected if water does not reach 2nd floor since toilets are located on upper floor • Request assistance from government and private sector

Examples of Community flood risk management planning materials and tools utilised in target communities

Hospital emergency response planning helps define preparedness frameworks and identify practical response arrangements and actions

Health facilities and hospitals, as community-based institutions, play a vital role in providing life saving care for disaster affected populations. Therefore, it is important that heath facilities continue to function even in the aftermath of a disaster ensuring that structural integrity and support functions from non structural elements of the health facility remain intact so that healthcare personnel can safely provide the medical care services which the community needs. The PEER program, through HOPE, provided technical support to Phra Nakhorn Sri Ayutthaya Hospital and Pathum Thani Hospital in further developing their hospital emergency response plans through a multi-disciplinary participatory planning process.

As hospital disaster response requires a coordinated effort from different hospital departments and support from external agencies, planning should integrate inputs from critical hospital support functions like security, engineering, laboratory, pharmacy, administration, finance, and volunteer groups. The experience from the model hospital activities showed that the planning process helps the hospital planning committee identify areas which require further strengthening, leading to the development of the hospital preparedness program under a regular work program. The planning also provided opportunities to deliberate various cost effective options from different stakeholders that makes the plan robust and responsive to the practical realities experienced by operational personnel on the ground.

Hospital Incident Management Team directing operations at the hospital command center during the command post exercise at Ayutthaya Hospital

Hospital simulation exercises help build confidence in working together and identifying areas for improvement

Emergency preparedness is a continuous process. As the community and the health facility evolves, new hazards may emerge as a result of development, requiring plans to be constantly reviewed and revised. Health facility emergency operation plans must be dynamic in order to be effective. Personnel training needs to be regular, plans exercised repeatedly, and the overall plan reviewed and amended as a result of exercises and real emergency response. An exercise is the primary tool for assessing preparedness and areas for improvement. It aims to generate objective assessments of capabilities so that deficiencies can be addressed prior to a real incident

The health facility response to an emergency requires personnel to step outside their routine roles and responsibilities, and to take on tasks with which they are less familiar and to be carried out in a stressful environment. One of the key activities under the model hospital of PEER is for the selected hospitals to undergo simulation exercises to provide the opportunity to practice their emergency management skills and validate the training they received from the program.

The PEER program implemented a 3-stage simulation exercise to demonstrate that exercises can take different forms under the wider hospital preparedness program. The first is the use of a tabletop-based exercise used to develop existing hospital response plans and identify broad gaps that need to be developed to cope with the hazard threat. This ensures key arrangements for command and control, logistics and supplies, risk communication, information management and coordination with local level plans forming the backbone of a multi hazard response plan.

This was followed by a functional command post exercise to provide opportunity for the hospital incident management team to practice working at the Hospital Command Center and direct hospital response to an incident without the actual deployment of hospital resources. The last exercise is a full-scale exercise that combines the hospital command center function and the deployment of emergency personnel to manage patient reception at the emergency department.

These exercises allow physicians, nurses, technicians, engineers and allied health staff to directors and managers, to validate training and practice together strategic and tactical prevention, protection, response, and recovery capabilities in a non threatening environment. This contributes to the continuous improvement of the hopistal's level of preparedness and optimises lessons learned.

"'Lessons Learned' connotes that an item which requires corrective action has been identified and that action has been taken. Once actions can be validated through exercises or real world experience the Lesson has been 'Learned'.
If you can validate a Corrective Action Plan then you have a defensible 'Lesson Learned'."

Mr. John Abo, Deputy Chief of Party, PEER Program, ADPC.

Flood simulation exercises help to emphasize individual roles and responsibilities for flood preparedness

Disaster management plans invariably proved more effective when the community were involved and active in the planning and implementation of interventions. Community-based flood management plans for Talad Kao and Ban Buphram were tested by way of flood simulation exercises which were designed to help communities to understand their roles and responsibilities by attempting to replicate a real emergency scenario. CADRE emergency response simulation also took place in Ayutthaya. Trained CADRE volunteers practiced undertaking water rescue missions.

The exercises helped to bring about more effective internal and external coordination between community responders and allowed communities to adjust their plans based on factors which arose during a test set-up. Importantly, community committee-led simulation exercises were useful in testing the effectiveness of EWS which had been established in these areas. Testing planned procedures under an emergency-like conditions formed an important part of the testing and review of these systems and encouraged further community input into how such measures could be improved on a regular and consistent basis.

Trained CADRE volunteers carrying out water rescue simulation exercise in Ayutthaya

School Flood Safety Action Planning should be integrated in wider community planning for disaster preparedness

Children and young people are amongst the most vulnerable groups within any community. School flood risk reduction planning in Tha Rua district, Ayutthaya province helped schools to create safer properties and learning environments for school children and staff. Templates for school flood risk reduction plans were reviewed and finalized with inputs from school teachers. Relevant school flood risk assessment information was compiled and further utilized together with community flood risk reduction plans for developing school specific plans.

Lists of school teachers and students were compiled including the number of children who could swim or were unable to swim in each class. Teachers discussed flood monitoring and preparedness actions and identified ways in which school property could be relocated to less exposed areas in a manner which minimized disruption to school activities over a period of time. Where possible, school plans were linked with community plans and sought to utilise existing resources and capacities of the local government and community. For instance, the action plan of Wat Hua Hin school was linked with the Community Flood Preparedness Plan of Moo 2, Ban Hua Hin and Tha Luang TAO. Furthermore, Tha Luang Wittayanukul and Wat Kai Jone schools agreed to share resources and helped each other in view of preparedness and response to flooding.

"Wat Hua Hin is identified as evacuation center, but in case of an emergency, library building three can be used as evacuation safe place for ten nearby households since all valuable property will be moved to building one and two. The community members can also see their houses from here so they will be less concerned about their property during an emergency,"

Mr. Niroot Pikulthep, teacher of Wat Hua Hin school.

Encouraging SMEs to develop BCPs contributed to the strengthening of overall community resilience

ADPC's efforts to engage with SMEs placed a key emphasis on the development of plans and strategies to help these smaller organisations to be better prepared for disasters. A practical means of achieving this was assisting SMEs to develop their BCPs by identifying each business's critical functions and selecting suitable measures to help maintain these operations when disasters strike. It was important to emphasize the benefits of BCPs as an inexpensive means of minimizing revenue losses as opposed to the presupposition that planning for disasters requires high levels of expenditure.

SME owners were informed that BCPs could act as a catalyst to make established systems more efficient as well as helping employees feel more secure in the workplace. The relevance of taking practical steps to enhance disaster preparedness was emphasized by linking these directly to factors such as being able to fulfil contractual obligations. The importance of business operations being able to resume quickly following a disturbance in terms of helping communities 'bounce back' quickly from a disaster was also emphasized. Employment, income, and key services can be maintained or resumed more quickly thereby reducing the long term impacts of disasters on local people. Furthermore, improving the overall collective disaster preparedness of local businesses can help to build up the resilience of supply chains minimizing the overall impact of disasters.

As well as working with SME representative themselves, ADPC was also aware of the need to engage with relevant national and governmental agencies to develop understanding of the importance of BCP and disaster preparedness for the private sector. In the Thai context, as is the case in many developing economies, support was required at the governmental level for policy development and expert guidance to support the uptake of BCPs on the part of smaller organizations. ADPC partnered with the Office of Small and Medium Enterprise Promotion (OSMEP) and Department of Disaster Prevention and Mitigation to identify ways to encourage SMEs to prioritize BCP development through awareness raising and provision of appropriate incentives.

"It is crucial to foster an understanding of disaster risk reduction and climate change adaptation among private investors and to show them ways of getting engaged in risk reduction initiatives,"

Mr. Aslam Perwaiz, Head of Disaster Risk Management Systems Department, ADPC.

In what ways were communities empowered?

Community members played a key part in the identification of local resilience interventions

The participation of local people in planning is a fundamental characteristic of community-based resilience building initiatives. Significantly, experiences across the different projects showed that active community inputs assisted in identifying more cost-effective measures and approaches which were applicable for particular local contexts, thereby enhancing the sustainability of project outcomes in the long-run. Engaging the community in the planning phase placed them at the heart of decision-making and implementation of disaster prevention and mitigation, preparedness, emergency response and recovery initiatives. Crucially, participatory planning provided local actors with a means of determining how the concept of resilience in their communities should take shape, be operationalized, and ultimately be strengthened.

04 Community Capacity Development - Skills and Training

Across its various community resilience programs ADPC has helped empower community members by providing various training initiatives designed to improve the skills and knowledge of individuals, thereby strengthening the overall capacity of communities in view of preparation and response for disasters.

Flood disaster risk management training courses that met the specific needs and requirements identified for Thailand were conducted. Local officials and representatives from flood affected areas in the Chao Phraya River Basin undertook flood disaster risk management training courses. ToT guidelines and a specialized curriculum were developed as key outcomes documents of these processes. Integrated Flood Disaster Risk Management (IFDRM) Trainings were also conducted with the Department of Water Resources (DWR), Thai Meteorological Department (TMD), and Royal Irrigation Department (RID). Furthermore, the "Mr. Warning" initiative was introduced to communities to encourage more effective monitoring and early warning messages for communities in the Chao Phraya river basin, and riverine and flash flood prone communities in Prachinburi.

Regional Water Resource Office Area Six representatives delivering a training session on flash flood monitoring and early warning for communities at Buphram TAO, Prachinburi province

CBDRR orientated training also formed a key part of numerous projects. Training on community disaster risk planning helped produce comprehensive community risk and evacuation plans by working closely with the target communities. Community-based awareness initiatives and trainings took place alongside the formation of Community-Based Flood Management Committees (CBFMC). Development of integrated flood management frameworks were conducted, including community flood management and implementation plans. CBFM manuals covering relevant aspects and required activities to be undertaken before, during and after flood events were also developed as a key supporting document.

Teachers of Wat Hua Hin school reviewed their roles and responsibilities as identified in the plan before conducting the school simulation exercise

Trainings designed to enhance the capacity of schools in view of flood risk improved the ability of communities to cope more effectively with disasters. School flood safety activity focused on enhancing the knowledge of teachers in view of flood management and planning. Teachers' understanding of disaster risk reduction concepts and disaster preparedness and response planning skills were improved. School staff members were briefed on how to recognize and assess risk factors, develop school risk maps and identify appropriate solutions based on the demands of each school. School committees were set up to determine the roles and responsibilities of school personnel before, during and after flooding, and outline their duties in terms of contacting other agencies for assistance. Furthermore, each school conducted a tabletop exercise typically involving teachers and staff members held in the morning. These were followed up by practical simulations in the afternoon involving students. These exercises and simulations contributed to reviewing and clarifying the roles and responsibilities of each party as well as improving plans based on identified weaknesses for utilization in a real disaster scenario. Care was taken to ensure that regular school schedules were maintained and not disrupted by project activities.

A number of **trainings designed to strengthen community capacities for response.** Under Community Action for Disaster Response (CADRE) - a component of the PEER project - a National Pilot Course including national training and workshop was conducted in Thailand. Furthermore, at the Tambon level community responders across the four target areas of Bangkok, Pathum Thani, Ayutthaya and Nakhon Sawan were trained. CADRE equipment was supplied to all Red Cross National Societies following completion of in-country national courses and response kits comprising emergency medical and life-saving equipment were also distributed to communities.

A pool of over 180 CADRE responders was trained specifically under the JTITF project. This cohort comprised of participants from local communities, volunteer groups and also the local DDPM and administrative offices. Emergency response kits were distributed to target communities and were utilized by participants from local volunteer groups. Under the Training for Instructors (TFI) almost 40 new instructors - selected from the pool of CADRE training participants - were trained. After eight days of intensive coursework, exercises and simulations they were certified as CADRE instructors in order to conduct training in Thailand in other communities.

"I believe life is the most important consideration in a disaster situation. We can always rebuild infrastructure. Life, on the other hand, cannot be replaced. The training emphasizes this reality. We must always prioritize human life over material losses...I'd like this training to be continually implemented and improved. There are many people out there that need access to this knowledge. I hope CADRE can reach out to more communities and more people,"

Mr. Chavarat Srimupan, CADRE training participant.

"There is always a time window after a disaster before professional help arrives when community members must be responsible for their own relief,"

Mr. Sajedul Hasan, Chief of Party, PEER Program, ADPC.

Under the Hospital Preparedness for Emergencies (HOPE) component of PEER **the capacities of a number of hospitals were strengthened in view of disaster preparedness.** A consultation workshop with the Emergency Medical Institute of Thailand (EMIT) and Ministry of Public Health stakeholders was held to identify particular areas of need for hospitals in target areas. Training packages were also translated and adapted for use in Thailand. A national pilot course was conducted, attended by participants from hospitals in the four target sites namely Bangkok, Pathum Thani Province, Ayutthaya Province and Nakhon Sawan Province. Furthermore, a National Training session for Instructors was also conducted via an Instructor's Workshop. Meanwhile, HOPE courses were conducted in each of the provinces with participation from provincial and district level Hospitals.

Dr. Komchit Chavanasporn, member of HOPE Assessment team, inspects the elevated electrical circuit board which was raised to a higher level after flooding which hit Ayutthayta Hospital

In view of Private Sector Engagement, a number of **activities aimed at enhancing the capacities of Thai SMEs to cope with disasters** were conducted. A Training of Trainers Business Continuity Planning (BCP) workshop based on the principles of ISO 22301 was delivered to relevant public and private agencies concerned with BCP promotion and groups who could assist in disseminating BCP knowledge to SMEs across Thailand. The content focused on practical skills for developing organizational BCPs as well as enabling participants to achieve the ISO 22301 standard certification. In addition, a Training Package on BCPs for SMEs based on the APEC Guidebook was also prepared. ADPC adapted and translated the material for use in Thailand which represented a framework which SMEs could refer to in order to establish their own BCPs, whilst emphasizing the importance of ongoing review and improvement for such plans.

"Making the development of business continuity planning in Thai SMEs possible requires insightful policies by the government, measures by private sector, as well as joint efforts of the two sides. However, there is another important factor: the willingness of SME entrepreneurs to adopt business continuity planning,"

Chanidabha Yuktadatta, iPrepare Business Coordinator, ADPC.

In what ways were communities empowered?

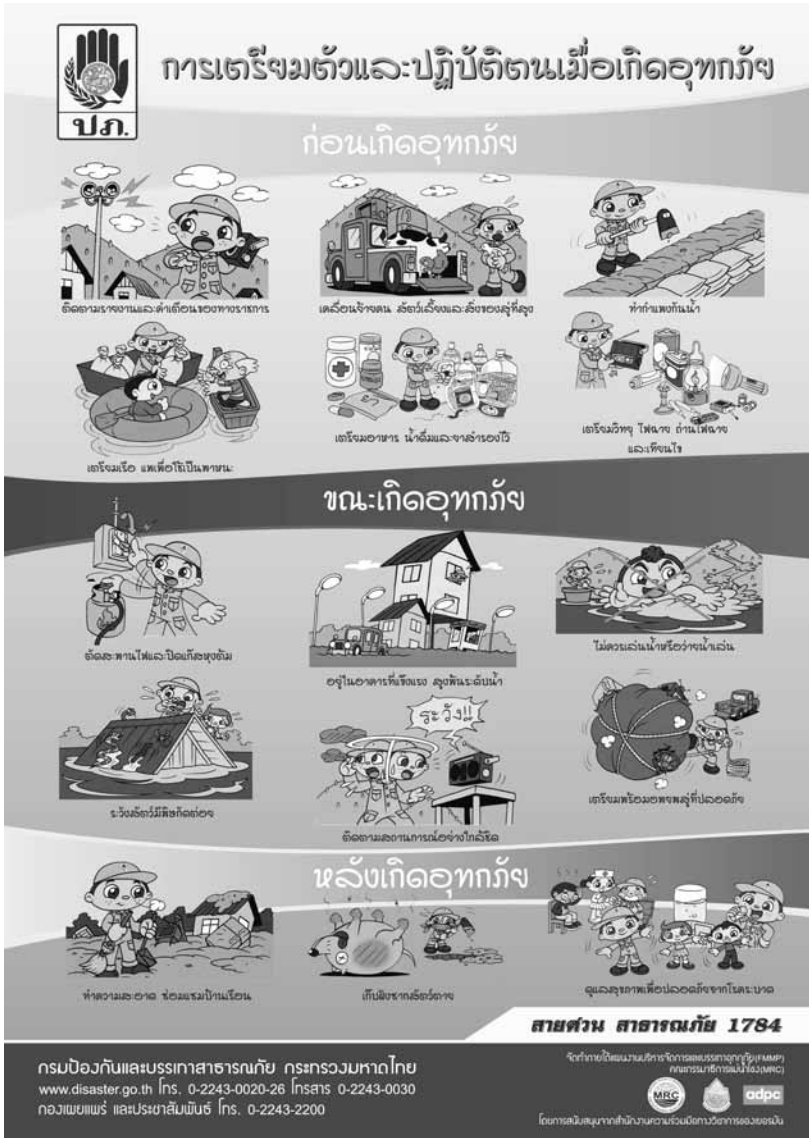
A focus was placed on improving the skills, knowledge and resources of individual community members

Training initiatives and courses concerning different aspects of disaster preparedness and response helped build up overall community resilience by improving the knowledge and skills of individual community members. This element of resilience building looked to develop a 'culture of preparedness' across at-risk communities in Thailand by emphasizing the personal responsibility each community member has in view of contributing to the collective resilience of their community. Communities were empowered through enhanced capacities to cope with disturbances arising due to natural hazards and an improved ability to cope independently without relying on high levels of external assistance, particularly in the first few hours following a disaster.

A notable example of training skills being utilized in a real emergency came during the incident of a suspension bridge collapse near Wat Satue Temple in Tha Rua district, Ayutthaya province. Among the first responders were a group of CADRE trained community responders. They utilised practical knowledge they had learned from CADRE training (including basic life support, dead body management, search and rescue) to help victims during this emergency situation.

05 Enhancing Early Warning Systems

The establishment of effective Early Warning Systems (EWS) has long been considered an important component of a resilient community. EWS refers to the provisions made to disseminate warning information to allow at risk communities to respond in adequate time to hazards in order to reduce the possibility of harm or loss. Comprehensive Early Warning systems should be 'end-to-end', encompassing improved local knowledge of risks, the ongoing monitoring of hazards, communicating warnings and developing the means of communities to respond to these warnings. The changing nature and patterns of hazard risks has underlined the need for such systems in order to allow community members to respond to local threats in a timely manner so as to protect lives, assets and livelihoods.



'Mr. Warning' initiative informative material

Innovative and novel material can be utilised to inform communities about the importance of EWS

In establishing EWS for the riverine flood prone communities of Ban Po sub district (Ayutthaya) and Pong Peng sub district (Ang Thong) the 'Mr. Warning' initiative was used to good effect to disseminate important practical information about Early Warning in an interactive, easy-to-understand manner. This initiative delivered serious information in a fun format, encouraging community members to learn about basic principles of hazard risk warnings as well as explaining the technical aspects of warning systems in their communities which they may not otherwise have been aware of.

Standard procedures for EWS should be developed according to specific community needs

The establishment of standard operating procedures (SOPs) is imperative for the operationalization of an effective EWS. Warning systems should include an established means of obtaining up-to-date disaster information and messages as well as forecasting and measurement equipment such as weather forecasting tools, rain gauges and flood staff gauges. Means by which warning messages can be disseminated and received are also an important consideration including TV, radio, social media, verbal communication and loudspeakers. Co-ordination with actors and organisations at various levels (e.g. Meteorological Department, TAO officials, community/household members, Flood Management Committee members, dam and water gate operators and other nearby communities) is also necessary. An agreed process for early warning procedures is also important, including determining specific warnings, symbols and actions based on the extent of the hazard risk.

"Before having this project in our community, I did not know how to keep up to date with the flood situation. This project is very useful for us. Now I know how to observe water level and prepare myself. If the water reaches yellow on the staff gauge that means flood is coming and we have to be ready by moving our things to the higher place. I can also get water level updates from the flood information board in front of the temple too,"

Mrs. Samruay Katinsamith, community member of Tambon Tha Luang of Ayutthaya province.

Communities require support to strengthen their means of communication in disaster scenarios

In the community of Ban Mai Pattana (Ayutthaya) an identified need under the Program for Reduction of Vulnerability to Floods in Thailand was to improve communication before and during flood events. Community members agreed that improvement of the broadcasting system was important and could solve the problem. The community finally identified points for installing loud speakers, mainly situated along the river bank, by using community risk maps. Furthermore, under the Mr. Warning training locals and officials identified innovative means of establishing closer relations and ease of co-ordination such as through the use of the 'LINE' mobile phone application. This helped to strengthen the ability of regional, provincial, local government officials and villagers to exchange vital information more efficiently.

"Nowadays, everybody including the elderly in our community have mobile phones. The technology helps speed up early warning and improving flood preparedness and response for the community,"

Mr. Kanisorn Jaibutra, Village Headman of Tha Luang sub-district and member of the Disaster Prevention and Mitigation Committee of Ban Mai Pattana.

In what ways were communities empowered?

The ability of community members to actively contribute to 'end to end' EWS was greatly enhanced

Levels of community involvement in the establishment, maintenance and utilization of warning systems was raised by developing the skills of local people in recognizing warning signals as well as enhancing their means of disseminating and communicating warning messages. Presenting materials related to EWS in an appealing, easy to understand format helped in the transfer of knowledge and principles to community members and encouraged them to apply this enhanced understanding in practical ways towards improving local warning systems. Furthermore, the development of SOPs, allowed communities to respond to warning information in a more systematic and organized manner. Greater community involvement was supported by enhancing the technical aspects of established systems through upgraded equipment and integration of new technology into warning systems. Improved relationships and co-ordination with relevant local officials also strengthened the position of community members in contributing to, and utilizing warning systems. These efforts empowered communities by engaging local people in management of risk through the 'end-to-end' strengthening of warning systems and therefore playing an active role in protecting their own lives, assets and livelihoods.

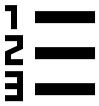
06 Community Asset Development for Flood Risk Reduction

A key part of building the capacities of communities in view of disaster resilience is the provision of necessary resources and equipment which enable local people to be adequately prepared for disaster events. This encompasses assets directly related for disaster mitigation or response as well as more general basic elements which community members may require in the event of an emergency. In view of ADPC's interventions, it was important to ensure that communities were able to access necessary structural and non-structural assets. Efforts also helped to ensure that hospitals were adequately prepared to cope in disaster situations and that community responders were equipped to carry out the vital response work for which they had been trained.

Structural and Non-structural assets can be utilised for resilience building efforts

The resilience of flood affected communities under the Chao Phraya River Basin was enhanced through the provision of both structural and non-structural assets. Complementary use of structural and non-structural resources can be used to identify a suitable package for particular communities rather than simply relying on either solely structural assets (which may require greater levels of expenditure) or non-structural assets (which may not be effective when used in isolation). In this case structural assets refer to installation of new equipment or changes to the physical environment within a locality whereas non-structural assets relate to provision of smaller assets or a change in approach or way of working.

Structural assets:



Flood staff gauge

Flood staff gages were installed at the Pasak River bank at Wat Hua Hin, Tambon Tha Luang of Ayutthaya province. During flood season, community members of Ban Hua Hin and Ban Mai Patthana were able to monitor water level from the flood gauges for the purpose of early warning. The three colors on the staff gauges were agreed by the communities based on levels of incidents: the green color represents a normal situation; yellow indicates warning level and the red marker denotes river water having reached critical level. Key actions for each warning level were agreed upon by community members.

Enhanced security measures

Talad Kao community faced challenges related to the security of people's homes. This was relevant to disaster management efforts as home owners would be less willing to vacate their homes during an emergency due to fears over their property being stolen or damaged. Community members agreed that installation of CCTVs and spotlights would help address this both during normal situations and periods of flooding.

Flood information board

A flood information board was installed in front of Wat Hua Hin near the day care center. During flood season, the flood monitoring and warning sub-committee of Ban Hua Hin were able to observe water levels using the flood staff gauge at the River bank and update water level recordings on the information board on a daily basis.

Loudspeaker

Encouraging communities to explore new ways of disseminating warning messages (such as the use of loud speakers) helped improve the efficiency and effectiveness of response plans. Aside from existing loud speakers in the communities, Ban Hua Hin and Ban Mai Pattana identified the installation points of additional loud speakers which were connected to the Tha Luang Tambon Administrative Organization's broadcasting system. The news, instructions and early warning messages could be announced and clearly be heard in both communities.

Water purification

During floods, one difficulty encountered in Ban Hua Hin was a lack of clean water for consumption. The community members identified water purification as their priority to reduce flood impact. The equipment was installed at a day care center near Wat Hua Hin where it could be used as a relief distribution point when flooding occured. The operation and maintenance including all the costs was managed by the flood management committee, with money collected from the water purification machines (1 baht per litre) contributing to the upkeep of the system.

"We have installed 12 CCTVs throughout the community which help our security committee to monitor community safety. We also installed three spotlights at poorly lit areas in the community to improve people's feeling of security. The electricity cost of this equipment is taken care of by Kabinburi municipality. Still, there are some areas which CCTVs could not cover. We will mobilize funds from other sources to install more CCTVs in those areas to further improve community security,"

Ms. Darunee Tharathippayakul, Community Leader, Talad Kao.


ยินดีต้อนรับ
THE GRAND ZEBRA

Non-structural assets:

First Aid kits

During the simulation exercises, it was found that the First Aid Teams formed by the Community Flood Management Committee did not have first aid materials to help and respond in emergency situation. Sets of first aid kits were provided to communities in Prachinburi and schools in Ayutthaya province for more effective response.

Speed Card Games

A speed card game, designed by Club Creative Co. Ltd. was distributed to target schools in Ayutthaya. The game was designed to improve the school children's basic knowledge of what to do in the event of flooding with a series of question cards and challenges which needed to be matched to the appropriate answers and solutions.

CADRE equipment

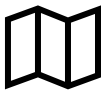
The PEER project, as well as enhancing the capacity of communities to cope in disasters through vital training and skills development also consolidated these actions through the provision of necessary equipment and resources. Training equipment sets for CADRE were supplied to Community Response teams following completion of in-country national courses whilst response kits for responders, comprising emergency medical and other life-saving equipment, were distributed across communities where CADRE training had been conducted.

Technical and specialist medical equipment for hospitals

Specialist equipment and instruction for model hospitals under HOPE aimed to enhance the ability of these institutions to cope with the challenges of maintaining effective service provision during a disaster.

Life jacket provision

Students at Ban Hua Hin in Ayutthaya were trained to wear life jackets properly and learned basic skills to improve their ability to cope in the event of a flooding emergency. Communities were provided with life jackets as this was identified as an important piece of flood safety equipment which they required. The children and community were also advised on how to adapt everyday floating items to be used as temporary makeshift lifeboats.



Flood Pocket Manual

Pocket manuals - re-published by ADPC in partnership with the Japan Foundation, NPO Plus Art and designers Club Creative - contained practical information for flood survival and basic principles of emergency response such as first aid, CPR, fire extinguishing skills and how to utilise daily life items to prepare and live with floods (e.g. plastic bottle life jacket, garbage bag protective boots, water filter bottle, canned lamp etc.).

Flood Preparedness pamphlet and maps

The comprehensive pack was prepared specifically for Ban Hua Hin and Ban Mai Pattana in Ayutthaya province. It included a checklist of important items community members should have to help them prepare for flood emergencies as well as hazard risk maps for the communities which were presented in an easy to understand, clear style. In addition this literature advised community members how to monitor and assess flood and water levels upstream as well as details of key contact persons and information points.

Hazard Ready Toolkit

The toolkit was designed to help communities evaluate and analyse their needs, gaps and problems in order to develop and implement appropriate measures for flooding and other hazard
risks. The tool provided a comprehensive 'checklist' of a community's capacities in terms of their resilience. It covered four key aspects of
EWS by profiling a community's risk knowledge, forecasting and monitoring,
dissemination of information and communication as well as response capabilities.

In what ways were communities empowered?

Community access to relevant structural and non-structural resources and tools was improved

A resilient community requires essential tools and resources in order to be adequately prepared and to respond effectively to disturbances. Assisting communities in the identification of suitable structural and non-structural assets was an important part of providing local people with the means to cope independently with local hazard risks without relying on significant levels of external support. Asset development across the target communities was wide ranging: strengthening aspects of established EWS, targeting individual and households through easy-to-understand literature regarding practical flood emergency advice as well as including IEC material aimed at young people for use in the classroom. These assets were selected and developed based on identified needs following community consultation. They were therefore directly designed to address specific gaps and weaknesses in view of community capacity in ways which were appropriate to the local context.

07 Community Engagement in School Flood Safety

Schools are a central feature of many communities and can be utilized as a focal point around which resilience building efforts can be centered. Safe schools can be used as secure areas for community members in the event of an emergency - it is therefore imperative that they are adequately prepared for disaster events. An expectation of schools and teachers is not only to impart academic knowledge to their students but also to ensure that young people acquire relevant practical skills. In the case of at risk communities this responsibility can be seen to extend to preparing students to cope with hazards which they may be exposed to in their local area. In view of ADPC's efforts, project interventions under the school flood safety program aligned with the Ministry of Education's strategy to improve the knowledge of schools on disaster risk reduction and address limited capacities.

Students take part in practical flood skill activities

Schools should be recognized as important entry points for community resilience efforts

Schools were identified as important focal points for the enhancement of disaster preparedness in the community. ADPC's work on flood safety in schools was conducted in line with the Ministry of Education's policy to promote DRR and Climate Change Adaptation (CCA) integration as part of the school curricular in risk-prone locations. Teachers proved receptive to the inclusion of disaster risk awareness information as part of lessons and were enlisted as 'champions' to promote important knowledge designed to improve the safety of their students. Schools in the target areas worked with ADPC and partner organizations to include disaster management information as part of mathematics, social and cultural studies, foreign languages, health and physical education, music and art, vocational studies and student development programs. Disaster risk reduction knowledge was embedded into the lessons and activities and aimed to allow both students and teachers to understand how to respond to and reduce disaster risks they faced in their community. Lessons learned in the classroom by students were also disseminated across communities to family and friends, thereby contributing to wider awareness of hazard risks and specific vulnerabilities in each locality.

Utilization of IEC materials in the classroom can help in the development of basic disaster risk knowledge

Use of innovative and appealing resources helped inform both students and teachers about basic disaster risk reduction principles. These class-room based activities supported the Ministry of Education's policy of promoting DRR and CCA integration into school curricular in risk-prone locations. IEC materials proved useful in helping to increase the disaster risk awareness of students and teachers. Teachers made use of a variety of resources for use in different classes and subjects. Experience showed that it was important to repeat and maintain these activities over a prolonged period (a number of school semesters or terms) so that key messages could be taken on board by the students. Activities were designed to be enjoyable and interactive in order to encourage students to share the knowledge with their parents and across the wider community.

Practical and field-based activities were an effective means of promoting disaster risk safety

Awareness on school safety was also raised via a number of activities held at the target schools. Art and drawing sessions as well as poem and essay writing competitions on the topic of disasters took place, coinciding with 'Sunthorn Phu Day', celebrating the life of the famous Thai poet. The study visit of the 'Red Bear Survival Camp Campaign' held at Somthawin School in Bangkok helped share knowledge, experiences and survival skills during a disaster through various activities. The camp firstly focused on training for teachers and staff on basic disaster preparedness principles before engaging students in fun, practical activities designed to improve their knowledge of flood risks and preparedness techniques. Subsequently, the activities held at the camp were adapted for use in the local context with four schools co-organizing field-based activities at a one day event hosted at Tha Luang Wittayanukul School.

"Integrating disaster risk reduction knowledge into school curricular helped enhance students' knowledge and capacities. By learning through these practical and fun activities, they will share these skills with their friends and families,"

Mrs. Themjai Maneechot, teacher, Wat Kai Jone School.

School flood plans should be integrated into local plans and safety initiatives

Since schools are located in the community, school plans were developed to consider risk factors throughout target localities. School planning processes helped to increase the capacity of school teachers, students and parents as well as communities to prepare and respond to emergency situations effectively. School plans should be linked with community plans and local development planning. For instance, when a local authority, community or school conduct their simulation exercises, they should coordinate and involve each other in the activity as well. In Ayutthaya the neighbouring schools of Tha Luang Wittayanukul and Wat Kai Jone were able to help each other and share their resources to prepare and respond to flooding and other hazards.

Participants of emergency simulation conducted at Wat Champa School with local community members

In what ways were communities empowered?

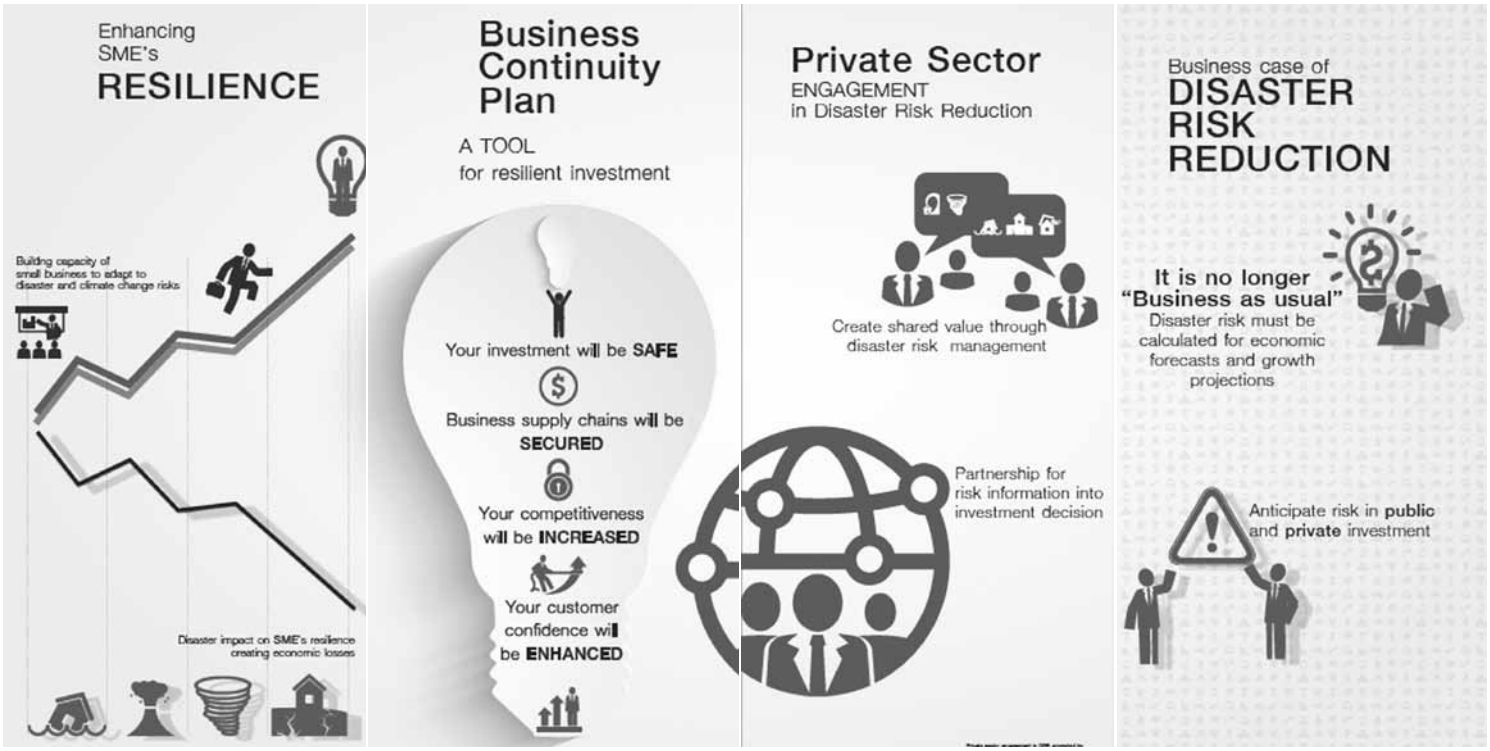
School initiatives specifically targeted the enhancement of disaster preparedness amongst young people

School-based activities worked towards fostering a culture of long-term, sustainable disaster preparedness in communities by assisting young people to be better prepared for the risks they were likely to face in their local areas. Resilience work in schools looked to empower both students and teachers by addressing two risk factors in terms of vulnerability and exposure. Helping to enhance the resilience of children and young people directly targeted some of the most vulnerable groups within the target communities by improving their practical skills and knowledge. Furthermore, the use of assessments helped to ensure that school properties and classrooms where adapted, modified or relocated so as to reduce direct exposure to hazard risks, including flooding.

Working with teachers to develop innovative and interesting ways to convey messages in the classroom was crucial along with field-based, practical skills for disaster preparedness. The initiatives sought to benefit from the enthusiasm and passion of young people as an important and active medium for the dissemination of information across the community to their friends, parents and other relatives. Furthermore, a key focus was placed on integrating flood risk planning for schools with wider community plans so as to ensure that planning was conducted in a holistic and coordinated manner.

08 Community Empowerment through Private Sector Engagement

In Thailand, the business community is largely comprised of small and medium enterprises (SMEs) which are regarded as the backbone of the country's economy. SMEs represent a key source of employment and income for community members. The maintenance of SME operations when a disaster event occurs can aid communities in quickly recovering from a disruptive event, as local people are often reliant on such small enterprises for basic goods and services. SMEs can therefore play an important role during natural disasters by helping the community bounce back to normal conditions. Likewise, SMEs are reliant on the wider community in which they exist to be resilient - factors such as continued road accessibility and ensuring staff members can be contacted in an emergency are beneficial both for the business and the community at large. Therefore, in the Thai context in particular, in order to achieve holistic community resilience, the role of the private sector and SMEs in particular should be considered.



Enhancing Private Sector Disaster Resilience awareness and capacities

According to several surveys, awareness and ability of Thai SMEs to prepare for and respond to disasters was considered to be very low. This is despite SMEs being amongst the most vulnerable groups to natural disasters. Likewise, few small organisations were seen to have business continuity planning (BCP) measures in place. Furthermore, in many cases, making provisions for disasters was seen as an additional cost for SMEs rather than a form of investment to protect against future losses. Therefore, much of ADPC's work in this area was underpinned by the need to increase basic awareness of the importance of disaster resilience measures. National consultative workshops and practical trainings were key forums by which this was addressed and created unique platforms whereby SMEs were able to share knowledge, experiences and examples of best practice with one another.

Working with governments and relevant agencies to establish private sector engagement

Following the 2011 flooding in Thailand, ADPC took the initiative in promoting resiliency in SMEs and supported efforts to preserve economic and community assets. Cooperation with the Office for Small and Medium Enterprise Promotion (OSMEP) and the Department of Disaster Mitigation and Preparedness (DDPM) was key to improving the disaster resilience of SMEs in Thailand by increasing their level of awareness and capacity in dealing with disasters. National consultations took place to raise awareness of government officials and encourage local SMEs to invest in disaster resilience. Case studies and best practices from other countries were also distributed to underline the importance of SME engagement in disaster risk reduction. Moreover, a number of government officials and 90 local SMEs were trained to develop basic business continuity plans (BCP), and transfer this knowledge to other enterprises as well as community members. By adopting risk-informed investment and working towards becoming more disaster-proof, SMEs can contribute to the wider protection of livelihoods from the impact of natural hazards at the local level.

iPrepareBusiness: a specialized facility to support SMEs in resilience builidng

In 2015, ADPC launched iPrepareBusiness, a facility that strengthens capacities of SMEs in disaster risk management, and supports the government to create an enabling environment that encourages resilient investment. With appropriate policy frameworks, SMEs were urged to adopt risk reduction measures such as developing BCPs and increasing their role and responsibilities in view of community resilience. This initiative underlined the organisation's commitment to strengthening the resilience of Thai SMEs and linking these efforts to regional experiences in the neighboring countries of Vietnam, Indonesia and Philippines.

"SMEs should endeavor to transfer DRR knowledge to surrounding communities. For instance, SMEs should ensure that people in the communities know how to develop a basic early warning system and learn how to observe the changing of water levels,"

Dr. Bhichit Rattakul, Special Advisor to ADPC (Channel 3 Interview, October 2014).

In what ways were communities empowered?

SMEs and the private sector were encouraged to contribute to community building efforts

ADPC's work in this area helped emphasize the links between private sector engagement and community resilience building. Contemporary community resilience can be seen to have evolved to increasingly recognize the role which well-prepared local businesses play in helping a community to bounce back quickly and efficiently from disaster shocks and stresses. SMEs, a staple component and important livelihood asset of communities across Thailand, were seen to be particularly vulnerable to the impacts of disasters during and after the 2011 floods. This highlighted the need to address the private sector as part of ongoing disaster preparedness efforts across the country, including basic awareness of hazard risk and principles of disaster management which smaller organizations were seen to lack.

Therefore, project activities focused on two main areas: (1) Directly engaging with SME owners within communities to strengthen their capacities and planning in view of disaster preparedness; (2) Working with relevant Thai national partners to strengthen the wider enabling environment for private sector engagement for enhanced disaster resilience. Following these interventions, the owners of small and medium sized businesses within communities were better placed to enhance the ability of their organizations and the communities in which they operate to cope with the impacts of disasters.

09 Knowledge Networking

The creation of networking platforms for individuals and organisations operating at different levels who share common goals in view of strengthening community resilience proved to be valuable in bringing together relevant actors and stakeholders for experience sharing, dissemination of best practices, identifying challenges and evaluating the progress of ongoing initiatives.

Participants attending an integrated Flood Disaster Risk Reduction training course

Training courses brought together actors from relevant organizations to improve DRR knowledge

Integrated Flood Disaster Risk Reduction training courses are an example of a platform created for relevant Thai agencies concerned with Flood Risk Reduction to learn about DRR and share their experiences about flooding and other issues. Forum participants worked together in group exercises to discuss terminology and basic knowledge of DRR from their different organizational perspectives. Participants included representatives from RID, DWR, DDPM, local government agencies, DDPM, the Hydro and Agro Informatics Institute (HAII) and Bangkok Metropolitan Administration (BMA).

National and International Flood Forums were crucial in fostering stakeholder interaction

Flood forums held under the Program for Reduction of Vulnerability to Floods in Thailand helped to build up networks of flood risk management actors and act as platforms for sharing experiences on sound flood management practices from experts from across Thailand and beyond. The flood forum events fell under two main categories, including national flood forums and an international flood forum.

"The series of Flood Fora organized under the project helped create a collaborative environment amongst relevant flood management practitioners.Learning from the experience of other countries during the International Flood Forum, allowed Thai practitioners to consider beyond their regular context, hopefully leading to innovative flood risk management approaches in Thailand,"

Dr. Peeranan Towashiraporn, ADPC Director.

National Flood Forums:

1st Flood Forum: Experience sharing from upstream, midstream, downstream Chao Phraya River Basin stakeholders from 20 provinces - hosted in Bangkok, August 2012

The 1st forum was a two-day forum with participation from DDPM, BMA, DWR, RID and TMD both from provincial and national level. The forum was designed to be a platform for representatives of these agencies to share their experiences in flood disaster management. The forum divided participants into three groups of upstream river basin, midstream and lower streams to identify problems and suggestions from relevant stakeholders.

2nd Flood Forum: "End-To-End Early Warning Systems for Flooding" - hosted in Ayutthaya, March 2013

The 2nd flood forum theme was developed in view of outcomes from the 1st forum which found that EWS for flooding is the priority area of need in terms of flood risk reduction in Thailand. The forum aimed to identify the specific needs and gaps for EWS, evaluating models from two communities in Ayutthaya to study lessons learned and best practices using group work to ultimately improve these local level provisions for hazard warning.

3rd Flood Forum: Local, Provincial and National flood management approaches - hosted in Nonthaburi, July 2013

The 3rd Flood forum also focused on EWS, whilst integrating concerns related to institutional development approaches. The three day forum stated by looking at the local and community level, followed by regional and provincial level, and lastly national level. Notably, although forums were divided into these sub-groups, opportunities were created for representatives from different groups to engage with one another.

International Flood Forum:

"Identification of Effective Flood Risk Management from Lessons Learned" - hosted in Bangkok, July 2013

The international forum was designed to encourage and facilitate knowledge transfer and experience sharing on good practices for flood risk management, exploring how other countries have integrated risk reduction measures into recovery plans. Participants included policies makers from nine countries (Australia, Japan, Lao PDR, Nepal, Philippines, Singapore, USA, Vietnam and Thailand). These practitioners were requested to draw attention to the specific elements they have added into flood risk management strategies and recovery plans to reduce future potential losses in terms of policy changes, improvements to institutional set up, coordination, insurance schemes, balancing between structural and non-structural flood mitigation measures etc.

Private sector forums and workshops were important platforms for knowledge sharing

ADPC recognized the importance of establishing forums to bring together private sector representatives from SMEs as well as larger organisations. Whilst SMEs are the organizations most relevant to work concerning communities, these discussions helped to highlight that both smaller organizations and local people are reliant on wider global value chains which should be considered as part of resilience building initiatives. The Thailand Business Resilience Forum was significant in bringing together local SME champions alongside government agency officials, development partners as well as representatives from larger private sector organisations. This gathering formed the basis of a national consultation and provided an opportunity to learn from existing private sector resilience initiatives, consider best practices in view of relevant legislation, incentives, awareness raising and capacity building for SMEs as well as exploring recommendations for future action.

ADPC facilitated a series of orientation workshops focused on 'Preparing for Business Continuity Planning (BCP)'. These workshops were adapted and tailored for SMEs in particular with separate workshops conducted for tourism and agricultural sectors as well as organisations concerned with logistics, ICT and automotive sectors. These activity-based events brought together owners and employees from similarly sized organizations and those engaged in related business activities for experience sharing and to receive guidance from experts and specialist practitioners on resilience building approaches.

"I heard about a BCP workshop organized by ADPC from OSMEP. I have learned a lot of good ideas and practices from the workshop. I discussed with my employees afterwards about what we should do if we face a crisis and I have received good feedback from them,"

Mr. Sorayut Oungkananukit,
Managing Director, Annai
(Thai Software Company).

In what ways were communities empowered?

Networking opportunities provided community stakeholders with opportunities to engage with actors at the regional, national and international scales.

The creation of networking platforms and forums underlined the nature of community resilience building as a multi-scalar, multi-stakeholder endeavor. Forum attendees comprised community members, local government representatives as well as officials from national governments and international agencies. By taking on board inputs from a range of perspectives these gatherings helped inform policy for flooding to be more practical and appropriate to the specific communities which interventions would ultimately impact.

A pertinent example was the OFDA forum concerning 'end-to-end' early warning which considered inputs from community members involved with EWS, as well as the views of local government officials and policy makers at the national and regional levels in identifying best practices as well as gaps and weaknesses of early warning systems. Likewise, SME owners from affected areas during the 2011 floods were given a voice in contributing to the Thailand Business Resilience Forum and consultation to identify future action in view of private sector engagement in disaster preparedness efforts. By developing links between the community level and other scales where decision-making and resource mobilization power exists, local actors were given a meaningful say in the direction of future resilience building efforts.

10 Innovative Partnerships

The challenges and difficulties which disaster risk can pose are often complex and multi-faceted particularly at the local level where communities are rarely homogenous. Harnessing the knowledge and resources of a range of actors can help provide innovative solutions and meaningful change. Therefore, strong partnerships are at the centrepoint of effective resilience building efforts at the community level. This includes collaborations between relevant technical agencies, community groups and local government agencies as well as partnerships involving private sector and public sector organizations depending on the context and particular challenges faced by communities.

Participants of community training and simulation exercise at Talad Kao community, Prachinburi province

Closer partnerships between relevant organizations can help achieve more comprehensive EWS

Relationships between key technical agencies concerned with flood risks in the target communities were strengthened. Officials and decision makers from the Department of Disaster Prevention and Mitigation (DDPM), Royal Irrigation Department, Thai Meteorological Department and Department of Water Resource were encouraged to move towards more integrated planning for flood warning systems. This was especially important in view of Early Warning Systems which ideally should be 'end-end' with action from community members on the ground through to national and regional agencies at higher levels.

As well as strengthening collaborative governance for EWS through inter-agency and closer community collaboration, projects sought to bring these organizations closer to communities through field-based work such as demonstration activities for Community Based Flood Management Committees (CBFMCs) conducted by resource persons from relevant technical agencies. Provincial DDPM Officers were also encouraged to build connections with neighboring provinces for improved cross-boundary systems and information sharing. Agencies with particular specialties were enlisted to take the lead on the aspects of projects for which they possessed relevant expertise. For example, The Department of Water Resources (DWS) was able to help its partners across target areas in Chao Phraya River Basin and Prachinburi in view of developing materials and training for flash flooding as it had specific experience in this area.

"As a civil defence volunteer
I play a leadership role when disaster strikes...
I have experienced my fair share of floods but
none as serious as those in 2011. In such mass
casualty events it is important to educate
the people so they can help their families, their
community or even other communities,"

Ms. Thipsuda Rianphoomkit, Civil Defence Volunteer, Klong Haa TAO.

Partnerships between relevant local groups and agencies helped to creatie more realistic and holistic emergency simulations

Simulation exercises also underlined the importance of partnerships in terms of coordination between different organizations in view of response to disasters - establishing responsibilities and roles ahead of an emergency is important in terms of providing smooth and effective assistance to communities. Equally, there needs to be room for flexibility as the simulation in Talad Kao community, Prachinburi illustrated, when members of the army took part in the exercise at relatively short notice and were able to contribute positively to the planned activity.

Simulation exercise in progress at Talad Kao community, Prachinburi province involving army officers

Working with a range of partners can facilitate the development of suitable school safety activities

ADPC worked with a range of partners including Plan International, Save the Children and UNICEF for promoting the integration of DRR into educational material and activities in schools. The Office of Basic Education Commission (OBEC), MoE and the DDPM oversaw these efforts to incorporate the 'three core pillars on DRR' as part of the curriculum for at-risk schools, namely: i) DRR education, ii) DRR management and iii) safer school facilities, with a focus on improving the knowledge of teachers as well students.

Partnerships also helped in terms of communities benefiting from knowledge sharing derived from different international contexts. ADPC participated as a promoting partner in the two-day 'Red Bear Survival Camp' with the Japan Foundation, Design for Disaster, Design Creative Center Kobe and NPO Plus Art who adapted disaster preparedness skill activities learned from the experience of the Japan earthquake for use in addressing flood risk in Thailand. Teachers and students from the ADPC target schools built on this experience by co-organizing further activities under the school flood safety campaign, adapting concepts and activities of the Survival Camp to the local context of Ayutthaya. Working with these new sets of partners helped ADPC to develop ideas on how school flood preparedness activities could be informative whilst proving enjoyable and maintaining student interest.

"We have integrated disaster risk reduction knowledge into Thai and English classes as identified in our school flood safety action plan,"

Mrs. Wanna Khamsirichokchai, teacher at Wat Kai Jon school.

Partnerships encourage diversity in terms of the types of stakeholders engaged in disaster preparedness activities

The School Flood Safety Campaign was a notable example of a project intervention which relied on strong partnerships between different stakeholders relevant to the target communities. With private sector support provided by Seagate via Give2Asia, Tha Luang Wittayanukul School hosted an event in July 2014 where students (and a small number of parents) from four target schools were able to visit 15 'base stations' designed to improve their knowledge and practical skills for flood and multi-hazard preparedness. These included practicing using fire extinguishers, improving disaster vocabulary in Thai and English and learning to adapt items for use in an emergency e.g. using a blanket to transport items, converting straws for use as a warning whistle and adapting garbage bags as protective boots.

Community partner, Tha Rua district Search and Rescue team (including Alumni from the Tha Luang Wittayanukul school) formed a base station at which they were able to brief students in how to carry out basic First Aid skills. Further event partners included Japan Foundation and Design for Disasters (D4D) who provided relevant and informative IEC materials, with the latter bringing along their team and mascot 'Khun Kwam Dee' to interact with the students. Students had been encouraged to prepare attractive posters and materials to demonstrate the knowledge which they had gained in view of disaster preparedness, including teachers and students from the other schools who were invited to attend. Other partners who came together at this event included Tha Luang and Champa TAOs - senior officials were able to assist in prize-giving sessions, underlining their support for initiatives designed to improve the resilience of communities within their jurisdiction. Importantly, this initiative brought together numerous partners under the broad aim of improving disaster resilience at the community level. Crucially this helped co-ordinate their efforts rather than working in isolation or at odds with one another.

Tha Luang Witthayanukul school hosting a school campaign day

In what ways were communities empowered?

Partnerships with relevant agencies widened the range of knowledge and resources which communities were able to draw upon for resilience building efforts

Partnerships helped expand the range of knowledge, expertise and resources which communities were able to take advantage of for their resilience building efforts. Importantly, collaborations helped to draw links between members of the community, practitioners and those with relevant technical knowledge. This assisted in the development of new approaches, sharing of best practices and learning from partner experiences in view of community resilience. Furthermore, collaborative efforts contributed to avoiding duplication on the part of different agencies. Simple actions such as promoting one another's work helped encourage co-ordination rather than competition between those seeking to enhance resilience at the community level.

Notably for interventions in Thailand, particular agencies were able to take the lead on aspects of projects for which they possessed relevant trained personnel and capacities. The establishment of stronger working relationships between local organizations and actors was beneficial for integrated community resilience building. This gave community members the means to engage more directly with government officials and representatives from technical agencies responsible for their areas, while at the same time giving officials a first-hand understanding of the most pressing issues facing at-risk communities under their jurisdiction.

Future Steps for a Resilient Landscape in Thailand

Working with communities is commonly equated with action at the local level. Nonetheless, it is important to note that meaningful community resilience building also requires work at other 'levels' or 'scales'. Actors and agencies responsible for the implementation of disaster risk management interventions within a community typically need to engage at a number of levels to ensure that interventions are well-integrated as part of planning at higher scales in order to mobilize the necessary finances and resources which can be utilized for the benefit of communities at the local level. This includes actions at national and sub-national scales as well as aligning actions with policies and directives which are commonly formulated at the regional and global levels. This section considers the next steps for community-based resilience building efforts in Thailand in view of flooding and other hazard risks. The lessons learned as explored in the previous section should be considered in the context of broader strategies for resilience building implemented at the community level in which ADPC will continue to play an active role. These lessons can also inform DRR planning at the national level in Thailand and as part of action undertaken in view of international initiatives such as the Sendai Framework for Action on Disaster Risk Reduction (SFDRR).

Community Resilience at the National level in Thailand

'Ways Forward for DRR in Thailand' were considered by DDPM and UNDP in 'The DRR Manual for Thailand'[7], with a strong focus on community-based activities. Some of the key suggestions outlined in this publication are summarized below. These considerations offer useful, context specific guidance for community resilience in Thailand from the perspective of practitioners at the national level.

Advocating the greater inclusion of DRR issues in national policy to encourage a greater diversity and multi-sector participation in DRR and development planning at national, local and community levels by:

Coordinating with community, local and national levels to facilitate their involvement in risk reduction activities to stress the importance of community DRR.

Organizing community or local level platforms for communities to give feedback on DRR planning and solutions. The recommendations will be used to inform and develop national policy.

Using different channels of mass communication to promote DRR policy and ensure that community plans will be considered in national development policy.

Linking DRR agencies with development planning agencies at all levels and promoting understanding of financial agencies on financial allocation on DRR.

Promoting public participation in national development policy and develop decentralized policy to ensure inclusive and meaningful interventions.

Engaging private sector in DRR by:

Sharing risk information and budget for public and private sector initiatives.

Integrating disaster risk information to private sector for use in risk-sensitive investment decision making.

Promoting and giving opportunities for private sector and community to participate in DRR planning at national and local levels.

Promoting BCP development on DRR for private sector participation of wider community and society planning processes.

Based on The World Bank's recommendations, investing in Disaster Resilience for:

Short-term: investing in incident forecast systems and early warning systems, promoting law enforcement and cooperation among relevant agencies and promoting community development projects on DRR.

Medium to Long-term: achieving a balance between structural and non-structural investment is key. Promoting natural resources development and conservation, preparing financial strategies on DRR and social protection considering the future disaster.

Long-term: considering risk assessment information for systematic urban development planning, making policy decisions by considering disaster, climate risk as well as the longer term changing climate.

[7]DDPM and UNDP (2013) 'The DRR Manual for Thailand' [Thai Language Document]

Reducing disaster risk at the community level through:

Community-based disaster risk reduction (CBDRR) - promoting people centered and people participation in risk assessment, risk management and planning together to mitigate against risk.

Child-led Disaster Risk Reduction (CLDRR)- Promoting the rights of children and youth rights and participation on DRR whilst raising awareness and increasing the skills of these groups so that they can work with the wider community towards enhanced disaster safety. In most cases, this will be carried out together with education sector and schools in the community.

Gender inclusive DRR - promoting more equal participation of men and women in DRR activities and encouraging these groups to understand each other's perspective in view of disaster preparedness and response.

Promoting the role of older people and those with disabilities for enhanced inclusivity in DRR.

Raising awareness and culture of safety in society by:

Facilitating greater access to information on risk and prevention solutions, particularly for people in hazard prone areas through public communications and social media.

Providing public platforms to encourage the discussion of social safety in view of disasters and to promote greater levels of public participation in risk assessment and planning measures.

Promoting mainstreaming of DRR concepts into school/university curricular whilst developing and disseminating knowledge and information via schools outreach and education as well as training programs.

Raising awareness of households on DRR - parents transferring DRR knowledge and raising awareness for their children on what to do in emergency situations and vice versa. Moreover, religious places and schools can play important roles to promote a culture of safety and raise community awareness on DRR.

Promote forest and water resources conservation and eco-DRR measures for the reduction of disaster risk.

Promoting safer and more risk informed construction under local development efforts.

Community Resilience at the Regional and International Level

At the Regional level, the 6th **Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR)** held in Bangkok, Thailand, June 2014 which concentrated on the theme of **"Promoting Investments for Resilient Nations and Communities"** served as an important preparatory activity for the Post-2015 Framework on DRR agreed in Sendai the following year. A key tenant of the resultant **'Bangkok Declaration'** as agreed upon by attending Ministers and Heads of Delegation at the AMCDRR was a focus on **'Enhancing Resilience at Local Levels'...**

"...including encouraging the institutionalization of integrated community resilience approaches into local development planning; promote comprehensive school safety; promote disaster resilient villages to serve as a strong basis for creating community-based disaster risk reduction at the local level; promote inclusion and volunteer/community-based networks; strengthen the role of women as leaders in local level resilience building; develop community-local government and private sector partnerships and accountability, giving attention to meaningful participation and positive contribution of at- risk groups such as children and youth, the older persons, persons with disabilities, as well as other disadvantaged groups. Take advantage of traditional knowledge and communication scientific information in simple, accessible and understandable manner," AMCDRR, 2014.

The declaration was an important step in working toward the post-2015 agenda for DRR. The **Hyogo Framework for Action (HFA) for the 2005-2015** period was widely acknowledged to have led to great improvements in view of disaster management provisions but had fallen short in tackling the drivers of disaster risk. Therefore, there was a need for the post-2015 successor agreement to focus on underlying causes of risk including vulnerability, exposure to hazards as well as providing appropriate mitigation measures, factors for which locally driven and community-orientated solutions are imperative.

Accordingly, the **3rd World Conference on Disaster Risk Reduction (WCDRR) held in Sendai, Japan in March 2015** saw the establishment of a new global agreement and targets on DRR for the period 2015-2030: the **Sendai Framework on Disaster Risk Reduction (SFDRR).** As well as outlining the direction of DRR efforts for the next fifteen years, lessons learnt over the course of (HFA) were also acknowledged in the new agreement. **The SFDRR places the primary responsibility of preventing and reducing disaster risk on States,** whilst stressing the need for a co-operative, shared responsibility approach on the part of central and local authorities, sectors and stakeholders to promote engagement from **"all of society"** (UNISDR, 2015).

Thailand was amongst the first UN Member states to translate the SFDRR declaration into the country's national language. This represented a proactive step on the part of relevant agencies in Thailand which partners such as ADPC should look to support and maintain in the early stages of operationalizing efforts under the SFDRR. Notably, **the SFDRR reaffirms the significance of community involvement in DRR** whilst underlining that this should take place in tandem with efforts at other scales as reflected by the following guiding principle:

"While the enabling, guiding and coordinating role of national and federal State Governments remain essential, it is necessary to empower local authorities and local communities to reduce disaster risk, including through resources, incentives and decision-making responsibilities, as appropriate," UNISDR, 2015..

The SFDRR promotes the idea of resilience as a multi-scalar, multi-stakeholder endeavor, with action at the community level, including CBDRR, remaining a key concern for Disaster Managers under the post-2015 agenda for disaster risk reduction.

The SFDRR's focus on identifying all relevant stakeholders to be active participants reconfigures the conventional conception of community for those engaged in disaster risk reduction efforts. Under the SFDRR, the need for **individual community members to take personal responsibility in improving their knowledge and capacity to cope with local hazard risks** has been stressed.

The Agreement also highlights that for interventions to be successfully implemented locally, at the community level, **concurrent work at the national, regional and international scales** is necessary. Furthermore, it references the need **to engage with the private sector and relevant Global Value Chain (GVC)** actors for the reduction of disaster risk.

The work of ADPC and its partners following the 'Great Floods' of 2011 in Thailand provides a foundation for these efforts having already gone beyond the traditional facets of community DRR work.

The holistic risk reduction framework outlined in the Sendai Agreement can guide decision makers at the national level in Thailand who can seek to further strengthen the resilience of communities to flooding and other prevalent hazard risks.

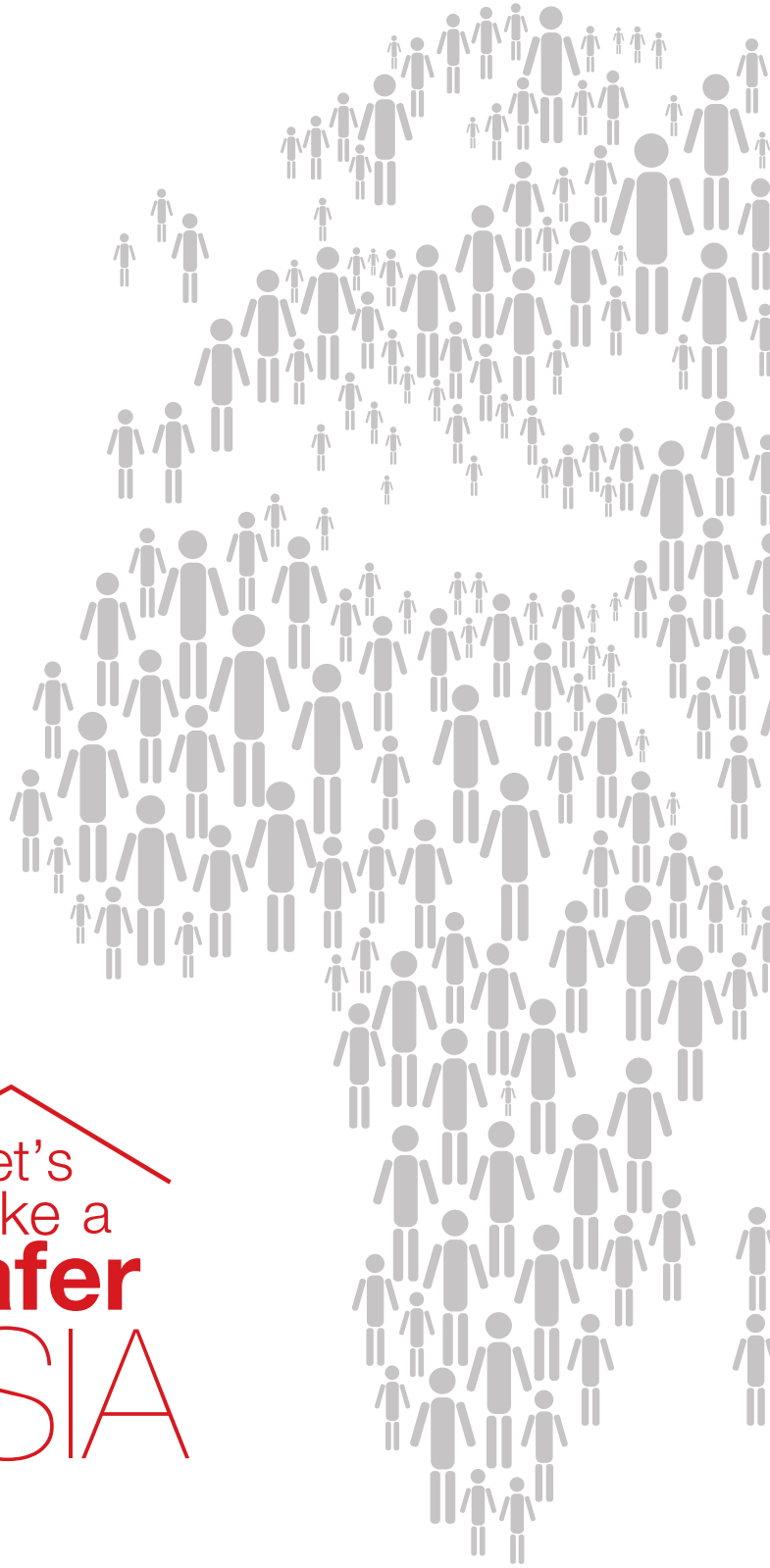
The upcoming 7th AMCDRR, to be hosted in India in 2016, should also serve to focus disaster management efforts in Thailand, as the meeting will be used to endorse a regional implementation plan based on the SFDRR specifically for Asia.

In the short term, steps such as updating the 'The DRR Manual for Thailand' earlier developed by DDPM and UNDP as well as the Strategic National Action Plan (SNAP) to reflect the new directions highlighted under SFDRR (including the need to work with a range of stakeholders at the community level) can help ensure that Thailand remains at the forefront of both regional and global disaster risk reduction efforts.

adpc

THAILAND

PARTNERSHIPS FOR DISASTER RESILIENCE



Let's
make a
Safer
ASIA

Asian Disaster Preparedness Center
SM Tower, 24th Floor 979/69 Paholyothin Road, Samsen Nai Phayathai, Bangkok 10400 Thailand
Tel: +66 2 298 0682-92 **Fax**: +66 2 298 0012 **E-mail**: adpc@adpc.net

www.adpc.net Asian Disaster Preparedness Center @adpcnet