

WORLD METEOROLOGICAL ORGANIZATION





VOICES FROM THE FIELD:

Community-Based Approaches to Flood Management

BACKGROUND

The pilot project "Community-based Approaches to Flood Management (CBFM) in Thailand and the Lao People's Democratic Republic" was carried out from June 2013 to March 2016 to develop the self-help capabilities and resilience of four flood prone communities.

This document highlights success stories from the pilot project communities and lessons learned, along with post-project sustainability.



Associated Programme on Flood Management

The Associated Programme on Flood Management (APFM) is a joint initiative of the World Meteorological Organization and the Global Water Partnership. Its objective is to support countries in implementing Integrated Flood Management to maximize net benefits from floodplains and minimize loss of life from flooding.



Asian Disaster Preparedness Center

The Asian Disaster Preparedness Center (ADPC) is an independent, non-profit foundation, serving as an international focal point for disaster preparedness and mitigation in the Asia and Pacific regions, with the vision of "safer communities and sustainable development through disaster reduction".

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OBJECTIVE

Flood risk has been a growing concern for the communities and governments of Thailand and the Lao People's Democratic Republic. Traditionally, communities were seen as beneficiaries—not as engaged and active participants in flood risk management activities. With every flood, community capabilities were reduced, severely impacting investments in development, such as housing, assets, livestock and food security, within a short span of time.

The Community-Based Flood Management (CBFM) pilot project provided support to familiarize community members with flood and disaster management concepts, and to engage them in participatory risk assessments and preparedness measures for floods. This support would help them take on such activities independently in the future as well as help neighbouring flood-prone communities develop similar capacities. The aim was to foster community project ownership and develop longterm sustainability beyond the project duration. The project also brought together communities and local and provincial agencies to work in a coordinated way and develop resilience to floods.





ACHIEVEMENTS

The pilot project led to several successful interventions:

- 1. A community-based flood management plan and community-based flood management committees were formed in all four pilot test communities;
- 2. Preparedness measures were implemented. Rain gauges were installed, vulnerable houses were marked with green ribbons, a LINE application group for early warning dissemination was created, flood levels were marked using flood-mark plates, and closed-circuit television and spotlights were installed, among others;
- 3. The community's awareness and knowledge of local hazards, vulnerabilities and capabilities were heightened;
- 4. Community members' knowledge was enhanced through training and workshops;
- 5. Project experiences were documented and disseminated through publications, tools and conferences; and
- 6. A manual for community-based approaches to flood management was developed in both the Thai and Lao languages.

These community-centred activities helped reduce the negative impacts of floods while enhancing community preparedness and resilience to flood events.

SUCCESS STORIES

Communities that come up with their own ideas and work programmes to address their needs tend to have better chances of finding long-term solutions to their problems. Taking advantage of their knowledge of the local geography, hazard context and available resources, local communities were involved in flood management programmes from the start, and supported by the CBFM project to develop capacities and linkages that help overcome the susceptibility to disasters. In this way, the project activities delivered several benefits to community members. The success stories gathered from the communities highlighted the short- and mid-term impacts of the CBFM project activities.





1. Preparedness measures for flood risks

Participatory risk assessments were conducted to identify the vulnerabilities and risks that need to be alleviated through disaster risk reduction (DRR) measures. Community members participated in practical flood risk assessment exercises, and the results were used to initiate risk management activities within the communities.

"This **flood-mark plate** is useful to remind villagers of the historic floods and also to help raise awareness in the village. Community members can use a colour spray to mark flood levels at different locations, such as electric poles, houses and buildings. Before constructing new buildings, at least they should consider that, in the past, a flood reached up to that level."

Mr Somvath Keokhamphoui, Project Officer, Asian Disaster Preparedness Center (ADPC), Vientiane Office

Voices from the Field







Raising the house level using flood-mark plates

Mrs Add and her family members live beside the flowing water stream of the Ban Keo Many community. During the flood of 2015, their house was inundated and flood waters damaged the kitchen gas and utensils. Using the flood-mark plates from the CBFM project as guides, Mrs Add and her family raised the house above the water level marking of 2015. Now the family feels safe, knowing that the kitchen and other rooms of the house will not become inundated if the water level remains below this 2015 mark.

Constructing a flood-resilient house

Mr Boontham Yenchuenchai, a Thai dessert seller, lives close to the river in the Talad Kao community. During the 2013 flood, floodwaters rose up to three metres inside his wooden house, damaging his house and property. He learned the importance of resilient houses while participating in CBFM project activities. Using the highest flood-mark level reached in 2013 as a reference, he built his new house so that flood waters would not reach the second floor. From 2014 to 2017, he built a two-storey concrete house so that he can move valuables to the upper floor in the event of a flood. His house is one of the few concrete houses in the community. He believes that it will serve as an example of a resilient house and that in the future, other houses in the community will be constructed in a similar way.

Identifying vulnerable households with green ribbons

Mrs Wilailak Haritworn, a grocery shop owner, is physically challenged. During the 2013 flood, she did not receive any warnings and had to wait to be rescued and taken to a safer place. Vulnerable households (including female-headed families, the physically challenged and the elderly) were identified and marked with green ribbons during risk assessments carried out through the CBFM project. Now that Mrs Haritworn's house is marked as a vulnerable house, thanks to the CBFM project, she feels confident that she will be among the first to receive support from the search and rescue team in the event of a flood. Vulnerable houses marked through the CBFM project are also regularly visited by district health aid volunteers who assess the health of their occupants.

Community-Based Approaches to Flood Management



Flood warning by a community member

Mr Khamdeng Lomthavisan is a farmer from the Ban Suan Luang community. In 2012, his house was completely damaged by floodwaters. Through CBFM activities, he learned about flood hazards and risks, and the importance of early warning information dissemination. In 2016, he observed the sudden rise of the water level in the nearby stream, as he lives close to the flood warning sign. He proactively informed the community leader and community members. Thanks to the early warning, the community was able to evacuate to safer locations. The community leader expressed his appreciation to him at various community meetings for his role in disseminating warning information. He has now been assigned the role of observer of the stream's water level to provide early warnings to the community.



Evacuating a vulnerable individual after flood warning

The house of 75-year-old Mrs Choum was completely flooded in 2012. Floodwaters damaged her belongings, and she did not receive any early warnings or evacuation support from the community. The CBFM project activities trained community members to identify persons and houses vulnerable to flooding, and to provide support in case of early warnings. Mrs Choum was one of the most vulnerable individuals identified in the Ban Keo Many community. During the 2015 flood, the search and rescue sub-committee and other community members provided evacuation support, taking Mrs Choum to a safer place after receiving the early warning. Mrs Choum was very happy to see so many individuals helping her and providing support to other family members.



Timely evacuation of a vulnerable community member

Mr Seng Khamsavath makes fishing nets and catches fish in the nearby stream. He was identified as a vulnerable person at the CBFM project's participatory risk assessment workshops. During the 2012 flood, his son did not receive an early warning and was not able to evacuate his father, as there was a lack of awareness about how to reach a safer place during a flood. Because of CBFM project activities, during the 2016 flood, Mr Khamsavath was one of the first to be quickly evacuated to a pre-identified safer place. He feels that the community is now more proactive in facing floods and aware of the necessary actions to take during early warning and emergency situations. This three-generation family is a good example of how local flood resilient action, knowledge and experience can be sustained and transferred from one generation to another with real-life practices.



"The **hazard maps** developed for the different communities are very useful. Once we have received weather forecast information, we can plan and prepare internally in the TAO, prepare the community and respond in a coordinated way. The maps are also useful for land-use planning, particularly in the high-risk area."

A member of the Talad Administrative Organization (TAO), project implementing partner of Ban Buphram community



Flood hazard mapping

Through participatory flood risk mapping, the four target communities created flood risk maps marking which areas were likely to be affected by floodwaters. Mapping provided local people with the support neeeded to cope and adapt to prevalent flood risks as well as informing where preparedness plans should focus efforts. Safer places within the community and in nearby areas were also identified—an important consideration for flood response planning. The community flood map was positioned at a prominent place within the community where people could easily find it. In addition to community topography, other important details such as lists of key persons, agencies, vulnerable persons and contact information were documented and plotted in the hazard maps.



Flood Preparedness with Food Security

Mr Sengphone is a farmer from the Ban Suan Luang community living close to a stream. During the 2012 flood, he lost most of his grains when water inundated their house. Due to the lack of flood awareness and early warnings, he was not able to move his supplies to a safer place in time. After participating in the CBFM project's training and workshops on flood preparedness and early warning communication, he understood the importance of flood preparedness before every monsoon season. Prior to the 2017 monsoon season, he constructed and stored important belongings in an elevated section of his house, much higher than the recorded flood level. This preparedness measure will help to protect his supplies from future floods. Other community members have seen Mr Sengphone's storage mechanism and plan to construct similar structures in their own homes.

2. Flood preparedness

The pilot test communities had some capacities as well as vulnerabilities towards both riverine and flash floods. The participatory risk assessment provided relevant information related to the community's past flood management activities, especially related to the prevention and preparedness phase. Community knowledge on disaster risk reduction and management was found to be limited and not systematic. First-hand experience of past flooding in the community showed the need for strengthening the local-level early warning systems and information dissemination tools, which could help community members reach every person in the community instead of being dependent on outsiders.

"The **knowledge and capacity** of the two target villages are enhanced in disaster prevention and mitigation, helping each other and coordinating during disaster and recovery."

A community member from one of the pilot projects

3. Technological intervention

Along with many non-technological interventions, community members agreed to use technological measures for disaster preparedness that they find simple and familiar.

One of the disaster preparedness measures taken in the Talad Kao community was to increase surveillance, as many community members revealed that their valuables were stolen during past floods. Community members agreed to the installation of closed circuit television (CCTV) and spotlights, which would help monitor the community both during normal situations and periods of flooding. Eight CCTVs were installed by the community chairman using funds mobilized from community members. The additional costs of the CCTV cable installation were also covered by community funds. Community members agreed to install the equipment at lower wages. Electricity was completed by the local municipality.

In addition to CCTVs and spotlights, the community decided to use social media on mobile phones, which are commonly used by community members in Thailand. The LINE messenger app was used to create the community group "Mr. Warning Prachinburi" to communicate with the Kabinburi district meteorological and hydrological station. In the Ban Buphram sub-district administrative office, a Facebook page was created to disseminate early warning information to the Nadee district community, the provincial disaster prevention and mitigation office, and the armed forces, as well as to update them daily on the status of the water level, rain measurement and flood situation.



Community-Based Approaches to Flood Management



Community-funded CCTV replacement and restoration

In the Talad Kao community, thieves took advantage of floods to steal valuables from households, which were left unmonitored when their occupants evacuated. To improve security and to better monitor homes before, during and after floods, 12 closed circuit televisions (CCTVs) and four spotlights were installed through the CBFM project. An additional four CCTVs were installed by community chairperson, Ms Darunee Tharathippayakul, for better coverage. Later in 2016, after the CBFM project had been completed, two CCTVs were stolen. Community members mobilized community development funds to quickly replace the stolen CCTVs, demonstrating that the community's ownership of the project and commitment to its sustainability.



Early warning communication through committee leader

Mrs Kanissorn Jeampakwan has been the community leader of Ban Buphram for the past seven years. In the past, the community had issues with untimely availability of early warnings, so she faced many issues, especially providing information to the elderly and women. During the CBFM project, the community decided to create a Facebook page, as many of its members actively use the social media platform. Using Facebook, TAO officials could provide regular early warnings and community members could receive timely information. Mrs Jeampakwan assumed responsibility for public relations. Once she receives the flood warning information, she will use her motorcycle to spread the message within and outside the community. She took on this role because she is a community leader, a regular Facebook user, and can easily reach out to all sectors of the community.



Early warning information dissemination through LINE

Mrs Suchada Kuleuayeunnan and Mrs Suwanna Worakoonsaptawee are housewives who have lived in the Talad Kao community for over a decade. Before the CBFM project, they used indigenous knowledge for flood warnings. They did not know the actual rainfall amount, river water level and flood information in the river's upper stream as there was no proper channel for early warning information dissemination between the local hydrometeorological department and the community. The CBFM project helped the community to develop selfhelp capabilities, including early warning communication using LINE. Community members are now part of the Mr. Warning Prachinburi LINE group, and receive daily updates on river water level measurement and other communications from the district meteorological department.

4. Enhanced early warning support to existing community resources

Early warning communication through a public address system

Mrs Sukree Limchiw has been a pork seller in the Talad Kao community and nearby local market for over 10 years. She uses her modified motorbike to transport and sell pork. During the CBFM project, she and a friend agreed to become part of a public relations committee, which will be responsible for providing door-to-door early warnings. She felt that her work of selling pork door-to-door using her motorbike will help in communicating early warnings through the public address system, as she knows the people in the community and the access routes to their houses. She has also communicated several other CBFM committee messages, reaching every section of the Talad Kao community. She takes pride in doing this work, as it was previously difficult to reach out to every individual of the community with flood warnings.





5. Strengthening capacities through training

One of the most important features of the pilot tests related to community-based flood management was the participation of beneficiaries in various project activities. The training helped community members to improve their understanding of flood risks, the need for preparedness, how to use the early warning equipment and the coordination actions to be taken among different subcommittees and external stakeholders. To build the capacity of various actors, such as the Village Disaster Prevention and Control Committee, health and sanitation subcommittees, search and rescue teams, first-aid and village flood management plan committees, the project carried out various training and exercises relevant to their role and responsibilities before, during and after flood situations. The training and workshops not only involved experienced people but also individuals who were interested in contributing to the resilience of the community.

"From the three **training sessions**, we are very glad that we now have knowledge, which we did not have earlier. We tried to help each other according to our capacity but did not know how to do it properly and safely. After this training, we will use this knowledge and these skills. If a flood occurs now, we can help each other reach a safer place and in time. In the past, it was not done in time; we did not yet know how to help and make it safe. Thanks to the technical team and the project for helping our Ban Suan Luang community."

A member of the Ban Suan Luang community

Voices from the Field



Flood awareness and timely evacuation of household

Mrs Thongdy Savath is a mother of two living in the Ban Suan Luang community. Her house was severely affected during the 2012 flood, which damaged food grains and other household belongings. She did not receive any support from community members and had no knowledge or awareness of flood response actions. In 2013, when the CBFM project started, she participated in various activities to build her self-help capacities and become a CBFM committee member. This helped her during the 2016 flood, when she received an early warning, and had sufficient time to respond and evacuate her family members and valuables to a safer place. The resulting damage from this flood was much less compared to the 2012 flood. She continues to participate in community meetings and shares her knowledge with other women in the community.



Community kitchen during flood situations

Mrs Nungrutai Singken is a housewife with regular work in agriculture. During the 2013 flood, she observed the community volunteers and TAO officials supporting people caught in the flood and helping them to move in and out of the community by boat. She recognized their good work and prepared meals for the volunteers who were working day and night. During the CBFM project, she agreed to become a member of the CBFM committee and proactively took on the responsibility of providing food to those responding to floods. She says there are other women who are also interested in contributing in similar ways. The role and responsibilities of community women are important during flood situations; they provide assistance with health and hygiene, food security and safe drinking water, among others.





6. Preparedness through simulation exercises

It was important to test the practicality of the flood management plan and committee involvement in a flooding situation. The community-based flood management plans of Ban Kao Many and Ban Suan Luang were tested in a simulation exercise, which helped the committee members to better understand their roles and responsibilities during the emergency scenarios and bring about more effective internal and external coordination between the community and external stakeholders. This also allowed the communities to adjust their flood management plan based on the dynamics and learnings that resulted from the simulation exercise.

"Flooding [in 2015] was almost the same as [in 2014]. Fortunately we have already learned from this project; otherwise, the impact might have been worse. Once we announced, the trained search and rescue team, together with strong community members, were functional and could help the community move items to higher places in time so there were only minor damages this year. We contacted healthcare centres, schools, the police, the army and other agencies from the district. The concerned agencies tried to help us. We have to continue this good practice, not only us now but also the next generations, so that in future we can prevent deaths and huge damage from floods that we faced in the past."

> Mr Lur (Village Head, Ban Kao Many, Nan District, Luang Prabang Province) on the importance of simulation exercises

7. Mainstreaming development with flood risk management

DRR-based economic activities

Ban Buphram village is located close to Khao Yai National Park and Thap Lan National Park, in Nadee district, Prachinburi Province, Thailand. The community is affected by floods almost every monsoon season of the year. During floods, water surrounds the village area and inundates the only bridge in the village connecting it to neighbouring areas. When the bridge is flooded, people cannot cross to the neighbouring villages to work in factories, sell their crops, and purchase household goods from local markets. The community participatory risk assessment considered the need to renovate the existing bridge, making it higher and wider so that it will not get inundated and people can continue going about their daily life. The request for the new bridge was put forward to the local and district agencies with the support of project partners. The government decided to renovate the old bridge and a budget was allocated for that purpose. This will serve as a safety measure and will enhance economic activities.

"In Thailand, the project helped foster relationships between Community-Based Flood Management committees and relevant district and national institutions including local government authorities. Significantly, this interaction assisted communities to **mainstream their flooding plans into existing local development and action plans**."

Staff member from a local agency involved in CBFM activities



Community-Based Approaches to Flood Management





Economic activities through a bridge

Mr Songkran Ponghom is a farmer living in the Ban Buphram community, who grows rice and other crops. He sells some of his crops in the local market to earn extra money. In 2013, he was planning to sell his crops in the local market on the day of a flood in Ban Bu Phram. The only bridge connecting the community was inundated with upstream water, preventing Mr Ponghom from taking his crops to the local market. During the participatory risk assessment of the CBFM project, participants identified the need to renovate the bridge to prevent it from being inundated with water from upstream villages. The local government accepted this request and allocated funds to renovate the bridge. Mr Ponghom was very pleased that he and others in the community would no longer have difficulty commuting to nearby communities and local markets.



Impact on livelihood-based activities

Mr Bantuk Panoram and Mr Sommai Kongkronburi reside in village number three in the Ban Buphram community. Theywork in agriculture fields, but Mr Panoram's wife works in the cable wire manufacturing while Mr Kongkronburi's wife and daughter work in food packaging and an iPhone manufacturing company in the nearby industrial zone. In 2013, a flood inundated the bridge connecting the communities of Ban Buphram, hindering family members working outside the community to return home. During the participatory risk assessment of the CBFM project, both men supported the need to renovate the bridge so that they and others commuting outside of the village will not face problems in case of floods. Mr Kongkronburi is also an active member of the CBFM committee and participates in every meeting.

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8. Replication of CBFM in other communities

This community-based project has high potential for replication because it relies on simple technology, non-structural measures, and the involvement of local people and agencies in flood risk management. The project carried out its activities in four communities of Thailand and the Lao People's Democratic Republic, successfully developing community resilience through self-help capabilities. The project activities involved members from pilot test communities as well as neighbouring communities interested in developing their own capacities. It is important to replicate the pilot test studies in neighbouring flood-prone communities to ensure integrated community resilience.

"The training on flood monitoring, early warning and simulation aimed at strengthening coordination on early warning among the communities in Bu Phram sub-districts not only helped in building connections between the local authorities, but also **established linkages with the other nine communities** in Bu Phram TAO and nearby TAOs that participated in the training."

Staff member from a local agency involved in CBFM activities



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STAKEHOLDER CONTRIBUTIONS

The project involved community individuals and various agencies from the local, provincial and national levels in Thailand and the Lao People's Democratic Republic, such as disaster management, meteorology and hydrology, and economic and social development departments, in addition to international organizations such as WMO, ADPC and the Red Cross. The key agencies from the two countries were as follows:

- 1. Department of Disaster Prevention and Mitigation, its Academy and provincial office
- 2. Thai Meteorological Department
- 3. Department of Water Resources Management Policy, Thailand
- 4. National Disaster Warning Center, Thailand
- 5. Buphram Tambon Administrative Organization (TAO) and Kabinburi Municipality
- 6. Department of Disaster Management and Climate Change
- 7. Department of Meteorology and Hydrology

The involvement of various stakeholders in the project activities was necessary to strengthen community resilience with proper coordination and collaboration required for performing individual roles and responsibilities.

Synergized project activities

The project also synergized its activities with other ADPC and country disaster management initiatives for higher impacts.

For example, information, education and communication materials, t-shirts, life jackets and first aid kits produced under the GIZ/Mekong River Commission/European Commission Humanitarian Aid Office's (ECHO) programme, Swiss JTI Foundation projects, and Partnerships for Enhanced Engagement in Research (PEER) programme with United States Agency for International Development (USAID) support were disseminated for awareness-raising and improving the capacity of the CBFM committees. Good practices of the project were documented as part of the documentation on "Empowering Communities and Strengthening Resilience" funded by the New Zealand Aid Programme (NZAID). A national experience-sharing workshop in the Lao People's Democratic Republic was combined with the country consultation process and national workshop and training to standardize the community-based disaster risk reduction (CBDRR) methodology in the country organized by the French Red Cross with funding support from the Disaster Preparedness ECHO Programme (DIPECHO). In Thailand, CBFM experiences were documented and disseminated at the International Day for Disaster Reduction (IDDR) and ASEAN Day for Disaster Management (ADDM) Day 2015 in Bangkok and Vientiane, respectively.

"The training programme on flood monitoring and early warning in Prachinburi was adapted from the programme for reduction of vulnerability to floods in Thailand (Chao Phraya River Basin) under the USAID/Office of US Foreign Disaster Assistance (OFDA) project with the help of technical partners in Thailand."

Project partner involved in CBFM activities





Better coordination and collaboration between the hydrometeorological department and the local community

Mr Likhit Sakrasae works at the Kabinburi district hydrometeorological station. Every day, he collects readings from the rain-gauge and river-gauge devices installed at the meteorological station and the nearby river. The data collected monthly is submitted to the municipality and provincial hydrometeorological department. When there is a higher reading (i.e. 6 metres in the river), he is tasked with immediately disseminating information to the municipality so that the communities, such as Talad Kao, can be informed through loudspeakers in a timely manner about increasing water levels.

Mr Sakrasae regularly participated in the CBFM project activities and agreed to join the Mr. Warning Prachinburi LINE app group with other members from the district and provincial hydrometeorological department, irrigation and water resources, provincial disaster prevention and mitigation office, municipality and CBFM members of Talad Kao. Mr Sakrasae provides daily LINE message information on the rainfall and water level measurement at the river, which helps community members directly receive information.

He regularly visits the Talad Kao community and participates in community meetings, developing a good bond with community individuals. Community members even directly inform him when they see a rapid increase in the water level or a colour change in the river bed. The CBFM project has brought local agencies and communities together to proactively develop preparedness for riverine flood hazards.

LESSONS LEARNED



Importance of participatory design

The community-based participatory design followed throughout the pilot test activities resulted in better community participation and engagement. Allowing communities to analyse their own problems and giving them resources and inputs lead to more sustainable solutions and answers than when they are provided with direct and short-term external "gifts". The community members shared their experience and knowledge of flood and its associated risks through several focus group discussions, workshops, and key informants interviews available during every stage of the project. This participatory approach built a platform for a bottomup approach to capacity development rather than the traditional top-down approach.

The value of non-structural solutions

Non-structural solutions were a key consideration for community-based flood management, because even if only some of these measures worked during severe flooding, they would still reduce damages. Structural solutions can be wiped out, but individuals will retain their awareness of vulnerable persons and how to support them, and knowledge about safer places, first aid, and search and rescue procedures. These non-structural solutions promote better understanding of the causes of floods and invite community participation in creating localized solutions without the involvement of additional resources and funding.

Shift from a reactive to a proactive approach to floods

The historical way of dealing with flood disasters in Thailand and the Lao People's Democratic Republic has been to respond after the event has occurred rather than being proactive and building resilience. To change the mindset and the traditional way of working was a challenge the project needed to overcome. This required the participation of actual beneficiaries to share information. There was also the need to further educate community members to shift from response to more reliable long-term solutions and mainstream DRR into development. The proactive approach of the community was visible during the simulation exercise conducted in 2015, where community individuals performed early warning dissemination, evacuation of vulnerable individuals to a safer places, and so forth.

POST-PROJECT SUSTAINABILITY



By enhancing the DRR-based capacities of local communities and involving government agencies though the integral, multi-sector and decentralized methodology, the project built sustainability for continuing activities beyond the life of the project. After the project's completion, activities were directed to important progress in the pilot test regions. However, participation and engagement from local agencies with the project communities has been lacking, as there was no budget allocated for performing post-project monitoring and evaluation of flood preparedness activities. The sustainability of interventions at local and national levels needs to be more comprehensively addressed and adequately planned.

Additional DRR support activities with pilot test communities and other flood-prone communities

Communities also need additional investment to mainstream DRR into development practices, plans and policies at local, provincial and national levels and further gain economic benefits from it. Flood prevention measures, such as dam or reservoir construction, landuse planning, flood zoning, flood proofing and flood awareness, need to be actively pursued to further reduce the impacts of future flood events.

Follow-up on implementation, monitoring achievements, sharing lessons learned, and supporting communities

Methodologies and expertise to perform periodic and systematic monitoring and assessment of CBFM activities both in Thailand and the Lao People's Democratic Republic are unavailable, which could result in decreasing preparedness and resilience of the communities for recurring flood events. The flood risk management strategies require continuous integrated effort from all associated actors and stakeholders.

Involvement of additional community resources

There should be a rotation of CBFM committee members in order to include or provide an opportunity to every member of the pilot project communities to participate in flood management activities. There should also be outreach to individuals such as schoolteachers and health volunteers to promote flood awareness within the community.

Livelihood activities inclusive of DRR/ climate change adaptation

Local policymakers and agencies should consider livelihood-based activities when designing and implementing more effective DRR programming. For example, agencies can promote a watershed management approach to reduce the likelihood of hazardous events, or planting flood-resilient trees on river banks to reduce erosion and to protect houses near riverbanks.



Participating in future CBFM activities

Mr Soulisak Bounyalasi is an English teacher at the high school in the Ban Suan Luang community. During his free time, he also catches fish in the nearby water stream with other community members. His house was identified as vulnerable during the CBFM project. During the 2016 flood, he and his family were able to evacuate from his house in a timely manner. He now keeps his food grains at a higher position in his permanent house where flood water cannot reach and damage it. He never participated in CBFM activities or community meetings in the past, but he is interested in learning more about flood management in the future. He feels that he could also provide knowledge and awareness about the flood to students and other fishermen so that they can, in turn, also develop flood hazard knowledge and awareness. He will soon join the community committee and actively participate in future flood management activities.

CONCLUSION

The 33 months of CBFM project implementation, including a three-month extension, created impressive impacts for the target communities as well as local authorities in terms of institutional strengthening, awareness-raising and improvement in capacity for better response in emergency situations, particularly in community preparedness and early warning infrastructures/services. The project also helped enhance relationships and coordination, and created better understanding among communities and local and provincial authorities.

To some extent, the CBFM approach was found to be successful during the flood situations of 2015 and 2016, during which communities managed the flood response before the arrival of external support. Other communities prone to flooding in Thailand and the Lao People's Democratic Republic should look to the CBFM pilot communities as a role model for attaining flood resilience, so that they can develop their capabilities in similar ways.





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