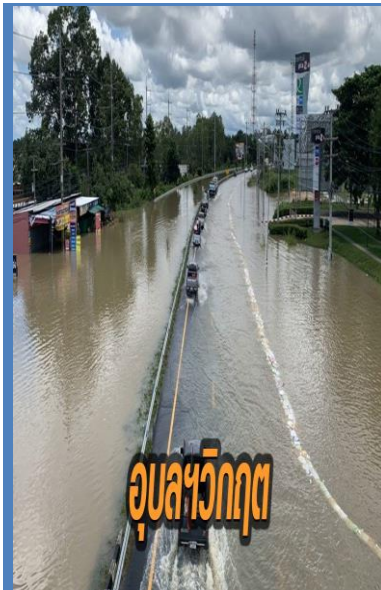


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การปรับตัวต่ออุทกภัยของชุมชนคูสว่าง
ตำบลหนองกินเพล อำเภวารินชำราบ จังหวัดอุบลราชธานี

*The Adaptation to Flood Disaster of the Khu
Sawang Community, Nong Kin Phle sub-district,
Warinchamrab district, Ubon Ratchathani province*

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บทคัดย่อ

วัตถุประสงค์ของการวิจัยนี้ คือ 1) เพื่อศึกษาปัญหาและผลกระทบของอุทกภัยต่อชุมชนคูสว่าง 2) เพื่อศึกษาการปรับตัวต่ออุทกภัยของชุมชนคูสว่าง และ 3) เพื่อเสนอแนะแนวทางการเสริมสร้างศักยภาพในการปรับตัวต่ออุทกภัยของชุมชนคูสว่าง ผู้ให้ข้อมูลหลัก ได้แก่ ผู้นำชุมชน คณะกรรมการชุมชน 2 คน ผู้บริหารขององค์การบริหารส่วนตำบลหนองกินเพล 2 คน และผู้บริหารและเจ้าหน้าที่ของสำนักงานป้องกันและบรรเทาสาธารณภัยจังหวัดอุบลราชธานี 3 คน ข้อมูลถูกรวบรวมโดยการสัมภาษณ์เชิงลึก การอภิปรายกลุ่ม การสังเกต รวมทั้งการตรวจสอบข้อมูลด้วยวิธีการสามเส้า จากนั้นข้อมูลถูกวิเคราะห์ด้วยการจัดหมวดหมู่ การเปรียบเทียบ และการสังเคราะห์ ผลการศึกษาพบว่าชุมชนคูสว่างมีการปรับตัวต่ออุทกภัยทั้งในช่วงก่อน ระหว่าง และหลังเกิดอุทกภัย ข้อเสนอแนะจากการวิจัย คือ ชุมชนคูสว่างควรได้รับการส่งเสริมผ่านทางแนวทางเชิงโครงสร้างและไม่เชิงโครงสร้าง เพื่อการปรับต่อการจัดการอุทกภัย

คำสำคัญ: การปรับตัว; การจัดการอุทกภัย; จังหวัดอุบลราชธานี

Abstract

The objectives of this research were to 1) study the problems and impacts of flood disaster to the Khu Sawang community, 2) study the adaptation to flood disaster of the Khu Sawang community, and 3) recommend the capacity building approach in adaption to flood disaster of the Khu Sawang community. The informants are the head of community, community committee 2 persons, executive of Nong Kin Phle Sub-District Administrative Organization 2 persons, and executive and officers of the Provincial Offices of Disaster Prevention and Mitigation in Ubon Ratchathani province 3 persons. The data was collected by in-depth interview, group discussion, observation, and also was checked by triangulation method. Afterward, it was analyzed by categorizing, comparison, and synthesis. The results were revealed that villagers in the Khu Sawang community has adaptation to flood disaster before, during, and, after flood disaster. The recommendations are the Khu Sawang community should be enhanced through the both structural and non-structural approaches for adaptation to flood disaster management.

Keywords: Adaptation; Flood Disaster Management; Ubon Ratchathani

Introduction

The United Nations Framework Convention on Climate Change or UNFCCC (n.d., as cited in United States Agency International Development: USAID, 2011: 49) defined climate change as a change of climate, which is attributed directly or indirectly to human activity that adjusts the arrangement of the global atmosphere. Climate change can cause high risks to many people because there has been a steady increase of population growth at global and community levels (McBean & Rodgers, 2010: 874) which affects both natural and human systems. Moreover, climate change can lead to diverse forms of disasters, including droughts and floods and can cause damage at local and global levels. It can also create unknown results in the short, medium, and long term (O'Brien, O'Keefe, Rose, & Wisner, 2006: 68). Therefore, climate change adaptation is the human response to climate change that points to reduce vulnerability to climate change and to preserve human well-being (USAID, 2011: 50). The flood is the one of natural disaster which related to water and climate (USAID, 2011 p.26). It effect to human life and property, agriculture, livestock and depression (Carter, 1991: 10). The flood disaster is trend to increasing as a result of climate change and risk areas settlement.

The flood disaster impacts to various provinces in Northeastern Region, Thailand. Ubon Ratchathani province which is faced with the most severe degree of flooding due to the overflowing river basin since it is where the two main river systems, the Mun River and the Chi River flow altogether. Therefore, Ubon Ratchathani province is the most severely impacted area from flooding. Khu Sawang community which locate in Nong Kin Phle sub-district, Warinchamrab district, Ubon Ratchathani

province. People of community are amount 878 people or 224 households, comprise male 445 people and female 433 people. The terrain of community consists of the greatest flat land, and adjacent to the Mun River, so it is risk to floods every year. Moreover, the sand excavation by private companies in Khu Sawang community and a truck ran through community continuously, it affects to damaged road and causing flooding when it rains.

In addition, the nearby area of community is also constructing more buildings, it affects to floodway changing and unable to drain the rainwater. Therefore, Khu Sawang community is more at risk of flooding. For instance, in 2013, there was a great flood, causing huge damage to the community, such as damaged houses and assets, lack of income, and damaged crop. Moreover, villagers have inconvenience transportation, boats were used as vehicles during the flood disaster and the villagers evacuated to safety zones. However, villagers can cope with flood disaster and do not migrate to other areas, although will always face with flood disaster every year. Therefore, it is interesting that how the Khu Sawang community adapts to flood disaster and can stay in flood risk areas for a long time.

Research Objectives

The objectives of this research as the following:

1. To study the problems and impacts of flood disaster to the Khu Sawang community.
2. To study the adaptation to flood disaster of the Khu Sawang community.

3. To recommend the capacity building approaches in adaption to flood disaster of the Khu Sawang community.

Literature Review

This section describes the literature review relevant to climate change adaptation and capacity building in disaster management.

Climate change adaptation focuses on dealing changes and emphasizes long term adaptation to climate change, including empowering the capacity of people and organizations for long term change processes (Mitchell, Van Aalst, & Villanueva, 2010: 3). Climate change adaptation is also considered as an essential strategy for managing the risks of climate change. Disaster management policies responding to climate change issues may depend on a number of factors, such as the readiness to accept the reality of climate change, associated institutions, capacities, and the purpose to integrate climate change issues into risk assessment and strategic development processes (O'Brien, O'Keefe, Rose, & Wisner, 2006: 64).

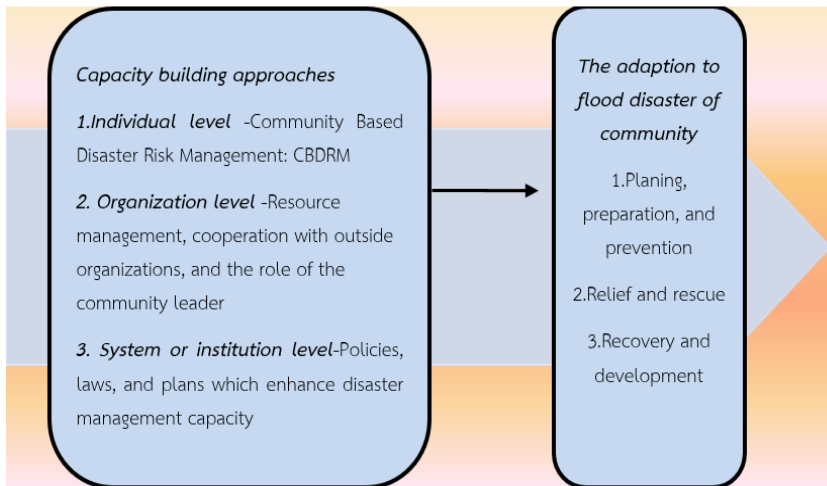
Capacity means the ability of individuals, organizations, and systems to function their tasks effectively, efficiently, and sustainably (United Nations Educational, Scientific and Cultural Organization: UNESCO, 2006: 1). In addition, capacity is considered the ability to suitably work and effectively, efficiently, and sustainably obtain achievements at individual, community, organizational, and government levels (Antwi & Analoui, 2008: 506). Capacity building is associated with developing an environment according to appropriate policy and legal frameworks, institutional development, a community engagement approach, and human resource development and management system strengthening (Alaerts, Blair, &

Hartvelt, 1991: 20). Moreover, capacity building is aimed at creating continuous and sustainable benefits at every level of social development and achieving a better standard of living (Lavell, 1999: 3). Therefore, capacity building is a process by which people, organizations, and society systematically stimulate and enhance their capacities over time to complete social and economic goals, including through the improvement of knowledge, skills, systems, and institutions (McBean & Rodgers, 2010: 876).

Capacity building is also a considerable factor that drives communities to understand their risky conditions. It helps to contribute the disaster risk awareness through learning from past mistakes and searching ways to reduce vulnerability so that the communities can handle, prevent, and reduce losses and damage to life, property, and the environment (Pribadi, Argo, Mariani, & Parlan, 2011: 2). In addition, capacity building has been acknowledged as a crucial component of the development of climate change response at local, provincial, and national levels (Archer & Dodman, 2015: 2), especially in terms of local capacity building relevant to human skills, information, technology, patterns, and methods to cope with the disasters in developing countries. Capacity building for disaster risk reduction and domestic resilience is essential because governments tend to have limitations in terms of disaster prevention, preparedness, and response and rehabilitation before and after disaster (McBean & Rodgers, 2010: 877). Capacity building is also necessary to disaster management because it is associated with the development of disaster management systems at local, provincial, regional, national, and international levels. Moreover, capacity building is expected to cover all processes of disaster management, including disaster planning, prevention, impact mitigation, preparedness, rehabilitation, and

reconstruction. Therefore, disaster response capacity building is one of the most effective approaches to reduce disaster risks (Japan International Cooperation Agency: JICA, 2008: 4) and contribute to adaptation to disaster.

The researcher concluded that the capacity building approaches in the context of disaster management refers to the procedure to increase the knowledge and skills of individuals and organizations to cope with disasters. It also includes institutional and systemic conditions that can enhance the essential knowledge and skills to reduce disaster damage and adapt to disaster as the following figure.



This figure begins from study to approaches of capacity building in the disaster management of communities in three levels. 1. Individual level, study to Community Based Disaster Risk Management (CBDRM) which is providing the knowledge and training to people in community for understanding and preparedness to cope with the diverse disaster. 2. Organization level, study to management resources which are used in

disaster management that how community manage, cooperation with the outside organizations; public sector, private sector, and another communities for building capacity of disaster management and the role of leader and community committee in disaster management. 3. System or institution level, study to policies, laws, and plans which support the capacity building in disaster management for community.

Afterwards, approaches of capacity building in three levels will be analyzed that whether are enhance the adaptation to flood disaster management of community in before, during and after flood disaster or not. Before disaster recognized that the adaptation of planning, preparation and prevention. During disaster give precedence with the adaptation in relief and rescue victims of community. After disaster considered that community recovery and development.

Methodology

This research focus on qualitative research, hence the data was collected by in-depth interview, group discussion, and observation from the executives of Nong Kin Phle Sub-District Administrative Organization 2 persons, the executive and officers of the Provincial Offices of Disaster Prevention and Mitigation in Ubon Ratchathani 3 persons, head of the Khu Sawang community, and committee of the Khu Sawang community 2 persons. These informants play a vital role in capacity building the flood disaster management to the community. At the same time, it enables cross-checking between the data collected from the community, local administration organization, and the governmental agencies in order to ensure higher accuracy data before proceeding to the data analysis. Moreover, the guideline questions were reviewed by experts in the flood

disaster management before collect data. This research was operated during the period May 2018 to December 2018 due to it is the period of research grant in the Fiscal Year 2018.

The primary data consisted of data related to the problems and impacts of flood disaster to the Khu Sawang community, adaptation to flood disaster of the Khu Sawang community, and recommend the capacity building approach in adaption to flood disaster of the Khu Sawang community. The secondary data was collected from academic journals, books, and websites related to climate change adaptation and capacity building in flood disaster management. The data was analyzed by categorizing, comparison, and synthesis in order to detect the problems and impacts of flood disaster, adaptation to flood disaster, and to recommend the capacity building approach in adaption to flood disaster of the Khu Sawang community.

Results

The results according to the research objectives. The details are as follows.

1. The problems and impacts of flood disaster to the Khu Sawang community were found that villagers face the problems and impacts from flood disaster every year, for example, damaged assets and crop, lack of income, and inconvenience transportation.

2. The adaptation to flood disaster of the Khu Sawang community were revealed that community has many disaster management resources such as broadcasting tower, hand-held sirens for disaster warning, a disaster prevention center, knock-down houses, motorboats, tents, and life jackets. These resources are helpful in adaptation to flood disaster. In

particular, motorboats are the important resources of the community because it is fuel saving and is able to evacuate many villagers. This is considered the unique and strong point of the Khu Sawang community, which was later called “Khu Sawang Model.” Many other communities affected by floods have visited the Khu Sawang community in order to learn from this model. The villagers try to rely on themselves first and ask for help from government agencies when they are incapable of supporting themselves, as stated in the following by a community committee member: *“We must rely on ourselves first because the government agencies take one to two days to provide helps.”*

In addition, Khu Sawang community’s adaptation was developed through knowledge sharing and community-based disaster risk management (CBDRM) training provided by the Ubon Ratchathani Provincial Office of Disaster Prevention and the Mitigation and Nong Kin Phle Sub-District Administrative Organization. This has been advantage for the community because these approaches of capacity building have enabled the villagers to cope with disasters in a suitable way. The community leader provided information as follows: *“The Provincial Office of Disaster Prevention and Mitigation mainly takes us to join the meetings with relevant cooperative networks. Those meetings make community understand the strengths and weaknesses of other communities and contribute to experience sharing among communities.”*

The adaptation in each phase was found that before disaster period, the villagers carry out disaster preparedness, prepare vehicles for evacuation, check the availability of boats, and assign boat drivers. The villagers try to rely on themselves first and ask for help from government sectors when they are incapable of supporting themselves. During a disaster phase, the community prepares boat pick-up and drop-off services and assigns a

security team. Moreover, the community asks for a survival bags, drinking water, motorboats, emergency toilets, and an evacuation staff from the Nong Kin Phle Sub-District Administrative Organization and the 22nd Military Circle. After disaster phase, the villagers clean and fix their house, collaborate in cleaning the temple, school, and other places in the community, and also ask government sectors to assess the damage in order to receive damage compensation.

3. The capacity building approaches in adaption to flood disaster compose of the following.

3.1 Non-structural approaches, which consisted of raising self-reliance awareness, creating a local disaster response plan, and transferring knowledge to the future generation. These approaches were considered as the community-based disaster management practices aiming to make the communities more self-reliant and disaster resilient.

3.2 Structural approaches, which composed of the construction of Kaem Ling, irrigation systems, raising houses or constructing two-storey houses, and floodgates. Among these approaches, building Kaem Ling can prevent both floods and droughts, because of it can store water during the rainy season for use in the dry season. However, building Kaem Ling is the structural measures requires a lot of money for construction, and the communities still need to rely on the budget and resources from the government sectors.

One of the community committee provided his opinion about capacity building approaches as follows: *“It enables the villagers to have more disaster-related knowledge, more systematic procedures to cope with disasters before disaster, during disaster, and after disaster periods and better disaster preparedness.”* In addition, disaster management capacity was seen to have an effect on the sustainability of disaster

management: *“It contributes to the distribution of knowledge within the community. The villagers adapted and complied with disaster management procedures.”*

In order to make the Khu Sawang community achieve sustainable disaster management, one of the community committee provided a suggestion as follows: *“The budget should be directly provided to the Sub-District Administrative Organization because this organization understands the problems and the needs of the community.”* This is consistent with the following comment provided by a community leader: *“The budget can lead to sustainability in terms of construction such as the construction of floodgates.”* Moreover, the villagers should have more public consciousness in providing help to the community, and the Sub-District Administrative Organization should play a greater role in supporting disaster management.

Discussion and Conclusion

The Khu Sawang community could cope with flood disaster by using the existing resources and asking for additional support from other organizations. The resource management of community is in line with a study entitled “Governance and Capacity Building of Handling the Flood Issues in Bojonegoro Municipality, Indonesia” by Ulum and Chajjaroenwatana (2011). The research results indicated that the factors enhancing flood disaster management include resource mobilization and allocation and resource planning. This is consistent with Hori and Shaw (2014, pp. 101-120), who carried out a study entitled “Elements for Sustainable Community-Based Disaster Risk Management” and in which it was found that the impact of disasters can be minimized if local

communities and governments have sufficient CBDRM equipment, including radio communication equipment and storm detectors for farmers.

The resources management of Khu Sawang community is the same as the above researches. Because of the resources management planning of community and resources from the other organizations affect to community's adaptation to flood disaster.

Providing education and training through the community-based disaster risk management (CBDRM) program enabled the villagers to obtain more knowledge of disaster management, understand disaster risks, and prepare for disasters, and also help to decrease the damage from disasters and empower the community. This is in line with White and Rorick (2010), who carried out a study entitled "Cost-Benefit Analysis for Community-Based Disaster Risk Reduction in Kailali, Nepal" and found that training and capacity building activities make the community have a stronger capability to manage and prepare for floods. This is also consistent with Jahangiri, Izadkhah and Tabibi (2011), who conducted a study entitled "A Comparative Study on Community-Based Disaster Management in Selected Countries and Designing a Model for Iran." They recommended that the community-based disaster management approach is expected to strengthen the community's capability in terms of disaster preparedness, disaster impact reduction, and disaster situation assessment based on primary experiences.

The CBDRM program which was conducted by the Provincial Offices of Disaster Prevention and Mitigation, it encouraged the villagers to participate in disaster management, develop a local disaster prevention plan, and gain higher disaster management capacity. This is consistent with Newport and Jawahar (2003), who carried out a research entitled

“Community Participation and Public Awareness in about Disaster Mitigation” and found that vulnerable communities should participate in the disaster impact reduction process in order to improve their capacity regarding disaster response. This is also in line with Jahangiri, Izadkhah, and Tabibi (2011), who carried out a research entitled “A Comparative Study on Community-Based Disaster Management in Selected Countries and Designing a Model for Iran” and recommended that disaster-prone communities should be empowered with suitable training, access to essential information, and participation in various disaster management cycles.

The training according to CBDRM project to Khu Sawang community has the same effect as the mentioned researches. Villagers have the more disaster knowledge, participation in disaster management, and strength in coping with to flood disaster.

The community leader and community committee played a important role in coordinating with external organizations in order to ask for disaster management support and helping the villagers during the disaster phase. This is in line with Wongpreedee and Sudhipongpracha (2014), who studied a research entitled “Disaster Management that Works: Flood Management Strategy and Implementation in NakornPakkred Municipality” and recommended that the leadership, flood situation knowledge, decision-making skills, and sense of responsibility of the Mayor of NakornPakkred significantly contributed to the effectiveness of the NakornPakkred municipality’s emergency operation center. In addition, these ideas are related to those in a research entitled “Capacity Building for Flood Management in Developing Countries under Climate Change,” which was operated by Katsuhama (2010). The research results revealed

that leadership and decision-making capacity are essential under increased flood risk situations.

The structural capacity building approaches which included the construction of Kaem Ling, irrigation systems, floodgates, and raising houses or constructing two-storey houses. These approaches are in line with the disaster management concept of Vitoria (2001), who conducted a study on “Community Based Approaches to Disaster Mitigation” and found that physical approaches such as building bridges, dams, and weirs can mitigate and limit the injurious impact of disasters.

On the contrary, non-structural capacity building approaches which comprise of raising self-reliance awareness, creating a local disaster response plan, transferring knowledge to the next generation, and looking out for each other. These approaches are consistent with the research findings of Bradford et al. (2012), who conducted a research entitled “Risk Perception – Issues for Flood Management in Europe” and found that the current flood and drought risk management tend to focus on non-structural approaches such as relocation, improved land-use planning, and flood forecasting and warning. This is relates to the research entitled “Structural and Non-Structural Measures for Flood Risk Mitigation in the Bâsca River Catchment (Romania),” which was carried out by Minea and Zaharia (2011). The research results revealed that the non-structural approaches such as land and urban administrative planning, catchment management, insurance and forecasting, legislation, education, and hydrologic warning are elements that make the structural approaches more complete and contribute to decreased loss of life and less economic damage. Likewise, Shaw (2009) carried out a research entitled “Earthquake Risk Management: Problems and Prospects” and found that the key to sustainable disaster management is enhancing to disaster prevention and

mitigation before disasters, providing suitable knowledge, and training and building awareness.

The Khu Sawang community has adaptation to flood disaster both structural and non-structural approaches as the above researches. The structural adaptation, for example building a house into 2 floors and the non-structural adaptation, such as obtaining the disaster knowledge, transferring the disaster knowledge to next generations, and helping each other of villagers. These approaches causing the community have the development of flood disaster management and the adaptation to flood disaster in the future.

From the above discussion, it can be said that if there is capacity building at the systemic or institutional level such as having laws, policies, and plans essential for disaster management, it will impact the disaster management capacity at individual and organizational levels. For example, the disaster management capacity of the villagers was strengthened through the CBDRM training program. CBDRM made the villagers aware of the impact of disasters and better prepared for disasters. The disaster management capacity of the disaster risk communities was improved through the allocation of a disaster management budget and resources provided by the government sectors. Therefore, it can be concluded that the capacity building at systemic or institutional level is the underlying and essential condition that can build and improve individual and organizational capacity. These capacities can contribute to the adaptation for flood disaster management.

Recommendations

Recommendations are proposed based on the discussion and conclusion in the previous sections. The details are as follows.

1. Administration recommendations

1.1 Local Administrative Organizations should focus on community capacity building, for example local disaster knowledge management, community-based disaster preparedness planning, and initiating disaster management promotion programs. These capacity buildings are considered non-structural approaches for adaptation to flood disaster. Furthermore, Local Administrative Organizations should survey the requirements of the villagers in order to determine the operations that can truly assist their needs.

1.2 Community should create a specific disaster prevention plan on a yearly and habitually review and rehearse the plan. Having a disaster prevention plan will make the community disaster management more systematic. The disaster management tasks will be clearly assigned to each group of committee such as disaster monitoring and warning, search and rescue, and disaster relief.

2. Policy Recommendations

2.1 The problems and needs of community should be studied before formulation a policy to enhance the disaster management capacity. Moreover, the policymakers should determine the disaster management capacity building plans, projects, and activities that can serve the needs and solves the problems of the community.

2.2 There should be a policy that focus on the importance on all processes of the disaster management cycle such as disaster prevention, mitigation, preparedness, and response and recovery. In addition, the

disaster management policy should focus on the knowledge and abilities of all stakeholders. This is to ensure that the disaster management policy is fair and practical designed. Furthermore, there should be fair policy for controlling the allocation of donations during the disaster period.

3. Recommendation for the future research

3.1 A comparative study on flood disaster losses before and after the implementation of the capacity building approaches should be conducted in order to measure how effective it in reduction the quantitative losses resulting from flood disaster, for example the mortality rates governmental budget, and community expenses. This comparative study should be carried out in the community that has continually been affected and similarly damaged by flood disasters every year.

3.2 Disaster management capacity building should be studied at broader levels such as capacity building at the basin or region level in order to promote knowledge sharing among disaster-affected communities.

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