Implementation of Community Based Disaster Risk Management in the Mekong Delta, Vietnam

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Abstract

This master thesis examines the implementation of Community Based Disaster Risk Management (CBDRM) in the Mekong Delta in Vietnam. The report is based on a literature study in the field of CBDRM together with an interview study conducted with organisations operating in the region. The thesis shows that CBDRM has been an effective approach in the Mekong Delta and that used modes and modalities have resulted in more resilient communities with a higher capacity to deal with imminent threats from disasters. However, CBDRM is still a fairly new concept and further research should be conducted in order to study the long-term effects.

Acknowledgments

Summary

As a result of global warming the number of disasters will increase in the world (IPCC, 2014). Increased urbanisation and environmental degradation will lead to escalating vulnerability (Shaw, 2012b). As a result of this changing landscape of disaster risk a new approach is needed in order to create sustainable and resilient communities (IFRC, 2015). Community Based Disaster Risk Management (CBDRM) is being increasingly promoted by experts within the field of Disaster Risk Reduction (DRR) as a new approach that aims at building resilient communities by placing local actors at the centre of the process (JANI, 2011). Vietnam was introduced to the concept of CBDRM in 2000 and it has since been a popular approach in the disaster prone country. In 2009 a national program was implemented aiming for CBDRM to be carried out in over 6000 vulnerable communes by 2020 (JANI, 2011). The Mekong Delta region in Vietnam is annually flooded resulting in loss of life and property. This region is also highly susceptible to the effects of climate change (Nguyen & James, 2013) and the Vietnamese government has decided to use an approach of "living with floods" to mitigate the harmful consequences (Nhu et al, 2011). This thesis aims at analysing challenges and potential of CBDRM in the Mekong Delta region in Vietnam and addresses the following research questions:

> What are the modes and modalities through which citizens and communities in the Mekong Delta region in Vietnam are involved in disaster risk management?

> How does CBDRM impact risk reduction for the communities included in the study?

The thesis was carried out through a literature review, aiming at examining the theory of CBDRM and its components as well as Vietnam and the Mekong Delta. Interviews with key informants were also conducted and targeted stakeholders from all levels implementing CBDRM in the region. A stakeholder map of actors involved in CBDRM was set up and contacted and respondents were interviewed. Once the material was collected the analysis was conducted by comparing the result from literature and interviews after which the thesis reflected on the similarities and differences between theory and practice. Finally the thesis expanded on the subject in an attempt to find general lessons from the field of CBDRM applicable outside of the Mekong Delta.

According to the respondents the main modes and modalities that have been used in the Mekong Delta are training of community members and local actors, education of children and incorporation of DRR into school curriculum, better information sharing to community members and compilation of leaflets and textbooks. Involvement of local actors in risk and vulnerability assessments, better mobilisation and mapping of stakeholders and resources and enhanced coordination and communication between facilitators of CBDRM in the region have also been important. As CBDRM is a long-term process there are difficulties in measuring the specific outcomes of its implementation. However, some positive outcomes were distinguishable such as increased participation of women, incorporation of DRR into school systems and more risk aware and self-reliant communities with increased knowledge and confidence in DRR work.

The thesis shows that CBDRM has been an effective approach for DRR in the Mekong Delta and that used modes and modalities resulted in safer communities with a higher capacity to deal with imminent threats from disasters. The thesis concludes that the work of CBDRM being conducted in the Mekong Delta and Vietnam sets a great example and should inspire other countries and actors to follow. However, CBDRM is still a fairly new concept and further research should be conducted in order to study the long-term effects.

Sammanfattning

Global uppvärmning bidrar till en ökad frekvens av katastrofer i världen (IPCC, 2014). Urbanisering och miljöförstöring leder till ökad sårbarhet inför dessa katastrofer (Shaw, 2012b). Som ett resultat av dessa förändringar behövs nya strategier för att skapa hållbara och motståndskraftiga samhällen (IFRC, 2015). *Community Based Disaster Risk Management* (CBDRM) är ett växande koncept inom katastrofriskhantering vars syfte är att placera lokala aktörer i centrum av katastrofriskhanteringsprocessen (JANI, 2011). I Vietnam infördes begreppet CBDRM år 2000 och har sedan dess varit en populär metod för hantering av katastrofer i landet. År 2009 infördes en nationell handlingsplan som siktar på att implementera CBDRM i över 6000 områden till år 2020 (JANI, 2011). Mekongdeltat i Vietnam är årligen utsatt för översvämningar som leder till förluster i form av både liv och egendom. Regionen är känslig för effekterna av klimatförändringar (Nguyen och James, 2013) och den vietnamesiska regeringen har beslutat att använda ett tillvägagångssätt som kallas "living with floods" för att mildra de negativa konsekvenserna (Nhu et al., 2011). Syftet med denna uppsats är att analysera utmaningarna och möjligheterna av CBDRM i Mekongdeltat i Vietnam utifrån följande frågeställningar:

Genom vilka metoder och med vilka förutsättningar involveras invånare och samhällen i Mekongdeltat i Vietnam i katastrofriskhantering?

Hur påverkar CBDRM reducering av risker för de samhällen som ingår i studien?

Uppsatsarbetet inleddes av en litteraturstudie med syfte att undersöka teorin kring CBDRM och dess komponenter samt få en utökad förståelse för Vietnam och Mekongdeltat. Sedan genomfördes en inventering över organisationer inblandade i CBDRM i området och relevanta aktörer kontaktades. Därefter genomfördes en intervjustudie. När materialet slutligen samlats in utfördes en analys genom att jämföra resultat från litteraturen och intervjuerna varefter författarna reflekterade över likheter och skillnader mellan teori och praktik.

Enligt de intervjuade är metoderna och förutsättningarna som använts i Mekongdeltat utbildning av invånare och lokala aktörer, utbildning av barn och inkorporering av katastrofriskreducering i skolors läroplaner, bättre information till invånare samt sammanställningar av broschyrer och läroböcker i ämnet. Dessutom har medverkan av lokala aktörer och invånare i risk- och sårbarhetsanalyser, bättre mobilisering och kartläggning av intressenter och resurser samt bättre samordning och kommunikation mellan aktörer verksamma inom CBDRM i regionen också varit av vikt. Då CBDRM är en långsiktig process är det svårt att mäta specifika resultat av implementerade aktiviteter, men påvisade positiva resultat i Mekongdeltat är till exempel en ökad andel kvinnor inom katastrofriskhantering, integrering av katastrofförebyggande ämnen i skolan och mer riskmedvetna och självständiga samhällen med ökad kunskap och förtroende för katastrofförebyggande arbete.

Studien påvisar att CBDRM har varit en effektiv metod för katastrofriskreducering i Mekongdeltat och att använda metoder har bidragit till säkrare samhällen med ökad kapacitet för att hantera katastrofer. Studien påvisar även att arbetet med CBDRM som bedrivs i Mekongdeltat och Vietnam bör inspirera andra länder och aktörer. Det är viktigt att komma ihåg att CBDRM fortfarande är ett relativt nytt begrepp och vidare forskning bör bedrivas för att studera de långsiktiga effekterna.

Abbreviations

ADB – Asian Development Bank

ADPC – Asian Disaster Preparedness Center

AMDI – Asian Management and Development Institute

ARC – Australian Red Cross

CIA – Central Intelligence Agency

CBDRM - Community Based Disaster Risk Management

CBDRM 1002 - Vietnam's national community awareness raising and community based disaster risk management

CPMO - Central Project Management Office

DRR - Disaster Risk Reduction

DRM - Disaster Risk Management

EWS - Early Warning System

IFRC – International Federation of Red Cross and Red Crescent Societies

IPCC - Intergovernmental Panel on Climate Change

JANI – Joint Advocacy Network Initiative

MARD – Ministry of Agriculture and Rural Development

MRC – Mekong River Commission

NCDRR - National Center for Disaster Relief and Recovery

NGO - Non-governmental organisations

NLRC – Netherlands Red Cross

PDC – Pacific Disaster Center

SRC – Swiss Red Cross

ToT - Train of trainer

UNISDR – United Nations secretariat of the International Strategy for Disaster Reduction

VNRC – Viet Nam Red Cross

Definitions

There are many opinions and thereby many definitions for the terminology used in the field of disaster risk management. Below the authors have listed the terms and concepts used in the thesis and their respective chosen definitions.

Adaptation
Initiatives and measures to reduce the vulnerability of natural and human systems against actual or expected climate change effects. Various types of adaptation exist, e.g. anticipatory and reactive, private and public, and autonomous and planned. Examples are raising river or coastal dikes, the substitution of more temperature-shock resistant plants for sensitive ones, etc. (IPCC, 2007).

Capacity building
The process by which people, organizations and society systematically stimulate and develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems, and institutions (UNISDR).

Disaster
A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources (UNISDR).

Disaster Risk
The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period (UNISDR).

Disaster Risk Management
The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster (UNISDR).

Disaster Risk Reduction
The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events (UNISDR).

Hazard
A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage (UNISDR).

Resilience
The ability of a system, community or society exposed to hazards to resist, absorb, accommodate and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions (UNISDR).

Vulnerability
The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard (UNISDR).

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1 Introduction

In this section the background and context of the study is presented along with the aim, research questions and limitations.

1.1 Community Based Disaster Risk Management (CBDRM)

Intergovernmental Panel on Climate Change (IPCC) states that global warming will cause unpredictable and more intense weather extremes thus increasing the number of disasters throughout the world (IPCC, 2014). Rapid urbanisation together with climate change and environmental degradation creates an increase in vulnerability where human safety is threatened (Shaw, 2012b). This calls for serious action to be taken in order to achieve sustainable and resilient communities (IFRC, 2015).

In order to achieve sustainable and resilient communities it is necessary to have participation from community members and local government at the centre of Disaster Risk Reduction (DRR) (IFRC, 2015). In addition to participation it is also crucial to create local ownership to increase local capacity (Hagelsteen & Becker, 2013). This increased demand for local participation, engagement and ownership has resulted in a widespread use of CBDRM which strives to turn community members into main actors of the whole process of DRR (JANI, 2011).

CBDRM promotes an integration of bottom-up and top-down efforts with a starting-point in the local actors in order to strengthen community's capacity to handle and mitigate disasters, increase their risk awareness and reduce vulnerability (Shaw, 2012a). The increased local capacity decreases the response time and allows for more proactive measures in order to reduce and avoid the consequences of disasters (Oxfam, 2012) which in the end will lead to lower cost and more effective responses (NCDRR, 2008).

Altogether this makes CBDRM an invaluable tool for DRR, especially in a country such as Vietnam where resources are limited and disasters are a recurring part of life.

1.2 Vietnam

Vietnam is located in Southeast Asia (figure 1) with borders to China, Cambodia, Laos, Thailand, South China Sea and the Gulf of Tonkin. It has a total area of 331,210 km^2. The population was roughly 93 million in 2014 and the official language is Vietnamese with English being the second largest (CIA).

The country is located in a tropical monsoon region and this together with its topography makes it one of the most vulnerable countries in the world, in regards to climate change (Van et al, 2012). Disasters are becoming more frequent and severe with the most common disasters being typhoons and floods. The most vulnerable regions are in the Red River areas, the Mekong Delta and along the 3444 km long coastline (CPMO & MARD, 2009). Well above 70 percent of the population live in these disaster prone areas and are heavily exposed and vulnerable (Nhu et al, 2011).

Figure 1: Vietnam's position in Asia (upper left), the Vietnamese flag (lower left), map over Vietnam (right) (CIA).

Vietnam is continuously developing and has a growing gross domestic product. This is mostly due to the increasing tourism and export (Duiker, 2015). Despite an uprising economy there are still many people living in poverty due to the damages floods and storms create on crops and infrastructure (Shaw, 2006).

An increase in population and socio-economic development together with urbanisation yields a greater need for more resources and thereby a higher level of exploitation of the natural environment leading to an increase in vulnerability (Nhu, et al, 2011). Shaw (2006) states that the issue lies in where the population decides to live, how the land is used and the infrastructure in the regions.

1.3 Mekong Delta

Situated in Southeast Asia (figure 2) the Mekong River stretches 4350 km, making it the 7th longest river in Asia and the 12th longest river worldwide draining more than 810 000 km² (Jacobs, 2015). The river rises in the south-eastern Qinghai province in China (Jacobs, 2015), flowing through China, Laos, Cambodia and Vietnam before emptying into the South China Sea (MRC). It forms the international border between Myanmar and Laos and between Thailand and Laos (Jacobs, 2015).

The Mekong Delta is regarded to begin at Phnom Penh in Cambodia where the Mekong River meets the Tonle Sap River and the Bassac River branches and the delta then stretches through Cambodia and Vietnam (figure 3). A majority of the delta, 39 000 km², is situated at the southern tip of Vietnam (Delta Alliance) occupying 12 (Cosslett & Cosslett, 2014) out of Vietnam's 58 provinces (CIA).

Figure 2: The Mekong river (Great Rivers Partnership)
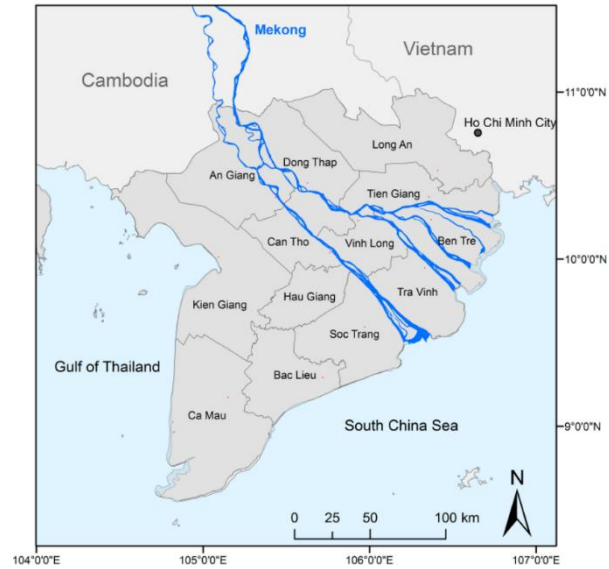
Figure 3: The Vietnamese Mekong delta (Kuenzer et al, 2013)

According to Cosslett and Cosslett (2014) the Mekong Delta has a tropical monsoonal climate with a dry season from December to May and a rainy season from June to November which annually results in flooding (figure 4). These floods affect roughly half of the Mekong Delta area and occur for two to six months per year (Nguyen & James, 2013). While being a recurring hazard resulting in loss of life and economy the floods are also beneficial as the fertile sediment deposited by the floods results in very high agricultural productivity in the region (Nguyen & James, 2013). Being one of the most productive areas in Asia the Vietnamese Mekong Delta is intensely developed for agriculture and nearly 85 percent of the population of roughly 20 million is rural (Delta Alliance).

Because of these contradicting effects the Government of Vietnam uses an approach of "living with floods" in the Mekong Delta aiming to reap the socio-economic benefits of the annual flooding while mitigating the consequences through proactive and responsive measures (Nhu et al, 2011).
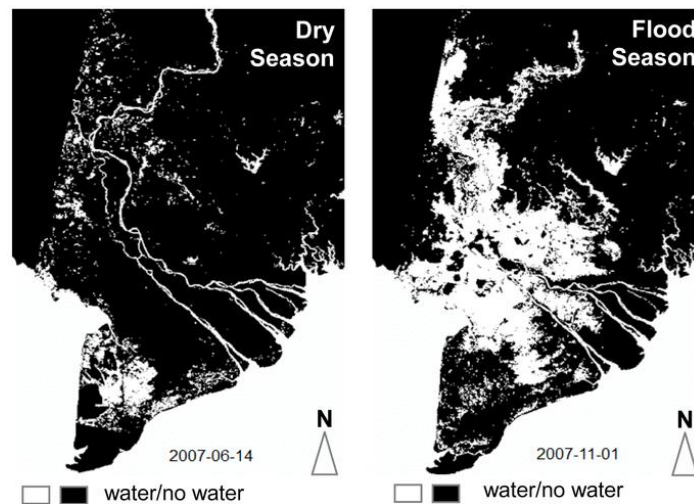
Figure 4: The Vietnamese Mekong delta during the dry season and flood season (Kuenzer et al, 2013)

Climate change along with human interaction, such as deforestation and construction of dams and irrigation systems, have led to increased flows and decreased draining capacity in the region aggravating unsafe conditions (ADPC, 2006). According to Cosslett and Cosslett (2014) there have been several uncustomary severe floods and droughts in the region since the turn of the century which have resulted in great loss of life, housing and livelihoods, especially among poor.

The Mekong Delta is very susceptible to climate change causing a sea level rise which increases the risk of flooding (Nguyen and James, 2013) as well as submerging settlements and agricultural land in the low lying basin area (Van et al, 2012).

1.4 **Aim and research questions**

The research aims to analyse challenges and potential of CBDRM in the Mekong Delta region in Vietnam.

The research addresses two main questions:

> What are the modes and modalities through which citizens and communities in the Mekong Delta region in Vietnam are involved in disaster risk management?

> How does CBDRM impact risk reduction for the communities included in the study?

1.5 **Limitations**

The study is limited to the Vietnamese Mekong Delta and a field visit to the region was not possible due to time and resource restrictions. This results in no interviews with community members and governmental officials.

The result is purely based on a literature study in the general field of CBDRM and interviews focusing on the Mekong Delta. No evaluation reports from finalised projects in the region have been used. The interview study is conducted using a semi-structured approach which leaves room for discussion but also a more dispersed result.

2 Methodology

In this chapter the methodology used for the thesis will be described. It is divided into the 3 phases that the study consisted of including a literature study, field work, analysis and reflection. The time frame for the thesis is presented in Appendix A. The writing of the report was conducted during the entire time of the thesis.

2.1 Literature study

The literature study was conducted within the field of CBDRM and its components together with more specific research on Vietnam and the Mekong Delta.

When researching CBDRM the main focus was to examine different components involved and to compare researcher's, author's and practitioner's opinions within the field. This phase started with a broad search on CBDRM to get an overall view of the concept and was later narrowed down to the different components, challenges and benefits with the approach.

The research regarding Vietnam and the Mekong Delta aimed at both getting an understanding of the country and the existing legislation in the field as well as getting a holistic view over the different stakeholders involved in CBDRM projects in the region. The search included reports from non-governmental organisations (NGO) such as International Federation of Red Cross and Red Crescent Societies (IFRC) and Viet Nam Red Cross (VNRC) where many of the relevant actors were mentioned which led the authors further into the field of CBDRM in Vietnam. National government also provided several reports mentioning partners and projects in the Mekong Delta. These articles were used as sources of information both to gain more knowledge ahead of the interview study, to know which organisations to target and CBDRM in general and in the region.

2.2 Field work

The intentions for the field work was to interview stakeholders from NGOs and local and national government. From contacts through the thesis supervisor and by using a stakeholder map the different actors, presented in appendix B, were contacted and asked to be part of the interview study. The ones who responded are the ones included in the thesis. An introduction to their respective organisations can be found in Chapter 4 Stakeholders in the Mekong Delta.

The aim of the interview study was to examine how CBDRM is conducted in the Mekong Delta but also to get an insight into how practitioners out in the field perceive the use of the approach and the challenges and benefits connected to it.

A list of main questions for the interviews is included in appendix C. The interviews started with questions about the interviewee and the organisation and different projects that the organisation had been involved in and followed with general questions about CBDRM as a concept and the challenges and benefits of the approach.

A semi-structured approach was used to leave room for relevant follow-up questions and discussions and to ensure that the respondents were guiding the interview rather than the interviewers, i.e. the researchers, deciding which direction the interview should take. This although demands the interviewers being experienced and adaptable (Barbour, 2014).

Before the scheduled interview the main questions were sent out to the interviewees together with a short description of the interview process and an introduction to the study to give the respondents an opportunity to prepare beforehand.

All the interviews were conducted using Skype due to the location of the interviewees. The interviews were recorded to ensure no vital information was lost. The recordings were transcribed and the content was compiled in order to answer the research questions and main themes of the thesis. The transcribed interviews may be provided upon request.

The result was used as a basis for the analysis.

2.3   Analysis and reflection

Once the result was compiled an analysis was conducted based on a comparison between the literature study and the results from the interviews. The most used phrases, modes and modalities in the interviews were selected as main topics for the analysis. The authors focused on differences and similarities between literature and interviews and reflected on the subjects and possible reasons and outcomes of the result.

3 Literature study

This chapter presents the literature study. General information about CBDRM and its components are described along with the need for such an approach. The focus region for this thesis, i.e. the Mekong Delta in Vietnam, is described together with the stakeholders involved in the study.

3.1 CBDRM

Climate change has led to both increased frequency of natural hazards, but also increased vulnerabilities to these disruptive events which in turn has led to an increased occurrence of disasters throughout the world (Shaw, 2012b). The impact of these disasters often affects both social and economic factors in society and proves especially challenging for developing countries as it in addition to loss of life and wealth hampers the developing process (Pandey & Okazaki, 2003) which keeps people trapped in poverty and vulnerability.

According to Shaw et al (2012) the changing landscape towards more frequent and complex disasters calls for a proactive alternative to traditional DRR. This traditional approach has been characterised by a pronounced top-down approach of disaster relief which often fails to address local needs and vulnerabilities as well as to implement local resources and capacities (Shaw, 2012b). In order to create resilient communities attention must be paid to all levels, but the community level tend to be relatively neglected (Berkes & Ross, 2013). The solution to this shortcoming is CBDRM that endorse combined bottom-up and top-down efforts in order to strengthen people's own capacity to manage disasters and building resilient communities by reducing the inherent vulnerabilities (JANI, 2011).

The approach of systematically engaging communities in order to manage as well as reduce disaster risks was initially presented in the Ocho Rios paper spawning from the International Conference on Disaster Mitigation Program Implementation in 1984 (Maskrey, 2011). CBDRM was later presented as an alternative to traditional DRR in the late 1990's (Izumi & Shaw, 2012) and was initially implemented by NGOs in the developing world. Due to its success in raising risk awareness, building on local institutions, resources and capacities and in addressing existing vulnerabilities it quickly gained ground among international organisations and local government (Izumi & Shaw, 2012). The approach of CBDRM was further strengthened in the Hyogo framework for action from 2005 and in the succeeding Sendai framework for disaster risk reduction from 2015. It has in other words been mainstreamed to the point where it is now difficult to find Disaster Risk Management (DRM) programmes without CBDRM components (Maskrey, 2011).

One of the main advantages of a CBDRM approach to DRR is that it makes members in at-risk communities the main actors throughout the whole process of risk management, turning the community from beneficiaries to engaged actors and external stakeholders into facilitators (JANI, 2011). CBDRM is a long-term process that implements various tools from the field of DRM, some of which will be examined more closely in the context of CBDRM below.

3.2 The need for CBDRM

According to IPCC global warming will lead to more frequent and intense weather extremes which in turn creates a greater need for dealing with these challenges in an efficient and sustainable manner (IPCC, 2014). This together with urbanisation, with more than half of the population currently living in urban areas, will create new challenges, increased vulnerability and exposure to disasters (United Nations, 2010).

CBDRM is strengthening the community and society by improving the confidence and preparedness of individuals to handle disasters on their own, thus mitigating the disasters and reducing their own vulnerability (Shaw, 2012a). This is especially important in developing countries where governmental and national resources are scarcer and the need to be able to rely on your own capability necessary (Ishiwatari, 2012).

By implementing CBDRM the projects are not only working on the surface but dealing with the root causes of the problems. CBDRM acknowledges the fundamental right and the individual need to be a part of the decisions that impacts the society you live in thus making you in charge of your own life (Izumi & Shaw, 2012). Oxfam (2012) states that CBDRM projects lead to development of human and community capacity thus decreasing the response time and increasing the proactive measures to mitigate disasters. This in turn will lead to a lower cost for response (NCDRR, 2008).

To increase risk awareness of a population is an important reason for the implementation of CBDRM. Individuals are often unaware of the risks existing in their community or overestimating their own capacity and potential to manage the ones they know of. By education, training, information sharing and communication a light can be shed on the disasters that can affect the individuals and their livelihood (Shaw, 2012a).

3.3 The 3 pillars of CBDRM

In this chapter the three pillars of CBDRM, i.e. the three core principles for a successful implementation of CBDRM, are described. These, according to the authors, are sustainability, participation and ownership (figure 5). All three are dependent on one another, with no functioning participation or ownership the sustainability of the project will be limited.
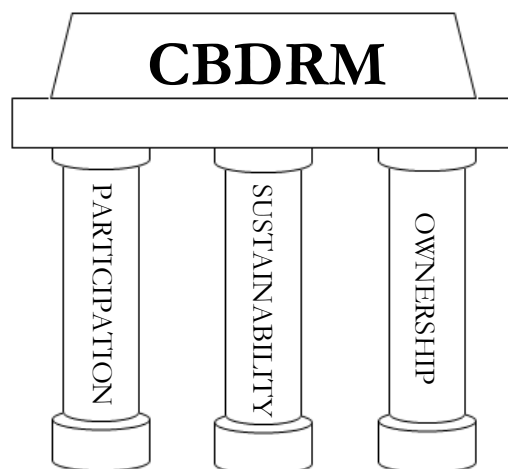
Figure 5: The three pillars of CBDRM

3.3.1 Sustainability

Projects implemented in disaster prone areas need to be sustainable. The ownership of the projects and its maintenance should belong to the community. NGOs or other agencies are often in charge of the projects but if it's not properly implemented in the community it is difficult to keep it up when the project duration is over (Shaw, 2012a). The Ocho Rios paper states that CBDRM is about empowering communities by giving the right to be in charge of their own resources and support services and not about creating projects at a community level. The switch in mind-set of supporting communities in their own projects instead of pushing external projects onto the community is vital (Maskrey, 2011).

3.3.2 Participation

Participation is one of the core principals of CBDRM and includes the involvement of different stakeholders at all levels (Shaw, 2012a). Without including the local level throughout the whole project there is no sustainability but when the community is participating from the start a continuous engagement and commitment is created due to an increased sense of responsibility and ownership. This demands cooperation between stakeholders in all stages of the project and is especially important in the risk and vulnerability assessment (Pandey & Okazaki, 2003). Maskrey (2011) states that if there is no true participation of the population but only support and funding towards building infrastructure and so forth there will be no long-term maintenance and therefore no sustainability.

3.3.3 Ownership

The third pillar of CBDRM is ownership. It is commonly thought that it is the government and the national authorities that are supposed to manage the preparations and aftermath of disasters but considering the communities and individuals being the ones most affected a community ownership has to be implemented (Shaw, 2012b). To achieve any form of sustainability communities have to be empowered and able to cope with the consequences of disasters (Pandey & Okazaki, 2003). A shift towards increasing the community's ownership by building local capacity to handle the project is needed (Shaw et al, 2012). By involving the citizens from the start of the project the maintenance of it will increase thus increasing sustainability (Maskrey, 2011).

3.4 Prerequisites for CBDRM

To achieve a successful implementation of CBDRM there are obstacles to overcome. To deal with these challenges a set of prerequisites are needed. These are, among others, training, education, information sharing, coordination, resources, risk and vulnerability assessments, early warning systems and legislation (figure 6).

3.4.1 Training

In regards to training and exercises one question is who to involve and invite. Shaw (2012a) states that the broader the stakeholder involvement is, the better. Including actors at both international, regional, national and community level will result in a quicker and more efficient spreading of the important information and lessons learned making a larger part of the population aware of the risks and how to act when a disaster strikes. It is also a way of making the local governments aware of the project's shortcomings and possible measures needed to enhance the community's capability (Ishiwatari, 2012).

Exercises and drills have shown to be effective in terms of enlightening the population on the existing risks and creating a more prepared and risk aware society (AMDI, 2013).
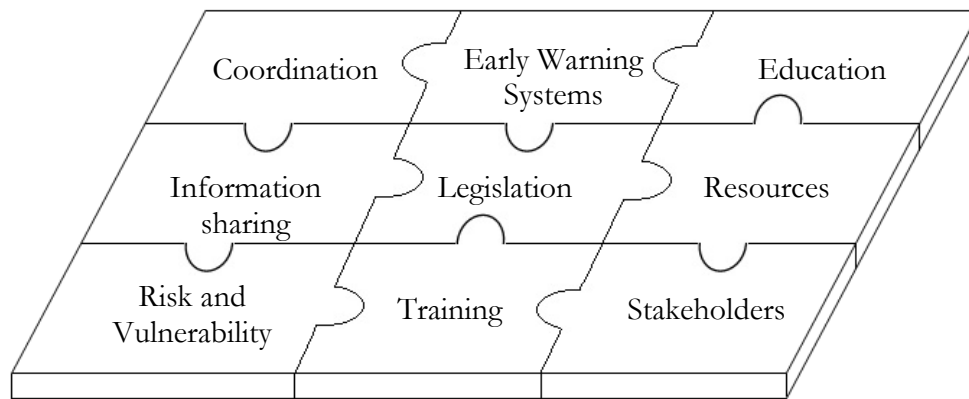
Figure 6: Prerequisites for well-functioning implementation of CBDRM

3.4.2 Education

Education is essential for CBDRM. To teach the locals and other stakeholders the importance of DRR and sustainable development and increasing the risk awareness in the region is important for a well-functioning disaster management (Shaw et al, 2012).

This could be done through schools by implementing the knowledge of risks and how to manage these into different subjects such as geography or natural science. It has shown to be very successful as a means to engage the students and increasing their risk awareness and capacity (AMDI, 2013).

DRR is not a common subject in higher education such as universities and colleges but it is becoming more and more important. Universities and colleges have large networks which can be used to spread information efficiently thus increasing the general knowledge in the field (Shaw et al, 2012).

3.4.3 Information sharing

Information sharing can be in the form of booklets, commercials, media or by education. It is an essential tool for increasing risk awareness and has shown to be highly efficient (AMDI, 2013). Projects need to have a budget for funding these measures in order to strengthen the capacity of all involved actors. Knowledge is the key to empower the stakeholders and sharing information and experience is a means to gain this knowledge (United Nations, 2010).

Public meetings where the DRR projects are discussed together with the present and future risks in the area can increase the community's risk awareness (CPMO & MARD, 2009). This together with a built up network of key actors and agencies where information can be shared and knowledge passed on is an efficient way to implement and improve the CBDRM initiatives (United Nations, 2010).

3.4.4 Communication and Coordination

Communication is the most important tool to achieve proper coordination. This includes communication between all levels. The scientists or experts need to communicate the DRR measures they have implemented and their function and purpose to the locals (Shaw, 2012a). It is important to identify and establish the different channels of communication to enable correct and easily accessible information (Shaw, 2012b).

Due to each level, agency, stakeholder or group in society having their own set of skills, knowledge, resources and information, coordination between these have to be clear and implemented early before a disaster strikes (Berkes & Ross, 2013). One group cannot deal with all the existing needs and challenges when dealing with DRR (Shaw, 2012a). A broad partnership between the government, local stakeholders and national agencies creates the possibility to address the local issues but also to see it in a wider perspective and achieve a more holistic view of the problems facing larger areas. By doing this a more efficient resource allocation becomes available where the borders between regions or countries are faded and a possibility for a wider range of contacts and the ability to help each other is strengthened (Maskrey, 2011).

3.4.5 Resources

Funding for CBDRM is another major challenge connected to the issue of sustainability. There is usually donors that make the project possible, but the aftermath and the maintenance of the project is not thought of or budgeted for. This in turn means that the project's activities and the effects of it end together with the duration of the project (Izumi & Shaw, 2012). This could also be connected to the issue that the poor is often the most vulnerable and do not have the means to effectively reduce their own risk and enhance their own safety (Ishiwatari, 2012).

A resource assessment is needed to get a picture of what is available, what kind of resources and their location and what is required. Resources are not only material but can be financial or human, i.e. skills, knowledge and volunteers (Flood Management and Mitigation Program, 2006). The resource assessment should be done together with the community since they are the ones with the most knowledge on existing resources and useful material in the region. By using this approach the control over resources and support services will be in the hands of the people which in turn will strengthen their own capability and responsibility to manage a disaster (Pandey & Okazaki, 2003).

Another important resource is time. CBDRM projects take time and they are often inhibited by time restrictions making it difficult to make changes at higher levels and allowing projects time to be implemented in a correct and efficient manner (United Nations, 2010).

3.4.6 Risk and Vulnerability Assessment

A community based risk and vulnerability assessment is made together with the affected population and external actors. The community, representatives from the government and NGOs collect and analyse risks and vulnerabilities in the region in order to be able to set up proper and efficient actions in which these can be reduced (Flood Management and Mitigation Program, 2006).

When carrying out risk and vulnerability assessments in an area it is important to include the community. The population is the ones most affected by disasters and also the ones with the most experience of how previous disasters have been dealt with. Individuals have the best knowledge about the area and vulnerabilities in their own community thus making them an important source of information (Shaw, 2012a). Even so it is important that communities are supported in this process and that a combination of experts, locals and other agents are present (Pandey & Okazaki, 2003). If done with only external actors there is a risk of intruding on the region's culture and thereby creating a mistrust and unwillingness to cooperate which can even lead to an increased vulnerability instead of a reduction (Shaw, 2012a).

Another important aspect to consider when conducting risk and vulnerability assessments is the skills and already existing community organisations and experts in the area (Shaw, 2012b). The assessment techniques used depend on these collective skills since it ranges from hazard and resource mapping to the history of the region (Flood Management and Mitigation Program, 2006).

Community members can assist in describing existing physical and natural resources to enable DRR projects to build on what is accessible in the region thus making projects more sustainable and independent of external donors or agencies (Shaw, 2012b). It is important for the community to be allowed to use its own resources when addressing the hazards (Pineda, 2015).

By involving the most vulnerable in risk and vulnerability assessments risk perceptions of the individuals can be accounted for (Shaw, 2012a). It can also be a first step in enhancing risk awareness in the affected population, increasing the knowledge about the hazards they might face now or in the future (Flood Management and Mitigation Program, 2006).

3.4.7 Legislation

According to Shaw (2012a) there is a strong correlation between environmental degradation, climate change and frequency and severity of disasters. In other words a connection has to be made between vulnerability and the way the environment is treated. Policies and national or international laws play an important role for long-term aspects.

Even though projects in CBDRM and its challenges and consequences should belong to the population there has to be policies and legislation backing it up. It is through the linking of projects to policies and legislations that the importance of the combination of a top-down and bottom-up approach becomes more evident (Shaw, 2006).

To achieve functioning legislation that is pursued by the population it is important to implement these in the community by involving the locals in decision making from the start. This creates ownership and a feeling of responsibility to counter the feeling of enforcement and distrust (Izumi & Shaw, 2012).

3.4.8 Early Warning Systems

In risk prone areas it is crucial to have effective Early Warning Systems (EWS) as it enables the affected people to prepare, mitigate, respond to or in the worst case scenario evacuate before a disaster strikes (Ishiwatari, 2012), thereby reducing the harmful consequences in terms of loss of life and economic damage.

According to Pineda (2015) a EWS should deliver information to the concerned population about an approaching hazard in an easily understood manner and at the same time inform the affected about how to act and when. Grasso (2006) adds that it should enable the exposed population to prevent or reduce the consequences and start planning for how to respond afterwards. In order for an EWS to work properly community members must be actively engaged in the whole process from monitoring to making sure that the information provided is comprehensible and linked to appropriate actions (Pineda, 2015).

Basher (2006) also points out that when local communities does not have a sense of ownership of the EWS it often results in mistrust toward not only the warning itself but also the actor behind the warning system.

3.4.9 Stakeholders

According to Maskrey (2011) the support of local and national governments when implementing DRR projects with focus on CBDRM will contribute to a much more successful process. All the involved actors need to have clear roles and responsibilities to enhance leadership and communication within the projects (Flood Management and Mitigation Program, 2006). The local government is the first responder thus having the responsibility to implement efficient risk reduction measures (United Nations, 2010). Maskrey (2011) means that the involvement of all levels is vital for a successful implementation. The risks in different areas differ even though the exposure to hazard is the same which makes DRR a local, national and global question with its main focus on the local level. NGOs and governments should identify these needs and vulnerabilities and thereafter design projects well suited for the area (Izumi & Shaw, 2012).

It is common that external actors function as project initiators or donors (Izumi & Shaw, 2012). Maskrey (2011) states that political and economic support from national organisations together with a global commitment for questions regarding climate change are the cornerstones for a sustainable project.

3.5 Legislation in Vietnam

In Vietnam laws and regulations in the field of DRM are numerous and in this section the most vital ones for CBDRM will be presented.

Due to its geographical situation and proneness to disaster the ability to mitigate natural disasters and adapt to local conditions and changing environment has been crucial for Vietnam's history and development. As a result there are numerous laws, strategies and policies on DRM in the country. The amount of legal documents has made them difficult to implement and Vietnam has lacked a holistic legislative view on multi-hazard DRM (Center for Excellence in Disaster Management & Humanitarian Assistance, 2012). Traditionally, DRM in Vietnam focused on structural measures such as dams and dykes, and rescue and response missions. However in the year of 2000 CBDRM was introduced to the country by NGOs after which it quickly gained ground (JANI, 2011).

In 2007 the '*National Strategy for Natural Disaster Prevention, Response and Mitigation to 2020*' was approved, becoming the main framework for DRM in Vietnam (Center for Excellence in Disaster Management & Humanitarian Assistance, 2012). The aim of this document is to provide guidelines, goals, measures and targeted areas for DRM in the country and to strengthen the government's commitment to reducing risks (JANI, 2011). The document also strives to promote international cooperation by integrating agreements such as United Nation's Convention for Climate Change, the Kyoto Protocol and the Hyogo Framework for Action (Socialist Republic of Vietnam, 2007). While not mentioning CBDRM specifically the framework mentions the importance of raising community awareness, involvement of community members and on-the-spot disaster prevention (Socialist Republic of Vietnam, 2007). In this strategy the concept of 'living with floods' was promoted as the approach for DRM in the Mekong Delta (Center for Excellence in Disaster Management & Humanitarian Assistance, 2012).

In 2009 CBDRM was further reinforced in Vietnam as the national program '*Community awareness raising and community-based disaster risk management (CBDRM)*', commonly referred to as CBDRM 1002 or project 1002, was approved (Center for Excellence in Disaster Management & Humanitarian Assistance, 2012). The program aims at raising risk awareness and improving capacity at all levels and reducing fatalities and loss of property by during a 12 year period implementing CBDRM in 6000 communes frequently affected by disasters (Socialist Republic of Vietnam, 2009).

Recently there was a conference reviewing the first five years of implementation of the CBDRM 1002 project where experience, challenges and directions for the future were discussed by stakeholders responsible for the implementation. The importance of cooperation and collaboration between actors was brought up along with the concern of lack of clear guidance for the implementation. As of the 25th of September 2015 the CBDRM activities have been implemented in 555 communes out of 6000 (Nguyen, 2015).

4 Stakeholders in the Mekong Delta

This section presents the organisations taking part of the interview study. The selection process is further explained in Chapter 2 Methodology and a full list of the stakeholders in the Mekong Delta is presented in appendix B.

4.1 Save the Children Vietnam

Save the Children Vietnam is a national branch of the international NGO Save the Children and has been operating in Vietnam since the 1990's. The organisation work together with both governmental partners as well as other NGOs. Initially the organisation focused on helping children in impoverished communities but their programmes have expanded to also include aspects of humanitarian response, DRR and climate change adaptation. Among other things Save the Children Vietnam have implemented a community based DRR programme in 6 provinces in Vietnam (Save the Children Vietnam).

4.2 Viet Nam Red Cross (VNRC)

VNRC was officially established in 1946 and became an official branch of IFRC in 1957. VNRC cooperates with other members of the IFRC as well as local and governmental authorities. The activities range from disaster preparedness and response to humanitarian relief and healthcare. Since 2011 VNRC has supported MARD with implementing the national CBDRM project from 2009 (VNRC).

4.3 Swiss Red Cross (SRC)

SRC is a national branch of the international NGO IFRC. Their activities aim to protect lives and wellbeing of humans worldwide and they have been active in Vietnam for over 50 years. While initially focusing on development it has, since 2000, shifted towards disaster relief and preparedness. SRC cooperates with VNRC and promotes DRR by carrying out risk and vulnerability assessments, protection plans, structural mitigation measures, training and equipping local relief units (SRC).

4.4 Australian Red Cross (ARC)

In 1914 ARC was established as a branch of the British Red Cross Society and was later accepted as a national society and thereby a branch of IFRC in 1927. The goal of ARC is to provide disaster relief as well as care for exposed people. In Vietnam, ARC works with VNRC. Among other things ARC promotes climate change adaptation, DRM and resilient communities (ARC).

4.5 Oxfam

Oxfam is an international NGO and consists of seventeen organisations. Oxfam is active in over 90 countries. The Oxford Committee for Famine Relief was founded in the United Kingdom in 1942 and Oxfam International was later founded in 1995. Oxfam has been involved in Vietnam since 1955 and focused initially on humanitarian response. In the late 1980's however their focus shifted towards development work. In Vietnam, Oxfam is determined to reduce vulnerability to climate change and disasters by empowering communities to participate in development processes (Oxfam).

4.6 **Pacific Disaster Center (PDC)**

PDC works to prevent disasters by supporting mitigation, preparedness, response and recovery worldwide. This is done through measures such as monitoring, EWS, risk and vulnerability assessments, exercise support and capacity enhancement. In Vietnam, PDC has developed a web-based early warning support system called VinAWARE which compiles and presents national data in order to support decision making for local disaster managers. The project also included a training program at national and provincial level (PDC).

4.7 **The Asian Management and Development Institute (AMDI)**

AMDI was founded in Vietnam 2006 and is an independent research and consulting institute. The aim of AMDI is to promote human development. AMDI work closely with local and international partners and conducts training, consulting and research in DRR, climate change adaptation and CBDRM (AMDI).

5 Result

The results from the interview study are presented below. The questions used for the interviews can be found in appendix C. The respondents are listed in table 1.

Table 1- Interviewees, their organisations and positions

Organisation	Respondent	Position
Viet Nam Red Cross	Dang Van Tao	Programme Manager, Disaster Risk Reduction Vietnam Country Office
Asian Management and Development Institute	Ngô Công Chinh	Director, Research Centre for Disaster Risk Reduction and Climate Change
Australian Red Cross	Nguyen Thu Huong	Programme Manager, Vietnam
Swiss Red Cross	Ruth Lane	Country Coordinator, Vietnam
Save the Children	Tam An	Project Assistant
Pacific Disaster Center	Victoria Leat	Southeast Asia Program Advisor
Oxfam	Viet Vu Xuan	Humanitarian and Water Governance Lead

5.1 The approach of CBDRM

Below is the congregated view of the interviewees on the defining characteristics of CBDRM as well as its potential benefits as an approach within DRR.

> "CBDRM - you have to make your shoes dirty"

CBDRM is an approach to DRR that combines top-down and bottom-up approaches with an emphasis on strengthening the bottom-up aspect. Rather than being an end goal it is a long-term and ongoing process that should continuously adapt in order to avoid becoming stagnant. The central aim of this process is to reduce the risks and vulnerabilities that communities face by building safety and resilience. The key feature of CBDRM is that it should keep a local perspective and put the members of the community at the centre of the whole process, from preparedness and planning to response to recovery and reconstruction.

> "Community Based Disaster Risk Management, or in short CBDRM, is a kind of approach in Disaster Risk Reduction or Disaster Risk Management where you put the community at the centre."

CBDRM stresses the importance of participation of the community including vulnerable groups and minorities such as women, children, elderly and disabled in order to raise the risk awareness of all individuals, thereby increasing the community's capacity as a whole. The community members should not only be informed of the process but should be given ownership and responsibility of the process making them the main driving force. By increasing the local capacity to take care of themselves the external dependency of national governmental or international aid is lowered.

> "It's gotta be really owned and you gotta encourage the ownership of it.
> It's more difficult to achieve but certainly it needs to have involvement
> from the community otherwise it's pointless."

The community should be included in all aspects of the project, including planning, implementation and maintenance. The role of the outside supporter should be that of a facilitator. When conducting risk and vulnerability assessments local knowledge should be taken into consideration and action plans addressing these risks should build on local capacities and resources. The process should strive to include and connect relevant stakeholders at all levels ranging from community all the way up to national or even global actors in order to properly coordinate and allocate resources.

The main benefit of the CBDRM approach is the reduction of damage and loss thanks to safer and more resilient communities. It provides more sustainable solutions as CBDRM is a long-term process that promotes active participation that creates ownership within the community. The raised risk awareness and knowledge encourage people to take responsibility and make choices that improve their situation. It also connects different stakeholders and provides a mapping of local resources, whether human, financial or technical, resulting in more coordinated and effective implementation.

5.2 Modes and modalities for CBDRM in the Mekong Delta

Below is the congregated view of the interviewees on the modes and modalities of CBDRM that have been implemented in the Mekong Delta.

> "My experience here in Vietnam in particular is that CBDRM has the potential to be focused on more of the long-term risk reduction"

5.2.1 Training

Training has been widely used in the Mekong Delta in order to raise knowledge, awareness and capacity of local communities. It has also been employed to clarify responsibilities, to test the effectiveness of plans and to allow people to become familiarised with their tasks and equipments. The aim has been to involve stakeholders from all relevant organisations and levels in training programs. Examples of stakeholders are key leaders at commune level, representatives from the Farmer's association, the Women's Union, local schools, NGOs and local governments. One interviewee mentioned the concept of Train of Trainer (ToT) where an external stakeholder educate a community member or local actor in how to train the community. This creates a more continuous training and saves both time and resources.

One example of training that was given during the interviews was how volunteers in the Mekong Delta was trained to drive and maintain a boat in order to transport children to school safely during the flood season.

5.2.2 Education

Education has been an important tool in order to raise risk awareness and knowledge in the Mekong Delta. It has not only been used to educate the community members but also been implemented into the school system. Teachers have been educated in CBDRM and first aid in order to convey the information to children, thereby increasing their risk perception and helping them take proactive measures lowering their vulnerability. One of the measure used for the communities near the Mekong Delta have been swimming lessons for the children.

> " I'm thinking of things like if you start having occasional programs in schools etcetera that just becomes part of everyday life, people can grow up understanding that and it's automatically built in at that stage."

One measure exemplifying how education have been used as a tool for CBDRM in the Mekong Delta is a textbook that was compiled in order to help teachers recognise signs of disasters and how to act appropriately. This knowledge was then utilised and integrated into the school curriculum and extracurricular activities by the teachers.

5.2.3 Information sharing

The local communities in the Mekong Delta have been informed about the concepts of CBDRM, the projects and the terminology. This has been done through measures such as meetings, leaflets and loudspeaker systems and aims at achieving a common understanding of what capacity and vulnerability is and how to increase and reduce these respectively. This enables them to not only understand the process but also to be able to contribute and ultimately take ownership of it.

One example is leaflets that have been put together and distributed in schools in the region informing the children on disasters and floods especially providing them with basic knowledge on how to prepare and act.

5.2.4 Communication and Coordination

> "Regular communication, clear communication, developing mutual understanding is really important"

Communication between all involved stakeholders needs to be clear and transparent to ensure that all actors are on the same page and have the same understanding of the project and its expected outcome. This has been done in the Mekong Delta by constant communication throughout the entire projects, from start to finish and by being certain that the vulnerable and minority groups are included in this discussion and information sharing.

> "It's basically about really working with your partner and trying to understand things from their perspective. And to really communicate with them constantly about every process"

Meetings with actors have been useful as a way to share the needs and vulnerabilities together with the risk perception and thereby creating a more common understanding for the issues.

> " It's really just being vigilant in these things and having regular meetings with your partners to understand where they're at and to make sure you're on the same page"

One example when the communication failed was during a project in Vietnam where everyone thought they had reached an agreement on how the project was supposed to be conducted but due to the method not being clearly communicated and thereby misunderstood the project had to be brought to a halt.

5.2.5 Resources

The community needs to be the key actor in all phases. This includes the question of resources and resource allocation. In the Mekong Delta, the communities have been proactive by both mapping and gathering existing resources in the local area.

> "It's about realistic planning and having a strong component of
> advocacy on resource allocation by the local leaders"

In the case of when the community's own resources have not been sufficient they have been able to try to mobilise these from external actors who have provided them with technical and financial support.

5.2.6 Risk and Vulnerability Assessment

When conducting risk and vulnerability assessments in the Mekong Delta, the community have been the main driving force facilitated by the external actors. Efforts have been made to include marginalised groups in order to make sure that their views and vulnerabilities are covered.

> "They come out with a list of vulnerabilities and capacities and an
> action plan for the commune to move forward on addressing the main
> risks that they've identified"

Previously the assessments were a top-down process with little or no influence from the local communities. As a result the documents did not fully reflect the local conditions or the existing vulnerabilities. Through participatory approaches this has improved substantially.

5.2.7 Stakeholders

The projects conducted in the Mekong Delta have aimed at mobilising the local stakeholders to allow them to take a more active and coordinated role in reducing the risks within their own community. In the cases where specific beneficiaries or local committee representatives have been selected it has been done in cooperation with the community. The projects have also attempted to promote the participation of vulnerable groups.

One example of how different stakeholders are brought together in the region is the committees that are established during floods consisting of representatives of governmental authorities, local authorities, NGOs and mass organisations such as the Women's Union.

5.2.8 Participation

> "So that's the way to involve them in the risk. It's about the real
> participation, not just the thing that makes our project looks better, but
> the real participation so that they can continue the effort after the
> project end"

Participation of the local communities is a central aspect of CBDRM and is required at all stages of the project. The projects have therefore been introduced to local authorities and community members in the Mekong Delta at an early stage allowing them to participate in the planning, implementation, monitoring and evaluation of the projects. Extra attention have been paid to vulnerable groups in order to make sure that their perception and vulnerabilities have been taken into account.

> "We come and we introduce the projects to the local authorities and the local people, get them trained about what we are going to do, involve them from all activities and transfer the knowledge and the skill, and respect them during the process of projects and identification"

Many of the programs in the Mekong Delta have had set quotas to enhance the participation of women and to set goals for the agencies in order to create a stronger participatory approach.

5.2.9 Ownership

To enhance ownership it is important to involve the community in all phases of the CBDRM project. In the Mekong Delta this has been done by inviting the community to planning sessions where the population has been given the opportunity to express what their risks, vulnerabilities and capacities are. By doing this the community has been allowed to decide for themselves where the project should take place and which methods that should be used. Further along the project the implementation itself has been owned by the community and external actors working more as facilitators to support than as decision makers.

> "We want them to tell us what they see as a risk for the households, for the livelihood, for the children, for the communities and what they would like to implement"

This approach gives the responsibility to the community and thereby increases their sense of ownership for the project creating a more sustainable and lasting effort.

> "They have to take ownership, they have to feel very strong ownership and accountability of that process"

5.2.10 Integrate a bottom-up approach

Linking the bottom-up approach to top-down regulations permeates the whole concept of CBDRM. This is being done continuously in the region using all the above mentioned modes and modalities in an effort to establish the successes of the bottom-up approaches in top-down policies and regulation.

5.3 Outcome of the modes and modalities

The outcome of the above mentioned modes and modalities used in the Mekong Delta were according to the interviewees primarily an increased knowledge, better risk awareness and improved capacity of the local communities. Ownership was strengthened and people felt more able to and responsible for carrying out DRR measures. Stakeholders from different organisations and levels were brought together and means for better Coordination and communication between these actors were established. The level of participation was strengthened, especially in regards to women as their status was not only improved in the specific projects but also in general. The trust towards local government and external actors was improved.

> "One of the local authority, he was the vice chairman. He said that because of the project he changed the way that he thinks about women and also about people with disabilities and he said that in the future he is going to involve them in the planning... because before they didn't think about this group."

> "When we have the ownership of the community you can see that those interventions lasts or are sustained for a longer time."

The overall outcome was an enhanced bottom-up approach, safer communities and more sustainable implementation of projects. The results often stemmed from a combination of the above mentioned modes and modalities in a positive and self-improving manner.

In order to illustrate the effect some of the outcomes from examples of modes and modalities used in the Mekong Delta will be described. As volunteers were trained on how to operate the boat transporting children to school, not only was the safety of the children increased but the local sense of ownership and responsibility strengthened. By providing knowledge on how to maintain the boat local ownership was strengthened. The education on DRR in schools gave the children a more united perception of risks and increased their knowledge of proactive measures. They were taught what to do and how to assemble emergency kits in case of a disaster. This increased and gave them the ability to take responsibility of their safety. The previously mentioned example of when communication failed shows the importance of continuous dialogue in order to coordinate projects and avoid misunderstandings.

5.4 Challenges to CBDRM

Below is the congregated view of the interviewees on the challenges of CBDRM as well as some suggestions on how to improve these.

5.4.1 Long-term process

CBDRM is a long-term process and demands a long-term contribution and commitment from all involved actors as well as the donors. The community members needs to be allowed time to understand the situation and to learn the methodology. The implementation of the activities takes time and this together with having a proper monitoring and evaluation makes the CBDRM process both costly and time consuming.

> "The community also needs time to understand one situation to bring their capacity and then change their attitude and practice"

This is a challenge in the Mekong Delta due to the short time frames the organisations has for the projects and the limited funding and resource supply available.

5.4.2 Communication and Coordination

Communication and coordination between different stakeholders involved in a project is a challenge and it gets even more difficult when there are many organisations implementing projects in the same area at the same time, which is the case for the Mekong Delta. This can lead to an overlap putting an increased and unnecessary strain on available resources.

The issue could be solved by better communication and coordination and setting up clear responsibilities between organisations. By using common interests and the realisation that they can benefit from each other a strong multi-stakeholder approach could lead to an improved network where projects could profit from one another.

5.4.3 Resources

A challenge that permeates all stages of CBDRM is the challenge of resources, including human, financial and technical resources. International funding has reduced during recent years and the provinces in the Mekong Delta are ready to develop provincial DRR action plans but there is no money.

There is a need for improving the resource allocation which demands better coordination and communication between stakeholders as well as better knowledge of existing resources and needs at various levels. This in turn demands high facilitation skills and strong participation from all actors.

In the Mekong Delta, one of the initiatives to improve resource mobilisation is to incorporate risk management into development planning and having it be a larger part of the country's socio-economic development plan.

5.4.4 Risk perception

The existing risk perception in the Mekong Delta varies both at national, regional, community and individual level. It highly depends on previous experience from disasters and it is a challenge to achieve a common risk perception within communities.

Normally individuals are responsive and more proactive towards a certain disaster if they have experienced a similar one in the recent past, which makes it difficult to enhance the resilience towards unknown or rare events. If the risk is not present in their current mind-set the community will prioritize other, more pressing everyday challenges such as providing food and other resources to sustain livelihood.

> "I quite often find that a lot of community based disaster risk reduction efforts take place following some event when people have it fresh in their mind and they say okay now we want to take responsibility for this. We see that there is a risk."

A hazard can sometimes be beneficial for the community. An example in the Mekong Delta is that floods brings nutrients to the crop fields, increasing their agricultural yield. It can therefore be a challenge to get members to take action in activities that might decrease these benefits as they would see it as a threat to their short term survival.

> "Some external source coming in and telling them that there is a risk when people have numerous other things to consider in their lives. It's not a reality until it happens to them so that can often be a challenge to really get them engaged before some big event occurs."

The different risk perceptions among actors and levels might not necessarily be a negative thing or even something that should be addressed. However it is important to be aware of the differences and understand their origin in order to reach a mutual perspective and aim of the project.

5.4.5   Trust

Trust needs to be built between all stakeholders involved in CBDRM, with emphasis on trust between community members and the agencies. This can be a problematic task due to for example language and cultural barriers. Different communities or individuals have different ways of doing things and there is a need, especially for an external source, to actively work at gaining an understanding and respect for these differences.

> "I think you really need to be always vigilant and trying to understand the perspective of partners because they have a very different way of saying things"

It is important to be open and transparent from the beginning of the project and make room for discussion and clear communication with the population. While giving support the facilitators need to show that the project is beneficial for the community and not for the agency itself. Trust is built by confidence in the community's ability to be part of the project.

> "So it takes time, you need trust between the community and the agencies and also the resources to implement the measures identified by the communities for the CBDRM process"

5.4.6   Participation

The largest challenge concerning participation is to get the most vulnerable and the minority groups involved. This is an operational and leadership challenge that needs to be addressed during all phases of the project.

> "I think that participation might not have been equal for everyone especially the most vulnerable and marginalised groups. They may have missed the chance or the opportunity to take part in the process"

Historically there has been difficulties in involving women in the Mekong Delta in DRR projects and having women at key positions of the process. This is changing, more women are taking leadership roles in disaster prevention and for many projects in the region there are set quotas on women participation in activities. Although these quotas are rarely met it is a strong step towards a better participatory approach.

> "But now situation has changed, so Women's Union at different levels they sit equally and they have equal voice to male colleagues when they discuss disaster preparedness and disaster response"

5.4.7   Integrate a bottom-up approach

According to the CBDRM approach there is a need for combining the traditional top-down approach with the bottom-up. Due to the top-down approach being the more common measure both in the Mekong Delta and in general there is a challenge for this change in mind-set.

One interviewee indicated that even though CBDRM is generally promoted as a bottom-up approach, in projects it still feels more top-down due to the way the disaster management is planned and decided upon and then pushed down onto the community to implement.

> "Top down approaches sets a frame that bottom up approaches can operate within"

5.4.8 Shift from reactive to proactive

The historical way of dealing with disasters in the Mekong Delta has been to respond after the event has occurred rather than being proactive and building resilience. To change the mind-set and the previous way of working is a challenge. It demands time and patience to share information and educate community members and to work with them in order to move from response to a more long-term solution. It also demands an understanding and humbleness for the community and their history.

> "In traditional way for example in Vietnam, they usually wait for the disaster to respond"

6 Analysis and reflection

In the following section the results from the interviews will be analysed and compared with the findings from the literature study in order to examine the connections and differences between practice and theory in the field of CBDRM. The authors will also provide their reflection on the subject, give possible explanations for the existing similarities and variance between the two dimensions and expand on the topic.

6.1 The approach of CBDRM

According to the literature and the respondents DRR used to be a top-down approach failing to address the local issues at hand. With the use of CBDRM this traditional approach is integrated with a bottom-up approach where the attention to all different levels are given. The interviewees, when asked about their definition of CBDRM, emphasise the importance of strong participation from the community as the main component together with increased local ownership. The literature agrees and points to the advantages of making communities the main actors during the whole process.

The interviewees indicated that the aim of CBDRM is to reduce the risk and vulnerability in a long-term sustainable manner and that this is done through certain modes and modalities that is further discussed in Chapter 5.2 Modes and modalities for CBDRM in the Mekong Delta.

Reflection
The authors agree fully with the literature and the respondents view on CBDRM and its benefits. All is connected to the three pillars which are further discussed and reflected upon in the following section.

The authors believe that CBDRM is an approach to ensure economic, social and environmental stability and growth. The social resilience is highly dependent on economic stability and both of these influence and are dependent on environmental conditions. These are all connected and CBDRM functions as a tool to enhance these aspects creating a safer and more resilient community (figure 7).
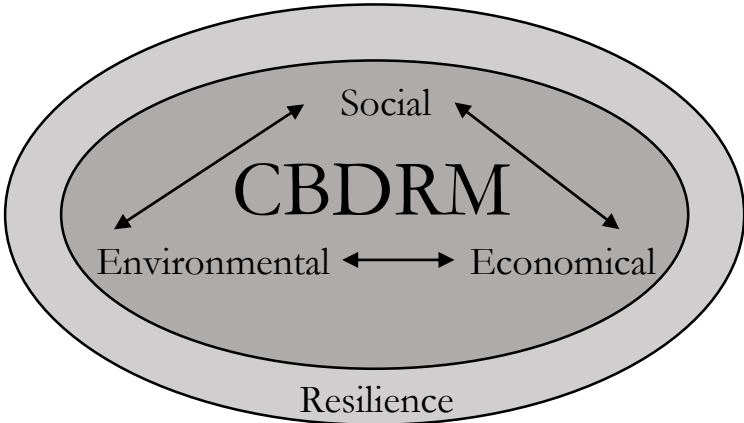

Figure 7: CBDRM links social, economic and environmental aspects in order to generate resilience

6.2 Three pillars

According to the authors, the three pillars of CBDRM are sustainability, ownership and participation. In this section these will be discussed and reflected upon according to the literature study and the results from the interview study. In Chapter 6.3 Modes and Modalities these three subjects are further discussed along with measures for improvement.

The literature highlights the switch in mind-set from pushing projects onto the community to having the community involved from the planning process as a means to enhance both ownership and sustainability. Respondents agree and state that with an increased sense of responsibility there will be a longer lasting effort and increased sustainability.

To achieve this sense of responsibility interviewees and literature clearly point out the importance of using a participatory approach in all stages of the process. This includes involving the community in planning, implementation and monitoring and evaluation.

Both the literature and the respondents agree that the largest challenge of participation is to get the most vulnerable groups involved. Women are currently getting more and more involved in these matters in Vietnam but there is still a lot more work to be done. By involving elderly, disabled, women and other minority groups the ownership of the project can be strengthened.

Reflection
The authors believe that the three pillars cannot function without one another, which is also clear from both the interviews and the literature study. If a project is not sustainable the author's opinion is that it loses a large part of its purpose and it will not become sustainable if it is not implemented in the community. To get it implemented in the community there is a strong need for communal participation through all stages which is correlated to the sense of responsibility and later local ownership.

6.3 Modes and modalities

6.3.1 Long-term
Both the literature and the respondents agree on the central standpoint of CBDRM being a process oriented tool of DRR. In order for it to excel it requires long-term commitment, contribution and participation from facilitators and involved stakeholders. The respondents point out that it takes time to build up a community's capacity and knowledge in order to contribute on equal footing with the experts. They also state that this does not correspond with the short time frame of projects or the limited amount of resources or funding that organisations in the Mekong Delta have at hand. Both the literature and the interviewees recognise this challenge and promote the notion of ownership and building on local capacities, both in terms of actors but also in terms of technical and financial resources.

Reflection
The authors agree with both the literature and the respondents that CBDRM is about the process and not an end state. This means that CBDRM is neither about creating static plans, documents or assessments, nor to set up stagnant routines and responsibilities but rather about continuously adapting to a changing environment and to create dynamic solutions that revolve around the involved actors and their surroundings.

In order to make this process sustainable it is essential to give the ownership to the local communities. Without local ownership there will be less incentives to take responsibility resulting in rapidly deteriorating efforts after the end of the project as the external actors withdraw. This highlights the importance of transforming the communities from beneficiaries to actors and external actors from implementators to facilitators.

According to the authors a prerequisite for creating local ownership is that the project builds on local resources, otherwise there will be a dependency on external actors making it impossible for the community to uphold the efforts after the project is finalised. The top-down approach of policies and legislations could play an important role in fortifying the accomplishments of these more bottom-up efforts by setting up compulsory standards making it less likely to be forgotten over time. While this approach often is used the other way around, where laws and legislations dictates the bottom-up ambition, the authors see a lot of potential to have policies strengthening the outcome of bottom-up projects.

The authors believe that the national program CBDRM 1002 indicates a long-term commitment to the approach of CBDRM from the Vietnamese government which will encourage actors in the Mekong Delta to commit to the long-term process. As mentioned above this will make the implementation more effective and sustainable. Further the authors believe that while regional and national laws are fundamental for CBDRM these has to be complemented with international bilateral agreements as underlying factors such as global warming disregards national borders.

6.3.2   Training
Both the literature and the respondents from the interviews agree that training is an important tool to increase risk awareness in a community. This due to the transfer of knowledge and information. The result from the interviews clearly states that the success rises with broader involvement, i.e. the participation of representatives from all relevant stakeholders improves the outcome. While the facilitators bring expertise and know how the community members have knowledge about the region and their own capacities.

How to select representatives and to be able to include the vulnerable groups is a challenge and something that has to be a continuous effort. The interviewees indicated that the use of training in the Mekong Delta has led to more clarified roles and a clearer chain of responsibilities and at the same time has increased the community's own sense of responsibility, understanding and ownership of the project.

Reflection
The authors agree that training is one of the most important measures for a successful implementation of CBDRM. It is one of the key components for enhancing risk awareness and understanding of existing capacities. The measure is also a way of realising the system's weaknesses and flaws and being able to take action and make the changes needed to improve these.

Coordination and communication between stakeholders has to be clear and efficient which can be tested during training and drills where possible gaps or faults can be noted and corrected. It is also an effective way of setting up contacts, sharing contact information and get a face to a name before the disaster actually strikes. This improves the ability to depend on other agencies and actors and to trust that these will manage their responsibilities and duties in case of an emergency.

The selection of stakeholders have to be made early in the process and preferably together with the community members to have a transparent and open relationship with everyone involved. If possible, training should be including vulnerable groups such as women, disabled, elderly and children. This inclusion is a challenge not only due to it being resource demanding but also because it requires a will from the community to participate.

In the Mekong Delta the use of the concept ToT is an interesting approach, which the authors believe to be the most sustainable one. To educate local actors in how to train the rest of the community will decrease the dependency towards external aid and the training will become a more continuous measure for enhanced safety and resilience.

6.3.3   Education

Education is as well as training a means to increase the knowledge and risk awareness in the community. Literature and respondents agree on the importance of incorporating DRR into school curriculum making it part of courses and classes in subjects such as geography or natural science.

This has been done in Vietnam where teachers have been taught about disasters, vulnerabilities and measures to deal with the risks in the different regions and then been able to share this knowledge with the children thus increasing their risk awareness.

The literature points to DRR not being too present at university level but that the interest is increasing. This is not something that was brought up by the interviewees where focus was more on educating children than students at a higher level.

Reflection
Enhancing the children's ability to recognise their own risks and vulnerabilities together with teaching them the measures to decrease these are important. The authors believe that the incorporation into other subjects has high potential of making the risk reduction part of the children's lives and in that way making them more prepared for disasters.

As noted in the chapter regarding training, the authors find the ToT-concept highly interesting and it is pleasing to learn that this approach has been used with a positive outcome in Vietnam.

The authors, being influenced by their own background, believe that incorporating DRR into higher educational levels is an important aspect to increase both global, national, regional and societal resilience. By including the subject into courses such as city planning, economics, politics, technology, environmental management and construction the overall knowledge about DRR can be built in to our society thus decreasing our vulnerability.

6.3.4   Information sharing

In order to raise risk awareness and knowledge it is important to share information to the community. The literature and the respondents also acknowledge the importance of sharing information between involved actors in the area to avoid overlapping and to gain a clear picture of the challenges at hand. The literature states that information should be shared through various channels such as booklets, commercials and bulletin boards in order to be as inclusive as possible. Results from theory and practice also calls for meetings, workshops, discussions and other means of two-way information sharing where the public is allowed to contribute with inputs of their own. By sharing information properly a common understanding can be reached which allows for easier contribution and involvement and ultimately increased ownership. The literature points out the problem of information sharing often being forgotten when budgeting for projects and as a result being underfinanced.

One commonly used information system is the EWS. This measure has been brought up by several authors in the literature. In order for these systems to function properly clear and easily understood information is needed.

Reflection

The authors believe that information sharing plays an important role in giving the community the knowledge they need to properly participate and to be able to take ownership of the process. In addition it allows facilitators to take part of local knowledge and vulnerabilities. Information sharing should be used through several channels in order to be accessible and inclusive. In addition a diversified system of information sharing makes it less susceptible to failure. For instance a power outage could stop information sharing through commercials or radio transmissions but would not affect bulletin boards or town meetings.

When discussing EWS the authors find the Swedish preparedness alarm "Viktigt meddelande till Allmänheten" or VMA relevant and educational where its existence is well-known by the Swedish citizens but how to act in case of an alarm is not common knowledge. This shows the importance of linking warning systems with action plans and spreading information of these systems and actions needed.

Something that could be further developed according to the authors is the use of social media in order to convey rapid information. More and more people are members of various forms of social media making it a platform for reaching a great number of people with real time updates. It also allows the receiver to update the information flow with their own experiences. With this in mind the authors believe that social media could be used as a form of EWS during disasters in the future. This will not only bring benefits but also new difficulties. As anyone can contribute with information on social media a major challenge would be to control the accuracy of the information and to make sure that relevant news does not disappear. The authors will not attempt to further look into the possibilities and challenges of social media for the purpose of EWS but believes that it is a method that should be looked into.

The authors also agree that information sharing is something that should be budgeted and planned from the start of the project and not be set up ad hoc. As with all aspects of CBDRM this should be done based on local resources and in cooperation with the community.

6.3.5 Communication and Coordination

Both the literature and the result from the interviews highlights the importance of clear Coordination and communication between all levels and stakeholders. The respondents state that the communication has to be transparent and continuous throughout the entire process to avoid misunderstandings and to improve the coordination. The literature means that there is a need for different channels of communication to ensure the possibility for all stakeholders to be involved and included.

Coordination between stakeholders is something that both the literature and the respondents agree on being a challenge in need of improvement. The stakeholders have different set of skills, knowledge and resources which makes it impossible for one organisation or actor to function on its own.

The interviewees point out that there is a challenge in the Mekong Delta of overlapping since many actors are implementing projects in the same area and that this could be turned around to something positive where a larger network could be created and the different stakeholders could benefit from each other. The literature states that this could lead to a better and larger possibility of resource allocation and thereby improve the situation across borders.

Reflection

The authors strongly agree on functioning coordination and communication being an essential part of the CBDRM process. This was also brought up during the conference reviewing the first five years of implementation of CBDRM 1002 in Vietnam where involved stakeholders mentioned a lack of clear guidance for the implementation. A challenge could be to get different stakeholders to communicate with each other due to them having own agendas and priorities and not being able to see or understand how they could benefit from each other.

Even though regional organisations exist, such as Mekong River Commission (MRC) for the specific case of the Mekong River, and Joint Advocacy Network Initiative (JANI) for CBDRM in Vietnam, there is surprisingly little discussion about how to develop a more regional cooperation among bordering countries and take advantage of each other's resources, expertise and experience. A disaster rarely affects only one country and a collaboration could be beneficial not only from a disaster perspective but also for long-term stability and peace across borders.

6.3.6 Resources

The availability of resources is strongly correlated to the sustainability of a project and according to the literature funding is connected to the project being a long-term process. Unfortunately this is often hindered by a lack of budgeting for the aftermath and maintenance creating an end to a process that should be continuous.

The literature and the interviewees agree on the importance of conducting a resource assessment early in the process and to build the project on the existing resources and mobilize external resources if needed. To do this the inclusion of the community is necessary since they have the knowledge of what exists and what is required. The interviewees state that this is challenging in the Mekong Delta due to the process demanding time, coordination, resources and high facilitation skills together with strong participation which all are difficult to achieve.

One way of mobilising resources in Vietnam could, according to the interviewees, be to include DRR into development planning and thereby having the resources be beneficial for all involved without intruding on respective funding.

Reflection

When discussing resources and resource allocation the authors believe that the key is understanding of benefits that could be gained from strong cooperation. By mobilising resources between stakeholders and regions and taking advantage of each other's expertise and knowledge as well as technological solutions the overall risk reduction and thereby safety could increase. By implementing DRR into other sectors such as development planning and construction the allocation of resources can be divided between projects and not only serve one purpose.

A lot of funding is today put into response rather than proactive measures and the authors believe that with functioning reduction and mitigation measures this cost can be severely lowered in the long-term even though it might be a larger initial investment.

6.3.7 Risk and Vulnerability Assessment

Respondents and literature agree on risk and vulnerability assessments being a fundamental instrument to increase the community's risk awareness. According to the literature these assessments have a lot to gain from being compiled by the community with external actors as facilitators as it is the community that has the most extensive knowledge of local conditions and vulnerabilities. The respondents point out the importance of including the perspective of vulnerable groups when conducting risk and vulnerability assessments as their needs often differ from those of the rest of the community. This is under continuous consideration in the Mekong Delta where more and more focus is put on including women and children in the process.

Reflection

The authors agree with the view of the literature and the interviewees that risk and vulnerability assessments should be conducted by the community in order to raise their awareness and make sure that their perspective on risk and vulnerability is covered. However it is important to have external experts in a facilitating role to provide support and take part in the process.

The authors recognise a balancing act for the facilitators were they on the one hand have to support the community in creating the risk and vulnerability assessment and on the other hand should not influence the community to only look for the risks and vulnerabilities that they have been pointed towards. This requires facilitating skills from external actors and an understanding of local knowledge and conditions.

6.3.8 Legislation

The literature points out the important role of national and international laws for the long-term aspects of CBDRM. The efforts and accomplishments of communities should be backed up by relevant policies and regulations. As far as possible this should be done in cooperation with the community to counteract mistrust or resistance. International and national laws also play an important role in reducing large scale degradation of the environment, climate change and other issues that lies outside the scope of communities. According to the respondents it sometimes feel like top-down approaches such as legislation sets the frame that bottom-up approaches can operate within.

Reflection

The authors agree with the literature that legislations and other top-down approaches should be used to strengthen accomplishments in CBDRM thus making the process more long-term and sustainable. This has also been the case in the region where goals for the outcome of CBDRM has been set up in national strategies and programs which further strengthens the legitimacy of the process.

The authors agree with the literature that the large amount of legal texts on DRM in Vietnam is troublesome as it allows for confusion and loss of information. In addition it could hinder the implementation by giving actors unclear or even contradicting guidance as opposed to its purpose to facilitate the implementation.

Efforts has been made to develop more comprehensive documents and laws in Vietnam and while the authors believe that this is a leap in the right direction there is still work remaining. In addition the guidelines for implementing the CBDRM 1002 should be strengthened thus allowing for better coordination between external actors resulting in more effective implementation.

When enforcing policies and regulations at local level it is important to involve the community members and affected stakeholders at an early stage. The authors believe that by allowing local people to participate in the decision process the acceptance for and the quality of the decisions and its implementation will be improved.

National and international laws and agreements regulate global and important questions that cannot be resolved at a community level alone. Therefore it is important to be aware of all levels, including the community level, when making international decisions so that they are not restricting bottom-up approaches at the community level.

6.3.9 Risk perception

When discussing risk perception both the literature and the interviewees point out how important it is to understand different stakeholder's perception and where these come from. Risk perception is often built on previous experiences which yields a proactiveness towards well-known disasters rather than prioritizing events that they themselves have not yet experienced.

One interviewee mentioned the fact that in the Mekong Delta some risks are beneficial for the community which makes participation in actions that could decrease this benefit difficult to achieve. As an external actor it is essential to understand the different perception a community has and focus on sharing knowledge and expertise as a means to enlighten and facilitate the community.

Reflection

As stated above some risks are beneficial for the population in the Mekong Delta, although that benefit might be short term. The authors believe that a combination of development and these benefits is the key measure to move from dependency of beneficial but unsafe living conditions to a safer long-term reality. One example for this is to relocate the population who are living in a flood prone area of the Mekong Delta but let them keep their agricultural land and in this way not impose on their livelihood.

Another important aspect is the understanding of variations of risk perception and the willingness to take the resources and time to implement proactive measures. Vietnam is a poor country and the Mekong Delta is mostly rural forcing families struggling with poverty to choose to put food on the table ahead of focusing on reducing their long-term exposure to risk.

6.3.10 Trust

All modes and modalities in CBDRM build on a mutual trust between community, authorities and facilitators. The literature brings up trust as an essential component for all measures and the interviewees discuss the importance of an organisation to be open, transparent and have clear communication towards the affected population. In the Mekong Delta, the respondents point to the challenge of language and cultural barriers which creates numerous possibilities to step on toes or override boundaries.

The respondents point out the need of showing the population that the main beneficiaries of the project is not the agency, facilitator or even the donor but the community themselves.

Reflection

The authors can nothing but agree with both the literature and respondents on how essential trust is for the implementation of projects. One thing to add is the importance of letting the community choose projects that they feel would deal with their most pressing needs thus showing even more that the project is for them and their benefit rather than some hidden agenda from other actors. In the Mekong Delta, this has been done by including the community members in the risk and vulnerability assessments as well as workshops.

6.4 Outcome of CBDRM in the Mekong Delta

According to the respondents the outcome from using CBDRM in implementation of DRR projects in the Mekong Delta was safer communities and enhanced bottom-up approaches. As the local participation and ownership was strengthened the sustainability of the projects was increased. Other positive outcomes were increased knowledge, capacity and risk awareness among community members. Interviewees state that people felt not only a greater ability to reduce their risks but also a responsibility to take matters into their own hands. Local stakeholders and resources was mapped out and brought together which resulted in better Coordination and communication. The trust towards external actors and local government was increased.

Reflection

The authors believe that CBDRM has been implemented successfully in projects in the Mekong Delta. Vietnam is at the cutting edge when dealing with long-term projects and CBDRM and one of the major success stories, according to the authors, is the involvement of women which used to be limited to secretaries but has now moved to a more leadership and decision-making position. However there is still plenty of work remaining and there is still room for improvement. This should not be seen as a negative remark on the work that has been done so far, but as an encouragement to continue and develop.

A challenge of CBDRM is that it is difficult to measure the outcomes as it is a long-term process that involves several different stakeholders and modalities. It is not sufficient to just look at the outcome. While reduced death tolls or monetary costs can be measured it can be difficult to tell whether these are an effect from the implementation of CBDRM as the positive outcomes of DRR in a sense is invisible whereas the shortcomings and failures are painfully obvious. The lack of visible results combined with decreased presence of disasters could cause people to forget why the measures where implemented in the first place or perceive them as unnecessary which threatens the long-term sustainability of projects.

6.5 Future of CBDRM

The authors believe that the future of the Mekong Delta is uncertain as climate change and human interaction will cause new risks to emerge and the frequency and severity of hazardous events to increase. The study has shown that CBDRM could be a promising way to mitigate these changes by building more resilient and adaptable communities. There are still aspects that needs to be improved in order to better facilitate CBDRM.

Coordination and resource allocation between different actors operating in the Mekong Delta were perceived as challenging. A solution could be to organise involved stakeholders in consortiums where all actors strive towards a common goal. JANI is an example of this where 14 organisation from government, NGOs and mass organisations work together to promote CBDRM. The authors believe that this should be further encouraged in the Mekong Delta in order to improve coordination and communication.

The respondents brought up participation of women as a success story for CBDRM in the Mekong Delta, but participation from other vulnerable groups is still difficult. The authors believe that the lessons learnt from the involvement of women in the region should be used to further increase the level of participation from other vulnerable groups. Some of the methods used by stakeholders were active promotion of and a set quota for female involvement in combination with activities specifically targeting women. There is still work to be done but promising progress has been made.

As a result of climate change and environmental degradation there is an increase in disasters and new threats towards human safety. The changing environment does not only lead to an increase in disasters but could result in migration, conflict and war. It is difficult to predict the future and as a consequence society needs adaptable systems. This creates a need for adjustment and a will to adapt which demands a change in mind-set of both the hazard prone communities and external actors together with a better communication between these. The authors believe that DRR must shift its current focus on disaster response and aid to one that heavily emphasises mitigation and that CBDRM will be an invaluable tool in this process. DRR needs long-term funding, ear marked for proactive measures only. However this change will challenge current political power structures and will need active support and promotion in order to be accomplished.

In the Mekong Delta the decision made by the Vietnamese government to endorse CBDRM through the national project CBDRM 1002 has promoted the approach to local government officials and community members. The authors believe that this has strengthened the support and trust for the approach and has facilitated the shift towards proactive disaster mitigation in the region.

CBDRM is a relatively new concept. This together with the approach being a long-term process creates difficulties in noting the outcome of projects. Further research is in need of finalised evaluation reports which today is limited. Another obstacle lies in the limited hands on data and the difficulty of measuring avoided consequences of disasters. Further research and time is needed to develop methods and note changes in resilience of communities after implementation of CBDRM processes.
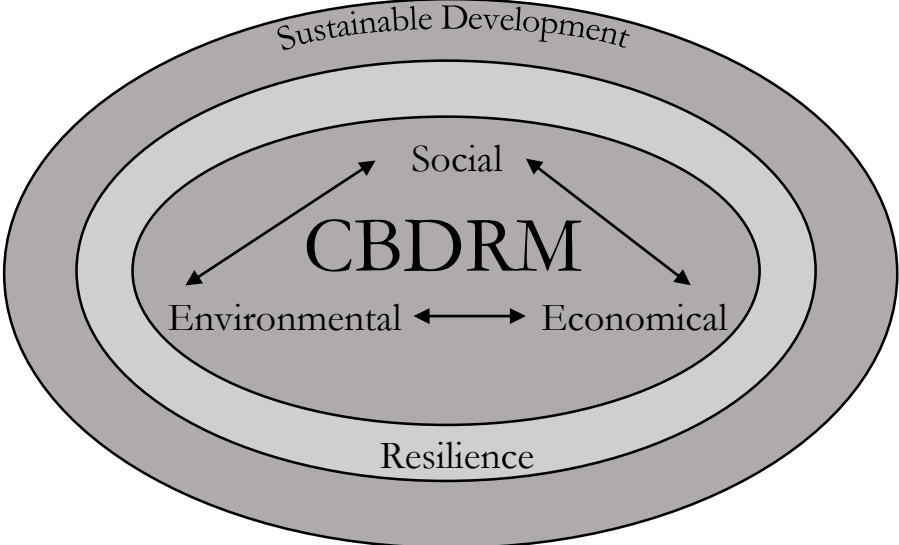
Figure 8: Linking CBDRM to sustainable development

One important aspect for the future is how to incorporate DRR in to development planning and what the outcome of this might be. The authors believe that the questions of resource allocation and limited funding could benefit from this implementation. A clearer link between the top-down and the bottom-up approach should be established, where legislation and policies in fields such as environmental degradation and development planning could meet the needs of the communities.

The authors believe that CBDRM is needed for future economic, social and environmental stability and growth, and that this approach will lead to a more sustainable development (figure 8).

7 Discussion

In this section the different components of the thesis and their execution are discussed. Possible challenges, limitations and ways of improvement are reflected upon.

7.1 Literature study

Due to CBDRM being a relatively new concept a difficulty for the thesis has been to find relevant articles and reports on the subject. Additional difficulties with regards to this are the many different definitions and terminology existing in the field of DRR. The authors decided to define the concepts early in the process and use these definitions rather than the various existing terminology when conducting the thesis. The definitions used can be found in the preface of the thesis.

One limitation to the literature study is the unanimous view of CBDRM being a functioning and successful tool for DRR. A different perspective or negative aspects to the concept could have contributed to the authenticity of the research by giving a possibility to counter or discuss these.

7.2 Field work

A major limitation of the thesis were the lack of responses contacted stakeholders. As the authors were unable to get in contact with representatives from local or national government the thesis came to revolve around the work of NGOs. The findings in this thesis is therefore based on their view and does not necessarily reflect the holistic opinion from all stakeholders. This was unfortunate as several of the respondents pointed out that they were cooperating with local and national government and stressed the importance of involving local government in CBDRM. It would have been beneficial for the thesis to interview governmental representatives as they could have provided insights to the background for the newly ratified national law on CBDRM, CBDRM 1002, how this has been implemented in the communities, how it has influenced projects in the country and the accomplishments thereof.

In addition the number of interviews had to be limited due to the scope and timeframe of the thesis. A larger sample size of respondents would have allowed for more opinions from the field to be covered thus strengthening the findings of the report. Time and resource limitations also restricted the thesis to be conducted over Skype and not on-site in the Mekong Delta. An extension of this restriction was that community members were not interviewed which could have provided a different perspective of the implementation, advantages and challenges of CBDRM.

In order to avoid influencing the respondents and to allow for discussion the authors decided to use a semi-structured approach for the interviews. The questions were rather broad which allowed the interviewees to express what he or she felt was important to the subject however more specific questions might have yielded a more coherent result. As the author's experiences of conducting interviews were limited it might have influenced the quality of the process.

The authors decided to limit the thesis on interview findings and not include evaluations or reports from finalised projects. Given more time it would have been advisable to use both in order to complement the material and discussions provided by the respondents with the data from the reports.

7.3 Result

When compiling the results the separation of different modalities and their respective outcome was a challenge due to the interconnection between these. The authors might have been influenced by their own background and knowledge in the field which possibly resulted in unwanted biases with certain opinions achieving more attention than others.

Language barriers during the interviews have resulted in an overrepresentation of the English speaking respondents with regards to both opinions and citations. By using an interpreter this obstacle and the consequences thereof could have been avoided.

7.4 Analysis and reflection

One of the major difficulties in the analysis section was to conduct the comparison between the literature study and the experience from interviewees due to the coherent opinions about CBDRM and its components. By using a different method of interviewing with more specific questions or with more diversity with regards to respondents the depth of the analysis could have increased. As an example the authors have, with the literature study as a background, stressed the importance of the existing legislation in Vietnam. However, this was not brought up during the interviews which makes the reflection section one sided in this aspect.

With regards to the reflection the authors have been influenced by their background and knowledge when conducting the analysis and reflection which have resulted in certain opinions being more highlighted and receiving more attention.

7.5 Further research

CBDRM is partially implemented in Vietnam which makes this thesis a good stepping stone to build further research on. By including evaluation reports and experiences from a wider range of stakeholders, including government and community members, the effects and outcomes of the process could be further analysed.

Future research should include case studies from different countries and regions in the world to obtain a more general knowledge in the field based on experiences and lessons learnt.

As stated the authors believe that a means to deal with the challenge of long term funding is to incorporate CBDRM into development planning. Further research on how to accomplish this is needed.

8 Conclusion

The aim of the thesis has been to analyse challenges and potential of CBDRM in the Mekong Delta region in Vietnam. Below are the conclusions with respect to the research questions that has been the basis for the study.

> What are the modes and modalities through which citizens and communities in the Mekong Delta region in Vietnam are involved in disaster risk management?

According to the respondents many different modes and modalities have been implemented in the Mekong Delta. Training, education, information sharing, risk and vulnerability assessments, mobilisation of stakeholders, resource allocation, Coordination and communication, increased risk perception and an integration of bottom-up approaches to the traditional top-down measures are a few examples that were brought up during the interviews.

The respondents pointed out that these modes are deeply interconnected and that the involvement of the local community cannot rely on one or two specific measures but rather a holistic approach. What permeates the used modes and modalities and connects them to one another is what the authors have chosen to call the pillars of CBDRM, namely participation, ownership and sustainability.

> How does CBDRM impact risk reduction for the communities included in the study?

Since CBDRM is a relatively new concept that revolves around a long-term process it is difficult to measure the outcome of the studied implementations in the Mekong Delta. It is not sufficient to only look at the outcome of the activities. In addition, it is an unfortunate fact that successful DRR often leaves few visible trails and is challenging to measure as opposed to the consequences of a disaster.

According to the respondents CBDRM in the Mekong Delta have resulted in increased participation of and changed attitude towards women. It has also influenced the educational system allowing teachers to incorporate DRR into the school curriculum. Community members have acquired new skills such as driving and maintaining boats for transporting children and how to conduct a risk and vulnerability assessment. Given these results the authors believe that the approach of CBDRM has resulted in safer and more resilient communities in the Mekong Delta.

8.1 Concluding remarks

Although the authors believe that the future for CBDRM is bright it is still and will continue to be a work in progress. CBDRM is not a stagnant project that can be finalised but a continuous process that needs the ability to adapt and change along with global and communal development. More research is needed especially to approach the question of how to incorporate CBDRM into development planning which could solve the issue of long term funding.

As the national project CBDRM 1002 is still taking place it is hard to draw any final conclusions about its implementation and success. This being said, the authors believe that the initiative puts Vietnam at the forefront in regards to CBDRM, both in terms of legislation and implementation of DRR projects. While there is still room for improvement Vietnam sets a good example for the international community.

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Appendices

A. Schedule for the study

The schedule for the study is presented in figure A below.

Week	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20
Date	15th June	29th June	13th July	27th July	10th Aug	24th Aug	7th Sept	21st Sept	5th Oct	19th Oct
Literature study	🟩	🟩	🟩	🟩	🟩	🟩	🟩			
Preparation for field work		🟥	🟥	🟥						
Field work			🟦	🟦	🟦	🟦				
Writing the report	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟨	🟨	
Hand in									🟧	
Presentation										🟦

Figure A - Schedule for the study

B. Stakeholders in Vietnam

The different stakeholders involved in community based disaster risk management in Vietnam is listed in table B together with their type of organisation. As seen there are many governmental and non-governmental actors working together to achieve a more sustainable and safe future for the Vietnamese population.

Table B - Stakeholders involved in CBDRM in Vietnam

Organisation	Type	Abbreviation
Steering Committee for Natural Disaster Prevention and Control	Government	CSCNDPC
ActionAid Vietnam	NGO	AAV
ASEAN Committee on Disaster Management	Inter-Governmental Agency	ACDM
Asian Development Bank	Regional Development Bank	ADB
Asian Disaster Preparedness Centre	NGO	ADPC
Australian Agency for International Development	NGO	AusAid
Australian Red Cross	NGO	ARC
Central Committee for Flood and Storm Control	Government	CCFSC
Centre for International Studies and Cooperation	NGO	CECI
Church World Services	NGO	CWS
Cooperative for Assistance and Relief Everywhere	NGO	CARE
Department of construction	Government	-
Department of dyke management and flood control	Government	DDMFC
Department of planning and investment	Government	MPI
Department of post and telecommunication	Government	-
Department of transportation	Government	-
Deutsche Gesellschaft für Technische Zusammenarbeit or German Corporation for Technical Cooperation	NGO	GTZ
Disaster Management Centre	Government	DMC
German Red Cross	NGO	DRK
International Union for Conservation of Nature	NGO	IUCN
Japan International Cooperation Agency	Government	JICA
Joint Advocacy Network Initiative	Network of 18 organisations	JANI
Mekong River Commission	Inter-Governmental Agency	MRC
Ministry of Agriculture and Rural Development	Government	MARD
Ministry of education and training	Government	MOET
Ministry of fishery	Government	MOF
Ministry of National Defence	Government	MOD
Ministry of natural resources and environment	Government	MONRE
Natural disaster mitigation partnership	Government	NDM-P
Netherlands Red Cross	NGO	NLRC
Oxfam	NGO	-
Pacific Disaster Centre	NGO	PDC
PLAN	NGO	-
Prudence foundation	Insurance company	-
Save The Children Vietnam	NGO	-

Spanish Red Cross	NGO	CRE
Swiss Red Cross	NGO	SRC
The Asian Management and Development Institute	Research and consulting institute	AMDI
United Nations Development Program	NGO	UNDP
United Nations Economic and Social Commission for Asia and the Pacific	NGO	UN ESCAP
Viet Nam Red Cross	NGO	VRC
Vietnam Women's Union	Political organisation	VWU
World Bank	NGO	WB
World Vision	NGO	WV

C. Interview questions

The questions used for the interview study are presented below.

Could you please start by introducing yourself, the organisation you work with and your role within the organisation?

How would you define Community Based Disaster Risk Management?

In what way has community based disaster risk management been implemented or operationalised in projects that you or your organisation have been involved in? Could you give practical examples as well as conceptual models?

What is the overall potential and advantages of CBDRM?

What are the challenges to community based disaster risk management so far from your experience?

Which challenges were you able to overcome and how?

Which challenges still need to be addressed? How do you think they can be dealt with?