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**Bachelor of Science Program in
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*Community Disaster Management
in the Community of Tio-Angan in the
Philippines*

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Abstract

Natural hazards have affected human society throughout history. The Philippines is a country particularly vulnerable to natural hazards due to its geographical location and widespread social vulnerabilities. This research is conducted in the Philippine province La Union, and aims to investigate community-based disaster management as an approach to strengthening disaster resilience of communities.

The research design is an explanatory case study, and data was collected through eleven semi-structured interviews and unstructured observations of field work. The study was conducted through an internship in the Philippines, with the organisation Alay Bayan-Luson, Inc. Two research questions are explored. The first investigates the practice of disaster preparedness and response in the community of Tio-Angan, before the members received training in community-based disaster management. This training forms a community disaster management organisation. The second question investigates how and why a community-based approach to disaster management is helping communities increase their disaster resilience.

To analyse the collected data, a conceptual framework was constructed, consisting of the concepts disaster risk reduction, disaster risk management, community, vulnerability, capacity, local ownership and resilience. The findings are that members of Tio-Angan community prepare for disasters by telling their neighbours about them and securing their houses and their animals. Post-disaster assessment includes cooperation to clear roads. Furthermore, in communities with an established community organisation for disaster management, members state a greater unity among the people. Moreover, they describe an increased knowledge about disasters and how to mitigate their effects. Implementing community-based disaster management takes time, but the findings show it brings positive effects to the communities targeted.

Keywords: *Philippines, disaster, vulnerability, resilience, community*

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Abbreviations

CBDM	Community-Based Disaster Management
CDMO	Community Disaster Management Organisation
DRM	Disaster Risk Management
DROP	Disaster Resilience of Place
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
GFDRR	The World Bank's Global Facility for Disaster Reduction and Recovery
HDX	Humanitarian Data Exchange
HFA	Hyogo Framework for Action
LGU	Local Government Unit
NDRRMC	National Disaster Risk Reduction and Management Council
NDRRMP	National Disaster Risk Reduction and Management Plan
NGO	Non-Governmental Organisation
OECD	Organization for Economic Cooperation and Development
SFA	Sendai Framework for Action
TNA	Training Needs Analysis
UNISDR	United Nations Office for Disaster Risk Reduction
WFP	World Food Program

Table of contents

Abstract	1
Acknowledgements	2
Abbreviations	3
Table of contents	4
List of Figures	6
I. Introduction	7
1.1 What is a disaster: the natural hazard-disaster relationship and global discourse.....	7
1.2 Research questions and aim of the study.....	8
1.3 Delimitations	9
1.4 Contribution to research	9
1.5 Thesis outline	9
II. Literature Review and Conceptual Framework.....	11
2.1 Disaster Risk Management.....	11
2.2 Disaster Risk Reduction	12
2.3 Community.....	13
2.4 Vulnerability	14
2.5 Capacity.....	15
2.6 Local ownership	16
2.7 Resilience	17
2.8 Model of the conceptual framework	17
III. Background	19
3.1 Disasters and disaster management in the Philippines	19
3.2 Community-Based Disaster Management in the Philippines	20
3.3 The municipality of Bagulin, La Union	21
3.4 The Igorot people	24
IV. Methodology	26
4.1 Epistemological and ontological considerations	26
4.2 Research design.....	26
4.3 Data collection methods	27
4.3.1 Semi-structured interviews.....	27
4.3.2 Sampling in semi-structured interviews	28
4.3.3 Unstructured observations.....	28
4.4 Positionality and quality of data.....	29
4.5 Ethics.....	30
4.6 Analysis of collected data	30

V.	Findings.....	32
5.1	Research question 1: preparing for and responding to disasters in Tio-Angan before CBDM.....	32
5.2	Research question 2: how and why CBDM helps communities increase their disaster resilience	34
VI.	Analysis and Discussion.....	36
6.1	Disaster Risk Reduction and Disaster Risk Management	36
6.2	Community.....	37
6.3	Vulnerability	38
6.4	Capacity.....	39
6.5	Local Ownership	40
6.6	Resilience	41
6.7	Model of Conceptual Framework	43
VII.	Conclusion.....	44
VIII.	Reference List	46
8.1	Written sources.....	46
8.2	Oral sources.....	51
	Appendix	52
A.	Interview guides, semi-structured interviews.....	52
B.	Respondents of semi-structured interviews.....	58
C.	Disaster Resilience of Place (DROP) model.....	59

List of Figures

Figure 1: Model of Conceptual Framework	18
Figure 2: Model of Conceptual Framework – findings and analysis	43
Map 1: Map of Typhoon Haima	19
Map 2: Pacific Ring of Fire	20
Map 3: Reference Map Philippines	22
Map 4: Reference Map La Union and Bagulin	23
Map 5: Elevation Map of Northern Philippines	24
Picture 1: View of Bagulin Municipality	23
Picture 2: Drying of Tiger Grass, used for Fabricating Soft Brooms	25

I. Introduction

1.1 What is a disaster: the natural hazard-disaster relationship and global discourse

Disasters strike every year, all around the globe. A disaster causes destruction of homes and infrastructure, high death rates and long-living memories among the affected people (Yamada and Galat, 2014). Disasters are, however, often falsely claimed equal with hazards. This moves the debate away from the real causes of disasters and how to keep them from happening.

The definition of hazard used in this research comes from the United Nations Office for Disaster Risk Reduction (UNISDR), who defines it a

potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards can include latent conditions that may represent future threats and can have different origins: natural (geological, hydrometeorological and biological) or induced by human processes (environmental degradation and technological hazards) (UNISDR, 2005: 1).

For this research, the hazard type discussed will be the natural hazard. Natural hazards include volcanic eruptions, floods, storms, typhoons, tsunamis, droughts or landslides (Gaillard et. al., 2007). They lie beyond human control, but can be reinforced by human activity, for example through man-made climate change (UNISDR, 2005).

Natural hazards do not automatically turn into disasters, but can become disasters if certain pre-conditions are in place. These pre-conditions include both economic and social factors. Social factors concern poverty rates, educational level and degree of cooperation between political and private initiatives (Gaillard et. al., 2007). If these pre-conditions are favourable and strong, natural hazards do not necessarily turn into disasters. If not, natural hazards have stronger effects. The natural hazard is the event, but the disaster is the outcome, amplified by social conditions (Yamada and Galat, 2014).

Within the global discourse on disaster management, it is acknowledged that disasters cannot be avoided unless root causes are tackled. These root causes include, among others; people's vulnerabilities, structural inequalities and climate change. The process of tackling root causes of disasters should occur at a global political level, since political institutions have power to shape overarching policies (UNISDR, 2015b). Nevertheless, cooperation to all levels of society, including private organisations, is important for fulfilling the goal of a world with fewer disasters (Smith and Petley, 2009: 9).

1.2 Research questions and aim of the study

Building on the natural hazard-disaster relationship, the research intends to outline and discuss the underlying causes of what turns natural hazards into disasters, using the case of the Philippines. It investigates one approach for mitigation and prevention of disasters in the context of the people affected by them. The specific aim and research questions are as follows:

Aim of the study

To investigate what effects a community disaster management organisation brings to a community prone to natural hazards, by comparing the situation before and after the implementation of a community structure.

Overarching research question

How is community-based disaster management used to increase the disaster resilience increased of the community of Tio-Angan in the Philippines?

Sub-questions

- 1) How did the people in Tio-Angan prepare for and respond to a disaster when there was no community disaster management organisation in place?
- 2) How and why is a community-based disaster management structure helping communities increase their resilience against disasters?

The research includes both the organisational aspect of managing disasters and their risks, and the communal aspect of the affected communities and why they are at risk of disasters. The research was conducted and facilitated through an internship at Alay Bayan-Luson, Inc. (ABI) in the Philippines. This non-governmental organisation (NGO) works to help

build the capabilities of peoples and communities for community-based disaster management, in asserting their rights and undertaking initiatives to address their long-term vulnerabilities emanating from poverty and social injustices, environmental degradation and climate change (Alay Bayan-Luson (ABI), 2017).

The internship at ABI gave insight on the disaster situation in the Philippines, and provided the opportunity of gaining access to the field site, Tio-Angan, with neighbouring communities. It also contained the experience of establishing a community disaster management organisation (CDMO). A CDMO is an organisation that is formed in the communities, with the purpose of structuring and organising the communities towards a more effective and coherent disaster preparedness and response. This process contains training sessions and workshops to help the organisations begin their work.

Because of the internship in an organisation which works in favour of community-based approaches to disaster management, the internship led to a preconceived notion that these are positive. This is reflected in the way the study is approached, and how the

research questions are framed. Despite adopting this position when beginning data collection, efforts were taken to ask questions and conduct investigations on possible negative side effects, which will be included into the discussion on findings.

1.3 Delimitations

This research focuses on the community of Tio-Angan as the main unit of analysis because it was visited during the internship with the purpose of forming a CDMO. Tio-Angan was also chosen because other communities in the same municipality already had a CDMO, which provided the opportunity to include the aspect of these communities and their experience of having and running the organisations. There was a possibility during the internship to include aspects of a community in a different region. This was decided against, since that region has different problems and pre-conditions that influence the disaster situation.

Another decided limit of the study was to only include staff from ABI as experts on the topic. This was chosen because it was the organisation where the internship was conducted, which provided access to the staff and their experiences from previous work. Moreover, several of the staff had experience from other organisations, which they included in their responses.

1.4 Contribution to research

The topic of disasters has been extensively discussed in academia. There are numerous articles, reports and guidelines available. The Philippines as a country is also often mentioned because of their extensive history of natural hazards and disaster. However, there is limited research when it comes to specific communities and their disaster preparedness and response practices outside of a major disaster event. This study aims to contribute to this gap in general academia by researching one community and their general strategies concerning disasters and how these can be improved.

1.5 Thesis outline

This paper is divided into seven chapters plus reference list and appendix. The first chapter, *Introduction*, gives an overview of the thesis and includes the basic definition of a disaster, the research questions and aim for the study and delineations for data collection. It leads into the second chapter, *Literature review and conceptual framework*, which describes the literature review conducted before and after fieldwork, to determine the suitable conceptual framework and key concepts for the analysis of collected data. The third chapter is called *Background* and intends to give an overview of the case, including why disasters and community approaches to disaster management are discussed in context of the Philippines.

The fourth chapter, *Methodology*, covers the whole research process from the epistemological standpoint of social constructivism to data collection methods of semi-

structured interviews and unstructured observations, via a discussion on positionality and research ethics to the data analysis method of qualitative content analysis. Then, chapter five and six are devoted to presenting the findings in relation to the two research questions, and discussing and analysing the findings in relation to the conceptual framework. The seventh chapter, *Conclusion*, puts a final remark and ties the research together.

II. Literature Review and Conceptual Framework

Conducting the literature review has taken place in two phases. First, before the fieldwork to gain an overview of the disaster debate and important stakeholders. Second, after the empirical work to integrate the initial findings with the theoretical discourse (Punch, 2005: 265-266) This approach resulted in both the background review of the case, presented in chapter three, and the conceptual framework for the analysis of findings presented below.

The conceptual framework encompasses two well-used and well-cited concepts: disaster risk management (DRM) and disaster risk reduction (DRR). Furthermore, it includes five singular concepts: community, vulnerability, capacity, local ownership and resilience. To clarify their connection, a model has been established which springs from the disaster resilience of place (DROP) model that was developed by Cutter et al. (2008) (See Appendix C). The concepts will now be presented in order as they appear in the model, described in the last section of the chapter.

2.1 Disaster Risk Management

Both DRM and DRR are the central and founding concepts within the disaster discourse, and therefore, hold a prominent role in discussing and analysing a disaster case (Lopez-Lucia, 2015). Both concepts are globally recognised, strongly linked and difficult to distinguish. They tackle the same issue of handling disasters and their effects, but while DRR focuses on the practical implementation and process of reducing risks in disaster situations, DRM concerns the organisation, operation and governance of disaster risks, meaning, how to put DRR into practice (Ibid.).

The history of DRM starts in the 1980s when, despite disasters and natural hazards being a common phenomenon throughout human history, no global framework and practice for how to manage disaster risk exists. Towards the end of the decade, the first national initiatives for disaster management were taken, where countries adopted national guidelines and allocated defined budget shares for disaster management. This development led to the First World Conference on Disaster Reduction in 1994, and later to the Second World Conference in 2005, taking place within the United Nations General Assembly in Kobe, Japan. The second conference came to be crucial for the future of disaster management work globally (UNISDR, 2015b). The conference focused on natural hazards and the disasters they cause. As an outcome, the Hyogo framework for action (HFA)¹ was established, and a paradigm shift towards a global awareness and adoption of DRM had begun (Enia, 2013).

¹ Full name: “*Hyogo Framework for Action 2005–2015: Building the Resilience of Nations and Communities to Disasters*” (Enia, 2013: 213).

The HFA became the first global strategy on disaster mitigation and reduction (Zhou et al., 2014), and was signed by 168 countries (Enia, 2013). It included the various aspects of addressing climate change adaptation, gender issues, social and economic vulnerability, education, cultural factors, the community aspect in disaster mitigation and the importance of national and global cooperation on the issue (UNISDR, 2005). Nevertheless, despite intentions, it takes time for a newly proposed strategy to be effectively and successfully implemented. Zhou et al. write:

[t]he Priority Action 3 of the HFA demand for a global call to governments and others to use knowledge, innovation and education to build a culture of safety and resilience at all levels. Evidence suggests that there are only very few effective initiatives that have been implemented by stakeholders [...] This creates a significant challenge as the ten year plan of the HFA is coming to an end in 2015 (Zhou et al., 2014: 576).

In 2015, when the time-period for the HFA officially ended, the Sendai framework for action (SFA) was formulated and put into practice for the years 2015-2030. The SFA was a continuation of the HFA, to further strengthen the global cooperation on disaster issues and provide a framework for individual countries to address the issue (UNISDR, 2015a).

Currently, the inclusion of DRM into world politics continues to take place. Disasters are mentioned directly in the Sustainable Development Goals (SDGs) from 2015, for example, in sub-goal 11.5, to

[b]y 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters [...] with a focus on protecting the poor and people in vulnerable situations (United Nations General Assembly, 2015: 18).

This development, since the 1980s, has caused a greater understanding on the importance of addressing disasters, but because of the short history of implementation, the concept is still under development.

In 2007, Carreno et al. discussed the importance and yet struggle of defining DRM under specific indicators or benchmarks, that should measure the implementation and the effectiveness of DRM-approaches (Carreno et al., 2007). These would show how DRM is impacting a situation, by calculating and measuring difference between old and new level. The authors propose six different indicators when designing and reviewing interventions and policies, from which one should be vulnerability (Ibid.). The study outlines a basis of researching change by a DRM-intervention. This idea is used for this research, where seven concepts are used to understand the situation before and after community-based disaster management, as an approach under DRM and DRR.

2.2 Disaster Risk Reduction

One weakness of DRM is the lack of recognition of the factors that cause natural and man-made hazards to turn into disasters. In contrast to DRM, DRR tries to put emphasis on the underlying causes of disasters and how these best can be assessed (UNISDR,

2017), making one of the objectives of DRR to shift focus away from the *response* to disasters to the *prevention* of these. Helping people in a disaster situation is important, but preventing disasters from happening is better (Yamada and Galat, 2015). This aim for disaster prevention includes addressing policy and institutions, which overlaps with DRM and highlighting the connection between the two concepts (Twigg, 2015).

One consequence of the DRM/DRR division is that some countries do not have funds and doctrines for disaster preventive measures, but only for disaster response. This creates a risk that the focus concerning disaster management is moved away from the affected people. Such a situation limits the national capability of reducing disaster risks (Ibid.). Some countries, including the Philippines, are now moving towards a more integrated approach to disasters, to make the preventive disaster work fall on government initiatives (UNISDR, 2015b).

To integrate the global doctrine on disaster mitigation with the people and communities affected, community-based disaster management (CBDM) emerged as a new concept for disaster management and reduction. CBDM refers to the process of moving disaster management into the communities prone to disasters. Disasters affect different sectors within society, which makes it important to implement DRR strategies in all the sectors involved in and affected by disasters (Twigg, 2015). CBDM has been adopted preventively since the mid-1900s, however mostly by NGOs or other civil society organisations. Towards the end of the century, accompanying the rise of DRM into the international political agenda, CBDM started to gain political attention (Chen et al., 2006). This new discourse on complexity in disaster mitigation acknowledges the interplay between nature and society, a necessary development for a successful DRR-practice (Hilhorst, 2004: 52).

DRR was used by Blaikie et al. (1994), as an approach to reconstruct and rebuild areas that have been hit by a major disaster (Blaikie et al., 1994: 193-217). In their study, the authors analyse two disasters, one urban and one rural, from which they developed twelve principles used to manage disaster recovery. These principles include “[r]ecognize and integrate the coping mechanisms of disaster survivors and local agents” (Blaikie et al., 1994: 204) and “[m]aximize the transition from relief to development” (Blaikie et al., 1994: 212). Although focusing their study in recovery rather than preparedness, these principles represent a broad picture of the DRR framework and acts as a foreground to later CBDM work.

2.3 Community

Being a well-researched term, academia has provided several different definitions of community. The definition used in this research has been developed through two different articles, Buckle (1998) and Simmons et al. (2011). Together, they state three important traits defining the concept; a) community as a group of people who share common characteristics, such as age or heritage, b) people who, for themselves, believe that these define the identity for their group and c) the spatial dimension, of communities usually being in one geographical place (Buckle, 1998; Simmons et. al., 2011).

In the case of disaster risk and management research, community becomes a key concept since it narrows the study towards a unit of analysis with specific traits. Disaster relief and mitigation measure are often community-specific, which means that they are not directed towards individuals, but towards the collective group of people affected (Victoria, 2003). Moreover, the community becomes an important stakeholder in the process, as Chen et al. (2006) describe:

the governments' emergency services might be delayed or affected because of the type or size of a disaster and the geographical features of the area affected. Under these kinds of conditions, communities, therefore, play a significant role in responding to the early stages of a catastrophic disaster (Chen et al., 2006: 210).

Including communities into disaster planning strategies requires understanding and analysing the different traits that define a community; culture, identity, history and administrative structure (Buckle, 1998). If achieved, analysing communities as individual units provides an important insight to disasters and their effects on people.

An article written by McEntire and Myers in 2004, discussed the concept of a 'community' in relation to DRR and CBDM (McEntire and Myers, 2004). The authors emphasise the importance of disaster preparedness to mitigate disaster effects for affected communities (Ibid.). They also mention the challenges that can come up when implementing it. Communities might not be responsive, especially if they are not in a commonly hazard-prone area. Nevertheless, community is mentioned as a key stakeholder in the disaster management process, and including them into disaster preparedness work will, according to the authors, diminish disaster effects (Ibid.).

Further on in this research, when referring to 'a community', what is meant is a Barangay. A Barangay is a political sub-division in Philippine municipalities. They fulfil the characteristics of communities by, often, having the same cultural background, including family bonds and located in a small and defined geographical location. This means that 'Barangay Tio-Angan' becomes the 'community of Tio-Angan' in this research.

2.4 Vulnerability

Vulnerability is a central concept when discussing disasters' impact on local communities and people affected, since disasters cannot be mitigated without analysing and addressing the underlying vulnerabilities (Gaillard et al., 2007). This recognition of the concept has, since the 1990s, increased its inclusion into policy interventions and decision making (Adger, 2006).

The process of defining vulnerability occurred over several decades. The original, foundational definition of vulnerability stems from scholars within human geography and human ecology, who defined it concerning human-nature relationship and interplay (Ibid.). This definition did not go uncontested, and scholars from other disciplines gave their contribution, making vulnerability, today, an all-encompassing concept. It covers an area from poverty and social marginalisation to global-local decision making which

create institutions who affect people's lives (Hilhorst and Bankoff, 2004: 1). Furthermore, it includes the abstract concepts of feeling of safety and trust (Sandoval and Voss, 2016). The original definition of man-nature interplay has been broadened, and physical and natural features, such as landscape formation or climate conditions, are generally viewed as influencing factors to social conditions. Thus, the interplay between social and physical features are shaping the degree of social vulnerability (Yeletaysi et al., 2009). In a concrete example, this means that disasters affect the poor households or socially marginalised people more than rich households, who are less vulnerable, and therefore, more resilient (Adger, 2006).

Furthermore, in disaster situations, death rates do not only arise from the event itself. A large proportion of deaths come from side effects caused by vulnerability, for example famine or illness. If the vulnerability of the affected people is addressed in disaster management, it both strengthens the coping-capability of the communities, and helps to improve general social and economic conditions (Blaikie et al., 1994: 3-4). Vulnerability is not static, but adapts to a given and changing social context (Hilhorst and Bankoff, 2004: 1-2).

When researching vulnerability, a concept that was first mentioned by Cutter is often cited. Cutter and her colleagues discuss the concept of 'social vulnerability', to distinguish the general 'vulnerability' from natural conditions that, also, cause people to be vulnerable (Cutter et al., 2003). This division indicates a need for a separate approach to vulnerability assessment when it comes to social conditions than natural ones, also when mitigating disaster effects (Ibid.).

Thus, researching hazards and disasters requires both the geo-physical aspect of hazards – for example coastal communities being in the risk zone for flooding – and the social vulnerabilities, for a holistic picture of the situation (Adger, 2006). This is how vulnerability will be used for data analysis in this research – to outline what makes the people vulnerable, how it affects their situation in relation to natural hazards and what can be done to assess it.

2.5 Capacity

Capacity is, just as several of the previous concepts, well-used in social research and hard to define, because of the width of dimensions they incorporate. Simmons et al. (2011) discuss the different traits defining the concept of capacity as including "general characteristics such as capabilities, abilities, strengths to the more tangible characteristics of knowledge, technical expertise, skills, and leadership" (Simmons et al., 2011: 197). The absence of capacity, thus, means the absence of these characteristics, including a limited possibility to change one's situation.

In the literature, capacity is mostly mentioned in the context of 'strengthening capacity' or 'capacity building'. Kenny and Clarke (2010) describe a situation where the term 'capacity' has become one of the major concepts within the international development discourse, and that the importance of strengthening the capacity bottom-up has become a new paradigm (Kenny and Clarke, 2010: 3-4). Bankoff (2004) also

discusses capacity as a product of people's history and previous actions. If not addressed, these will repeat themselves (Bankoff, 2004: 32).

The process of strengthening capacity, thus, involves recognising the different traits capacity is composed of, and working actively to improve these. In the long run, strengthening capacity is about strengthening the possibility people have in influencing their own lives (Idawati et al., 2016). Nevertheless, approaching a community with the intention to strengthen its capacity comes with an agenda. If the local people are strengthened, the government or development organisations do not need to support them to the same degree as before. The intention matters for the execution (Kenny and Clarke, 2010: 3-4). Strengthening capacity of people takes time and work. If it succeeds, it helps the communities withstand hazards, overcome vulnerabilities and provide a sense of ownership, both in the short and in the long run (Idawati et al., 2016).

2.6 Local ownership

When researching humanitarian action, it is important to include a reflection on the power perspective between donor-implementer-local community, and about the long-term goal of the intervention (Zanotti et al., 2015). Ownership, and more specifically, local ownership, is one concept which is used within the humanitarian field to illustrate this phenomenon. Since the mid-1990s it has been increasingly mentioned within academia, beginning when the Organization for Economic Cooperation and Development (OECD) in the 1990s discussed local ownership as a new key concept for development and global partnership in the 21st century (Pouliny, 2009). Still, the most usage of the concept remains among humanitarian organisations, who often describe it as crucial for the success of their projects (Ibid.).

Local ownership is often understood as a means of transferring the knowledge and practice of an intervention to the people which it is targeted towards, to give them a sense of 'being in charge', as well as giving them the full rights to the benefits achieved by the implementation (Cornwall, 2008). This picture is confirmed by one influential scholar concerning ownership and participation, Robert Chambers. One of his studies, from 1994, describes the intention of local participatory approaches of being aimed at poor people in vulnerable conditions, where it is common that the people have not experienced projects targeted towards their own needs before. Then, if ownership is transferred to the people, it provides incentives to sustain the project and its benefits within the community, even after the funding agent or organisation has left the field (Chambers, 1994).

This definition clashes with the other prevalent view of ownership, where ownership is thought to be achieved, not by intervening from the outside, but by letting the people acquire it for themselves, thus, controlling their own environment. It is true that self-learning and experience acquired through generations result in common practices and systems, but these systems are not necessarily efficient, as Chambers wrote in 1979 (Howes and Chambers, 1979). The absence of knowledge and capacity in vulnerable communities needs to be rebuilt before the 'ownership' can be left to the local people (Ibid.).

When reflecting on ownership, questions that can be asked are ‘who owns the right to an intervention?’ or ‘where is the benefit allocated after a project is finished?’. These questions illustrate the foundational traits within local ownership: local participation, involvement and capacity (Poulligny, 2008). The analysis of a situation through local ownership should characterise these traits, and be viewed as a state of collaboration, where the needs of the targeted people are considered, and how the exit of the funding/implementing agent is prepared for (Ibid.)

2.7 Resilience

Resilience is the concept which connects the others together. In current scientific research resilience is often mentioned when discussing global warming and ‘planetary boundaries’ (Steffen et al., 2015). Its origin lies in natural sciences, where it is used to explain the ability of a system to ‘bounce back’ and withstand outside shock, such as the planet for global warming. When this effect diminishes, the system is no longer resilient and cannot withstand outside stress, which can lead into a negative spiral (Steffen et al., 2015).

Because of its previous extensive use within natural sciences, the transformation of resilience to concern social systems has not been without friction. This process has merged new concepts, such as organisation and leadership, into the previous definition of resilience. If a social system, such as a community, is strengthened, it will be prepared for withstanding external stress (Miller et al., 2010).

Today, applying resilience to the analysis of a social system requires a thorough analysis of the case. In modern day society, social, ecological and economic factors are increasingly intertwined, with economic linkages involved in political decision making and trade patterns influencing environmental sustainability (Adger et al., 2005). This development has led resilience to come close to vulnerability, seeing how an analysis of resilience shows the vulnerable points in a social system. The two concepts have historical and intellectual differences, of resilience primarily being rooted in the positivist epistemology and vulnerability inherently being constructivist in its roots (Miller et al., 2010), but the developed understanding of the social world in recent decades has blurred the borders of scientific paradigms. If people’s preconditions are changing, and vulnerability is increasing, it has negative effects upon their resilience, a chain of events which needs to be broken within the communities themselves (Hilhorst and Bankoff, 2004: 1-2).

2.8 Model of the conceptual framework

To outline the relation between the concepts, a model has been developed. It builds on the DROP model outlined by Cutter et al. (2008) (see Appendix C). The DROP model outlines the chain of events when a hazard hits, and takes social conditions, short term response and long term impacts into account. It is a thorough model, but did not include all the concepts chosen for this conceptual framework. Therefore, the model has been simplified and adapted to suit the purpose of this research.

The model, (see Figure 1), is constructed to represent the order of approaching a community to build disaster resilience. Therefore, the hazard is not included into the model, as it is in the DROP model, because it is assumed that the community or area is affected by hazards. Instead, the first point is DRR and DRM, who form the incentive and entry point of the intervention. With those, a community is approached, and its characteristics examined. Then follows vulnerability, and a minus is put before, since it is the absence of vulnerability that creates resilient communities, and the presence of it lowers their resilience. When capacity and local ownership are added, and strengthened, the result is a community resilient to outside stress.

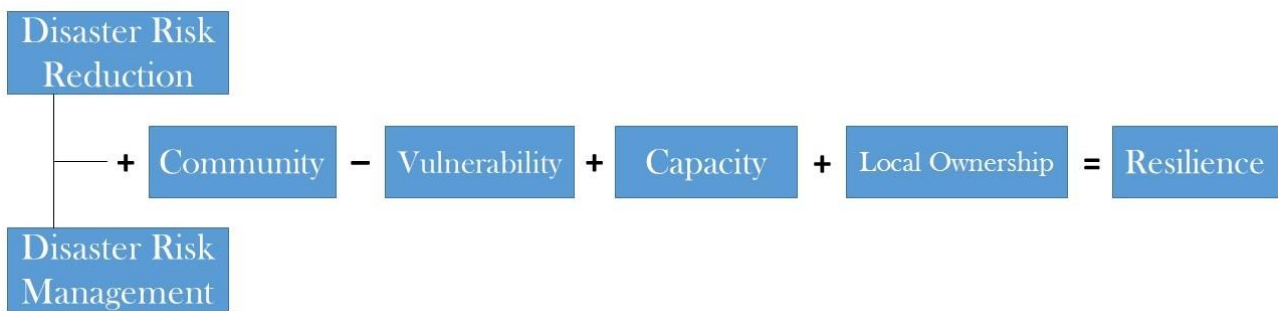


Figure 1: Model of Conceptual Framework

III. Background

This chapter discusses the global disaster management-context in relation to the Philippines and to community-based DRM-approaches. It also covers a description of the field site, the municipality of Bagulin, La Union, and a description of the Igorot people, the indigenous population inhabiting the area.

3.1 Disasters and disaster management in the Philippines

On the 19th of October 2016 – at 11 p.m. – typhoon Haima reaches the Northern part of the Philippines (see Map 1). Its sustained wind speed of up to 220 kilometres per hour and left millions of people in seven provinces affected (Griffiths et al., 2016). It was the second storm to hit the country within a week, and both had a strength equivalent to at least a 4-degree typhoon in the Saffir-Simpson measuring scale for storms² (Phys.org, 2016).



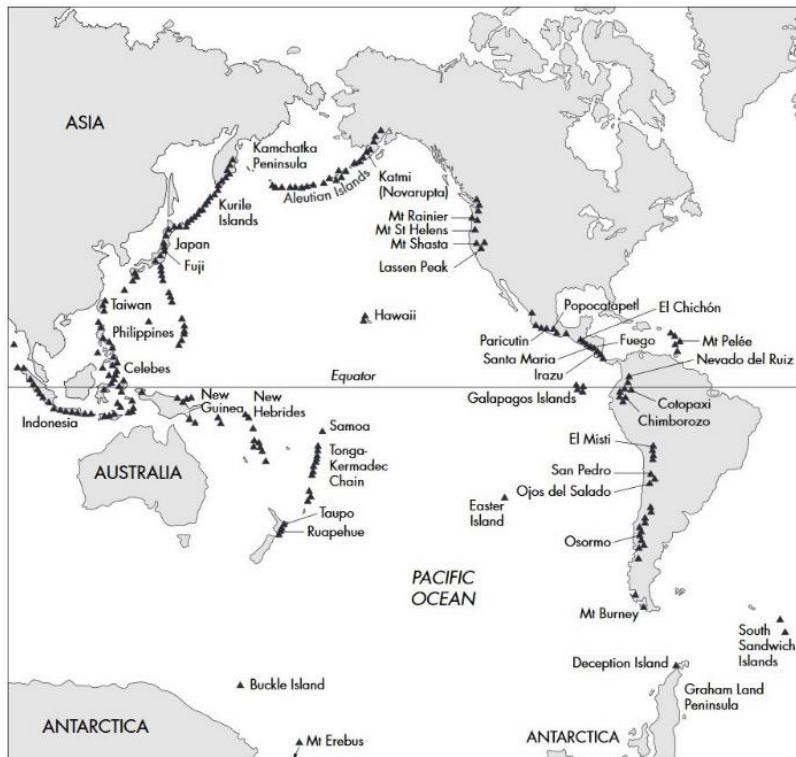
Map 1: Map of Typhoon Haima

Source: The Straitstimes, 2016

Haima is one of many typhoons that have hit the Philippines. Because of the country's geographical location, in what is called the 'Pacific Ring of Fire' (See Map 2), as well as the 'typhoon belt' in the Northern Pacific Sea (The World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR), 2015), the Philippines are yearly experiencing various natural hazards, affecting millions of people both directly and

²A five-degree measuring scale, where five is the strongest hurricane. A four-degree hurricane causes extreme consequences, commonly with severely damaged houses and up-rooted trees (Rowlett, 2000).

indirectly (Ibid.). In combination with a vulnerable society of high inequality and widespread poverty, the Philippines become one of the most disaster-prone countries in the world (Gaillard et al., 2007).



Map 2: Pacific Ring of Fire
Source: Hansell et al. 2006: 150

To address the problem of disasters in the country, the Philippine government reworked their strategy for DRM. It began with the ratification of the HFA in 2005, and later, the SFA in 2015 (Lopez-Lucia, 2015). In 2010, they launched a new, national framework for disaster management, by establishing the Philippine disaster risk reduction and management (DRRM) Act of 2010, also known as the Republic Act 10121

(National Disaster Risk Reduction and Management Plan (NDRRMP), 2011). This Act established the National Disaster Risk Reduction and Management Council (NDRRMC), which is a network of cooperating government agencies, local government units (LGUs) and different actors within the private sector. Their mission is to gather the effort for and knowledge about DRRM (a combination of DRR and DRM) in one government agency, making them better equipped for managing the disasters in the country (GFDRR, 2015). The NDRRMC later formulated the NDRRMP, which is their action plan for 2011-2028. It outlines the efforts the Philippines should take towards “four distinct yet mutually reinforcing priority [sic] areas, namely, (a) Disaster Prevention and Mitigation; (b) Disaster Preparedness; (c) Disaster Response; and (d) Disaster Recovery and Rehabilitation” (NDRRMP, 2011: 6).

Today, the DRRM-work in the Philippines is continuing, with the NDRRMP as an important guiding document. Still, different actors within the private sector are important for fulfilling the national objective of disaster mitigation and relief, particularly concerning CBDM (Fernandez et al., 2012: 205-207).

3.2 Community-Based Disaster Management in the Philippines

For the Philippines, the general recognition of CBDM came with signing the HFA in 2005. From then onwards, the government of the Philippines began the work to shift their

DRM-agenda towards including pre-disaster work instead of mainly post-disaster work (Carcellar et al., 2011). Moreover, the strategy included increased efforts towards identification of at-risk areas and people before a disaster, moving DRM away from the previous top-down implementation strategy (NDRRMP, 2011). The cooperation with the LGUs on disaster matters made the national initiatives reach the village levels to a higher degree, where the affected people and people at risk could be monitored and helped (Carcellar et al., 2011).

Because of the previous lack of focus on CBDM in mainstream DRRM-practices, the NDRRMP stressed the importance of including the community-aspect in all four priority areas, but particularly concerning disaster preparedness (NDRRMP, 2011). This broad-scale inclusion of CBDM is important for the overall success of DRRM, because despite private initiatives and NGOs' long and dedicated involvement within CBDM, NGOs cannot fill the responsibility of governments as implementing agencies. Governments have greater financial and organisational opportunities to implement CBDM on a nation-wide scale (Izumi and Shaw, 2012: 36).

The next two sections of this chapter will focus on the case selected for the research, and concern the field site where data was gathered on CBDM and its impact for the communities where it is implemented.

3.3 The municipality of Bagulin, La Union

The municipality of Bagulin is situated in the province La Union, in the Northern region of the Philippines; about 300 kilometres north of the National Capital Region (see Map 3). The Population size is around 14,000 people (Principal Government of La Union, 2017), making it a smaller municipality in the context of the Philippines, with over a hundred million inhabitants in total (Trading Economics, 2017).

Bagulin is comprised of ten Barangays, of which one is Tio-Angan (Principal Government of La Union, 2017), the main unit of analysis for this research. Also in two of the neighbouring Barangays, Libbo and Alibangsay (see Map 4), data collection has been undertaken, to complement the findings from Tio-Angan. Tio-Angan was chosen as the research site because the internship conducted with ABI gave access to the community, and because of the possibility to investigate the before-after change of CBDM.

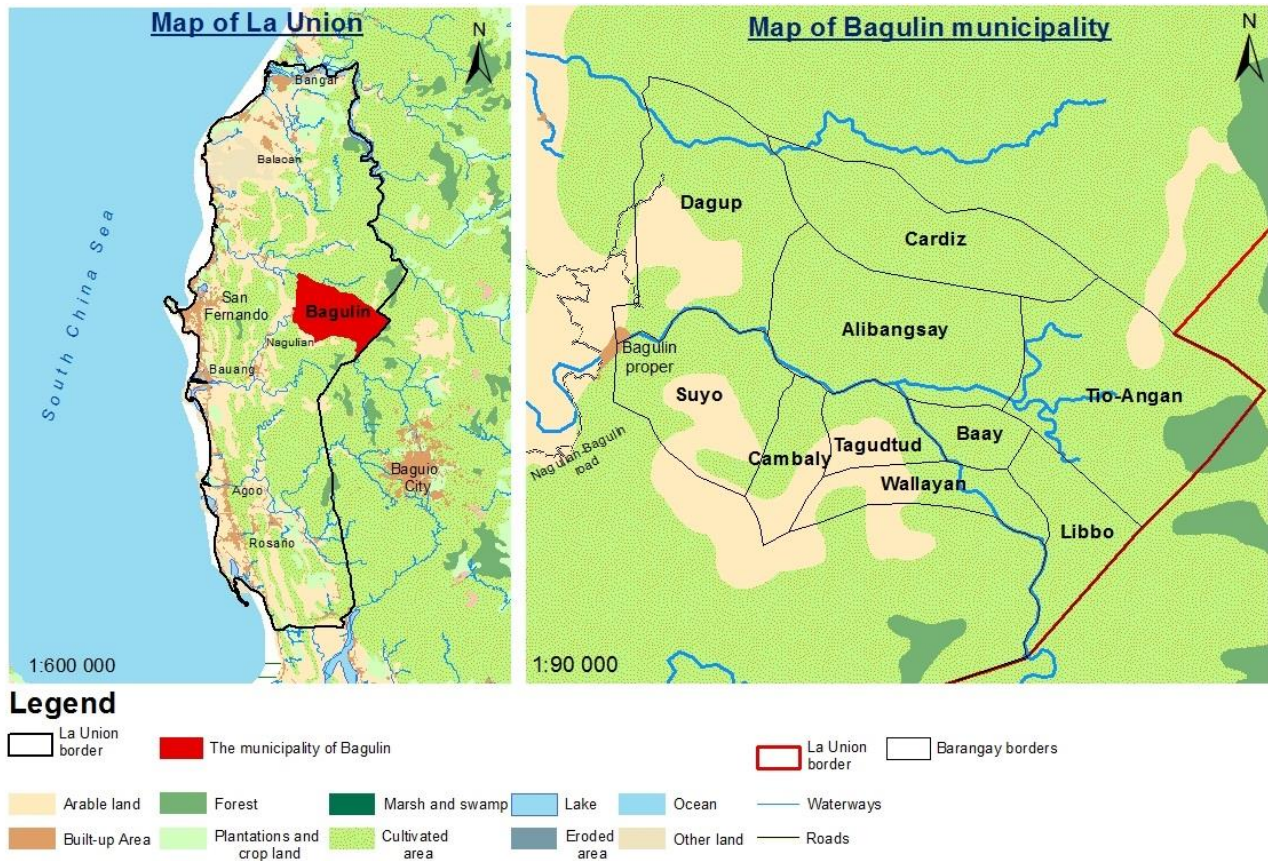


Legend

- The capital region and the fieldwork region
- Arable land
- Forest
- Marsh and swamp
- Lake
- Ocean
- Built-up Area
- Plantations and crop land
- Cultivated area
- Eroded area
- Other land

Map 3: Reference Map Philippines

Map by: Sophie Mumm 2017. Source: ESRI ArcGIS (2015), Humanitarian Data Exchange (HDX) (2015), World Food Program (WFP) GeoNode (2013), DivaGIS (n.d)



Map 4. Reference Map La Union and Bagulin
 Map by: Sophie Mumm 2017. Source: ESRI ArcGIS (2015), HDX (2015), WFP GeoNode (2013), DivaGIS (n.d), Mapcruzin (2017)

According to the classification of municipalities in the Philippines, which ranks municipalities average income, Bagulin is a fifth-class municipality, the second-to-last category, meaning Bagulin is among the second poorest municipalities in the country (Philippine Statistical Authority, 2016). The terrain is mountainous, road coverage is poor and the livelihood of most people is small-scale farming (Interview 3).

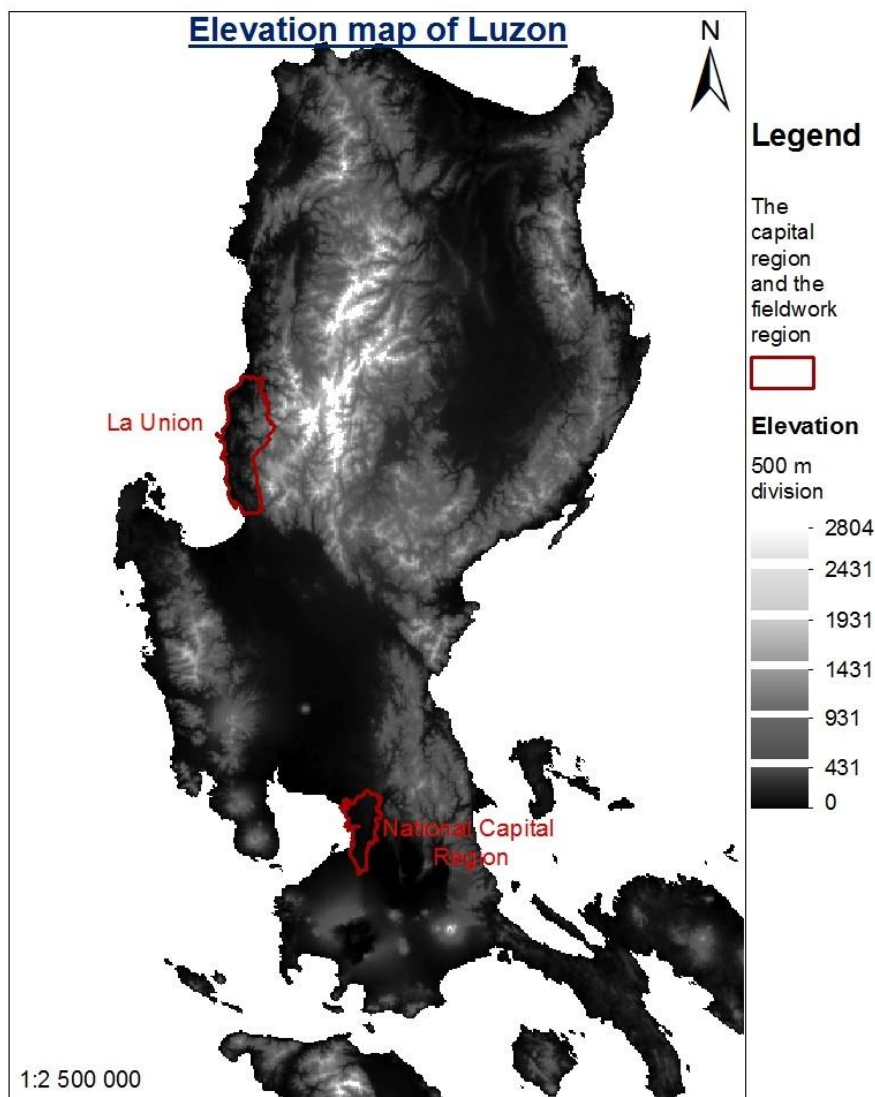


Picture 1: View of Bagulin Municipality
 Bagulin, La Union, Philippines. Photo by: Sophie Mumm 2017

In the context of natural hazards, typhoons hit Bagulin every year (Interview 3). However, poverty and isolation for the Barangay is contributing to the effects natural hazards have on the people. This contributes to a need for organising and educating the people for how to build up their community to become less affected. Moreover, it forms an interesting base for research, since the people in the under-researched and secluded area directly can experience impacts from the outside, making the effects of CBDM visible and possible to research.

3.4 The Igorot people

The inhabitants of Bagulin belong to the Igorot people, a people commonly associated with the central parts of the mountainous North. La Union is a region with both lowland and highland areas, and the Igorot people live in the Eastern end, where the mountains begin (see Map 5).



Map 5. Elevation Map of Northern Philippines
Map by: Sophie Mumm 2017. Source: DivaGIS (n.d) and HDX (2015)

The Igorot people have a long history, impacted by the two colonisation periods of the Philippines, in the years 1565 to 1946. The first one, consisting of over 300 years of Spanish colonisation, and the second one, of almost 50 years of American colonisation (Schirmer and Shalom, 1987: xvi-xvii). While the Spanish colonisation concentrated its activities in the Southern part of the archipelago, the Americans based their colonial rule in the north. Despite initial success of resisting colonisation, it crumbled under the American rule (Botangen et al., 2017).

The mountains had for long hosted numerous tribes with different languages and cultures, but when the colonising powers came, they gave these mountain tribes the cluster name of 'Igorot people', putting them all in the box of 'indigenous people' (McKay, 2006). The name 'Igorot' means 'from the mountains', a term originally used by local people for those coming down from the highlands to the lowlands to trade, making it a term for people *away from* their homeland, and a name the mountain tribes did not choose themselves. The colonisers adopted this to call the people *in* their homeland, which contributed to a feeling of displacement among the Igorot people (Ibid.). Furthermore, no low-land indigenous tribes received a cluster name, only the mountain tribes did. The term 'Igorot people' has remained over the years, and is still used to describe the mountain population (Ibid.).

Despite the colonial overrule, the Igorot's long resistance contributed to them preserving much of their cultural heritage, which low-land tribes generally were not able to (Botangen et al., 2017). The Igorot's indigenous languages are continuously used, which in the case of Bagulin were the minority languages of Ilokano and Kankanaey. Today, this makes the Igorots being viewed as the only 'pure' indigenous and tribal population in the Philippines (McKay, 2006). Although Western integration has reached the mountainous areas of the Philippines, many of the tribes still hold on to their culture and language. In Bagulin, the handicraft of the people was to fabricate soft brooms.



Picture 2. Drying of Tiger Grass, used for Fabricating Soft Brooms
Tio-Angan, La Union, Philippines. Photo by: Sophie Mumm 2017

Entering a field site in an under-researched and indigenous area posed both possibilities and challenges. These will, together with the research approach, be accounted for in the next chapter on methodology.

IV. Methodology

This chapter concerns the research methods. The chapter starts by explaining the epistemological foundation of the research. Then, it is followed by the design in which the research is framed, an explanation of detailed data collection methods and sampling, a discussion on positionality and ethics and methods for data analysis.

The chapter divides the positionality and quality of data and the section on research ethics. This is done because research ethics represents a specific trait within research, concerning informed consent and how respondents were approached and used, while positionality and quality of data forms a more general discussion on accessing the field and how decisions taken impacted the overall research process.

4.1 Epistemological and ontological considerations

Epistemology is the school of knowledge creation. It shapes the lens through which the world is observed and understood, leaving traces both in data collection methods and in the analysis of findings (Hammett et al., 2015: 6). The epistemological standpoint of this research is interpretivism, since this stand aims to “develop understanding (rather than explanation) grounded in a view of the social world as constructed through interaction and that our understanding of the social world is produced through our interpretation of it” (Hammett et al., 2015: 21). In the research, this is addressed through the awareness of the different viewpoints to the situation by, on one hand, the local population and, on the other hand, me as an outside researcher. Nevertheless, both views are important for forming a holistic understanding of the situation.

The ontological standpoint is social constructivism, since this view stresses humans as creators of their social context, and the social context as subject to constant change (Bryman, 2012: 28). Furthermore, it says that humans have the possibility to influence social institutions (Hammett et al., 2015: 258). In this research, it means the local people have the power to impact institutions of disaster resilience.

4.2 Research design

The design for this research is a case study. Case studies have the common characteristics of focusing attention to one phenomenon or incident, and the aim to outline all the factors and aspects involved to form a holistic understanding of the phenomenon researched (Bryman, 2012: 66-67). The specific case study-type is the explanatory case study, which is used when “seeking to answer a question that sought to explain the presumed causal links in real-life interventions that are too complex for the survey or experimental strategies. In evaluation language, the explanations would link program implementation with program effects” (Baxter and Jack, 2008: 547). Thus, it stresses the complex understanding of the intervention and its outcome, in the perspective of the targets. Furthermore, the clinical case study aspect will be applied to the design, since it focuses

on using theory to understand a case in-depth, instead of seeking to develop theoretical generalisations from the data (de Vaus, 2001: 221-223).

4.3 Data collection methods

Data collection involves two different methods: semi-structured interviews and unstructured observations. Combining methods for data collection is done to achieve triangulation, a state where the different methods chosen allow for a cross-comparison and validation of findings (Bryman, 2012: 717). Moreover, acquiring triangulation is often done through the usage of multiple theoretical concepts for data analysis, to see the case from several angles. This acquired through the usage of the conceptual framework (Baxter and Jack, 2008).

4.3.1 Semi-structured interviews

The semi-structured interview is the central data collection method for this research. The interview represents an aim for subjective rather than objective understandings, making it the common among qualitative data collection (Bryman, 2012: 380, 469). The semi-structured, open-ended interview type was chosen because it lets the respondents and the interviewer discuss the topic with a loosely pre-defined structure, allowing for deeper discussions, but still along a red thread (Hammett et al., 2015: 141).

The research setting, among the Igorot people in mountainous and secluded communities, was a closed research setting, where a gatekeeper is necessary for the access of respondents (Bryman, 2012: 437). Because I do not speak the local language of the Igorot people in Bagulin, Ilokano, the interviews were translated by a staff member from ABI, who headed the field operations team I joined, making her my gatekeeper (Bryman, 2012: 437). She translated both the interviews conducted in the field and the local cultural practices I did not understand, coming from a different social and cultural background, which made her crucial to my understanding for the conducted observations (Silverman, 2013: 407). This increased the interviewees feeling of security and comfort, which makes them more likely to give comprehensive answers (Cotterill, 1992).

Beforehand, the interview guides were written, to highlight the core objectives of the interview (Hammett et al., 2015: 141). Because interviews were conducted with people from different backgrounds, I had a total of six different interview guides, divided on the two research questions (see Appendix A). Concerning the respondents in the field, the interviews began with questions concerning their livelihoods, as an overview for their living situation. Later in the interview, the questions concerned the natural hazard and disaster-situations in the villages, how the people responded to these, and if the CBDM-structure had affected these practices. When interviewing the staff, questions were asked on the workings of the NGO and the experiences from specific cases and generally the situation of being an employee in CBDM in the Philippines. The number of questions asked varied, but the interview guides were prepared for an average of 13 questions.

The interviews were documented through notetaking, and recorded when consent was given. Recording is the common practice in interviewing, since it captures not only what the respondents say, but also the way in which they say it (Bryman, 2012: 482). However, most of the respondents were not comfortable with being recorded, resulting in only three recorded interviews and notetaking instead used as the main method. The people interviewed in the field were shy, and some became uncomfortable just when mentioning recording, and were afraid to ‘open up’ for the rest of the interview (Bryman, 2012: 483). To overcome the loss of exact formulations and points made by the respondents, the notes from the interviews were mostly transcribed shortly after the interviews were conducted, which made the transcripts remain true to the responses given.

4.3.2 Sampling in semi-structured interviews

The sampling of the respondents for the research took place in two stages. At first, after having visited the field site and deciding on the research topic, purposive sampling was applied to select the units of analysis which would be appropriate to answer the two research questions (Bryman, 2012: 418). For the first research question, five respondents were chosen, of which three are members of the community, one a community official, and one my translator and staff member of ABI. These were selected as the three members of the community could give an account for their view on the disaster situation in their community, while the community official had more knowledge on the overall structure and situation, and the staff member from ABI to include an expert view, from someone with knowledge in the issue and who had contact with the people in the community. For the second research question, the respondents were chosen to be three members of CDMOs in neighbouring communities of Tio-Angan, a second interview with my translator who facilitated the CBDM-training in Tio-Angan, and lastly two other staff members from ABI who could give an expert view on the general issues of DRM and CBDM in the Philippines (see Appendix B).

In the field, snowball sampling was applied to determine the respondents to the previously defined categories, by asking for suitable and available respondents. Snowball sampling ensured that people with knowledge on the issue were interviewed, which resulted in quality of collected data (Bryman, 2012: 424).

Data saturation in qualitative research implies choosing participants for understanding a social phenomenon rather than achieving a statistically significant result (Henn et. al., 2006: 157). Data collection continues until repetition occurs and no new themes are discovered (Bryman, 2012: 420). In this research, saturation was achieved by incorporating views from people in different position, which contributed to a holistic understanding of the research problem.

4.3.3 Unstructured observations

Unstructured observations were carried out while in the field and carefully noted. Unstructured means open to opportunities and attentive to conversations and situations

arising during fieldwork. It allows the researcher to enter the field with initial ideas on what to observe, ideas that transform over time as understanding grows (Mulhall, 2003). The observations contributed to the general understanding of the situation by allowing me, as the researcher, to get acquainted with the communities and to talk to the inhabitants outside of a research setting to acquire background information and an overview of different aspects that influence the situation in the communities.

4.4 Positionality and quality of data

Researching is never neutral. The researcher brings preconceived ideas and initial standpoints into the research, which might impact the outcome of the study. Being aware and explicit of the researcher's position helps to increase the validity of the research (Murray and Overton, 2014: 25). For this study, a discussion on positionality becomes important, seeing that my different skin colour, level of education, language and cultural background impacted the collection of data (Stewart-Withers et al., 2014: 62).

Researching across cultures has its values, but should be undertaken with a thorough understanding of the new context and background (Scheyvens and McLennan, 2014: 12). For me, this understanding was harder to acquire than originally expected. When conducting interviews, I often got specific but short answers, where I had to ask several follow-up questions to acquire the information needed, turning some of the interviews into more structured than semi-structured ones. The shyness of the Igorot people came forth, where they are unused to providing long and all-encompassing answers. To generate trust of the people, my gatekeeper was crucial. She knew them and could make them comfortable by evening out the uneven power relations and, thus, making the research possible (Hammett et al., 2015: 91).

Looking at the data generated, this unexpected hurdle of communication problems caused two side effects. The first is that I became increasingly dependent on my translator, also in terms of letting her ask follow-up questions to the people (McLennan et al., 2014: 157). This lack of first-hand information was unavoidable, but was addressed by informal conversations with the translator after the interviews conducted, to confirm the statements made. Secondly, the communication problems made the research rely heavily on key informants and experts, who had more knowledge on the situation. The experts interviewed, to strengthen the observation and initial findings, all come from ABI, and not from any other organisation or institution. This is justified by the staffs' long experience in CBDM and extensive cooperation with LGUs.

Another form of language constraint became apparent when interviewing the staff members. They were interviewed by me alone, in English, which is not their mother tongue. Therefore, they sometimes struggled to find the right words, which is shown in the interview transcripts. Nevertheless, we could communicate understandably.

Due to unexpected occurrences in the field, some planned interviews did not take place. This resulted in people from Tio-Angan only being interviewed *before* the intervention took place, and not afterwards, to include the immediate post-CBDM-training thoughts. To bridge this gap, three members of CDMOs from two neighbouring communities with an established CDMO were interviewed. These three communities

have their internal differences, but their similarities outweigh, because of common history and social structures. Furthermore, this allowed me to include both the positive sides and the struggles a CDMO can experience.

While internal validity usually is a strength for qualitative research (Bryman, 2012: 390), external validity and reliability, concerning generalisability, are harder to achieve (Punch, 2005: 255). This research cannot be replicated, since the community studied, Tio-Angan, now has a CDMO and has begun the work for increased disaster resilience. Instead the internal validity and coherence of arguments and findings make it useful as a base for further research on CBDM and its impact on communities.

4.5 Ethics

Within research ethics, there are several important concepts. The first one is trust. A trusting relationship makes the informants secure and willing to participate and increases quality of data, and was achieved by using my field supervisor as translator. The next important concept is informed consent, which means the participants are fully aware of the purpose of the study before agreeing to be interviewed (Punch, 2005: 277-278). This was applied in the field with explaining the research to potential participants, and the people who gave their oral consent were interviewed. An issue Banks and Scheyvens describe in their chapter, (Banks and Scheyvens, 2014: 164), was also present for me, where my gatekeeper interfered and tried to convince people to join. In these situations, I had to apply my role as researcher and break off the attempt, to keep the research within ethical boundaries (Ibid.). Moreover, using a staff member of the organisation working with the communities where I did my research as a translator poses other ethical issues, since she heard both my questions and the interviewees' answers. However, it proved to not be a weakness, as the participants trusted her and felt comfortable in her company.

To ensure anonymity, the participants who agreed to be interviewed were asked if they were okay to be mentioned with their title, for example chair of organisation or community official. Some agreed while others wanted to keep their title unmentioned. Furthermore, no questions were asked regarding family situations, income or on personal relations to other community members or municipal officials, as these were observed as private matters to the participants. Some of the questions posed touched upon those issues, but in a general manner which involved the entire community, and not only the participants themselves (Banks and Scheyvens, 2014: 168-169).

4.6 Analysis of collected data

The collected data will be analysed using qualitative content analysis. Despite mostly being used for document and secondary text analyses among qualitative research (Bryman, 2012: 76, 557), it is also used for analysing primary data collection.

The primary trait of qualitative content analysis is the development of conceptual framework before data analysis begins (Silverman, 2013: 484). The intention is not to develop a new theoretical model, but to use an existing one to explain a phenomenon and

search for underlying themes in the data through coding. These codes are then counted by their frequency (Bryman, 2012: 559; Silverman, 2013: 811).

Qualitative content analysis is linked to the epistemology of interpretivism through hermeneutics, which is the school of understanding a text from the author's social and historical perspective. As Bryman (2012) notes: “[a]n approach to the analysis of texts like qualitative content analysis can be hermeneutic when it is sensitive to the context within which texts were produced” (Bryman, 2012: 560).

The conceptual framework was developed through a literature review largely before the data collection process had started, thus, not letting the concepts emerge from the data collected. Nevertheless, the literature review was undertaken with initial field findings in consideration, and the conceptual framework contains concepts discussed both while in the internship and by the respondents. Therefore, the approach is sensitive to the respondents' answers and their cultural context.

V. Findings

This chapter presents findings from the data collected, concerning the two research questions. Findings from the interviews and field observations are presented together. The analysis is presented in the following chapter.

5.1 Research question 1: preparing for and responding to disasters in Tio-Angan before CBDM

The data for the first research question was collected before the CBDM-training (with the formation of the CDMO) was held in Tio-Angan. Questions asked to the respondents concerned how they are affected by natural hazards today, and what their practices are to address these effects. When interviewing the community members of Tio-Angan, it became clear that the region is affected by storms and typhoons every year. Typical consequences include destruction of livelihoods, waterlines, houses, surrounding trees and roads (Interview 4 & 5). These are all affecting the community members in their practices and habits for addressing the effects of the natural hazards.

Most people are farmers, which includes crops for private consumption, generally food, and others for income-generating purposes, which, in Bagulin, mostly is tiger grass, used for fabricating soft brooms (Interview 4 & 6). The farmers generally grow very similar crops all over the municipality. Almost everybody has rice and beans, which constitutes the basis of their diet. This also means that if a typhoon is particularly destructive towards crops, the whole community gets affected (Field observations, 2017-02-10). One farmer described how his tiger grass can become damaged by both the wind and the rain, as well as by trees falling on his plantations (Interview 4). Another example of larger scale destruction was described by one respondent and concerned a situation in 2009, when a typhoon damaged the banana plantations of the community. To this day, the people have not re-planted them, and no banana plantation remains (Interview 5).

With every typhoon follows certain house damage, but the severity depends on the intensity of the storm. The stronger typhoons occur every other year, and one of those was Haima, who went through the north of the Philippines last October (see Map 1). All respondents, when asked about the consequences natural hazards have on the community, mentioned Haima as a particularly destructive typhoon, although it did not pass right through Bagulin. During the CBDM-training, the participants got to list the damage the biggest typhoons of the last years have had on the community. From the about 200 households in Tio-Angan, Haima caused 30 households to be partially damaged, and 4 totally damaged (Interview 3; Field observations, 2017-02-21).

The practice of the people before the natural hazard is to inform their neighbours about it. There is no universal early warning system, and warning is done through face to face contact, both from neighbours and from community officials. But the terrain is hard to access and the road conditions are poor, which complicates the process (Interview 3).

Then, it is common to tie up the poles of the house and the roof, and to bring animals close to the house (Interview 4).

The road damage is the damage that was mentioned first by most of the respondents, and rain makes the roads even harder to access (Interview 6). The staff member from ABI who held the CBDM-training said that the inhabitants are vulnerable during disasters because, if the road gets blocked, which is a common consequence of natural hazards, the people will be isolated for a long time (Interview 7). This situation also makes the people unable to deliver their goods to the market, which further isolates them and impacts their income.

From the community officials side, they also try to prepare the community by cutting down trees and branches close to powerlines, to prevent power loss, roads, to limit the risk for road blockage, and close to houses, to minimise potential damage (Interview 6). Although the communication among community members is a strength, the practice of disaster preparedness can be improved “[b]ecause they have no early warning system, they have no evacuation route [...] they have no hazard map [...] available in the community and they have no organisation [...] dedicated on the disaster management to the people” (Interview 7).

To the question how they respond to a disaster, all interviewees responded in line with ‘we cooperate’. Everyone stated cooperation as key, and not just as a common practice, but also something to be proud of and wanting to improve even more (Interview 3 & 6). The Community official of Tio-Angan admitted in the interview that the community has no large-scale structure for disaster response, but if there has been a disaster, and, for example, the road is blocked, people cooperate to clear it (Interview 3). He also stated that it is hard for the community to prepare for and respond to disasters on their own, and they depend on municipal funds and external help to improve their situation (Ibid.).

Without having experienced CBDM, it is not easy to know what to expect from the trainings, and what the community is expected to contribute with. One issue was brought up in the interview with the staff member from ABI who held the CBDM-training in Tio-Angan. She had previously stated the absence of an early warning system and an evacuation route as the most vulnerable points in the community. Then, when asked about whether the participants knew what to expect from the trainings, she said: “[i]t takes time to understand, because here they are not really used to evacuation centre [...] like the communities on the city proper [...] maybe they don’t think that evacuation is necessary, because for a long time they have no such” (Interview 7).

Taken together, the community prepares for disasters by informing their neighbours and protecting their livelihoods the best they can, but an overall structure is lacking. Similarly, they respond to disasters by cooperating to mitigate the effects, but lack a long-term plan on how to diminish the effects of future disasters.

5.2 Research question 2: how and why CBDM helps communities increase their disaster resilience

Looking at the long-term perspective, all three members of CDMOs in the neighbouring Barangays to Tio-Angan, Alibangsay and Libbo, stated that their organisations have had positive effects for their communities. They mention the increased organisation among community members, resulting in more efficient pre-disaster planning, post-disaster recovery and easier communication and cooperation with the municipal disaster management office (Interview 1, 2 & 9). One of the reasons for this is that when the CDMOs are established, the new members get to choose between five committees. These are emergency response, education, health, human rights and advocacy and networking. They are to ensure the division of tasks within the CDMO and the long-term strengthening of the entire community (Field observations, 2017-02-10). This structure shows the complexity of the issue, but it helps the members to think in new ways and to see the problem from a wider angle. In Tio-Angan, some new members had ideas already the first day on activities they wanted to conduct, after having met in their committees (Field observations, 2017-02-22).

The CBDM-training held to form the CDMO is not the only training the selected communities receive. Two CDMO-members said in the interviews, that by getting a community organisation, they have gained access to training sessions they did not have before. Mainly by ABI, since they facilitated the first training, but also by other agents operating in DRM (Interview 2 & 9). This aspect was also highlighted by the staff member of ABI after the CBDM-training in Tio-Angan. She said that community organisations, both for disaster management and for other purposes, such as for women, youth or farmers, contribute to a feeling of unity among the people. When the people are feeling united, they can achieve more (Interview 8).

Concerning natural hazards and their impact on the communities, the respondents stated similar consequences as those in Tio-Angan; destruction of livelihood, property, pipelines and roads (Interview 2). Later, the two members interviewed in Alibangsay claimed that the situation is better today, because of improved strategies on preparing for disasters and an early warning system (Interview 1 & 2). Nevertheless, having a CDMO does not automatically solve all problems relating to disasters. Despite the positive effects of CBDM, which also form the basis for research and influenced the phrasing of the research questions, CBDM is not easy to implement. The fieldwork has shown community organisations that have struggled with leadership, incorporating the community in the organisation's decision making processes or how to make them interested in the organisation's work. This phenomenon is important to illustrate, because it shows the different stages the CDMOs go through before they can impact their communities positively.

Libbo has a CDMO that has experienced these struggles, and the woman interviewed declared that the training sessions received do help, but that typhoons still have similar effects on the community as before (Interview 9). In the field, it was observed that a strong leadership was lacking, and the unity of the community members was weaker

than in Alibangsay (Field observations, 2017-02-25). For the CDMOs to have positive effect on the communities, it requires dedication from the external facilitator through continuous trouble shooting and field visits. These help the organisations to overcome their struggles, but also teaches them how to, themselves, handle similar situations in the future (Field observations, 2017-02-11).

In case of a disaster, the community is the first responder (Chen et al., 2006). The capabilities of the communities to do so are very diverse, and some are better prepared than others. When Communities lack the internal structure for disaster management, CBDM coming from the outside helps to organise the community members, who can then be an asset to the community officials. As one of the staff members of ABI noted: “a Barangay captain and seven Barangay councillors during disaster, they cannot do it all” (Interview 11). The community officials shoulder a heavy burden during disasters, which CBDM could help to lift. One approach to achieving this, and to further enhance the cooperation between CDMO and the community officials is to make the organisations official. This is done through both the community (Barangay governments) and the municipality. Then, there is a paper and a proof of the organisations existence (Interview 10). Nonetheless, some Barangay governments are more cooperative than others, and in communities where the officials do not view the organisations positively or assist them, it is hard for the CDMOs to make profound contributions (Interview 10 & 11).

Nevertheless, many community governments welcome the organisation of the community members and the benefit this gives to the rest of the inhabitants. One example given in an interview concerns how this cooperation continued after CDMOs had been formed and monitored for a while:

they're prepared now compared to before [...]. They know how to assist, if there's a disaster coming, before, during and after [...] before, when they're not [...] attended CBDM-training, [...] they choose to wait in their houses, about what the Barangay officials did [...] they let all the works to the Barangay officials. But now, they're part of the Barangay BDRRMC³ [...] they go around with the Barangay officials before the disaster is coming (Interview 11).

Summarising these findings, a CDBM-structure in the communities helps the members become aware of their situation, and provides them with tools on how to address it. CBDM operates at a micro-level, and includes the community members' relation to their community government. Establishing a CDMO is a complicated process requiring dedication and time, and some communities will struggle more than others, but in general, it makes the targeted communities withstand the effects of natural hazards better than before the CBDM-structure was built. The community governments' own DRM-councils are often not enough to assist the inhabitants during disasters, where the CDMOs can help to increase the overall level of preparedness and response to hazards and disasters.

³ Barangay Disaster Risk Reduction and Management Council

VI. Analysis and Discussion

Building on the previous chapter, this chapter analyses the findings presented in relation to the conceptual framework. The chapter is divided by the two research questions. Rather, the analysis focuses on the different concepts and relates them to both the pre- and post-perspective of CBDM. Lastly, the findings and analysis are discussed in relation to the model of the conceptual framework developed in chapter two.

6.1 Disaster Risk Reduction and Disaster Risk Management

As was described in the model for the conceptual framework (see Figure 1), there must be an agenda before a community is approached. This agenda is shaped through DRR and DRM, and includes a community-perspective on how disaster reduction and management should be achieved among the local people affected by disasters (UNISDR, 2005).

Focusing solely on disaster response will not provide the affected people with long-term benefits, but only address the acute symptoms. One of the staff members interviewed highlighted this problem, and explained that the Republic Act 10121 (NDRRMP, 2011), has been crucial for the Philippines government to include more disaster preparedness in their DRM-work (Interview 10). This resulted in a greater knowledge on communities as first responders to disasters. Nevertheless, despite increased funding to Barangay level on disaster preparedness, there is a lack of community interventions for pre-disaster assessments and trainings, and most work on the subject is still conducted by NGOs or other private initiatives (Interview 10). Another staff member explained on this matter, that one reason for the limited CBDM-initiatives from the government side is the accessibility of communities; “the government also did it, but [...] in those places, [...] where easy to reach, they don’t go to those places that we did [...] maybe that’s our part [...] to go to far-flung areas” (Interview 11). Thus, isolated and secluded communities are less likely to be chosen.

Another possible explanation is the work of approaching the communities and gaining their trust. During fieldwork, it was observed how this relationship of mutual trust between organisation, community members and community officials was the glue which held the people together and allowed them to cooperate for a common goal (Field observations, 2017-02-23). The trust was facilitated through an understanding, from the organisation’s side, of the social and cultural context of the people targeted. As another staff member explained, when asked about the hardest part about working with CBDM:

for me it is not that hard [...] only when you have [...] you don’t know their language [...]. Because there is a communication barrier between the development worker and the people in the community. [...] working with them [the people] is easy, only [...] you should [...] understand their culture [...] and their language, so you can communicate better to them (Interview 7).

The same respondent described a situation later in the interview, where training sessions had been held with community officials, but these had not remembered anything from them. “I don’t know if the municipality give the training or the trainer is from here... they might explain it on [...] their language. But if they hired a trainer from the other organisations [...] I don’t think” (Interview 7). Hence, communication and cultural understanding is crucial for the success of trainings and programs.

Implementing CBDM is possible and desired, both among private organisations and the global political agenda (Chen et al., 2006). Nevertheless, it takes time to approach people affected and to address their situation. Many instances and governmental levels are involved in the process, but with cooperation, the situation can be addressed.

6.2 Community

The physical and social characteristics of a community shape the possibility of the inhabitants to cope with natural hazards (Buckle, 1998; Simmons et al., 2011). During field work, it was observed that these pre-conditions affect the disaster resilience of the community, especially concerning the housing conditions of the inhabitants. Many homes are small, and in varying physical conditions. The distances are far and the paths steep. For these people to participate in the CBDM-training, they have to walk for a long time to get to the Barangay-centre, and to access the main road to the municipal centre (Field observations, 2017-02-16).

This situation complicates the DRM-process for the communities. In a community where the members depend on each other for support and information (Interview 4), it is problematic that many people do not have the capacity to withstand hazard effects (Idawati et al., 2016). Likewise, the community’s social structure can pose problems. Conducting CBDM does not work without the support from the leaders, and in communities that are struggling with leadership, this is addressed first, before education of the community members is continued (Interview 10). Legalising the organisations does not only give them credibility, but includes the community leaders into the process, and acknowledges their work and resources. This is strengthening the local anchoring of CBDM, and gives the communities opportunity to continue on their own after a period of introduction and monitoring from the outside (Carcellar et al., 2011).

To achieve the goal of CBDM, to strengthen the local populations, it is important to work from the bottom up, also in the communities. As one staff member noted

[s]o that is the one you need to strengthen, not other higher official, because the higher officials from Barangay level to municipal to provincial is many, many trainings, they can... see, they have the power, they have the money, they have the, ah, network, and they have the, ah, capability. In everything. But the community have limited capability because limited power, limited education, limited financial support, so that we need to enhance them (Interview 10).

Once the people are strengthened, they can work from within to communicate to the other inhabitants about coming typhoons and planned projects for how to mitigate future

effects. This work addresses the root causes of their vulnerability and leads them to become more disaster resilient (Interview 8).

6.3 Vulnerability

The people's vulnerabilities come both from natural and social pre-conditions (Hilhorst and Bankoff, 2004: 1). To make a long-term impact, not only the immediate symptoms have to be addressed, but especially the underlying vulnerabilities. Choosing the highly vulnerable communities for CBDM-trainings and working with them is a challenge, but it gives benefits back to the people who need it the most (Interview 11).

The communities in Bagulin municipality are considered poor and secluded (Philippine Statistical Authority, 2016). Tio-Angan is the community the furthest away from the central town, which puts it in an especially vulnerable position. The staff member of ABI who held the training session said that the people welcomed the training, because "they are very vulnerable compared to other communities" (Interview 7). The limited access by road and the far distance to the village makes a disaster impact them to a higher degree than neighbouring communities. Moreover, the communities are not affected equally. The higher parts, on the mountain tops, are more affected by natural hazards because they are less protected from surrounding mountain sides and fewer pathways, used for warnings and evacuations, lead high up (Interview 4). These geographical vulnerabilities cannot be completely improved, but the social vulnerabilities can. Social vulnerabilities include poverty, absence of social services and lack of human capital (Adger, 2006). These are also present in the communities outside a disaster, and addressing these, the geographical vulnerabilities become easier to handle and the overall situation of the community improves (Blaikie et al., 1994: 3-4).

For the communities in Bagulin, these social vulnerabilities are shown through the lack of health care facilities (Field observations, 2017-02-11), few years of schooling and low household income due to low price on soft brooms and rice (Interview 7). To increase capacity and ownership among the members, these vulnerabilities are included into the training sessions and worked around. Examples include for the people to learn how to cook herbal medicine, knowledge which has been lost over the years (Field observations, 2017-02-11), and to learn their legal rights within their municipality.

Lowering the degree of vulnerability for people is a process, where strengthening them to be aware of their situation is one part. The other part is to address the physical vulnerabilities. One of the staff members interviewed gave an example from another region, prone to flooding. There, the poorest people lived closest to the river, because they could not afford other housing, and they were greatly affected by the floods every year. Little by little, the organisation, as a part of the CBDM-training for this community, worked with donors to strengthen the houses and move from bamboo and wood to stone and galvanising the houses. They also built stronger roofs and walls, which then made the houses less affected by the floods, and gave the families a more secured living. Then, it becomes easier to work with capacity and long-term overall improvement for the whole community, when the immediate threats are undermined (Interview 8).

For Tio-Angan to begin this process, the first step for the new CDMO will be to start working on evacuation routes and informing the people about the importance of these. Moreover, they must develop an early warning system and a strategy for reaching all the community members (Interview 3 & 7). When this is done, they can begin the work for approaching the other vulnerabilities of the community, by cooperating with the municipality and NGOs. To succeed, they need to dare to speak up and claim their rights, which is not possible without first strengthening their capacity.

6.4 Capacity

A lack of capacity is linked to lack of knowledge, skills and opportunity to change one's situation (Kenny and Clarke, 2010: 4). This ties into vulnerability, as a lack of basic needs and human capital influences the capacity of the people negatively. In Tio-Angan, there have been attempts to address this situation, by making the community officials undergo trainings. One respondent in Tio-Angan was asked about these trainings. He admitted that he did not remember anything (Interview 5). Similarly, the woman interviewed from the CDMO in Libbo claimed she underwent training sessions in 1985, but that she did not get anything out of them. The government, who facilitated the training, selected some community members to participate and then only said what the people already knew (Interview 9). This is an example of an agenda behind capacity building where the local needs are not recognised (Kenny and Clarke, 2010: 4). Strengthening capacity requires participative training, since, "human capacities cannot be taught but must be developed" (Miller, 2010: 31). When the people at which the trainings have been targeted feel positive about them, and feel included, then the first step of capacity strengthening is reached.

Being a member of the CDMO has made them more aware of their situations and what they can do to help their own community mitigate the effects of typhoons (Interview 1 & 2). When asking the staff about the participants, they unanimously stated that they believe a membership is strengthening the people personally, and that they have seen, over the course of the years, how members have grown into their role and made substantial impacts in their respective communities (Interview 8, 10 & 11). One of the staff members was very clear about saying that the members need to strengthen themselves first, before they can expect to strengthen their community. She also said that she tells the members they cannot expect any reward for their work, but that they should continue for their community's sake and to be good people (Interview 8). Gaining capacity is not meant only for one person, but intended to benefit several. Therefore, the greatest effect is achieved when capacity is spread around.

When the respondents were asked about their hopes for the future, several perspectives were brought up. One interviewee hoped for continuous and improved cooperation with outside agents and internal transfer of skills and knowledge within their community (Interview 2). Another one hoped to reach more members, to strengthen the organisation (Interview 9), as more members equal more power and opportunity to achieve change (Field observations, 2017-02-10). In Tio-Angan, the community official said in the interview that he was thankful for the opportunity to get a CDMO, since he

was familiar with their work in the neighbouring Barangays. The community organisations they had were not enough, and the knowledge they would gain by learning about disaster management and having an external agent supporting them would be welcomed (Interview 3).

An absence of capacity requires external support in the beginning, before the people have developed their skills enough to largely continue on their own. This picture was confirmed by one member of the CDMO in Alibangsay, who stated his gratitude for the continuous training session and support from ABI, who started the process of CBDM-training in the community (Interview 2).

6.5 Local Ownership

The question about local ownership is strongly tied to the people's capacity. Local ownership entails the transfer of knowledge to the people, and a capacity-strengthening approach helps to achieve the goal of communities 'owning' their own work (Cornwall, 2008). Building disaster resilience takes time, and will be more successful if the benefits gained from the community approaches stay in the community long-term (Chambers, 1994).

The basic example of a first step for local ownership was given by one respondent, who stated that the training sessions have made the people aware of the importance for having systems for monitoring damage and warning people about coming typhoons (Interview 1). It is a foundational trait of local ownership because it shows how the people learn to see their own needs and how to meet them, which they then can do themselves. Another example comes from the meetings the CDMOs have. There, the members talk about upcoming projects and how to best approach the coming typhoon season (Interview 2). These meeting allow them to apply knowledge they learned in trainings in combination with their previous experience on the matter. Working towards local ownership, thus, ties into diminishing vulnerability and strengthening capacity.

Likewise, the absence of local ownership follows the absence of capacity and a high degree of vulnerability (Howes and Chambers, 1979). This situation was illustrated in the interview with the staff member from ABI who held the CBDM-training in Tio-Angan.

Interviewer: [...] what about disaster response? Did they tell you how they usually do when there has been a disaster? [...]

Respondent: [...] only some. They fix the roads [...] that's all they do.

Interviewer: [...] do you think that's enough? [...]

Respondent: Yes, they need to consider other, like, how to mitigate the damaged crops so they can back to their livelihood [...] and then they, they will lead the organisation to access the fund for the rehabilitation of the crops [...] fund from municipality (Interview 7).

Here, there is illustrated a lack of capacity, to know how to access these funds, and it illustrates the vulnerability of having had the main crop, rice, damaged by a typhoon. In

this situation, local ownership will let the people know it is relevant to rehabilitate their crops and not only target the infrastructure, but also makes them approach the municipality for discussion themselves.

Despite the positive aspects of local ownership, knowing, for example, one's legal rights to access a fund is hard if you did not even finish secondary school. Therefore, a certain degree of outside monitoring is essential for a successful transition towards a self-sustaining local organisation. As described in one interview: "before, the others [...] they don't know how to push their right, especially when there's somebody sick, and [...] they don't know how to tell to the doctor. But after the training, after we [...] deal with their rights, they know how to talk to people in higher positions" (Interview 11).

Afterwards, a desirable situation is that the community officials or even the municipality take over, "because they are there, every time" (Interview 10), but, "few Barangay level do that" (Interview 10). Some community governments are more cooperative than others, as already discussed, which can complicate for the external organisation, in this case ABI, to fulfil their goal of knowledge transition for building local ownership. In such a situation, they try to work with the councillors and community officials as well, to explain the purpose of the trainings and how it can benefit the entire community (Interview 10 & 11).

Nevertheless, this requires much time and work from the organisation, and as the staff noted themselves, achieving local ownership is not an easy process within DRR and DRM: "[t]he greatest challenge in CBDM is how to gather it backs [...] [t]o the participants [...] the challenge is how to encourage them, what's the, big help, CBDM, for them" (Interview 11). This standpoint is confirmed in the literature on the subject, which states local ownership as a 'catchy phrase', but one hard to implement (Pouliny, 2009). Ownership should not be come as an 'invasion' from the outside, but with a long-term desire to build up communities from within, without wanting to take over (Ibid.). As observed in the case of the communities in Bagulin, the intention is mainly to build disaster resilience, and local ownership is considered one of the tools towards achieving that goal (Field observations, 2017-02-11).

6.6 Resilience

The model developed for the conceptual framework (see Figure 1), represents a chain of accessing a community affected by natural hazards through DRR and DRM, with a community perspective. The model focuses on social factors, which influence the natural preconditions, and shape the level of disaster resilience for a community. Therefore, when these social factors are addressed, disaster resilience can be built (Chen et al., 2006). This process requires time, dedication and work, but the more resilient, the less effects external shocks, in this case mostly typhoons, have on the villages (Steffen et al., 2015).

The absence of resilience in a community is articulated in the absence of the previous four concepts discussed. Community defines the characteristics of the place where the people live and their internal structure. A lack of capacity, for example, leaves the community with a poor system for both pre- and post-disaster assessment (Interview

3 & 8). A high level of vulnerability is illustrated in poverty and geographical inaccessibility (Hilhorst and Bankoff, 2004: 1), while the absence of local ownership makes it hard for the people to achieve change (Interview 11). When people do not have an early warning system in place or a strategy for post-disaster recovery, they cooperate the best they can, but with a low degree of effectiveness (Interview 3). They usually continue the same practice year after year, but the situation is not improved at its roots (Interview 4 & 5).

Regarding Tio-Angan pre-CBDM, the absence of capacity and presence of high vulnerability caused their overall disaster resilience to be very low (Interview 7). This picture was confirmed by the respondents, who stated the main problem for the community being the absence of an early warning system and no evacuation centre (Interview 3), and the lack of concreted roads (Interview 4 & 5). Furthermore, the low capacity and knowledge about disasters made them unaware of all the hazards that could potentially hit them. As the ABI staff member explained “and then, they know, the only hazard they identified here is typhoon. They don’t even identified drought, and landslides” (Interview 7). When using CBDM as a training method, the local ownership-aspect is important to include for the people not only to hear; but to learn, understand and translate it to their own situation (Cornwall, 2008). As explained by one respondent “[t]hey can cope up in [...] disaster events, the biggest disaster events in their lives. Because of they have the knowledge, they have the capability, and they have the network” (Interview 10).

When on fieldwork, one issue discussed as particularly crucial for defining the communities’ vulnerability was the insecure income (Field observations, 2017-02-10). Living of their farming, the inhabitants depend on selling their goods on the market. When a typhoon destroys the crops or a landslide blocks the road, the people are isolated. As outlined in the model for the conceptual framework, high vulnerability diminishes the disaster resilience, and addressing this is crucial for the success of CBDM-efforts and CDMOs. In Tio-Angan pre-CDMO, a situation was observed where the received funding post-disaster was too low compared to the economic losses and living costs in the area (Field observations, 2017-02-21). A way to diminish this vulnerability is for the members of CDMOs to learn to apply for an increased funding from the municipality after a disaster. This will lead them to better cope with the consequences of hazards. It does not remove them, but prepares the households to, little by little, increase their physical and social resilience.

Another success factor for community resilience is the degree of political cooperation between different levels. In some communities, the implementation of CBDM is running smoothly and members generally describe the CDMOs as positive for themselves and their community (Interview 1 & 2). In others, where the community feeling among the people and the cooperation between different political levels is lacking, the members have a more negative picture of the situation (Interview 9). These struggles were described by one of ABI’s staff members, when discussing how community governments organise their DRM-structure. “There is, but [...] it’s only on paper. [...]

Mostly of the Barangay level will, if you ask if their [...] BDMC⁴ is functional, they said yes, verbally, but when we are in the community – not functional. Only during disaster” (Interview 10). This means that there are officials who work with disasters, but not with preparedness and not continually in cooperation with the members of the community, to include their views.

Such a situation impacts the disaster resilience negatively, particularly when the disaster preparedness work is lacking in the communities, despite it being crucial for the success of CBDM-efforts (UNISDR, 2015b), and the municipalities having allocated a defined budget share for disaster preparedness (Interview 11). If the people in the communities do not feel like they have the support from their leaders, which could then take over the monitoring and implementation work after the CBDM-training period is completed, the communities will be less successful long-term. These problems must be addressed from community members via community officials up to the municipal level before local ownership can play its role, and the last bit in the puzzle for community disaster resilience is laid (Interview 7 & 11).

6.7 Model of Conceptual Framework

To connect this discussion with the model developed for the conceptual framework in chapter two, the model has been extended with bullet points and short summaries of the findings and analysis (see Figure 2). This is done to visually clarify the interconnectedness of the concepts, and the manner in which they all influence the intended outcome – disaster resilience for communities affected by natural hazards.

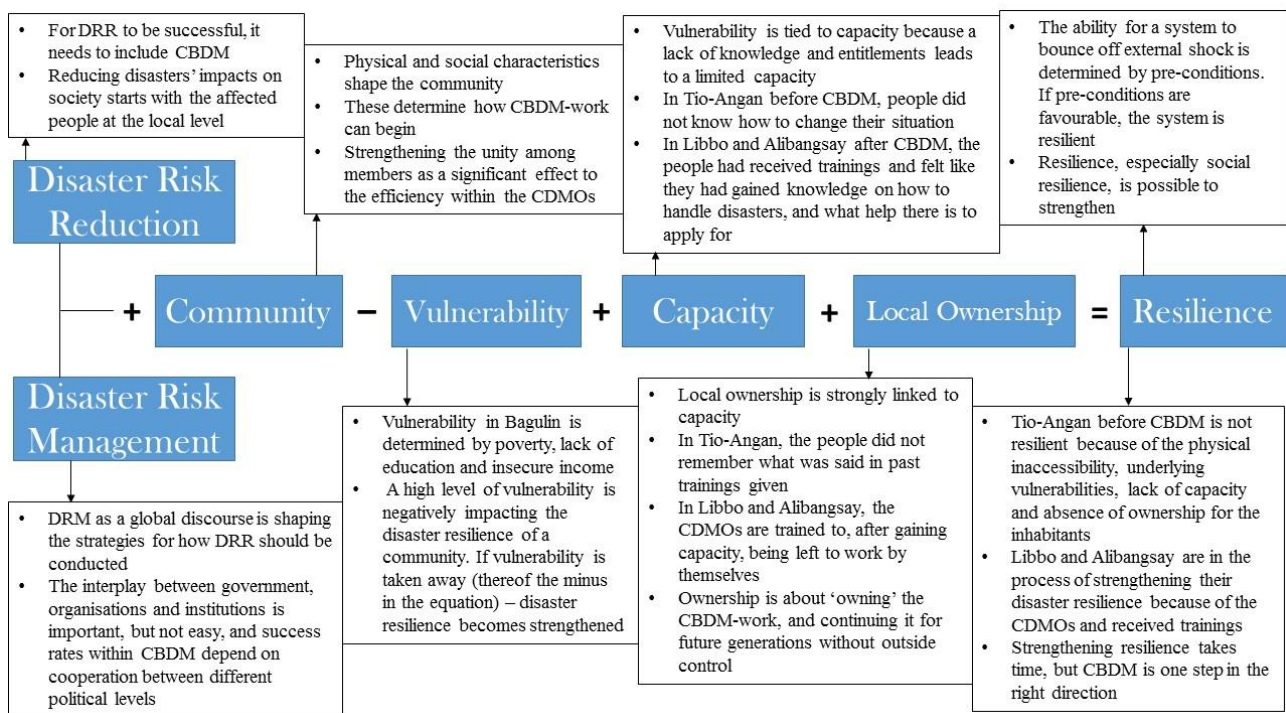


Figure 2: Model of Conceptual Framework – findings and analysis

⁴ Barangay Disaster Management Council

VII. Conclusion

The aim of this study was to investigate communities prone to natural hazards and the effects community-based disaster management has on these communities. Data was collected through semi-structured interviews and unstructured observations and divided on two research questions. Together, they illustrate the pre- and post-side of a community where community-based disaster management (CBDM) is implemented with the intention to strengthen disaster resilience. The collected data was analysed through a conceptual framework constructed of the concepts disaster risk management (DRM), disaster risk reduction (DRR), community, vulnerability, capacity, local ownership and resilience.

The first research question concerns the practices for disaster preparedness and response in Tio-Angan community, before a community disaster management organisation was formed. The study found out that the disaster preparedness work mainly concerned warning neighbours about upcoming typhoons, and then by tying up poles of the house and to bring the animals close to a shelter. There is no common communication tool or early warning system, which makes this system inefficient to reaching all community members, despite efforts from community officials. In disaster response, the interviewees described a situation of cooperation as the main tool for clearing up immediate effects caused by typhoons. Nevertheless, the respondents stated the minimal knowledge in approaches that could improve the situation, and wanted help to concrete roads, to mitigate the main vulnerability of the people – lack of access to the municipal centre.

The second research question concerns how and why CBDM gives positive effects to communities, and, thus, can address a situation described in the first research question. The data collected revealed that members of CDMOs in Libbo and Alibangsay, which are neighbouring communities to Tio-Angan, viewed their organisation as positive for their communities. They stated that receiving training in CBDM has helped them to communicate with both the municipal and regional disaster management office, as well as other agents operating within the broader discourse on DRM. Positive effects mentioned for the community included increased cooperation among community members, a strengthened unity among the inhabitants, and a greater knowledge about disasters, their effects on nature and what can be done to mitigate effects. Negative aspects were touched upon when discussing one of the CDMOs. This organisation is struggling with weak leadership and few members, which decreases their possibilities to achieve change within their community. Still, all members were positive for the future, and stated that they wanted the organisations to continue for the next generation.

Three staff members of ABI were interviewed as experts on the case. They discussed the difficulties of implementing CBDM from the organisation's side. It requires dedication from the staff members and to work towards long-term goals, since they facilitate training for several years before the communities are ready to continue the work themselves. One staff member described Tio-Angan as a particularly vulnerable

community because of their geographical location. She was nevertheless hopeful for the future, because she felt dedication and interest from the people when conducting the first training session with them (Interview 8).

Looking ahead to further research, this study is hard to replicate. Tio-Angan now has a CDMO, and the people interviewed might give slightly different responses if asked again. Instead, a possible future study on the topic could be a deeper analysis of the struggles of implementing CBDM, both from the implementers' and the targeted people's sides. Furthermore, a future study could entail a longitudinal study of communities pre- and post-CBDM, to outline the long-term effects the intervention of CBDM has for a community and their disaster resilience.

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8.2 Oral sources

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- Interview 4 (2017-02-15). Tio-Angan Barangay, La Union, Philippines
- Interview 5 (2017-02-15). Tio-Angan Barangay, La Union, Philippines
- Interview 6 (2017-02-17). Tio-Angan Barangay, La Union, Philippines
- Interview 7 (2017-02-20). [recorded] Tio-Angan Barangay, La Union, Philippines
- Interview 8 (2017-02-26). Libbo Barangay, La Union, Philippines
- Interview 9 (2017-02-26). Libbo Barangay, La Union, Philippines
- Interview 10 (2017-03-26). [recorded] Angeles City, Pampanga, Philippines
- Interview 11 (2017-03-27). [recorded] Angeles City, Pampanga, Philippines

Appendix

A. Interview guides, semi-structured interviews

Respondents from Tio-Angan, before formation of CDMO (during training needs analysis (TNA))

Date:

Sex:

Personal background

- 1) What is your livelihood?
- 2) What are the greatest challenges for you in your life, living here?

Disasters

- 3) Which type of natural hazard is the most common here?
- 4) During typhoon seasons, how many typhoons typically hit the Barangay?
- 5) How many of these have destructive consequences?
- 6) What kind of destructive consequences are the most common?
- 7) How do they affect your life and livelihood?
- 8) Are some parts of the Barangay harder hit than others by the typhoons?

Disaster relief

- 9) How do you personally prepare to not get affected by the storms and typhoons?
- 10) How does the community work to prevent disasters from happening?
- 11) Have you ever received any training in disaster management?
- 12) And if disasters still happen, how does the community handle the disaster?
- 13) If a disaster occurs, what help are you getting? From whom?
- 14) What do you think Tio-Angan needs, to be able to withstand natural hazards better?

Barangay official in Tio-Angan, before formation of CDMO (during TNA)

Date:

Sex:

Personal background

- 1) For how long have you been a Barangay official?
- 2) What is your role in the community as a Barangay official?

Community background

- 3) How many households has the Barangay?
- 4) How big (area) is the Barangay?
- 5) What are the greatest challenges for people living in Tio-Angan?

Disasters

- 6) During a typical typhoon season, how many storms hit the Barangay?
- 7) How often do typhoons have destructive consequences for the Barangay?
- 8) What are the most common disastrous consequences?

Disaster relief

- 9) How does Tio-Angan work to prevent disasters?
- 10) What relief operations do you experience when there is a disaster?
- 11) Have these relief operations helped the community long-term?
- 12) What is needed, in order to make the Barangay stronger and withstand disasters better?

Disaster relief in the future

- 13) Are you familiar with other CDMOs in the Barangays in the municipality?
- 14) If yes, what do you think of their work?
- 15) What help do you wish to get from ABI?

Staff from ABI, after TNA in Tio-Angan

Date:

Sex:

Professional background

- 1) For how long have you worked at ABI?
- 2) How would you describe the work ABI does?
- 3) What would you say is the role of NGOs like ABI in the Philippines?
- 4) How would you say the cooperation is between NGOs and local government sources is regarding CBDM?
- 5) What is the greatest challenge in working with CBDM for you?

TNA in Tio-Angan

- 6) What are your general impressions after the TNA in Tio-Angan?
- 7) How does Tio-Angan compare to other Barangays in Bagulin?
- 8) What do these differences depend on?
- 9) In the TNA, what did you learn about their routines for disaster preparedness?
- 10) And for their disaster response?
- 11) Did you identify any specific weak points in the community the CDMO would have to address in their work?
- 12) How would you rate the Barangay's disaster resilience at this point?

Staff from ABI, after formation of CDMO in Tio-Angan

Date:

Sex:

CBDM in Tio-Angan

- 1) What are your thoughts after the CBDM-training in Tio-Angan?
- 2) What kind of response did the people give you on how they viewed the training?
- 3) What will the first step be for the CDMO to take?

Community Based Disaster Management

- 4) Why is *CBDM* specifically important in order to increase disaster resilience for people?
- 5) Why is it important for a community and their disaster resilience to have a *CDMO*?

About CDMOs

- 6) What would you say are the main tasks of a *CDMO*?
- 7) Regarding the active members of the *CDMOs*, do you think a membership is strengthening them personally, or in any other way influences their lives? How and why?
- 8) When you as a professional support and guide the *CDMOs*, do you feel like you can give them all the attention they need, in order to be a successful *CDMO*?
- 9) When your project period is finished, will the *CDMOs* be stable to continue without help?

CDMO-members from Alibangsay and Libbo (neighbouring communities to Tio-Angan)

Date:

Sex:

Personal background

- 1) What is your livelihood?
- 2) Why are you a member of the CDMO?

Disasters

- 3) How often do you experience typhoons?
- 4) About how many of these have disastrous consequences?
- 5) Can you compare the effects natural hazards, such as typhoons, have on the Barangay now and before you had the CDMO?
- 6) What has, for you, been the best effects the CDMO has had on the community?
- 7) Can you give examples from how your CDMO works to prevent disasters?
- 8) Has the cooperation with the municipality regarding disaster prevention and relief processes improved since your CDMO was formed? How?

CDMO

- 9) How often do you have meetings?
- 10) What do you typically discuss in your meetings?
- 11) How do you ensure that all members of the community benefit from your work?
- 12) How do you feel like the community views the CDMO?
- 13) What can still be improved in your work?

Personal view

- 14) Do you feel like you have developed as a person since you joined the CDMO?
How, why?
- 15) What are your hopes for the future with the CDMO?

Staff from ABI, generally on CBDM

Date:

Sex:

Professional background

- 1) For how long have you worked at ABI?
- 2) How would you describe the work ABI does?
- 3) What would you say is the role of NGOs like ABI in the Philippines?

Community Based Disaster Management in general

- 4) What is the greatest challenge in working with CBDM?
- 5) How do you overcome that?
- 6) Why is *CBDM* specifically important to increase disaster resilience for people?

CDMOs

- 7) Do you select communities by any criteria, when you choose who to work with and form a CDMO?
- 8) What are the main tasks of a CDMO?
- 9) Why is it important for a community and their disaster resilience to have a CDMO?
- 10) For a CDMO to be successful, what do they have to do?
- 11) Do you see any possible negative effects CBDM can have for the communities, or is it all positive? Why?
- 12) In your experience, how does a membership in a CDMO affect the members?
- 13) Long-term, what changes have you seen in communities you worked with a long time ago? How is their disaster resilience now?
- 14) Because your work time in the field is limited, do you feel like you can give the CDMOs enough attention, if they have problems or issues they need help to address? And what about after the project finishes?

B. Respondents of semi-structured interviews

First research question: How did the people in Tio-Angan prepare for and respond to a disaster when there was no community disaster management organisation in place?

Respondent	Sex	Description	Date (dd/mm/yyyy)
Interview 3	Male	Barangay official of Tio-Angan, during TNA	14/02/2017
Interview 4	Male	Member of Tio-Angan, during TNA	15/02/2017
Interview 5	Male	Member of Tio-Angan, during TNA	15/02/2017
Interview 6	Female	Member of Tio-Angan, during TNA	17/02/2017
Interview 7	Female	Staff from ABI, after TNA in Tio-Angan	20/02/2017

Second research question: How and why is a community-based disaster management structure helping communities increase their resilience against disasters?

Respondent	Sex	Description	Date (dd/mm/yyyy)
Interview 1	Female	CDMO-member in Alibangsay	10/02/2017
Interview 2	Male	CDMO-member in Alibangsay	11/02/2017
Interview 8	Female	Staff from ABI, after formation of CDMO in Tio-Angan	26/02/2017
Interview 9	Female	CDMO-member in Libbo	26/02/2017
Interview 10	Female	Staff from ABI, generally on CBDM	26/03/2017
Interview 11	Female	Staff from ABI, generally on CBDM	27/03/2017

C. Disaster Resilience of Place (DROP) model

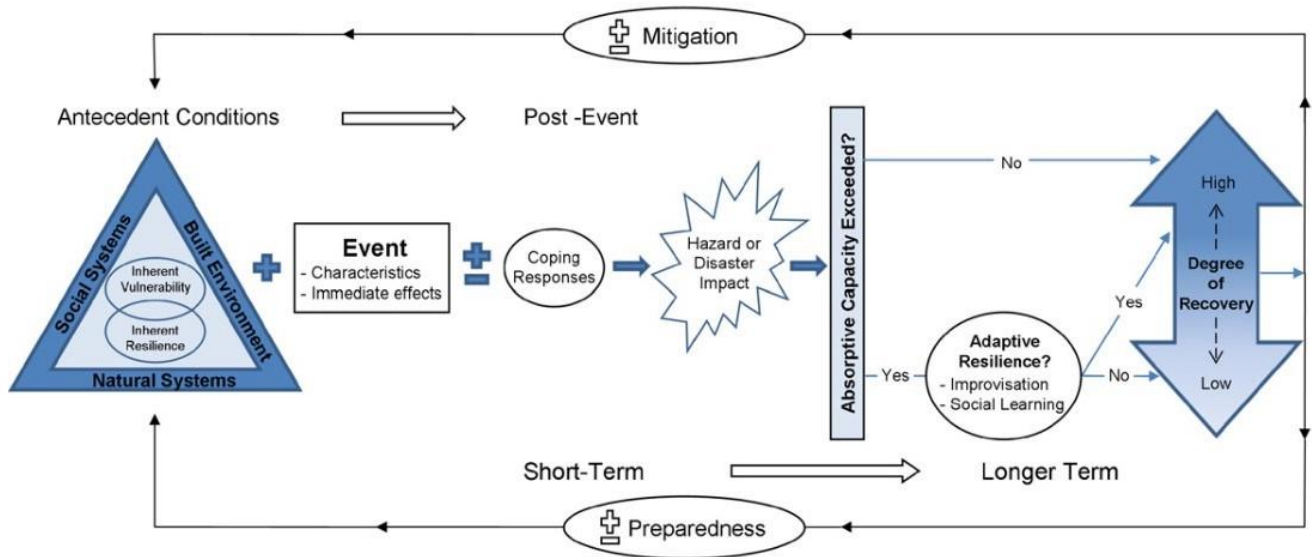


Fig. 2. Schematic representation of the disaster resilience of place (DROP) model.

Source: Cutter et al., 2008: 602.