Graduate School of Development Studies

Disasters, Decentralisation and Local Information:

**Factors Influencing Local Empirical
Information Usage in
Two Local Governments in the Philippines**

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List of Acronyms

BERTs-OCOu	Barangay Emergency Response Teams- Organized Community Operations Units
CBMS	Community-Based Monitoring System
CBMS-NRDB	Community-Based Monitoring System-Natural Resource Database
DRM	Disaster Risk Management
DRMF	Disaster Risk Management Framework
DRR	Disaster Risk Reduction
EM-DAT	International Disaster Databases
FAO	Food and Agricultural Organisation
Gawad KALASAG	Kalamidad at Sakuna LAbanan, Sariling Galing ang Kaligtasan
GSO	General Services Office
IT	Information Technology
LGU	Local Government Unit
MBN	Minimum Basic Needs
MDCC	Municipal Disaster Coordinating Council
MCDDC	Municipal Civil Defence Deputised Coordinator
MGB-DENR	Mines and Geosciences Bureau- Department of Environment and Natural Resources
MIO	Municipal Information Officer
MPDC	Municipal Planning and Development Coordinator
MPDO	Municipal Planning and Development Office
NGO	Non-Government Organization
OMCDDC	Office of the Municipal Civil Defence Deputised Coordinator
PAR Model	Pressure and Release Model
PD	Presidential Decree
SRA	Social Reform Agenda
SMS	Short Messaging Service
TWG	Technical Working Group

Abstract

Disaster risk management (DRM) is an overarching pursuit to ensure the resilience of society against the extreme effects of natural hazards. As a decentralised development endeavour, DRM places local governments at the helm of mitigating disaster risks and social vulnerabilities. With resource and capacity limitations, local governments are assigned the responsibility of alleviating the undesirable impacts of disasters. Thus, information of the underlying conditions of their respective localities is essential. Several local governments in the Philippines have ventured into using information from Community-based Monitoring Systems (CBMS) for DRM. However, the specific aspects of DRM in which local governments have made use of CBMS information remain unexplored. Also, there has not been an analysis of how different factors influence CBMS information usage for the said decentralised task. The neighbouring municipalities of Santa Elena and Labo serve as vantage points to explore which aspects of disaster risk management have local governments made use of CBMS information and what factors explain the usage (or non usage) of the said information for DRM. The study shows that both Santa Elena and Labo have made limited use of CBMS information for DRM. Among the main factors that influence CBMS information usage is how the respective models and praxis form managing disaster risks. Accordingly, these DRM models and praxes are influenced by a host of other factors, most notably how the local disaster risk managers conceptualise what 'disaster risk management' means. Other factors also interact and consequently determine whether and how CBMS information is utilised to manage local disaster risks.

Relevance to Development Studies

Disaster risk management has been acknowledged as an important development endeavour to make societies more resilient to increasingly frequent and intense natural hazards. The Hyogo Framework for Action for 2005-2015 outlines the need for a concerted effort from all segments to minimise disaster risks through sound policies and interventions. This global paradigm for disaster risks emphasises the need to reduce social vulnerabilities through better use of knowledge and capacities of all stakeholders to build a 'safer society'. With the local level identified as the heart of disaster risk management initiatives, better knowledge of how endogenous empirical information such as the CBMS can be utilised for disaster risk management would not only ensure greater capacities of society to minimise inherent vulnerabilities to disasters. Ultimately, it would help sustain the drive of societies toward socio-economic well-being and development.

Keywords

Community-Based Monitoring Systems, Disaster Risk Management, Decentralization, Philippines, Evidence-based Policy and Practice

Chapter 1
Disaster Risks, Decentralisation and Organised Data: Background of the Study

This initial chapter has five sections. The first section provides a background for this research paper. The second section discusses the merits of this study. The third outlines the objectives and research questions. The fourth section provides information on the methodology used for the research. Lastly, the final section outlines the structure of this paper.

1.1 Decentralising Disaster Risk Management and the Need for Local Level Information

For the past century, the world has experienced an overall rise in the incidence of major natural disasters. This has made humanity reel from casualties, damages to property and disruptions to development momentum (see figure 1). Aside from the increase in worldwide disaster prevalence, another observation is that disasters recur in specific areas and countries. One such country that has felt the brunt of most disasters is the Philippines, with a total of 146 natural disasters occurring in the country from 2000 to 2009 alone ('EM-DAT, n.d.)[1].

Disasters were previously regarded as situations caused solely by the onset of unprecedented external risks in society (Fritz 1961, as cited by Rosenthal 1998). Through time, this view has changed with disasters now seen as a result of the interaction between external risks (hazards) and the inherent situation (vulnerability) of society- an internal risk factor that precedes disaster (Maskrey 1989; Anderson and Woodrow 1989; Blaike *et al.* 1994; Alexander 2002; Heijmans and Victoria 2001; Bankoff 2003, etc.). While there is nothing that can be done to address the 'natural' aspect of a disaster, much can be done to manage its socioeconomic realm. This conceptual shift led to the pursuit of lessening disaster impacts through the diminution of risk factors in societies. With the 'public' and 'collective' nature of disaster risks, its management is regarded as a 'public good' and ultimately a responsibility of governments.

Alexander (2006) notes that disasters are ultimately localised problems and an axiomatic principle is that the remedy in terms of protection and relief must be applied at the local level of administrations. Local governments are integral actors in ensuring the resilience of their constituents against disasters (Mohanty 2005 and Somers and Svara 2009, etc.). Disaster risk management (DRM) in the Philippines reflects this notion, with responsibilities, autonomy and authority assigned to sub-national government entities. Due to their 'proximity' to the general population local government units (particularly local disaster coordinating councils) are key actors that can best assess the requirements and necessary actions of the locality to mitigate disasters (ADPC 2001). While the notion of delegating the task of managing disaster risks to the local government holds the potential of bringing the mitigation of disaster risks

closer to the people, it is in no way free of practical limitations and challenges. Confronted with resource and capacity constraints, sub-national governments are handed over the responsibility of alleviating possible impacts of looming threats to life and ways of living. Hence, effective DRM activities are contingent on sound decisions. For these decisions to be 'sound', they have to be grounded on local realities. But for local realities to be reflected, local empirical information is essential.

Information obtained from research activities is seen as a necessity to meet the challenges associated with managing disaster risks (Hoard *et al.* 2005). Disaster-related information is regarded as a valuable resource for decision-making. However, one of the impediments for sound DRM initiatives is the lack of systematic data that can be utilised for decision-making and implementation of measures to avert catastrophes. While technology continues to evolve in predicting and monitoring natural hazards, most grassroots level information come from ad hoc fact-finding exercises usually conducted during times of emergency (Guha-Sapir and Below 2006). In a decentralised DRM context, information on the underlying issues of localities is an equally important consideration, as are technical, meteorological and geophysical information. No less than the Hyogo Framework for Action for 2005-2015 (HFA), the global action plan for managing disaster risks, emphasise the need for the use of knowledge and information at all levels of society to assure their resilience and help promote a 'culture of safety'[2] (UNISDR 2007:3).

Figure 1
Natural Disasters Reported Worldwide, 1900- 2009
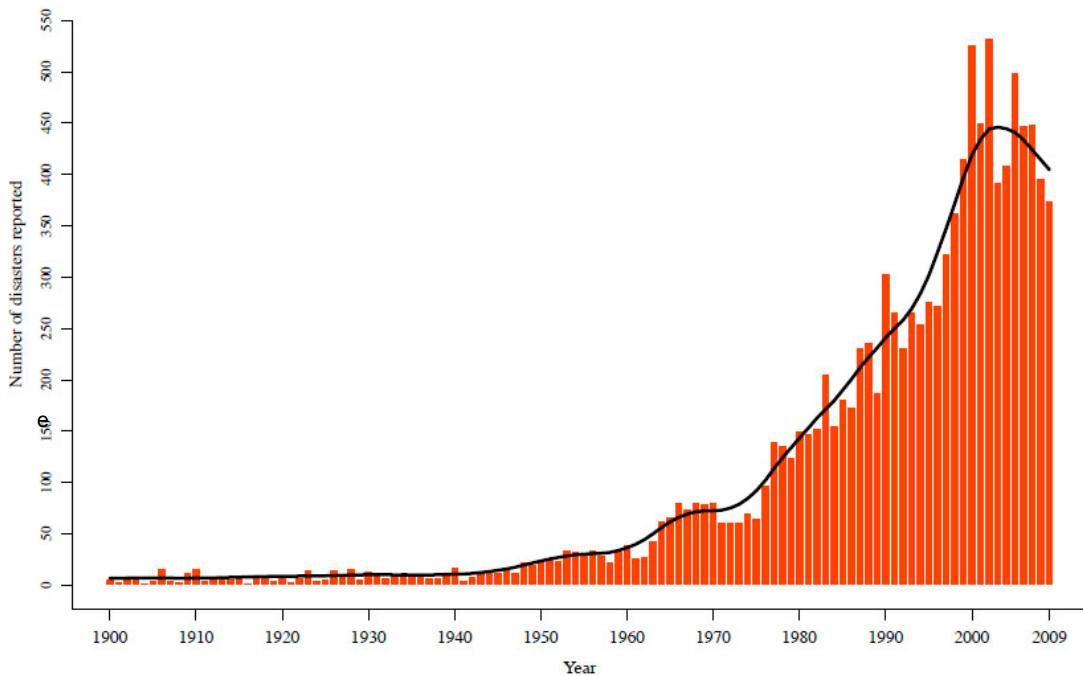
Source: EM-DAT: The OFDA/CRED International Database – www.emdata.be - Universite Catholique de Louvain, Brussels, Belgium

Map 1:
Occurrence of Natural Disaster Events by Country, 1976-2005
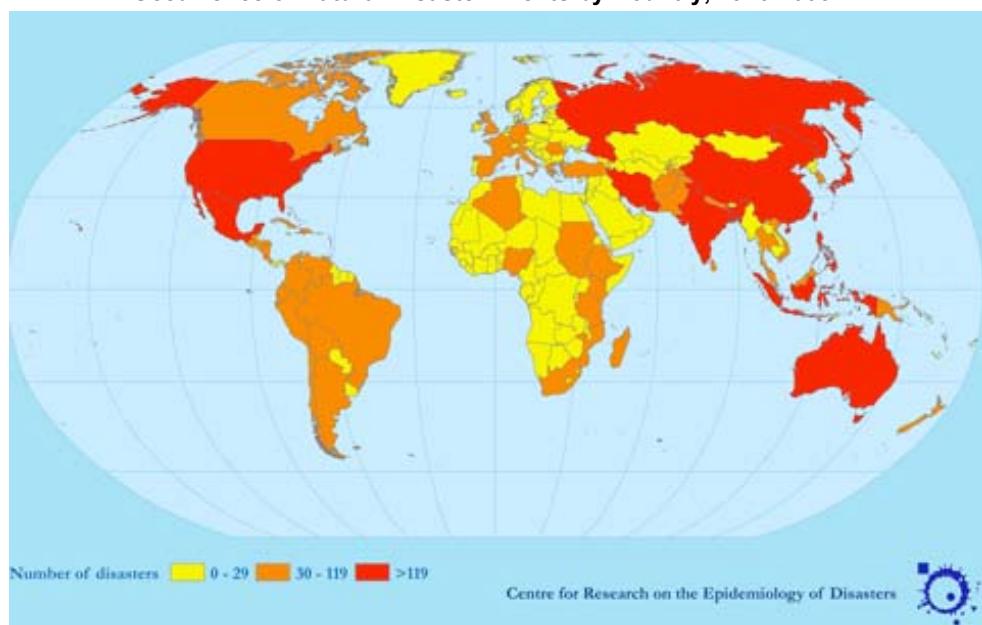
Source: EM-DAT: The OFDA/CRED International Database – www.emdata.be - Universite Catholique de Louvain, Brussels, Belgium

1.2 Presentation of the Research

This section discusses the research problem, as well as the theoretical and practical its significance of this undertaking.

1.2.1. The Research Problem

Numerous local government units (LGUs) in the Philippines have implemented organised systems of data collection, processing, and analysis known as Community-based Monitoring Systems or CBMS (Reyes *et al.* 2008). The CBMS generates socioeconomic, demographic, geospatial and narrative information from the grassroots level to aid decision makers towards evidence-based development interventions. LGUs themselves venture into social research, generating empirical information for a myriad of local government functions from anti-poverty to resource rationalisation measures.

Literature on CBMS information usage for local governance and development is by no means scarce. A litany of technical papers and publications[3] highlighted how LGUs utilised CBMS information to facilitate local policy and practice. However, the themes of these publications suggest that there has not been attention given to how local governments made use of CBMS information for DRM[4], much less the academic endeavours meant to understand the role CBMS information plays in DRM; a relevant topic in the Philippine context given the propensity of the said country to disasters.

The neighbouring municipalities of Santa Elena and Labo of the province of Camarines Norte have implemented the CBMS for years. Aside from the same extensive history of CBMS information usage, the two local governments share almost the same natural hazard susceptibilities given their geophysical

and geographical aspects. As such, the two localities provide an ideal vantage point to understand how CBMS information has been utilised for DRM, as well as the factors that influence its usage for the said local government task.

Box 1: Why is the Philippines disaster prone?

This research endeavour is set in what is considered "the most disaster prone country in the world" (Heijmans and Victoria (2001), Bankoff (2003:31) Mohanty (2005), Asim (2006), Reyes (2009); a country that encountered a total of 2,743 disasters from 2000-2009 alone (CDRC, 2009)*. Adverse impacts to the economy and development potential of the country is virtually enumerable. In 2009, the Philippine islands had the highest number of disaster occurrence among all the countries around the world, playing unfortunate hosts to 25 different major natural disasters (Vos et al. 2010). This begs the question: "Why is the Philippines disaster prone?"

A cursory answer would be because of the geography and the physical characteristics of the country. The country lies along the Western Pacific Basin, world's busiest typhoon belt and as such plays host to an average of 20 typhoons a year (Heijmans and Victoria, 2001). There are 220 volcanoes in the country, 21 of which are still active and mat erupt in any given time. It falls within the Circum-Pacific seismic belt where two tectonic plates perpetually collide (Mohanty 2005). Others would contend that it is due to the socio-political dynamics of the country (MacDougall 2009 and Feria-Miranda (as cited by Bankoff 2003)). But perhaps the most pensive view on the matter is the how socioeconomics, politics, geographic and the physical contexts of the country come together to create a volatile mix that leads the Philippine nation prone to disasters (Bankoff 2003). Natural events such as earthquakes, volcanic eruptions and typhoons converge with the widespread poverty, unequal distribution of wealth, uneven political voice and other socioeconomic ills serve as a concoction for catastrophes (Heijmans and Victoria 2001).

*includes occurrences of development aggression, infestations, and fires

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1.2.2. Significance of the Study

The study has multiple rationales, from the conceptual to the more practical realms of local development. Its significance extends to its explicit aim of providing a new perspective of the less-understood realm of evidence usage in disaster risk management. It not only invites a re-examination of notions of information usage for public policy and practice, but also prompts a critical view of delegating DRM tasks, a concept regarded as the best approach for mitigating disaster propensity.

Most of the justifications of performing this study are fluid and overlap theoretically and conceptually. It is set to address the apparent lack of theoretical investigations on concepts relevant to disaster studies (Gilbert 1988). For evidence-based public policy and practice (EBPP) as a 'concept', Nutley *et al.* (2007) note the need for more qualitative and thorough examination of research evidence use for different policy and practice settings (p. 85). For this the study looked into the dynamics of a less explored and uniquely configured realm of local government policy and practice. It also provides an opportunity to re-examine assertions of Oh (1997) regarding internally generated information of governments. For him, endogenous information has a greater likelihood of being utilised as decision-makers place more trust in endogenous information sources. From the practical side of EBPP, this study provides another perspective of the concept that features a departure from the widely viewed assumption of a "great divide" between the science community who conducts the research, and the government, which uses it (Oh 1997). Featured

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in this study are LGUs acting as a corporate body performing both the social research undertaking and the information utilization.

In terms of disaster risk management (DRM) as a 'concept', the study has the potential to contribute to further augment acknowledged conceptualisations on disaster risks, most notably, the 'pressure and release model' proposed by Blaikie et al. (1994)[5]. It is evident that the said conceptualisation does not indicate limited usage of empirical information, a condition that can very well contribute to societal vulnerability. The study is also envisaged to enhance disaster studies literature in developing country settings, which are relatively fewer than scholastic works made in a developed country setting (Quarantelli 1992). In a way, this state of affairs is ironic as the widest variety and the most destructive catastrophes occur in the context of less developed countries (GTZ 2002:11). Additionally, most discourses of 'knowledge' in the realm of DRM refer to experiential knowledge of local inhabitants in coping with disaster events (Heijmans and Victoria 2001), not recognising endogenous empirical information such as an entirely different set of 'knowledge' can further improve disaster risk mitigation. As for the 'practical side' of DRM, the study provides several points to consider in policy and implementation regulations that would help make DRM initiatives more locally responsive. It also provides opportunities for CBMS as a methodology to be enhanced to suit the numerous needs of local governments.

Implicitly, the study also provides a new reference point in reflecting on the very significance of decentralising disaster risk management. The notion of delegating DRM to the sub-national level is viewed as a strategic and tactical panacea. Less attention has been given to the operational and contextual realities that can confirm 'whether' or 'how' decentralising DRM influence societal resilience against disasters. It ventures on a specialised, but no less relevant ambit of local government autonomy on disaster risk management, that is, how endogenous empirical information is utilised.

1.3   The Research Objectives and Questions

The leitmotiv of this study is to promote more evidence-based approaches to managing disaster risks. With paradigms designating the local level as the lynchpin of disaster risk mitigation, sound DRM initiatives should not only be localised, but should also reflect the realities of the very localities that are tasked to carry these out. DRM initiatives in essence should not only be 'decentralised' but also 'well-informed' of local realities. For local governments to be 'well-informed', the different factors influencing information usage should be better comprehended. With better appreciation of the means to facilitate the use of locally generated information, the vicious cycle of destruction and recovery in localities can be broken.

1.3.1.   Research Objectives

The aim of the study is to analyse where does CBMS-based information fit into the disaster risk management praxis of the localities and how different factors inhibit its usage. Towards this trajectory, the study pursued several specific and consequential objectives:

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1. Understand how the case local governments obtained their CBMS information.
2. Understand the different natural hazards in the locality
3. Determine the DRM praxis of the case LGUs of Santa Elena and Labo.
4. Analyse which factors influence the usage of CBMS information.
5. Analyse how these factors interact and affect each other

1.3.2. Research Questions

The study takes a qualitative approach in exploring how CBMS information is utilized for a distinctive local development activity and the factors that influence its usage. It is set on addressing this overarching question: What influences CBMS information utilisation by local governments in managing their local disaster risks?

To shed light on this query, the study attempted to address the following questions:

1. How do the local governments generate CBMS-based information?
2. In what formats is their CBMS information available?
3. What natural hazards exist in the locality?
4. What kinds of natural hazards do the LGUs prepare for?
5. How do the LGUs manage disaster risks?
6. How have the local governments utilised their CBMS-based information for DRM?
7. What factors influence the usage of CBMS-based information for DRM?
8. How do these factors interact?

1.4 The Methodology and Analytical Framework of the Study

This section provides details on how the research endeavour was implemented. It features the research methodology employed, the means of data collection and the analytical framework for this research work.

1.4.1. Methodology Used

The research is undertaken as a case study of the local governments of Santa Elena and Labo. It involved key informant interviews, direct observations, and simulations in two LGUs. Nutley *et al.* (2007) cites Weiss' (1998) argument that the elements in focus in studying research information use cannot be reduced to quantitative variables given its "dynamic and interactive nature". Yin (2003) notes that a distinct characteristic of this research strategy is its inherent flexibility; a key consideration given the fluidity of the elements under study. In so doing, the manner by which the study was carried out enabled a broad wider view of the complexity and interactive nature

of the variables of the research. It also allowed methodological triangulation to better understand the relevant elements of the research activity.

Review of background information

Literature on disaster risk management, disaster epistemology and statutes on disaster management was reviewed prior to the conduct of fieldwork. This was done through visits to organisations such as the Centre for Disaster Preparedness (a Philippine organisation focused on local disaster risk management), the CBMS Network Office (the international coordinating body of CBMS initiatives worldwide) and the School of Urban and Rural Planning of the University of the Philippines (which houses studies on disaster management in the Philippines).

This multidimensional review proved important for several reasons. It laid down the conceptual backdrop for a less documented and less explored topic. Furthermore, these confirmed the practical contributions of the research conducted in the field of local disaster risk management.

1.4.2.   Data Utilised for the Study

The study necessitated the use of both primary and secondary data. This subsection provides details of the data utilised for this research endeavour.

Primary data

Primary data were obtained in two ways. First, semi-structured interviews with key informants from the aforementioned local governments were conducted. The interviews were focused on several "query points" to allow respondents to express themselves at length and with much freedom while assuring that the informational interests of the study are not compromised[6].

Second, direct observations and simulated demonstrations were conducted. These were done to replicate actual disaster risk management models and protocols that are not adequately captured in both municipalities and cannot be obtained during 'non-disaster' situations.

Secondary data

Secondary data used for the study come in the form of local and national disaster management plans, models frameworks, policies, and reports. Aside from records of CBMS implementation in both localities, the study also looked at a series of technical papers on the two local governments.

1.4.3.   Parameters of the Study

This research focuses on understanding the CBMS information usage and on how the policy, practice and research contexts influence 'the usage of the said information for DRM.

The first thrust of this study is on CBMS information *use*[7]. In the context of DRM, the study focused on the activities within the defined aspects in disaster risk management. It is necessary to point out that the study did not

examine the technical details of the CBMS information of the localities themselves, but only how CBMS information was utilised for disaster risk management. The second thrust is towards analysing the *factors that influence* CBMS information usage in DRM; trying to explain what elements help or hamper the optimal use by the localities of the CBMS information they possess.

This research did not attempt, and is not designed to produce general statements on how all LGUs underutilize CBMS-based information for DRM. It is not meant to appraise the effectiveness of information usage of both local governments.

1.4.4. Challenges and Considerations of the Study

The nature of this research endeavour and the context in which it was conducted entailed several practical challenges and considerations. First, semi-structured interviews present significant challenges as they tend to collect unnecessary information that makes the analysis cumbersome. For this reason, the researcher resorted to identifying key information points that are relevant to the study. While conducting interviews in Filipino facilitated interaction, it also significantly hindered transcription. The researcher, in the interest of expediting the research activity, created an outline of responses from the key informants. There was no opportunity to interview politicians and other local line departments in the municipalities. The interviews took place shortly after the new set of political leaders was elected[8]. On the other hand, other LGU line departments were not available because of bulk of tasks they are mandated to perform. Second, the complex nature of CBMS information usage and disaster risk management rendered simulations imperative for the study. Most DRM activities are non-programmable given the indeterminate aspects and intensities of natural hazards. As the study also entailed documentary analysis it is dependent on the availability of documents to review. Lastly, the conceptualisations of 'disaster' and 'disaster risk management' are remains fluid, contentious, and confused; until now, there is no unanimously agreed overarching theory that explains 'what disaster is' (McEntire 2004; Guha-Sapir and Below 2006). The author thus took on the study following only one conceptual track of disaster risk management.

1.4.5. The Analytical Framework for this Study

The "integrated model" proposed by Oh (1997)[9] serves as a model analytical framework for this study. It outlines different determinants and causal linkages among the set of variables that influence information usage for government decision-making (p29). The model features several integral aspects in line with this research. It allows a multidimensional view of the factors affecting information usage and its interactions. Furthermore, it recognises the factors affecting information usage as co-existing and causally related components. Lastly, it emphasises on decision-maker's characteristics as important considerations. In effect, the model allows an analysis of the information usage 'black box', to see how different determinants in DRM interrelate and affect information usage.

However, the model proposed by Oh does not adequately take into ac-

count the resource limitation realities found in the Philippine context, or the fact that in the case of CBMS information, the 'researcher' and the 'user-practitioner' largely coincide.

The study is reconfigured thematically to feature three different foci: on the *individual* (the manager or decision-maker in the realm of DRM), the *organisation* (the LGUs in focus) and the *information* (the characteristics CBMS information that they have at hand). Below is the reconfigured framework of the study:

Figure 2
An Integrated Framework to Understand the Factors Affecting CBMS
Information Usage for Disaster Risk Management
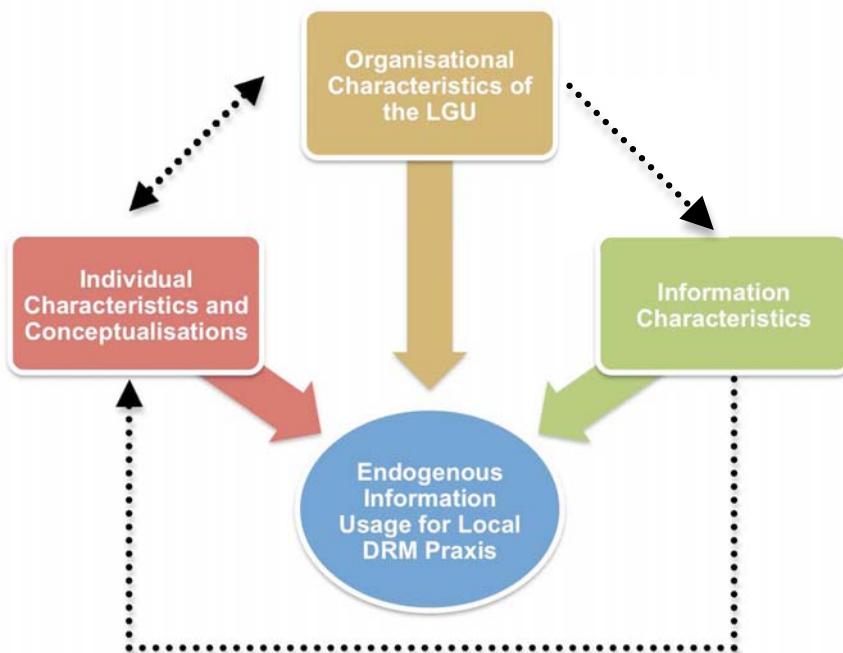
Source: Oh, 1997 (reformulated)

In relation to this reformulated conceptual framework, the table below outlines the information sought by this paper:

Table 1
Factors, Variables and Indicators Used in the Study

Factor Group	Variable	Explanation of Variable	Indicator/ Manifestation	Source
Key Characteristics of the Local Government	Local DRM models and praxes	Conduciveness of Local DRM models and praxis to CBMS information	Local DRM practice versus CBMS information	Simulations, documentary reviews
	Government incentives for information use in DRM	Existence of incentives for utilising CBMS information for DRM exist	Incentives for utilising CBMS information for local government use	Documentary reviews, interviews
	Organisational culture of using CBMS information	Conduciveness of the local organisational culture to CBMS information usage	Active usage of CBMS information for local development initiatives	Documentary reviews, interview
	Human resource allocation for CBMS information analysis or interpretation	Sufficiency of human resources to analyse and interpret CBMS information	Capable and experienced personnel are available to perform CBMS information analysis and interpretation	Documentary reviews
Perceptions, and conceptualisations of MCDDCs	Perceptions of the MCDDCs on the CBMS information in the locality	Insights on the quality, clarity, user friendliness and appropriateness of CBMS information	Favourable perception of MCDDC on the quality of CBMS information	Interviews
			Favourable perception of MCDDC on the clarity and user friendliness of CBMS information	
			Favourable perception of MCDDC on the appropriateness of CBMS information for DRM use	
	MCDDC's concept of managing disaster risks	Underlying philosophies and logic of MCDDCs in managing disaster risks	Conceptualisation of managing disaster risks require stable and 'non-ad hoc' information like CBMS	
Characteristics of their CBMS information	Nature of CBMS information	Alignment of the form and substance of CBMS information to local DRM initiatives	Type of CBMS information available versus information needs for DRM	Documentary reviews, simulations, interviews
			Format of CBMS information available versus information needs for DRM	
	Political support for CBMS information usage	Presence of political support for CBMS information usage in the localities	LGU programs utilising CBMS information	
			Policies/ legislation enjoining CBMS information usage in the locality	

1.5   Navigating Through this Research Paper

Besides the introductory chapter, the study comprises of four other parts. Chapter 2 provides a conceptual and contextual overview of the study. It deals with the three conceptual themes of evidence-based policy and practice, disaster risk management and decentralisation. Chapter 3 provides a descriptive and analytical account of the two local governments in focus. Particularly, the chapter discusses how the two local governments implement CBMS, the prevailing natural hazards in the locality and how the two localities manage disaster risks. Chapter 4 is the main analytical chapter of this paper. It looks at the different factors that inhibit the usage of CBMS information for DRM in the two localities. The final chapter provides a conclusion to the entire research paper and lays down reflections and ways forward in the usage of CBMS information for DRM.

Chapter 2
Concepts and Contexts: Understanding the Setting of the Study

This chapter comprises two overlapping sections. The first section is a conceptual discourse of the concepts of evidence-based policy and practice, disaster risk management, and decentralisation. The succeeding section discusses the prevailing context in the Philippines wherein these concepts manifest themselves.

2.1 Evidence Based Policy and Practice, Disaster Risk Management and Decentralisation

2.1.1. The Concept of Evidence-Based Policy and Practice[10]

Nutley *et al.* (2007) note that the rise of socially informed citizenries, advancements of information technology and the global emphasis on public accountability and effectiveness altogether led to the emergence of the concept of evidence-based policy and practice (EBPP). Sanderson (2002) notes the core of EBPP leans on the notion that government activities tend to be more rational when grounded on 'sound evidence'[11]. The concept of evidence-based policy and practice (EBPP) revolves around two elements: information and decision-making. Essentially, EBPP is not only concerned with making research accessible but, more importantly, having the evidence utilised. Nutley *et al.* (2007) cite a generic definition of the concept from a previous work by Davies (2004) as:

> *"…an approach that helps people make well-informed decisions about policies, programmes and projects by putting the best available evidence from research at the heart of policy development and implementation." (p. 13).*

Davies *et al.* (2000) however raise several points that pragmatically question the concept of EBPP. To them, EBPP runs along the issues of cost-efficiency, research capacity limitations, overriding political powers, unclear objectives, and practical constraints. Thus, the idea of policies and practices being made 'evidence-based' is realistically misleading. The idea 'evidence-informed' or 'evidence-aware' may in reality be the most attainable.

Box 2: The emergence of evidence-based policy and practice

Nutley, Davies and Smith (2007) note several rationales for the emergence of this concept in the public sector realm. Among these is the rise of a better-educated and socially informed citizenry. This has created the 'demand' to look into the rationality of government decisions in the light of information and empirical evidence availability. Second, information technology (IT) advancements in recent years made the 'resource' ever more accessible. Another key rationale is the global emphasis on public accountability and effectiveness.

Uses of Research Information

Nutley *et al.* (2007) note two kinds of the use of research information. The first is when the evidence is used *instrumentally*. This occurs when evidence directly impacts policy and practical decisions. In this case, evidence finds its way into specific decision-making and in defining solutions to perceived problems. The second kind is when evidence is used *conceptually*, a wider ranging use that sees information and the evidence shaping (or reshaping) overall consciousness or awareness of users on the issue at hand. These two kinds of use are seen not as disconnected elements, but as typologies lying along a continuum.

Figure 3
Continuum for Research Use
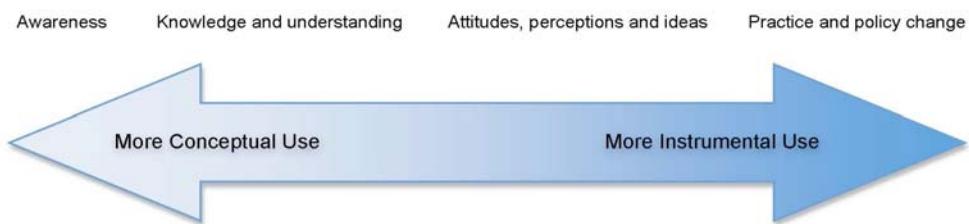
Factors that affect the usage of research information for policy and practice[12]

Information obtained from research endeavours go through a wide, complex and unique range of routes and contexts for these to be utilised. Nutley *et al.* (2007) note the significant extent of empirical literature on the factors that influence the use of research evidence in public policy and practice.

One of the most notable of these academic pieces was a study that delved into the impact of information on government decision-making (Oh, 1997). The study identified several factors that affect how information can impact bureaucratic decisions: the organisational characteristics, the characteristics of the decision-makers, the characteristics of the information, and lastly, the demographic characteristics of the decision-makers (see Appendix 3). The study further emphasised that these characteristics do not affect information usage independently, but most exhibit causal linkages. These factors affecting information usage are neither straightforward or in a uniform course, but are complex and heavily dictated by the prevailing usage contexts.

CBMS information as inputs for evidence-based policy and practice

The Community-based Monitoring System (CBMS)[13] is a systematic, localised approach to generate grassroots level information for use by LGUs, national government agencies, non-government organizations, to support local-level development activities (Reyes *et al.* 2008). Developed in the Philippines during the early 1990s, CBMS follows a consequential process of work planning to collection of information, processing, validation, and analysis, ultimately leading to utilisation. It is an endogenous social research endeavour with LGUs themselves performing data collection, processing, and analysis; ultimately arriving at evidences that is utilised for various purposes. It is

designed to follow a cyclic pattern where LGUs undergo series of implementation rounds, resulting in panel information that can help track trends and set projections in their localities.

Figure 4
The CBMS Cycle

Box 3: Key features of the CBMS Approach

Fajardo (2007) and Reyes et al (2008) indicate several key features of the CBMS methodology. First, it has 14 core indicators collected through a census of households in a locality. Second, while it has a standard set of indicators collected, it is inherently flexible to allow additional indicators to be incorporated to suit the information needs of LGUs. Third, it employs local personnel (most notably barangay health workers, and technical staff from the local government unit). Fourth, processed data is "returned" to the communities; allowing the citizenry to confirm the veracity of the information and to shed light to the underlying causes of the issues and problems of the communities. Lastly, CBMS information is available in several formats- geospatial, tabular, graphical, simulation and narrative.

CBMS information is generated in different formats through computer-based software and manual statistical processing. The table below provides a description of the types of information that the CBMS methodology provides:

Table 2
Types of Information Provided by the CBMS

Type of Information	Description	Source/s or Software Used
Geospatial	- Mapped representations of information that includes household locations, geopolitical boundaries, infrastructure, and socioeconomic information. - Generated by stacking different layers (e.g. There is a layer for households, geopolitical boundaries, socioeconomic information, and so forth) - Users can customise outputs based on their needs and the CBMS information available in the locality	CBMS-NRDB
Inventorial	- Listings and rosters based on the data collected from every household in the locality. - The most common inventorial information utilised are listings of names, basic information (i.e. age, sex, civil status, etc.) of every member of the barangays.	CBMS-NRDB, StatSim, Manual Data Processing
Cross Tabulated	- Specialised tables generated by processing raw CBMS data displaying frequency distribution generated from multiple statistical variables. - For example, frequency distribution of persons in the locality aged 18 years old and above by civil status.	CSPro
Simulated Tables	- Tabular information generated from prearranged templates wherein raw CBMS data is processed through a defined statistical processing framework - Non-standard templates can also be generated by customising tables in line with users needs.	CBMS StatSim
Charts and Graphs	- Standard presentation graphs in the form of pie charts and bar graphs of different CBMS indicators	CBMS-NRDB
Narrative	- Qualitative information obtained from community validation exercises. - It is considered as a complement to the quantitative information produced from other CBMS information generation processes.	Community Validation Documentations

2.1.2. The Concept of Disaster Risk Management

The notion of managing disaster risks stems from the realisation that the advent of naturally occurring events are not the only cause of calamities. Whereas different organisations have different conceptualisations of disaster risk management, all the definitions feature commonalities; viewing disasters as a product of the interactions of several elements (e.g. Maskrey 1989; Anderson and Woodrow, 1989; Blaikie, *et al.* 1994; Heijmans and Victoria, 2001; Alexander, 2002; BMZ, 2008; Baas *et al.* 2008; etc.). First, *hazards* are seen as events that have potentials of inflicting human casualties, bodily injuries, environmental degradation, economic shocks and social disruption. *Vulnerabilities* on the other hand refer to the underlying aspects that make individuals, communities and societies susceptible to withstand the impact of hazards. The interaction of hazards and vulnerabilities lead to a potential situation of socioeconomic losses and damages or as *risks*. Ultimately, potential risks, when made into reality are what are termed *disasters*.

Put differently, disasters happen when natural hazards occur in a locality without the capacity to cope with the severity of their impact. Rather than defining disasters as purely natural events to be addressed through technological means, these should be seen as a result of physical events and the inherent vulnerabilities of society, which are determined by human behaviour (Birkmann, 2006). Eventually, disasters cause disruptions to ways of living, losses to life and property as well as halt efforts to improve the living conditions of localities. [14]

There are generally two main conceptions of what DRM entails. The first looks at DRM as an *ex ante* endeavour. Under this conceptualisation, the operative term is 'before a natural hazard occurs', indicating that disaster risk management is undertaken before the onset of natural hazards. Organisations such as the German Federal Ministry for Economic Cooperation and Development or GTZ (2008) defines disaster risk management as follows:

> *"Disaster risk management comprises the whole systematic and conceptual framework of measures that are closely linked to each other and that are taken before a natural hazard occurs with the aim of limiting or avoiding adverse impacts of a natural event on society."* (p. 4)

The second mode views disaster risk management as more holistic. Organisations such as the Food and Agriculture Organisation or FAO[15] recognise managing disaster risks as a set of initiatives before, during and after the onset of disasters. Baas *et al.* (2008) define the concept of DRM as follows:

> *"[DRM] includes but goes beyond Disaster Risk Reduction[16] by adding a management perspective that combines prevention, mitigation and preparedness with response…it is used when referring to legal, institutional and policy frameworks and administrative mechanisms and procedures related to the management of both risk (ex ante) and disasters (ex-post), therefore including also the emergency management elements."* (p. 6-7)

The study adopts the latter conceptualisation, which has a broader perspective with both policy and practical elements.

Box 4: Divergent perspectives, similar themes

Different organisations and authors have different ways of conceptualising Disaster Risk Management (DRM). There are however, generic aspects seen in most of these conceptualisations. First, is that is 'multidimensional', meaning DRM is not just an issue of disaster response and rehabilitation, but more importantly a matter of 'societal resilience and preparedness'. Second is that it tackles 'vulnerability of society', meaning aside from attempting to address issues and concerns during the onset of natural hazards, efforts are also exerted to address the underlying socioeconomic factors that lead the populace prone to disasters. Third, it has a 'human component,' meaning disasters are not solely brought about by natural hazards, but also by 'acts of man'. Fourth, it identifies the 'local level' as the focal point of initiatives, meaning the localities are the main actors of efforts to manage disaster risk, with higher levels of governance laying out an 'enabling environment' for localities to work on.

Phases of disaster risk management

Several conceptualisations constitute the phases of disaster risk management. Alexander (2002) considers disasters as recurring events, forming

a cyclic chain. Along this line, DRM is seen as a concept consisting of consequential elements oriented on the onset of natural hazards. The figure below is based on the conceptualisation of FAO on the different phases and activities involved in disaster risk management.

Figure 5
Disaster Risk Management Cycle
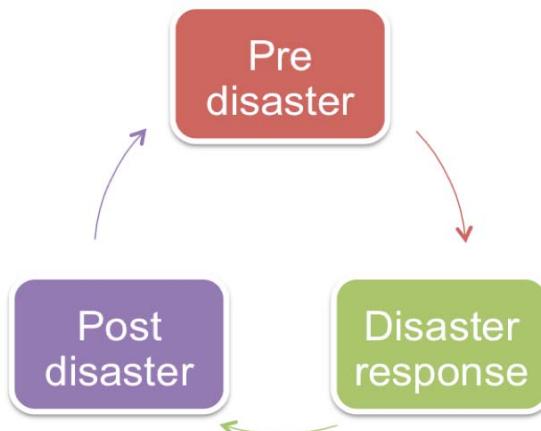
Source: Adopted from Baas *et al.* (2008)

Baas *et al.* (2008) identifies what comprises DRM in a framework. These frameworks outline initiatives that fall under a particular phase of the DRM cycle, namely: *pre-disaster, response* and *post-disaster*.

- *Pre-disaster* - DRM activities focused on strengthening the capacities and resilience of households and communities to protect their lives and livelihoods by way of avoiding and limiting the negative effects before natural hazards strike.

- *Disaster response-* at this stage the concern is saving lives and property as well as the immediate relief while the natural hazard occurs.

- *Post- disaster phase-* at this stage the scope of activities is aimed at helping the localities recover and rehabilitate during the aftermath of the natural hazard.

The table below provides details of the elements that make up the framework:

Table 3
Elements of the Disaster Risk Management Framework

DRM Phase	Activity	Definition
Pre-disaster	Risk assessment	Identification of prevailing risks in communities
	Prevention	Interventions undertaken to avoid the negative impacts of disaster
	Mitigation	Structural and non-structural measures undertaken to limit the negative impacts of natural hazards
	Preparedness	Initiatives undertaken to ensure effective responses to the onset of disasters
	Early Warning	Timely information system to reduce risks in communities
Disaster response	Evacuation	Temporary mass departure of people and key properties in the event of natural hazards threatening their localities
	Saving people and livelihoods	Provision of protection to people and livelihoods in the event of an emergency
	Immediate assistance	Immediate help to those in need after disasters
	Assessing damage and loss	Gathering and reporting of the extent of damages and losses in localities
Post-disaster	Ongoing assistance	Continuation of assistance until such time as the populace recovers
	Recovery	Activities undertaken to restore key facilities and services
	Reconstruction	Activities undertaken to ensure proper resettlement and relocation of severely affected segments of the population
	Economic and social recovery	Activities done to normalise the ways of lives and economy of the localities
	Risk assessment	Diagnostic activities to identify new risks that the localities may encounter

Source: Baas et al. (2008, adapted)

2.1.3. The Concept of Decentralisation

Through the years, numerous conceptualisations of what decentralisation means have emerged. Nevertheless, there are some prevailing themes most of these. First, is the idea of 'consignment' of responsibilities and/or authority, wherein municipalities relate 'downward' (to communities and households) 'sideward' (to the business sector and civil society) and upward (to the national government) (Pieterse 2000). Second, there is the idea of 'improvement', whether in terms of democratic processes, sustaining development, service provision, resource allocation, public responsiveness, and facilitation of government processes, among others. Third is the idea of decentralisation as 'a means to an end' (UNDP 2005), a tool for improvement rather than the goal to aspire for.

A significant number of governments have experimented with or implemented some form of decentralisation. It has become a trend transcending governments- from the mature, to the emergent, to the developed to the developing, to those who aim for greater democracy and those who would curtail this (Manor 1987; 1991). Decentralisation has great potential in

easing decision-making bottlenecks in socioeconomic endeavours (Litvack and Seddon 1998). It can lead to innovative and responsive interventions by allowing localities to experiment on initiatives that suit their realities. Reyes and Valencia (2004) see decentralization as a means to bring public service closer to the people with polities serving as platform for efficient and effective local development and public service.

Just as decentralisation comes in different packages and manifestations, so too do its definitions. Some quarters deem decentralisation as a process of 'restructuring' or 'reorganisation' (UNDP 1997; Nharnet Team 2005). On the other hand, Crook and Manor (2000) define decentralisation as a way to introduce 'democratic' capabilities of society by devolving public service tasks, by taking away the power from a "discredited commandist state". Decentralisation has also been defined within the neoliberal concept of 'good governance', as a means of ensuring transparency, accountability, participation, effectiveness and efficiency (Litvack and Seddon 1998). Furthermore, it has been defined as a structural mechanism to pursue improvements in service delivery, identification of concerns of localities and formulation of appropriate development interventions (Reyes and Valencia 2004). Litvack and Seddon (1998) provide one of the more fundamental definitions of decentralization:

> *"the transfer of authority and responsibility for public functions from the central government to subordinate or quasi-independent government organizations or the private sector" (p. 2)*

Shah (2006) noted two key principles in decentralisation. First, is the *decentralisation theorem* developed by Oates (1972), which states:

> *"…each public service should be provided by the jurisdiction having control over the minimum geographic area that would internalise benefits and costs of such provision.*

There are four underlying postulates under this theorem. First, local governments are better aware of the situation of their respective localities. Second, local decisions are made more responsive as it suits the needs of the locality. Third, delegating public service tasks cuts down administrative red tape. Lastly, decentralising tasks promote a competitive environment where innovation in service delivery is encouraged.

The second key principle is on *subsidiarity* where the lowest possible segment of government should carry out oversight, revenue generation and resource allocation, unless there is a convincing rationale to assign it to higher government levels.

2.2 Understanding the Prevailing Context

This section discusses the policy and practice contexts in the Philippines where this study is situated in. It focuses on the convergences of DRM, decentralisation and the usage of CBMS information.

2.2.1. Managing Disaster Risks Under a Decentralised Paradigm

The challenge for LGUs in developing countries such as the Philippines is a matter of balancing formulation of locally responsive DRM initiatives on one

hand while recognising resource limitations on the other. As a devolved local development activity, and due to the frequency of natural hazards in specific areas in the country, it is crucial for local authorities to be prepared for disasters; they need to make sure meagre resources are utilized efficiently.

The letter of the law

Laws and regulations serve as parameters where decentralised systems are embedded (Litvack et al. 1998). In the Philippines, paradigms and policies recognise the need to bring DRM closer to the people, while at the same time ensuring that the endeavours to be carried out are 'tailor-fit' to the needs of localities (Mohanty 2005).

Table 4
Philippine Laws and Provisions Related to DRM Localisation

Standing Laws on Disaster Risk Management	Provisions Relevant to Local Government Units
Presidential Decree No. 1566	- Enjoined self-reliance among local officials and constituents during emergency operations - Enjoined local governments to organise disaster coordination councils at every geopolitical level in localities - Outlined the duties and responsibilities of disaster coordinating councils - Granted authority for LGUs to program their funds for disaster-relater activities in addition to the 2% calamity fund as provided in another presidential decree (PD 474)
The Local Government Code of 1991 (RA 7160)	- Handed down the principal responsibility of deliver public services, plan and implement development initiatives and ensure the general well-being of their respective constituents to the local government units. - Earmarked funds for expenditures related to the onset of calamitous events (Section 287 and 342:d). - Mandated LGUs (i.e. provinces, cities, municipalities and barangays) to set aside 5% of their local income as annual lump sum allocations for disaster relief, rehabilitation, reconstruction and other works and services for calamities.

Republic Act 10121 of 2010	- Reorganised local disaster coordinating councils into 'Local Disaster Risk Reduction and Management Councils' (LDRRMCs) in lieu of the local disaster coordinating councils, pursuant to Presidential Decree 1566.
	- Mandated the establishment of Local Disaster Risk Reduction and Management Offices (LDRRMO) responsible for a number of tasks which include:
	  a. Performing local risk assessments
	  b. Contingency planning, consolidation of disaster risk information
	  c. Organising multi-hazard early warning systems
	  d. Community awareness programmes, formulation of DRM plans and policies
	  e. Supervision of emergency response and recovery activities at the local level
	  f. Serving as the executive arm of the LDRRMC.
	- Institutionalised and accruing Local Disaster Risk Reduction Fund (LDRRF) that would be drawn from not less than five percent of the total estimated revenues from regular sources (Section 21).

The structure[17]

The Philippine disaster coordination framework is aligned to the geopolitical framework of the country. Jose (2006) notes that the Philippine disaster management framework features multiple tiers organized as a matrix of coordinating councils at the national, regional, provincial, city, municipal and barangay levels. At the national level, the NDCC is the chief actor of disaster management in the country. Chaired by the Secretary of National Defence of the Philippines, the NDCC performs among others, coordination, advisory, support and policymaking tasks in line with disaster management. The

executive arm of the said council is the Office of Civil Defence. The local level can be regarded as a microcosm of the functions of the NDCC. The local chief executives (i.e. governors, mayors and barangay captains) serve as chairpersons of local disaster coordinating councils (LDCCs) (ADPC 2001). Upon closer examination, the LDCCs have limited executive and decision-making roles as most disaster preparedness, response and rehabilitation initiatives are performed by Civil Defence Deputised Coordinators (CDDCs), which act as executive officers.

Figure 6
Philippine Disaster Coordination Framework
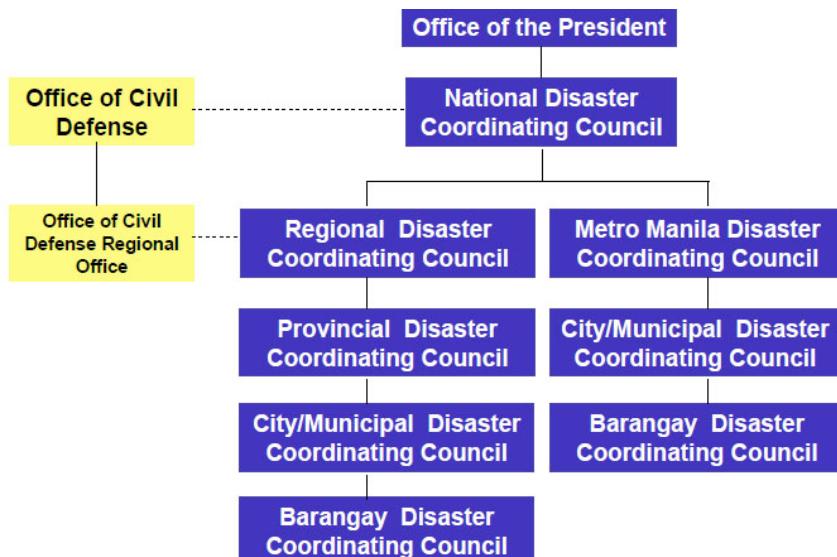
Source: Jose (2006)

2.2.2. CBMS Information: A Resource for Managing Disaster Risks

National and global paradigms underpin the local level as the focal point of disaster risk management (Dynes 1998; Heijmans and Victoria 2001). As such, grassroots level information is a crucial ingredient for sound DRM initiatives. The 'practice' of DRM requires a comprehensive understanding of the prevailing situations of localities. DRM requires not only explicit disaster-related information (i.e. natural hazard surveillance, geophysical information), but also socio-economic, geospatial and socio-demographic information.

One of the rationales of CBMS implementation is the need for locally disaggregated and relevant information at the local level; elements that are oftentimes sorely lacking in national level censuses and surveys (Fajardo 2007 and Reyes et al. 2008). Local governments found themselves facing not only financial and material resource constraints, but also information limitations. CBMS satisfies the need for local empirical information by enabling LGUs to obtain their own endogenous information that provides an imagery of the conditions of their localities and consequently foster responsive and efficient local development activities.

Box 5: Complement, not replacement
CBMS is not meant to replace national statistical processes, but instead aims to fill the informational gaps existing at the local level especially with public service delivery and local development tasks consigned to LGUs. In the Philippines, there are several mandated censuses and surveys. Among them, the Family Income and Expenditures Survey (FIES) collected every three years, The Annual Poverty Indicator Survey (APIS) administered every year that there is no FIES, the National Nutrition Survey (NNS) collected every 5 years, the Census of Population and Housing (CPH) collected every 10 years, the National Demographic and Health Survey (NDHS) collected every 5 years. The most 'regular' survey is the Labour Force Survey by the NSO administered every quarter of the year. On the other hand, the most irregular is the Functional Literacy, Education and Mass Media Survey (FLEMMS), which are irregularly collected.

Source: CBMS: A Tool to Fight Poverty by Reyes et al (2006)

CBMS information usage in Philippines suggests that information drawn from the localities themselves is the 'best available' evidence to use in local level policy and practice. Within a devolved government structure, accentuated by limited resources and sizeable responsibilities, relevant locally disaggregated information is essential. Information from national surveys and censuses are inadequate for local government use.

Figure 7
Filling Information Gaps in Local Government Units in the Philippines
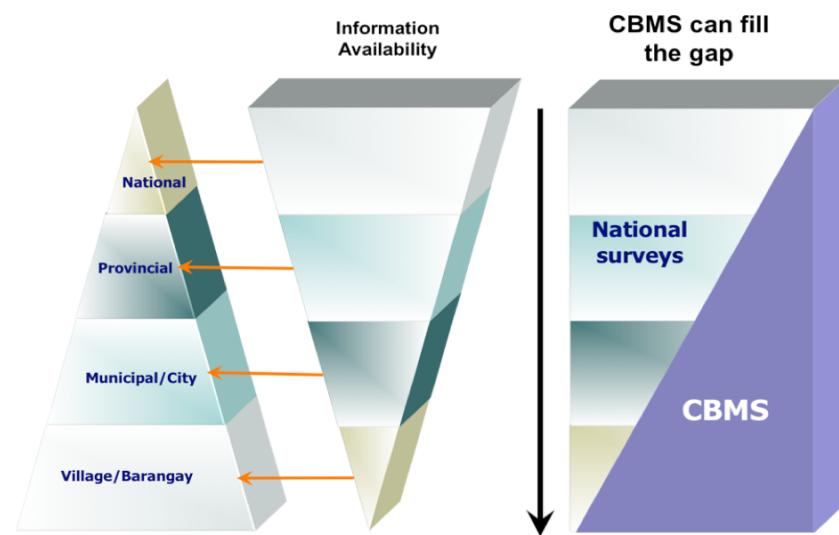
Source: Reyes, et al (2008)

Box 6: Distinguishing CBMS information from 'local knowledge'
It is important to note, in the context of this study, the difference between CBMS information and 'local knowledge' as highlighted in most literature on community-based disaster risk management (i.e. Anderson and Woodrow 1989; Blaikie *et al*. 1994; and Heijmans and Victoria 2001, etc). 'Local knowledge' in this case are the coping strategies, skills and values that have been drawn through periodic experiences of disasters. These may include, but are not restricted to elaborate family support systems, informal community response, or indigenous forecasting activities, among others. The author recognises this as an entirely different set of knowledge from that of what local governments can obtain from the CBMS information as this is mainly grassroots level information that are drawn through a systematised and scientific methodology. Its use for disaster management is not explicit, but nonetheless considered crucial inputs for managing disaster risks.

2.2.3. The Nexus of DRM, Decentralisation and CBMS Information

The Philippine context provides an ideal setting to understand how decentralisation, disaster risk management and endogenous empirical information cross paths. Local governments need to be well informed about their 'environment' to become goal-oriented and evidence-based (Blackman 1998). Decentralisation of public functions and tasks provide a rationale for empirical information that reflects the nature of their locales. In the same light, the demand for CBMS information is drawn from informational requirements to support devolved tasks and responsibilities. Decentralisation is seen as a conduit to make society resistant to the onslaught of natural hazards. As with any other decentralised task, DRM requires local level information, resources CBMS provides. As a tool for government decision-making, CBMS information can only serve a practical use when utilised for a government task. The figure below diagrammatically depicts the ties that bind disaster risk management, decentralisation and CBMS information.

Figure 8
The Nexus Between Decentralisation, DRM and CBMS

Decentralisation

Decentralisation of key government responsibilities at the local level necessitated a source of grassroots information of localities

The country's decentralisation policy allowed key tasks and responsibilities to be downloaded to the LGU level

CBMS was developed mainly because of the country's decentralisation policy

Prevailing Disaster Risk Management paradigms identify the local level as the focal point of initiatives. Decentralisation essentially serves as a conduit for DRM

CBMS Information

Disaster Risk Management

Disaster Risk Management needs reliable information at the local level

CBMS information would only have 'development worth' if it is utilised for development purposes

Chapter 3
Two Local Governments, One Methodology, and a Collection of Risks to be Managed

This chapter has two sections. The first section provides a description of the localities, information on the experience of implementing the CBMS methodologies and accounts of how they have used CBMS information the methodology generates. The second section discusses the DRM praxis of Santa Elena and Labo. Specifically, it identifies the natural hazards, management frameworks, and the usage of CBMS information for DRM in both localities. While descriptive in structure, this chapter also entailed analysis considering the tacit nature of several elements herein.

3.1   A Tale of Two Neighbours: CBMS Implementation in Santa Elena and Labo

The two municipalities have implemented CBMS for three rounds: 2003, 2006 and 2009[18]. Both localities were provided technical support through collaboration with the CBMS Network Coordinating Team,[19] the organisation that developed the CBMS methodology. Like most CBMS-implementing LGUs, both employ existing Barangay Health Workers (BHWs)[20], day care workers and barangay personnel as field enumerators, being more familiar with their localities. They are tasked to administer questionnaires and prepare community spot maps that identify the household locations and infrastructure.

Map 2
The Municipalities of Santa Elena and Labo

Santa Elena

Labo

The rest of Camarines Norte

23
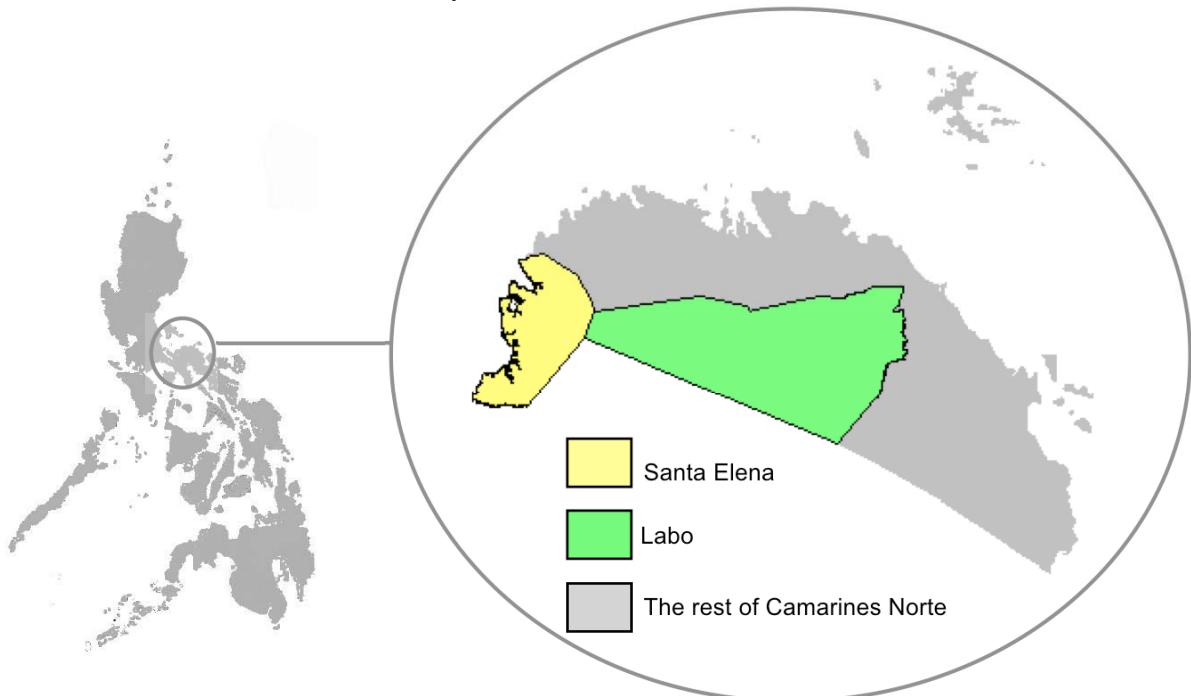
Box 7: Santa Elena and Labo in brief

The municipality of Santa Elena is located at the southern part of Luzon Island in the Philippines. It is one of the component municipalities of the Province of Camarines Norte. It is bounded in the north by the Municipality of Capalonga, to the south by the Municipality of Calauag or Quezon province, to the east by the Municipality of Labo, Camarines Norte and to the west by the Basiad Bay, which lies at the Pacific seaboard of the country. Santa Elena consists of 19 barangays (villages) and has a total land area of 19,935 hectares.

Santa Elena is a third class municipality based on the most recent local government income classification of the National Statistical Coordination Board (NSCB). A predominantly rural area, the municipality's main produce are coconut by-products, along with rice and fruit products, most notably the dalanghita, a marketable citrus variety. Livestock and poultry production is mainly small-scale and backyard grown. Fish and other marine resource are also abundant in the locality, owing to the fact that there are 11 coastal villages in the municipality. This is seen as a prospective local economic growth sector of the Municipality. The town's topography is characterized by rolling hills to rugged terrain. The highest point is at Mt. Cadig to the west of the municipality were the water source for the municipality is to be developed. The coastal area along the Pacific Ocean characterized by fertile plains and small valleys covering eight fishing communities.

The municipality of Labo is geographically located at the centre of the province of Camarines Norte and is approximately 335 kilometres south of Metro Manila, the capital of the Philippines. The Municipalities of Paracale, Jose Panganiban and Capalonga bound it on the north, on the south by the Province of Quezon and the adjoining province of Camarines Sur, on the East by the municipalities of Vinzons and San Vicente and on the west by the municipality of Sta. Elena. It is the biggest among the 12 municipalities of the Province. Its aggregate land area of 64,448 hectares or 648.84 square kilometres occupies more than 25 percent of the total provincial land area. Its 52 barangays represent 18.44 percent of the total number of barangays of the province. Ten of these baragays are classified as urban barangays and the rest are considered rural barangays. The surface of the municipality is generally rugged, hilly and mountainous, with some flat terrain. These characteristics and its vast land area are mainly devoted to agriculture where coconut and rice are the major agricultural products.

Sources: Doria (2005) and Pandi (2005)

3.1.1. CBMS in Santa Elena

Previous localised data collection activities proved invaluable for CBMS implementation in the locality[21]. The experiences and challenges they encountered served as a springboard for CBMS implementation. Social welfare workers and barangay personnel previously assisted in information gathering during were tapped as field enumerators by the LGU. Data processing, crosschecking and analysis are lodged at the municipal planning and development office (MPDO), with minimal involvement of other organisations. There is no standing CBMS Technical Working Group (TWG) and the chief of office, known as the Municipal Planning and Development Coordinator (MPDC) wield considerable control and authority over the entire CBMS implementation of the municipality. Alongside the MPDC, three other technical personnel work on maintaining and managing the CBMS database.

3.1.2. CBMS in Labo[22]

As per accounts of Lagatuz (2004) a municipal Executive Order 04-2003 formally institutionalised the implementation of the CBMS in the municipality. A subsequent memorandum (MC # 023, Series of 2003) established an 11-person TWG that oversees the CBMS implementation in the localities. As one of the largest municipalities in the Philippines in terms of land area, the

municipality was strategically subdivided into eight data collection districts to ensure expediency of administering the questionnaires and facilitate. Each district is composed of several barangays with a TWG member overseeing the data collection of local CBMS enumerators such as barangay officials, health workers, day care workers and working students. To help gain the cooperation of the households during the survey operations, the mayor issued letters to the households introducing the activity and enjoining their cooperation to participate in the activity. Data processing in the locality during the 2003 and the 2006 rounds conducted were both manual and computerized. Manual processing allowed the locality to obtain information without the need for computers. The subsequent 2009 CBMS implementation round mainly involved computerised processing. A total of five persons are tasked to maintain and manage the CBMS database.

Information from Santa Elena and Labo CBMS[23]

The two municipalities share the same set of indicators. Aside from the 14 CBMS core indicators, both localities share essentially the same kinds of socioeconomic indicators collected from every household in their locality. The two localities used the same type of questionnaire (see Appendix 7) that collected the following kinds of information from all households in the locality:

- Demographic information (age, sex, religious affiliation, etc.)
- Migration
- Education and Literacy
- Community and political participation
- Nutrition
- Economic Activity
- Overseas Filipino Workers in the household
- Solo parents in the household
- Disability
- Senior citizens in the household
- Professionals in the household
- Health

- Household members who died during the past 12 months
- Incidence of crime
- Water and sanitation
- Housing (tenure status and construction materials used for the housing structure)
- Sources of income
- Agriculture (crop farming, livestock raising and fishing)
- Waste management
- Prevalence of natural calamities
- Food adequacy
- Access to socioeconomic development programs

On the other hand, the Barangay Profile questionnaire provides the following information:

- Physical and demographic characteristics of the barangay
- Peace and order
- Barangay programs and services

- Proximity of the barangay to basic services and service institutions (education facilities, health facilities, service facilities, transport, roads, water supply, waste disposal, electricity, credit institutions

3.2 Disaster Risks and How The Local Governments Manage These

Alexander (2002) notes that hypothetical progressions of events or scenarios illustrate the consequences of a certain decision made in line with disaster management. Scenarios can help shed light on how conditions can influence circumstances and inversely, how circumstances can alter conditions. This section discusses the inherent natural hazards and the initiatives performed by the localities to mitigate the risks brought about by these events.

3.2.1. The Local 'Hazardscape'

Alexander (2002) identified five categories of natural hazards: *meteorological* (i.e. hurricanes, tornadoes, and intense storms), *oceanographic* (mainly tsunamis and sea storms), *hydrological* (mainly flooding), *geological* (i.e. earthquakes, volcanic eruption, and landslides), and *biological* (i.e. wildfires, blight, insect infestations). Due to the geographical, topographical and climatologic characteristics of the localities, Santa Elena and Labo essentially have identical meteorological, hydrological, biological and geological hazards. On the other hand, the two localities exhibit divergent oceanographic and earthquake hazard susceptibilities.

Table 5
Natural Hazards in the Two Localities

Hazard Classification	Hazard Type	Probability of Occurrence		Rationale/ Details
		Santa Elena	Labo	
Meteorological	Tropical Storms	High (Frequent)	High (Frequent)	The entire province of Camarines Norte, where both localities are part of, belongs to the Type II climate under the Corona Classification System[i]. This means that both localities categorically do not have dry seasons and experience heavy rainfall for most of the year.
	Typhoons	High (Frequent)	High (Frequent)	Both municipalities are located within the usual path of typhoons that enter the Philippine Area of Responsibility[i]. Several typhoons in recent years[ii] caused losses to property and agricultural investments, albeit with relatively few human casualties.
Hydrological	Flooding	High (Probable)	High (Probable)	Heavy volumes of rain render both localities prone to flooding. For Santa Elena, its low-lying coastal regions are the most susceptible to tidal floods brought about by storm surges and typhoons. In the case of Labo rains brought about by typhoons and storms cascade into the inland river systems, inundating communities.
Biological	Droughts	Medium (Occasional)	Medium (Occasional)	As predominantly agricultural municipalities, both are susceptible to droughts and insect infestations.
	Insect Infestation	Medium (Occasional)	(Medium) (Occasional)	
Geological	Landslides/ Mudslides	High (Probable)	High (Probable)	Landslides are common in both localities particularly along the mountainous and rugged terrains of the municipality. These have affected accessibility of some portions of the municipalities, isolating some portions to assistance and transport of vital commodities and services.
	Earthquakes	Low (Improbable)	Medium (Occasional)	In the case of Labo, the western portion is identified to be earthquake prone. A total of 7 barangays are reported to be in danger in an occurrence of an earthquake.
Oceanographic	Tsunami	Medium (Occasional)	Low (Impossibe)	A portion of Santa Elena lying along Basiad Bay, is susceptible to tsunamis. However, as the municipality's coastline does not directly face the Pacific Ocean, it is less susceptible from the full impact of this type of natural hazard. As a landlocked municipality, threat of tsunamis are virtually nonexistent in Labo.

[i] The Corona Classification System of the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) uses 5 categorisations of climates. Type I is identified with having two pronounced seasons, dry climate from November to April and wet during the rest of the year. Type II (where both Santa Elena and Labo belong to) is categorised as having no dry season with a very pronounced maximum rain period from December to February. There are no dry months, with the minimum rainfall occurring during the period from March to May. Type III is identified as having not very evident maximum rain period with a dry season lasting from one to three months, either during the period from December to February or from March to May. Type IV is identified as having an even distribution of rainfall throughout the year.

[ii] The Philippine Area of Responsibility is an area bound by an imaginary line drawn along the following coordinates: 25 degrees north, 120 degrees East, 25 degrees north 135 degrees east, 5 degrees north 115 degrees East, 15 degrees north 115 degrees east, 21 degrees north and 120 degrees east. When a tropical cyclone activity issues warnings within this area, PAGASA, the country's national institution dedicated to provide typhoon warnings and forecasts provide six to twelve hour weather bulletins.

[iii] In recent years, typhoons "Reming" (International name: Durian) and "Milenyo" (International name: Xangane) both in 2006, "Santi" (International name: Mirinae) 2009, and "Basyang" (International name: Conson) in 2010 were reported to have substantial affect on the areas.

3.2.2. Disaster Risk Management in Santa Elena

This section focuses on the governance structure for DRM in the municipality of Santa Elena as well as its DRM-related activities. Portions of this section are analytical in nature as there are limited recorded references pertaining to their local DRM dynamics.

Governance structure

The municipality has a composite Disaster Coordinating Council (MDCC) where the municipal mayor functions as chair and convenes on a "need basis". In practice however, most DRM activities in the locality are concentrated at the Municipal Planning and Development Office as its chief of office concurrently serves as the Civil Defence Deputised Coordinator (MCDDC). The office itself is in charge of mobilising communications within the locality, in managing pre-disaster, disaster preparedness, and post disaster initiatives. The office also undertakes damage and needs assessment activities on the aftermath of calamities. It also performs information campaigns for the different communities of the municipality.

Figure 9
DRM Governance Structure of Santa Elena

Chaired by the municipal mayor, Santa Elena's disaster coordinating council is the overarching governing body for DRM initiatives of the locality.

The Municipal Defence Deputised Coordinator serves as the focal point for DRM-related decisionmaking. In practice this office serves as the strategic and tactical base for disaster risk management in the locality.

These serve as the frontline organisations in DRM in the locality

Municipal Disaster Coordinating Council (MDCC)

Municipal Civil Defence Deputised Coordinator/ Municipal Planning and Development Office (MCDDC-MPDO)

Local departments
-Health
- Social Welfare
- Planning and Development
- Engineering
- Agriculture
-Budget
- Treasurer
- General Services

Barangay captains

Interior and local government organisations
- Municipal fire department
-Municipal police force

Public

DRM initiatives

The DRM in the locality is primarily influenced by several factors: the historical experience of frequency and intensity of weather disturbances, the common natural hazards in the locality, weather disturbance alerts, the need for multiple use equipment, and ensuring relief supply availability. The following statements by the local civil defence deputised coordinator elaborate:

"… we step up our disaster preparedness activities during the latter part of the year. Monitoring of typhoons and storms are more intense from September to December…

… as soon there is a storm signal warning from PAGASA, I immediately consult Weather Underground, the PAGASA website and the Weather channel websites to see if the typhoon or storm will pass our way, if there is a high likelihood, we then make the necessary preparations… we forewarn the barangays of how much a typhoon or storm would affect us through texting (SMS)…

… when we purchase heavy equipment, one of our concerns is if we can use it in times of disasters. For instance, we purchased a bulldozer with its usability in the case of landslides…

… it would not be prudent for us to keep stock of rice and other supplies to distribute because we do not know if a typhoon will pass by in the first place. As soon as we know that a strong storm or a typhoon will hit, I immediately contact suppliers of food and building materials… "

Bimbo Doria, MPDC- MCDDC

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Map 3
Areas at Risk of Flooding in the Municipality of Santa Elena
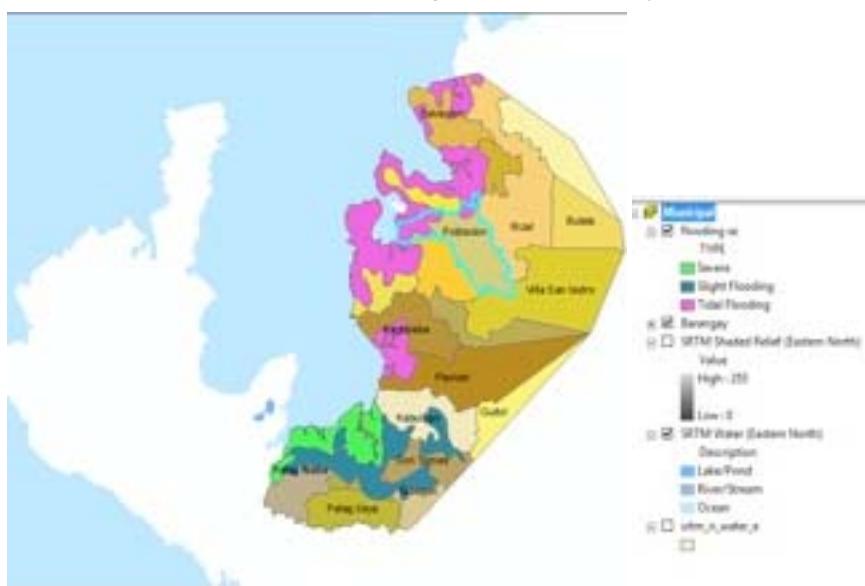
Source: Simulated Demonstration, Santa Elena MPDO

Simulations from the locality reveal that DRM initiatives of Santa Elena are mainly focused on imminent meteorological events that can ultimately bring about hydrological and geological types of natural hazards. The locality recognises the causal linkages between weather disturbances such as typhoons and tropical storms as 'triggers' of the onset of other hazards such as flooding and landslides.

Figure 10
Disaster Management Model of Santa Elena

| Santa Elena performs intermittent awareness programs | Identification of disaster prone areas. Digitised maps are created showing high-risk locations in the municipality | Purchase/maintenance of multi-use equipment that can be used in disaster and on-disaster situations | Training of LGU personnel |

During 'lean' months, Santa Elena performs different disaster risk assessment, preparedness and prevention activities

PAGASA ISSUES STORM TYPHOON WARNING

↓

MCDDC consults government and commercial websites to ascertain trajectory and intensity of weather disturbance

Upon notice that a typhoon or tropical storm, the MCDDC consults weather monitoring websites to assess the trajectory and intensity of the weather disturbances. The MCDDC assesses the level of preparations to be undertaken by the municipality.

If no imminent threat to locality: Status Quo

If threat exists: Preparations are done
1. Details communicated to:
   - MDCC members
   - Barangay captains
   - Suppliers of key provisions
2. Equipment and personnel are placed on standby
3. MDCC meeting is convened

If there is a high likelihood of the weather disturbance passing through the locality, communications are established with the barangay leaders on the trajectory and estimated time of onset of the weather disturbance in the localities. Members of the Municipal Disaster Coordinating Council (MDCC) make preparations for tthe weather disturbance. The MCDDC directly coordinates with private suppliers to secure necessary supplies.

NATURAL HAZARD STRIKES

↓

Personnel and equipment are deployed ASAP, when:
1. Barangays issue distress calls
2. Main road is blocked

Clearing operations   Damage assessment and reporting   Calamity fund preparation

If damage is extensive in the populace: Relief distribution

If damage is not extensive: Proceed to documentation

Disaster response depends upon distress calls from the barangays. As necessary, clearing operations are undertaken to ensure important thoroughfares are accessible.

On the aftermath of the natural hazard, road blockages in are cleared to ensure access. Damage assessments are undertaken immediately by the MCDDC in coordination with the barangay captains notifying the MCDDC of the extent of damages and affected segments of their community. Upon disaster damage reports, the municipality prepares for relief distribution to affected households, in line with the 5 percent calamity fund.

Table 6
Disaster Management Activities in Santa Elena

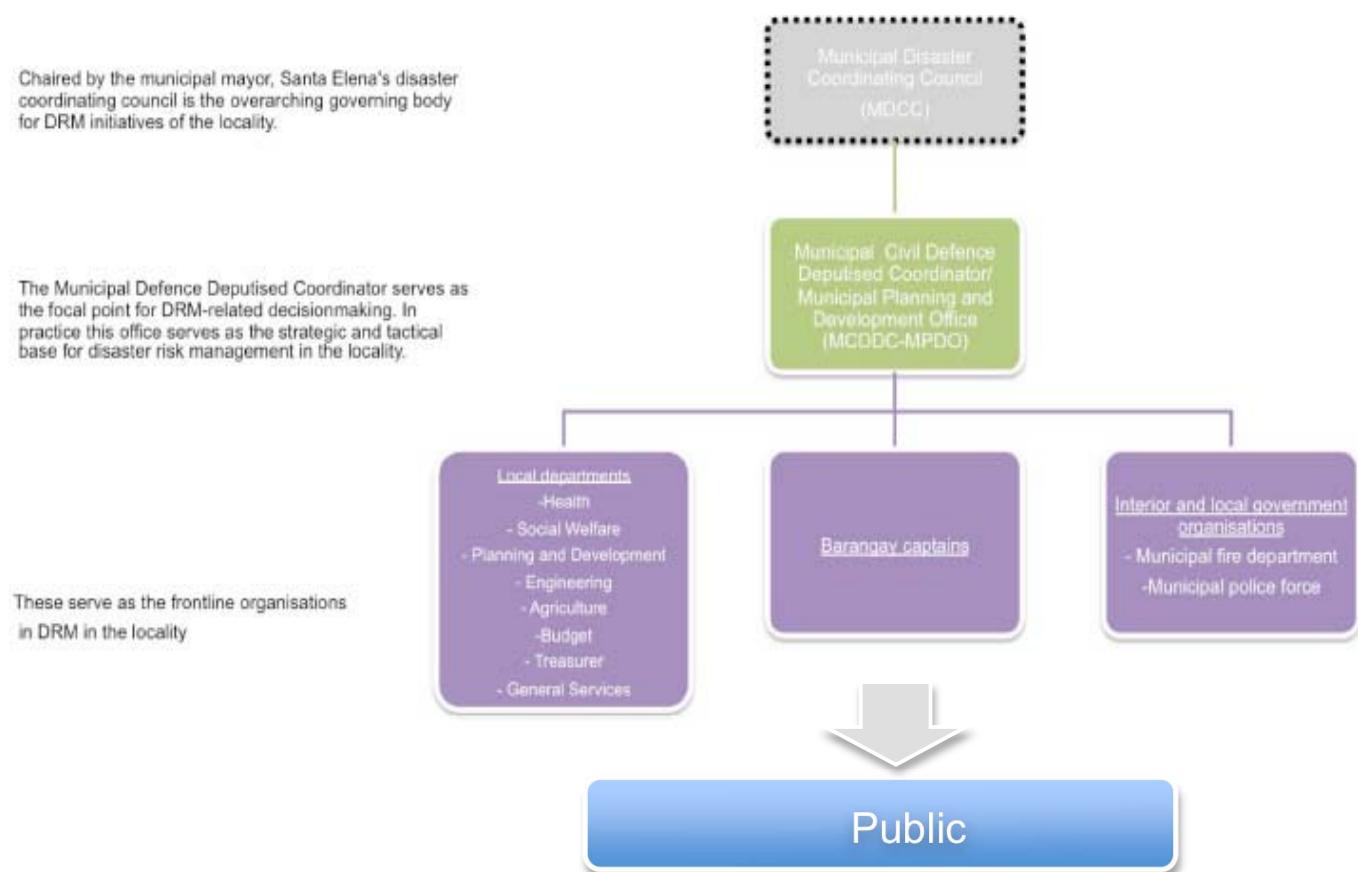| DRM Phase	Activity	Initiatives
Pre-disaster	Risk assessment Prevention Mitigation Preparedness Early Warning	- Identification of areas prone to disasters. In the case of flooding and erosion, locally made digitised maps were created which indicates high risk locations in the municipality based on historical accounts of tidal and inland floods and erosion prone areas. - Conduct of intermittent awareness programs on disasters - Purchase of heavy equipment by the General Services Office (GSO) that are not only for civil works use, but also for disaster use - Constant maintenance of disaster- related equipment and machineries of the locality - Training of LGU personnel as volunteers - MCDDC utilises a mix of information sources on weather disturbance trajectories and intensities. - Short Message System-based (SMS) communication system between the Municipal Disaster Coordinating Council (MDCC), Barangay Captains and private suppliers of relief materials
Disaster Response	Evacuation Saving people and livelihoods Immediate assistance Assessing damage and loss	- Emergency personnel and equipment are placed on standby - Response of emergency personnel upon distress calls from the communities - Initial clearing operations - Initial damage assessments in the communities
Post-disaster	Ongoing assistance Recovery Reconstruction Economic and social recovery Risk assessment	- Continued clearing of debris and road blockages in major thoroughfares - Distribution of relief goods and reconstruction materials to affected households - Ocular inspections of the extent of damage - Activation of the statutory 5% emergency fund - Consolidation of damage assessment reports

3.2.3. Disaster Risk Management in Labo

This section focuses on the existing governance structure for DRM in the municipality of Labo as well as the DRM initiatives in the locality. This section includes both descriptive and analytical elements drawn from simulations, interviews and DRM documentations of the municipalities.

Governance structure

The municipality of Labo has a standing disaster coordinating council where the mayor acts as chair. For DRM, the Municipal Civil Defence Deputised Coordinator (who concurrently serves as the Municipal Information Officer) controls the strategic and tactical decision-making activities of the locality. Considerable overlaps exist within the local DRM framework with tasks carried out by the government together with local NGOs and volunteer groups. The four units that make up the disaster risk management structure in the locality include the Executive Committee, the Office of the Civil Defence Deputised Coordinator, the MDCC staff units and the MDCC service units (see figure 11). The executive committee is the overall policymaking organ of the MDCC. It wields power and responsibility over the implementation of the DRM initiatives in Labo. The Office of the Civil Defence Deputised

Coordinator performs secretariat duties, as it is the heart of the overall disaster management operations of the municipality. The MDCC staff units on the other hand provide the necessary planning, management and capacity building support. Lastly, the MDCC service units do the legwork for the locality; providing communications, relief, medical, transport, reconstruction and local economic stabilisation support functions in the locality.

Figure 11:
DRM Governance Structure of Labo
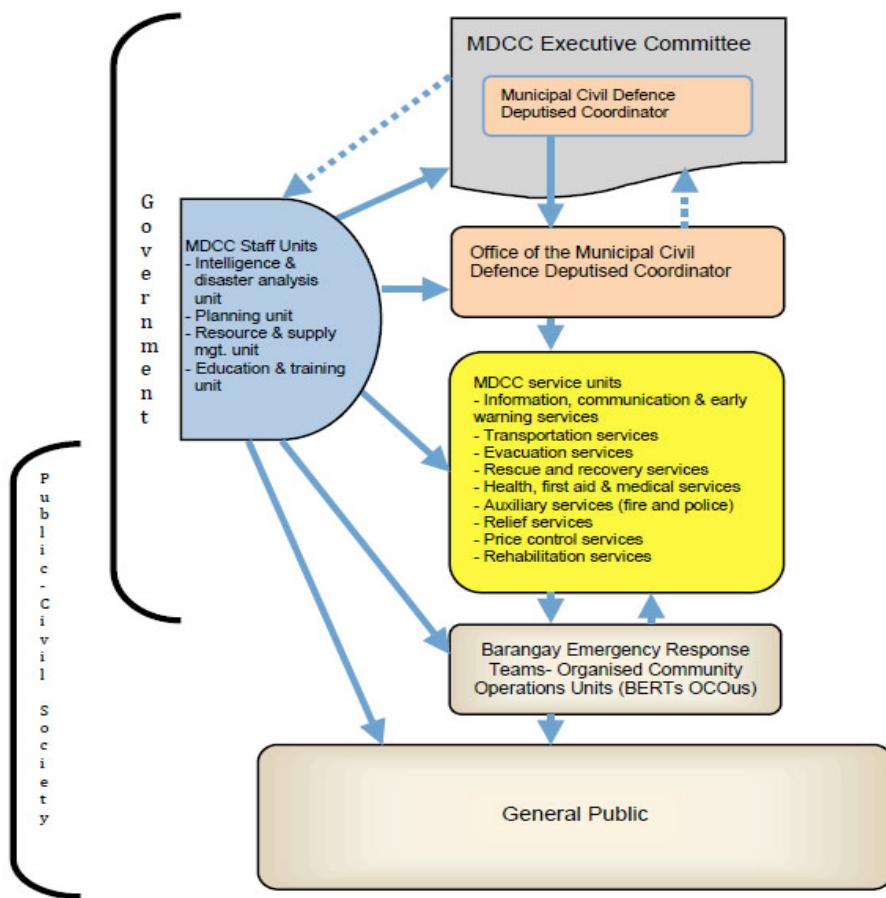
DRM initiatives[24]

Disaster risk management initiatives in Labo exhibit certain characteristics. First, these are *proactive*. Most initiatives in the locality are concentrated on pre-disaster initiatives like risk assessments, plan formulation, awareness programmes, infrastructural projects, and training. The Labo MCDDC elaborates on the reason behind the 'proactivity' of their disaster-related initiatives:

> *"…we give 70 percent of our effort for mitigation and preparedness …we cannot invest heavily in disaster response and rehabilitation so we focus more on advocacy and pre-disaster activities like maintaining a community radio station, disseminating newsletters and training of different sectors of societies, even kids"*

<div align="right">

Dr. Carlos Galvez, MIO- MCDDC

</div>

The second distinct characteristic of their initiatives is that it is *grassroots based*. Most practical aspects of their DRM scheme are activated at the local level where housing clusters (known locally as 'purok') have organised response teams known as Barangay Emergency Response Teams-Organised Community Operations (BERTs OCOu). Volunteers in every housing cluster are organised and trained as quick response units before, during and after a natural hazard (Municipality of Labo 2010). DRM initiatives in Labo are also focused on 'typically' encountered natural hazards as activities and investments are centred on addressing potential problems (i.e meteorological, hydrological, and geological hazards).

Table 7
Disaster Risk Management Activities in Labo

DRM Phase	Activity	Initiatives
Pre-disaster	Risk assessment Prevention Mitigation Preparedness Early Warning	- Vulnerability mapping using geo-hazards maps prepared by the Minces and Geosciences Bureau (MGB-DENR) overlaid with CBMS-NRDB maps of Barangays - Integration of Disaster Risk Management in other LGU programs, projects and activities (e.g. infrastructure, peace and order, anti-poverty, waste management, development information, etc.) - Construction projects (alternate roads, repeater stations) - River dredging and river control - Resource mapping (supplies and equipment) - Institutionalisation of local disaster risk management office and ad hoc activation of the local Disaster Management Operations Centre or DMOC (later on reorganised into the Municipal Disaster Risk Management Office or MDRMO) - Formulation of Barangay Emergency Response Teams Organised Community Operations Units (BERTs OCOu) - Manpower development for volunteers, emergency personnel, transport associations, Barangay Disaster Action Officers, BERTSs OCOu members, school children, etc. - Conduct of scheduled trainings and seminars for different sectors (barangay officials, school students (elementary and high school), members of the municipal disaster coordinating councils, - Conduct of planning seminars for barangay officials - Earthquake drills for schools and offices in the locality - Inclusion of a regular column in the municipal newsletter distributed in the locality - Broadcasting of disaster related information through the local community radio station (as a means of advocating disaster preparedness and reporting of advisories such as typhoons). Hourly broadcast of weather bulletins are conducted when there is a high likelihood of weather disturbances happening in the locality - Film showing to barangay officials, teachers and Parents-Teachers Associations - Equipment purchases and maintenance (transport, communications, emergency power, etc)
Disaster Response	Evacuation Saving people and livelihoods Immediate assistance Assessing damage and loss	- 24-hour broadcasting of disaster related information through the local community radio station (serves as the mass media facility to provide instructions to local leaders) - ad hoc needs assessments - search and rescue in coordination with the Philippine National Police Office, Bureau of Fire Protection and Philippine Army, local engineering and health offices, civic communications groups,
Post-disaster	Ongoing assistance Recovery Reconstruction Economic and social recovery Risk assessment	- Broadcasting of disaster related information through the local community radio station - Provision of seed loans in coordination with the local agricultural office - Distribution of relief goods - Clearing of debris and road blockages - Ocular inspections of the extent of damage - Consolidation and submission of damage assessment reports to 'higher authorities'

3.3   Usage of CBMS Information for DRM

The subsections below highlight how the localities made use of the CBMS information.

Santa Elena

The municipality made use of the CBMS information for post-disaster relief purposes. Information on inhabitants of heavily affected barangays is generated and cross-checked with both the reports from damage assessments, as well as the communications from the villages seeking relief assistance for the respective barangays. Eligible households are given financial assistance (normally 500 Philippine pesos or an equivalent of under 10 Euros) as well as construction materials (e.g. nails, lumber, and roofing materials).   It is important to note that based on the interview with the MCDDC, this operation is only performed on a 'case-to-case basis', specifically when the extent of damage in the municipality is sizeable and there are many barangays seeking assistance. In case the extent of damage in limited to a few areas in the municipality, they resort to outright distribution of relief goods:

> *"CBMS data is only used when we need to objectively allocate resources when the natural hazard like typhoons and there are many 'claimant barangays'. Given our limited funds, we need to cross check assistance requests to the inhabitants of that locality. It helps us fairly distribute assistance and cross check if barangays are unjustifiably trying to get a greater share of the already limited resources that we have… on the other hand, when the natural hazard affects only a few areas, we normally do not use the CBMS."*

> Bimbo Doria, MCDDC/ MPDC

Labo

Labo makes use of the CBMS-NRDB facility to map their vulnerability to different hazards like flooding and erosion (see Figure 12). The geospatial representation of household locations obtained from their CBMS surveys are overlaid upon the geo-hazard survey maps obtained from the Mines and Geosciences Bureau of the Department of Environment and Natural Resources (MGB-DENR). Based on the recent Municipal Contingency Plan of Labo (2010), the local hazard maps of the municipality have several features. [25]

Figure 12
Thematic Layers of Local Hazard Maps of Labo

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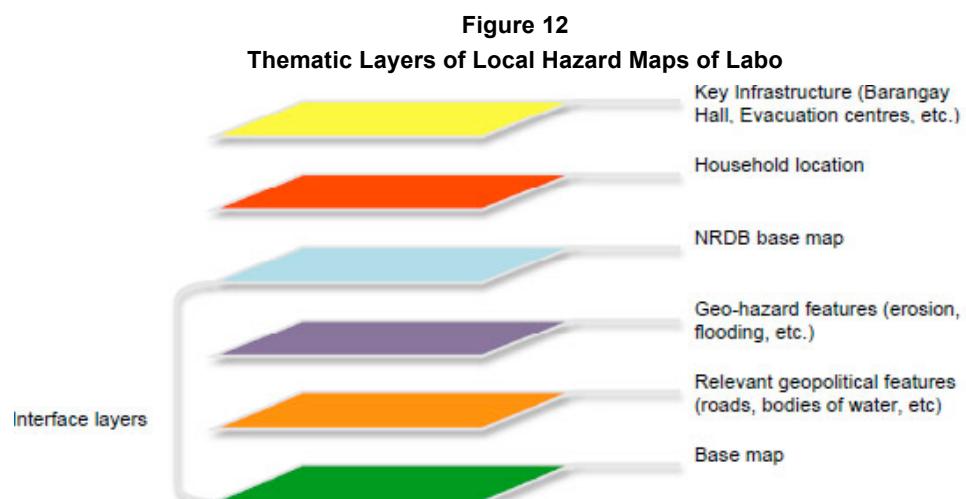
First, they are barangay-based; each locality is provided with their own respective set of hazard maps indicating different scenarios through a colour-coded scheme of identifying the severity of the situation in the respective locality (categorised into 'bad', 'worse' and 'worst' case scenarios). Second, the hazard maps feature natural formations and bodies of water such as rivers, lakes and streams, household locations and evacuation centres. Third, these serve multiple purposes. Demonstrations show that while these maps are primarily for early warning purposes, they can also be utilised as references for different activities including evacuation, rescue, and relief distribution. Below are some sample images of a barangay (Barangay Santa Cruz) featuring different scenarios for flooding.

Map 4
Hazard Map Simulating 'Bad Case' Scenario,
Barangay Santa Cruz, Labo Camarines Norte
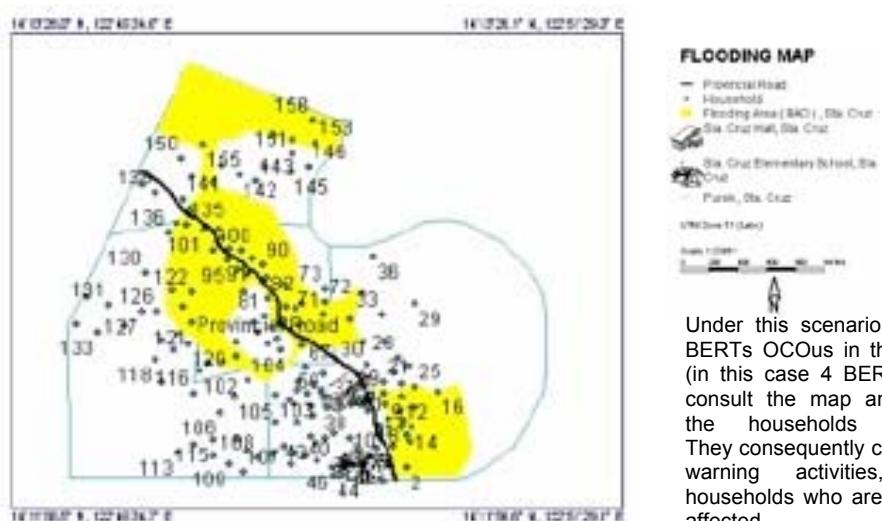
Under this scenario, concerned BERTs OCOus in the barangay (in this case 4 BERTs OCOus, consult the map and identifies the households threatened. They consequently conduct early warning activities, notifying households who are likely to be affected.

Map 5
Hazard Map Simulating 'Worse Case' Scenario,
Barangay Santa Cruz, Labo Camarines Norte
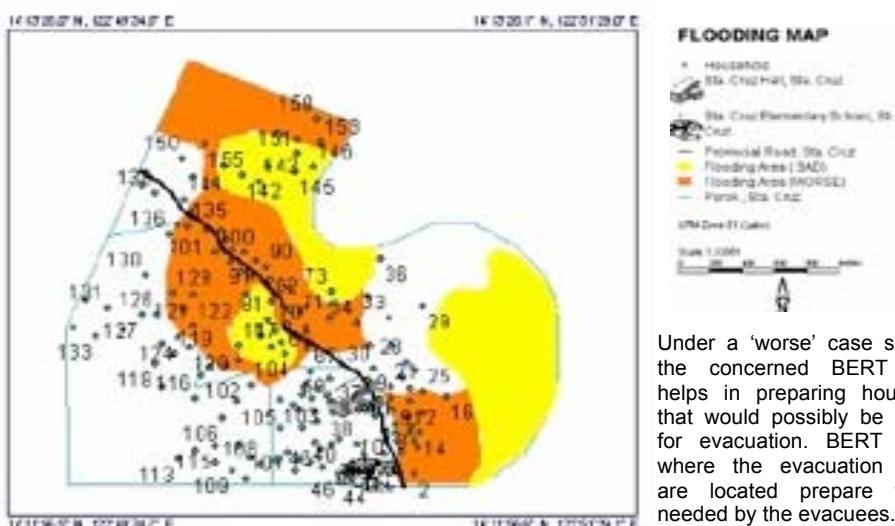
Under a 'worse' case scenario, the concerned BERT OCOu helps in preparing households that would possibly be affected for evacuation. BERT OCOus where the evacuation centres are located prepare facilities needed by the evacuees.

Map 6
Hazard Map Simulating 'Worst Case' Scenario,
Barangay Santa Cruz, Labo Camarines Norte

Under a 'worst' case scenario, all affected households in the community are taken to the evacuation centres. BERTs OCOus of the affected purok are then tasked to oversee the security of the properties left by the evacuees.
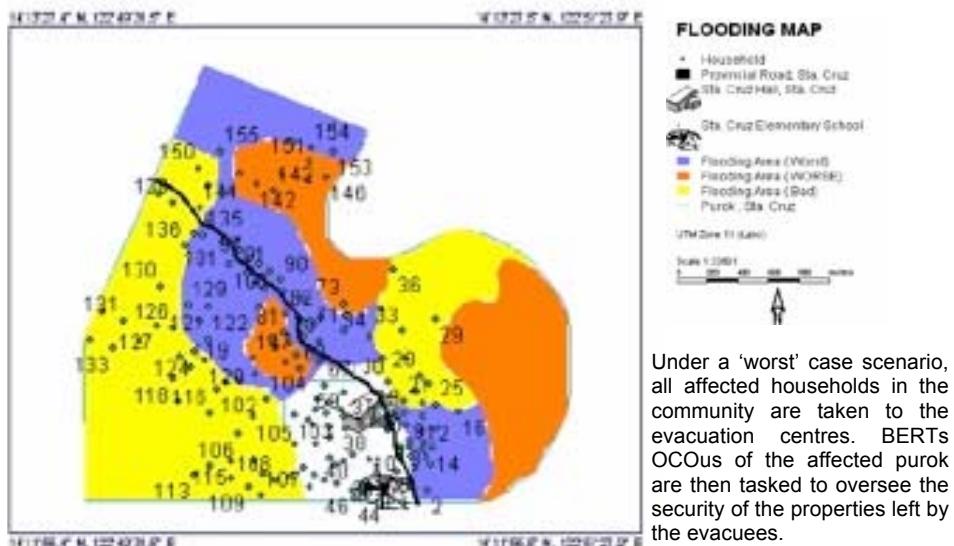
Source: 2010 Municipal Contingency Plan for Emergencies of Labo

3.4 Similarities and Differences: Synthesis of the Chapter

Several similarities and differences between the two cases are observed. The following are the commonalities based on the foregoing sections of this chapter:

- Both have essentially the same natural hazard propensities
- Both have essentially the same set of local level information
- Both have standing governance structures to manage disaster risks
- In both localities, DRM decision-making and policy formulation rests on the respective Municipal Civil Defence Deputised Coordinators. On paper, DRM is governed by composite coordinating councils. In practice, however, the MCDDCs are seen as virtual 'czars' of DRM. Policy, action plan or executive decision done by these MCDDCs ultimately gets the political stamp of approval.
- Disaster management frameworks are more focused on the most common (or in another sense, the 'expected') natural hazards in the locality. It is evident that the localities are prone to seismic or volcanic tremors, particularly Labo. However, the only evident initiative to address the said threat is through emergency drills (which is regularly observed in Labo). While biological hazards are considered looming threats in the locality, these are seen as a specialised concern, falling more on the domain of agriculture than an explicit disaster-related concern.[26]
- Both localities make 'instrumental' use of CBMS information (Nutley *et al.* 2007), serving mainly as a tool for resource allocation (Santa Elena) and a disaster preparedness reference tool (Labo).

- Both LGUs make use of the CBMS information not as a 'stand-alone' information source, but as a component fused to other information sets. In the case of Santa Elena, CBMS- based listings of households are used alongside disaster reports from the barangays. For Labo, CBMS-NRDB maps are overlaid in hazard maps.
- Both local governments utilised CBMS information in a limited manner (Santa Elena, mainly using the inventorial CBMS information whereas Labo used the Geospatial information).

Conversely, discussions in this chapter also indicate palpable differences between the two neighbouring local government units. The following variations were observed

- The disaster risk management structure in Santa Elena is hierarchical in nature, reminiscent of a 'traditional model' of municipal government (Pieterse 2000:24). On the other hand, the Labo presents a more 'strategic' structure.
- Santa Elena has a considerably reactive DRM programming with more initiatives stacked around the advent of the natural hazard and its aftermath. On the other hand, Labo employs a more dispersed, comprehensive, and proactive DRM scheme.
- Insofar as the extent of CBMS information usage is concerned, it is evident that Labo has made relatively greater application of the CBMS information for managing disaster risks.

These similarities and differences are key elements considered in the succeeding chapter, where different organisational, individual and informational factors are examined to understand how these influence the use of CBMS information for managing disaster risks in the two localities.

Chapter 4
Understanding Influences to the Usage of CBMS Information for DRM in the Two Localities

The chapter explains how the predominant factors influence the usage of CBMS-based information for DRM. It comprises four main sections. The first section discusses the relevant characteristics of the case local governments as organisations. The second section features an analysis of the conceptualisations and perceptions of those managing their DRM initiatives. The third section looks into the characteristics and the nature of their CBMS information. The final section of the chapter serves as a summative examination of the factors influencing CBMS information usage in the two localities, including analysis of how the different factors interact in the respective case localities.

4.1 The Organisation: Key Local Government Characteristics

This section looks into four main areas: (i) Local DRM praxes and models; (ii) governmental incentives for using CBMS for managing disaster risks; (iii) the prevailing organisational culture insofar as CBMS information usage is concerned; and (iv) the personnel resources assigned to the analysis and interpretation of CBMS information.

4.1.1. Local DRM Models and Praxes

Information has greater likelihood of utilisation when it 'fits the existing ways of thinking or acting within a policy environment' (Nutley et al. 2007). In this study, DRM models and praxes are put forward as direct determinants of CBMS information usage.

Sections 3.2.2 and 3.2.3 of the study provided an indication of the nature of DRM praxes and models of both Santa Elena and Labo, respectively. From these sections, it has been determined that the two LGUs have divergent modes of managing disaster risks. Santa Elena has a 'response' and 'relief-centred' DRM mechanism anchored on initiatives within the vicinity of the natural hazard and its immediate aftermath. As such, the Santa Elena DRM praxis has a higher demand for ad hoc and real-time information (i.e. local status updates during the onset of natural hazards from the barangays and information storms or typhoon trajectory), clearly not the type of information CBMS provides. This is opposed to the more diversified or 'spread out' approach of Labo. Initiatives are spread out in all three phases of disaster risk management with a significant amount of initiatives concentrated long before the onset of natural hazards. As such, it has a substantial demand for stable and 'non-ad hoc' information of their locality; something that CBMS information essentially is.

4.1.2. Government Incentives for CBMS Information Use in DRM

Incentives provide reasons for LGUs to pursue disaster risk management excellence. Rewards or sanction systems, in combination with other internal factors, raise the likelihood of information usage (Oh 1997). Documentary reviews reveal that in the Philippines, an award-giving body known as the Gawad KALASAG (an acronym for Kalamidad at Sakuna LAbanan, Sariling Galing ang Kaligtasan[27]) honours excellence in disaster risk management. Among the eligible sectors for the award are LGUs; recognised as the "frontliners in preparing for, responding to, and recovering from any type of disaster" (NDCC 2008).

Observations reveal that of the two municipalities, Labo is active in vying for the KALASAG awards. Its municipal government has been considered one of the Hall of Fame awardees after winning consecutive citations (Nunez 2008). On the other hand, while Santa Elena is well aware of the KALASAG awards, it does not vie for the awards as they are restrained by the lack of personnel who can find time to create documentations and reports for submission to the award-giving body. As the MCDDC notes:

> *"It would great to compete for the KALASAG awards… the problem for us is documentation and analysis (for the awards) requires personnel… realistically we try to make do with what we have… as you can see (pertaining to his department), it is not very much"*
>
> Bimbo Doria, MPDC- MCDDC

4.1.3. Organisational Culture of Using CBMS Information

Nutley *et al.* (2007) note the prevailing organisational culture is a determinant of information usage. Both local governments have 'conducive' organisational cultures for CBMS implementation. The Municipal Planning and Development Coordinators of Santa Elena and Labo note the benefits of having CBMS information in their locality as not only have they acquired external funding, both municipalities were able to improve local development planning and resource rationalisation due to their usage of CBMS information. As an internally funded initiative, both municipal planning and development coordinators note the return on investment for CBMS implementation is "(substantially) high". In the case of Santa Elena, CBMS information serves as a key reference used to support infrastructure projects (i.e. preparation of water distribution layouts, proposing externally-funded 'farm to market' roads). It has also been utilised as their main information source for rationalising socioeconomic interventions such as nutrition programs, scholarship programs, maternal health among others (Doria 2005). Labo has likewise made extensive use of the CBMS information for social infrastructure projects (e.g. water and sanitation), legislation, development plan preparation, and setting up the local executive-legislative agenda (Oco 2004)[28].

4.1.4. Human Resource Allocation for CBMS Information Analysis or Interpretation

A context-relevant set of factors that influence CBMS information usage for DRM are the personnel and their availability to analyse and interpret

endogenous information as CBMS. This is not only affects the kind of CBMS information to be utilised, these are also implicit manifestations of political support for the notion of utilising local information for local government functions. This section outlines the availability of the above stated resources for CBMS information usage in both localities.

Both LGUs have personnel with substantial experience in analysing and interpreting CBMS information. For Santa Elena, the only person in the locality with substantial training and experience in CBMS information interpretation and analysis is the MPDC himself. He is preoccupied with two functionally diverse and time demanding local management positions.

> *"I only have a few personnel in the locality, and even a smaller number of permanent personnel. We try to make the most of what we have to act on the needs of the local government and the municipality with a measly budget...*
>
> *… our budget constraints are so serious that I function both as the MPDC and the chief of the General Services Office"*

<div align="right">Bimbo Doria, MPDC- MCDDC</div>

Labo on the other hand has two personnel from the local planning and development office with extensive experience interpreting CBMS information – the MPDC and a senior-level Planning Officer. As is the case in Santa Elena, the two staff members also perform local government functions that demand a significant amount of time.

> *"I always go on the field to do visual inspections and attend meetings"*

<div align="right">Evaristo Pandi, MPDC</div>

> *"I shuttle back and forth from here (pertaining to the Municipal Planning and Development Office) and to the Labo Museum as I am tasked to be the manager there."*

<div align="right">Jose Ramon Lagatuz, Planning Officer</div>

The multiple local government tasks they have to perform in effect takes away time (in itself another resource) that could otherwise be utilised to interpret and analyse CBMS information more extensively. This also explains the 'instrumental' usage of the CBMS information by both localities, as these only require fundamental outputting of information and not thorough and time-consuming analysis and perusal of CBMS information.

4.2 The Manager: Perceptions and Conceptualisations of those at the Helm

The previous chapter indicated that while at the policy level local chief executives act as chairpersons of disaster management in their respective localities, the policymaking and practical decisions for DRM fall within the ambit of MCDDCs. This section examines two main aspects: their perceptions on the CBMS information and how they conceptualise 'disaster risk management'. [29]

4.2.1. Perceptions of the MCDDCs on the CBMS Information in the Locality

Wolensky and Wolensky (1990) note the centrality of perceptions of officials in managing disasters and the risks these carry. The way officials view the information they have and the concept of 'managing disaster risks' have direct implications for the nature of DRM policies and practices, a factor with direct implications on CBMS information usage for managing disaster risks (see section 4.1.1). Interviews with the respective MCDDCs show similar perceptions of several aspects of their CBMS information.

In terms of *quality*, both MCDDCs have positive perceptions on the CBMS information in their locality. For Santa Elena, the MCDDC is well aware of the veracity of information that it provides as he has been directly administering the CBMS implementation in the locality. For Labo, the MCDDC was part of the original set of local officials attending the initial consultative meetings prior to the implementation of the CBMS in the municipality. The technical briefing provided the local MCDDC with sufficient understanding of the dynamics of the methodology and its informational benefits for the locality. He was also one of the local officials who concurred with the implementation of the methodology, knowing the potential benefits of a scientific and systematised data generation system.

In terms of *clarity and user-friendliness*, the MCDDC from Santa Elena has long used their CBMS database for a host of local government tasks. Being the person maintaining the CBMS database for the municipality, he maintains a 'mobile' copy of CBMS information, which is used to provide immediate situational presentations, particularly funding agencies that are willing to support the locality's development initiatives. The MCDDC lauds the ease of generating information relevant for their disaster management schemes, particularly in producing an immediate registry of inhabitants of barangays who would need immediate assistance. In the case of the Labo MCDDC, he notes the user friendliness of the CBMS-NRDB geospatial maps. He finds the thematic maps from CBMS easy to understand so that when it is overlaid on the hazard maps from the Mines and Geosciences Bureau (MGB-DENR), it is very easy to determine tactical approaches for early warning, evacuation, rescue and relief distribution and rehabilitation of the affected barangays.

In terms of *appropriateness*, the MCDDC of Santa Elena notes the suitability of the CBMS information for rationalising assistance to the various barangays seeking material or financial support in the aftermath of natural hazards, particularly typhoons that affects households in the municipality living in dwelling places made out of light or makeshift materials. In comparing the requests from the barangays against the inventory of inhabitants obtained from fundamental processing of CBMS information, the MCDDC could determine the validity of the assistance being sought by the affected barangays.

On the other hand, the MCDDC from Labo has generally positive view of the appropriateness of the CBMS information given how most of the information fit with the locality's disaster risk management framework. The most notable perception on the CBMS information relates to the reservations he expresses concerning one particular CBMS indicator that would supposedly have significant use for prospective disaster mitigation activities (specifically in

relocating households from high-risk areas). In particular, the Labo MCDDC is sceptic in relation to the technical definition of households who are formal settlers.

The tables below outline the perceptions of the MCDDCs of Santa Elena and Labo in terms of the quality, clarity, 'user friendliness' and appropriateness of the CBMS information in their respective municipalities.

Table 8
Perceptions on CBMS Information of the MCDDC from Santa Elena

Aspect	Perception	Indicative Statements*
Quality	Positive	"It is useless to have an extensive database which is of poor quality. We take pains to make sure the CBMS data we obtained is in the best quality possible..." "... We have minimised faulty questionnaires in our second and third round ... In 2003, we had problems with the quality of data collected from the communities. What we did ask enumerators to do a 'back job' and returned 'mal-administered' questionnaires and spot maps in the localities..."
Clarity and User Friendliness	Positive	" What I just have to do is compare the amount of assistance that they have with the roster of households in the barangay from our (CBMS) NRDB database and I will have a clear indication if their request is realistic or not" "Right before you came, representatives from the national government dropped by to discuss some technical details of a proposed road project that they plan to fund... I showed them through the (CBMS) NRDB map where the road would be built and showed them how many (households) would benefit from the project they will fund."
Appropriateness of Information for DRM	Positive	"... Since we have information of every resident of the municipality in computerised format, we just have to 'run' CBMS data and in an instant, we can generate information..." "... we can crosscheck requests for financial or material assistance of barangays just by creating a roster of the families in the locality..." "... anytime there are people interested in our CBMS information for research, like you, I just basically show them the CBMS-NRDB database that we have and generate some basic simulations if needed... "

* Statements herein are translated responses of the Engineer Bimbo Doria, the concurrent Municipal Planning and Development Coordinator and the Municipal Civil Defence Deputised Coordinator of Santa Elena

Table 9
Perceptions on CBMS Information of the MCDDC from Labo

Aspect	Perception	Indicative Statements**
On Quality	Positive	"I sat in that meeting when the CBMS was presented to the locality. From then on, I already understood what kind and quality of information we would get from this system…"
On Clarity and User Friendliness	Positive	"CBMS information is definitely user friendly. Since the information is presented through map format, we can better appreciate the situations in our localities rather than just relying on just tables and graphs… it fits well with the natural hazard maps that we have which came from the Mines and Geosciences Bureau "
On Appropriateness of Information for DRM	Some Negative	"… I do have some reservations on the indicator on informal settlers. The CBMS technical definitions stated that households who live in lands which they do not own, but stay there with only verbal approval of landowners cannot be considered informal settlers… … this presents a problem for us as in reality, they should receive assistance, but we cannot provide it as they are in effect considered 'formal settlers'. How can we then make them eligible for housing projects when they are classified as formal settlers?"

** Statements herein are translated responses of the Dr. Carlos Galvez, concurrent Municipal Information Officer and Municipal Civil Defence Deputised Coordinator of Labo

4.2.2. MCDDC's Concept of Managing Disaster Risks

'Ideologies', or the beliefs, values and orientations guiding policymakers are seen as underlying factors that influence information usage (Nutley *et al.* 2007). In this study, we focus on the core values and orientations of the MCDDCs in managing disaster risks. Being at the helm of DRM in the localities, the manner in which MCDDCs understand what 'disaster risk management' entails ultimately affects how the locality designs and implements initiatives to alleviate disaster risks. The DRM frameworks of the two municipalities show starkly different conceptualisations.

For the MCDDC from Santa Elena, managing disaster risks are a matter of ensuring accessibility and constant communications in times of disasters. There is also a prevailing idea of optimising resources and the imprudence of investing already scarce resources for undetermined events such as natural hazards.

> *"It is impractical for us to spend so much on things we are not sure of happening…that is why we do not stock rice and other relief goods, but we do have a network of suppliers that we contact immediately when we are sure that the typhoon would go our way."*
> Bimbo Doria, MPDC- MCDDC

The municipality is more concerned with ensuring equipment readiness through periodic maintenance and the multiple usability of equipment for regular government activities, which can be tapped in the event of disasters. In terms of relief distribution, the locality focuses on rationalisation of relief, making sure that in the event of natural hazards, eligible claimants are assisted.

> *"It is important for the municipality not get cut-off from Quezon to the north and Daet*

The Labo MCDDC on the other hand concentrates on preparedness and advocacy. In a way, the disaster risk management endeavours of Labo lean more towards pre-disaster initiatives and cooperation down to the community level. The locality has disaster management plans that place emphasis on proactive measures, particularly in raising community awareness of resource constraints. The municipal contingency plan substantiates his core beliefs and orientations:

"… but we need to be pro-active or else hazards aggravated by our ignorance or unresponsiveness would bring us the unforgettable lessons in our life… let us prepare before it's too late…"

Dr. Carlos Galvez, MIO- MCDDC

Interview with the Labo MCDDC further corroborates this view:

"… we do not have much money to spend on disaster response and rehabilitation so for us, I think it is much sensible to make the locality as a whole more prepared and resilient…"

Dr. Carlos Galvez, MIO- MCDDC

Both local governments have the same end goal of 'zero casualties'. However, they significantly vary in their perspectives on how to achieve this goal. The MCDDC from Santa Elena sees managing disaster risks as a matter of accessibility, resource readiness and equipment interoperability whereas the MCDDC from Labo understands societal resilience as a more prudent pursuit given their inadequacies.

4.3 The Resource: Characteristics of CBMS Information

The nature of CBMS information is an inherent factor that may enable or hinder its usage for policy and practice (Oh 1997). The previous chapter indicated that CBMS information comes in multiple formats of presentation in a wide assortment of information types. To some extent, this section is a metadata analysis broken down into two subparts. The first section discusses the key characteristics of their CBMS information, particularly the formats in which these were presented and the range of information it provides. The second subpart looks at the political support enjoyed by the CBMS information, focusing on the practical and policy manifestations from the local governments.

4.3.1. Nature of CBMS Information

Oh (1997) notes that the type of information is an important aspect to consider in understanding information utilisation. Type, in the context of this study is segregated into two. First is by the 'forms' in which the information is presented and utilised (e.g. narrative, geospatial, tabular, graphical, etc.) and

second, by the 'substance' of information, in other words, the sort of information provided by the CBMS (e.g. demographic, economic, education, agriculture, etc.).

The form

Theoretically, all LGUs implementing CBMS are capable of generating at least the six types of CBMS information format (e.g. geospatial, inventorial, cross-tabulated, simulated tables, graphs and narrative). In practice however, LGUs normally use and maintain types of CBMS information that they find more strategically most valuable. The study reveals that both LGUs utilise essentially the same formats of CBMS information except for charts and graphs, which only Santa Elena utilises.

A particular format of CBMS information that both MCDDCs find convenient is geospatial information, which allows graphical representations of indicators to better appreciate the situations in their localities. With de facto authority to make DRM-related decisions, the localities indicated that CBMS information in general improves their capability to make decisions. Both MCDDCs recognise the socio-demographic and geospatial information that the system provides can serve as practical inputs for performing tasks under their DRM frameworks. The table below identify the types of CBMS information of the respective localities:

Table 10
Type of Information Used and Maintained by the LGUs

Type of Information	Santa Elena	Labo
Geospatial	Yes	Yes
Inventorial	Yes	Yes
Cross Tabulated	No	No
Simulated Tables	Yes	Yes
Charts and Graphs	Yes	No
Narrative	Yes	Yes

The substance

As discussed in the previous chapter, CBMS information has a broad range of information collected from all households in the locality from the household level and the barangay level. In examining these indicators closely, several kinds of information with direct potential usage for managing disaster risks were recognised. The table below outlines the set of information types

with immediate potential usage for DRM and their potential usability in the DRM:

Table 11
CBMS Information Directly Usable for DRM

Information from CBMS	Source HPQ= Household profile questionnaire BPQ= Barangay profile questionnaire	Usability for DRM (Phase of DRM)
Demographic information	HPQ	Pre-disaster, disaster response and post disaster
Community and political participation	HPQ	Pre-disaster
Nutrition	HPQ	Post disaster
Economic Activity	HPQ	Pre-disaster
Disability	HPQ	Post disaster
Professionals in the household	HPQ	Pre-disaster
Water and Sanitation	HPQ	Pre-disaster
Housing	HPQ	Pre-disaster
Agriculture	HPQ	Pre-disaster and post disaster
Waste Management	HPQ	Pre-disaster
Prevalence of natural calamities	HPQ	Pre-disaster
Physical and demographic characteristics of the barangay	BPQ	Pre-disaster
Barangay programs and services	BPQ	Pre-disaster
Proximity of the barangay to basic services and service institutions	BPQ	Pre-disaster

4.3.2. Political Support for CBMS Information Usage

Research information is seen to have greater likelihood of usage when it enjoys political support (Nutley *et al.* 2007). In the two case LGUs, the support of the local political leadership is manifested in two ways. First, local development endeavours are driven or technically influenced by the information. Second, there are legislations or local statutes in support of CBMS implementation.

Using CBMS information in both localities enjoys a substantial degree of political support. For Santa Elena, such support is manifested in the number of local development initiatives have been carried out with CBMS information in the locality as the main reference tool[30]. CBMS-generated poverty maps have been utilized for decision-making, resource allocation and in acquiring external resource support (Doria 2005)[31]. For Labo, CBMS information has found its way to the locality's social development endeavours. It has been utilised for the preparation of barangay and municipal annual investment plans, drafting local

socioeconomic profiles and crafting development project proposals (Pandi 2004). The Labo CBMS database has also been used by the locality to monitor and evaluate existing development programs and has served as basis for infrastructure projects. CBMS information has also found its way in the local legislature as several municipal ordinances related to social development were spurred by the identification of priority needs of the locality as highlighted in their CBMS evidence.[32]

In terms of local statutes, both local governments formalised their CBMS implementation through memoranda of agreement for their 2003, 2006 and 2009 CBMS implementation rounds. These documents serve as binding accords for technical collaboration between the LGUs and the CBMS Network Coordinating Team. In order for LGUs to sign binding contract, local resolutions or executive orders need to be passed, authorizing the local chief executive (in this case the municipal mayors) to sign this agreement for the local government. Another feature of these memoranda is that they include a section on budgets, where the expenditure schedules of the local governments are outlined, from material purchases (*e.g.* printing of questionnaires, equipment, etc.) to honoraria for personnel taking part in CBMS implementation (field enumerators, processors, etc.).

4.4 Looking at the Factors Together

Looking into the organisational, manager and informational factors for CBMS usage in a holistic manner would help better capture the complexity and the interrelationships of the said factors. The study indicated that the factors affect CBMS information usage for managing disaster risks in three ways. Factors can help, hamper, or have no influence in the way the localities use CBMS information for DRM. This section serves as a synopsis that elaborates what leads the municipalities of Santa Elena and Labo to use or not use CBMS information for managing disaster risks.

4.4.1. Influences to CBMS Information Usage for DRM

The study also revealed that there are both similarities and differences in how the factors influence CBMS information usage for DRM in Santa Elena and Labo. Of the eight factors observed, the following exhibit similar influences:

- *Organisational culture of using CBMS information*
- *Human resource allocations for the analysis of CBMS information*
- *MCDDC conceptualisation of 'managing disaster risks'*
- *Political support for CBMS information usage in the localities (no influence)*

On the other hand, there are also several factors that affect CBMS information usage for DRM in the two municipalities differently. The following are the factors identified:

- *Configuration of DRM models an praxes*
- *Organisational incentives for CBMS information use for DRM*

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- *MCDDC's perceptions on CBMS information usage for DRM*
- *Nature of CBMS information*

The table below outlines how the factors affect CBMS information usage for DRM in the two municipalities.

Table 12
Key Factors and Their Influence on CBMS
Information Usage for DRM

Factor	Influence on CBMS Information Usage for DRM	
	Santa Elena	Labo
Configuration of DRM models and praxes	Limits the range of application of CBMS information for DRM	Provides a wider range of application for the information
Organisational incentives for CBMS information use for DRM	Cannot impact CBMS information usage due to recognised human resource allocation constraints	Provides motivation to innovate and use CBMS information (particularly geospatial data)
Organisational Culture of Using CBMS information	None as of present	None as of present
Human resources allocated by the localities for CBMS information analysis and interpretation	Limits the capacity of the LGUs to obtain more thoroughly analysed information for use in DRM	Limits the capacity of the LGUs to obtain more thoroughly analysed information for use in DRM
MCDDC's perceptions on CBMS information usage for DRM	None as of present	Limits the usability of information (particularly for proposed DRM initiatives)
MCDDC conceptualisation of Disaster Risk Management	Indirectly influences CBMS information usage (as it directly influences DRM praxes)	Indirectly influences CBMS information usage (as it directly influences DRM praxes)
Nature of CBMS Information	Limited influence (due to the DRM praxes in the locality)	Relatively significant influence (due to the DRM praxes in the locality)
Political Support for CBMS Information use	None as of present	None as of present

4.4.2. Interactions of the Different Factors

The study shows that the different factors for information usage do not take effect independently, but are instead interlinked with most factors having underlying and consequential interconnections (Oh 1997; Nutley et al, 2007). Hence, instead of merely outlining the effects of the different organisational, manager and informational factors as static elements, a more relevant strategy would be to view how these factors interact. In so doing, the study identified different interlinks between the factors in the two localities. Furthermore, analysing the dynamics of these documents further made clear why the factors help, hamper or virtually have no influence on CBMS information usage for DRM. What can be considered as the focal point for the interaction of the different factors that were analysed are the praxes and models of disaster risk management in both localities. Not only is this factor directly affecting CBMS information usage, it is also a by-product of the interactions of other factors

influencing CBMS information usage for DRM. Thus, it serves as a viable starting point to analyse the interconnections of the different factors examined for this study.

Interaction of factors in Santa Elena

The reactive nature of the DRM models and praxes in the locality limits the application of CBMS information for managing disaster risks in the locality as it has greater demand for real-time information and updates. This reactive nature is in line with the MCDDC's core principles of disaster risk management. He understands disaster risk management as a matter of resource optimisation and ensuring effective coordination in times of disasters.

The issue of human resource allocations for analysing CBMS information in the municipality is so significant that it overrides other factors that would have otherwise promoted CBMS information usage for disaster risk management. The lone personnel experienced in CBMS information analysis is preoccupied with other local government duties that CBMS information analysis could not be performed. This impedes the presence of incentives for CBMS information use, the conducive organisational culture, the positive perceptions, the extensive range of CBMS information and the political support for CBMS information usage in local development tasks. The figure below provides a diagrammatic representation of how the different factors interact in the municipality of Santa Elena.

Figure 13
Interaction of Key Factors in Santa Elena
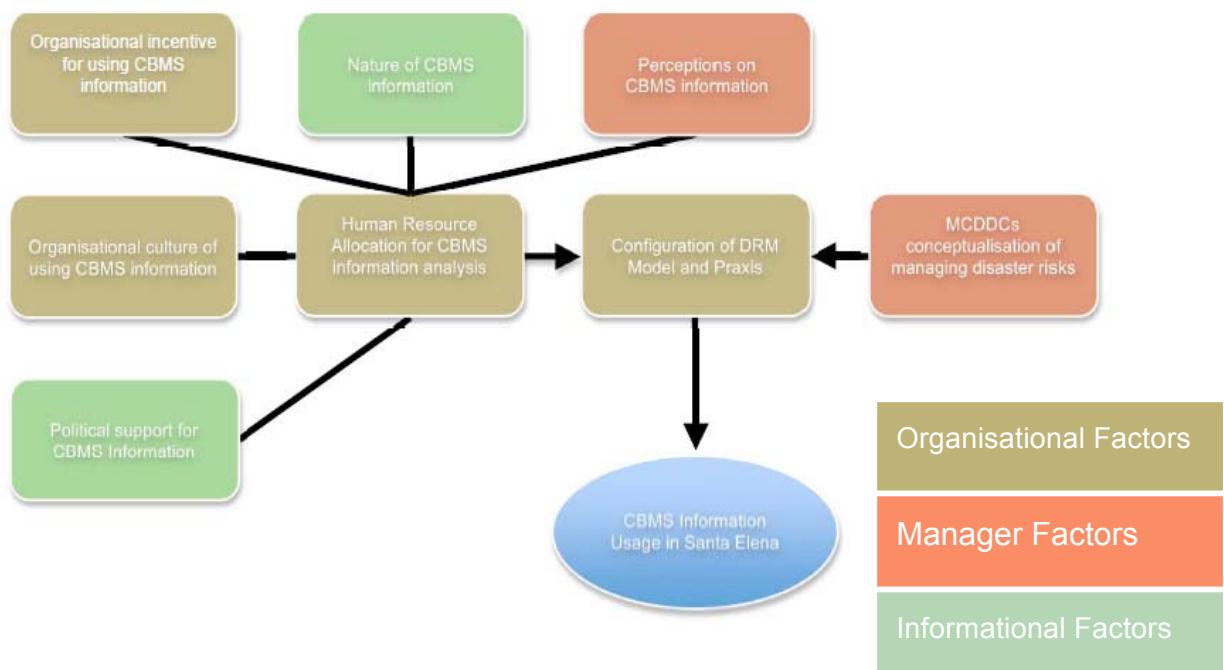
Interaction of factors in Labo

Similar to the case in Santa Elena, the disaster risk management models and praxis is the central factor influencing CBMS information usage for DRM. The proactive nature of the DRM models and praxis in Labo creates a demand

for information on the underlying contexts in their community. Insofar as CBMS information usage for managing disaster risks is concerned, the models and praxis institutionalised in the locality are influenced by three factors: (i) the organisational incentives to make use of CBMS information for DRM, (ii) the MCDDC's conceptualisation of what disaster risk management entails, and (iii) the perceptions of the MCDDCs regarding CBMS information.

Looking first at organisational incentives, the KALASAG Awards serves as a key motivation for the locality to use the CBMS geospatial information, particularly the locations of households and key infrastructure. It also serves as a motivation for the MCDDC to formulate innovative approaches to disaster risk management. Innovations such as CBMS-based hazard mapping on the other hand align with how the MCDDC understands disaster risks: a matter of proactive approaches and ensuring resilience of communities against hazards.

On the other hand, while the MCDDC has a generally positive perception on the CBMS information, his views on the appropriateness of the information obtained regarding 'households who are informal settlers' is an inhibiting factor. Further analysis for CBMS information would be necessary to analyse the information the municipality obtained on the said indicator. This however is not feasible as the two personnel in the locality who have prior experience in analysing and processing CBMS information have other government obligations. While the existing organisational culture and the political support for CBMS information usage are ideal for CBMS information usage for DRM, these practically have no considerable influence. The figure below provides a diagrammatic account of how the factors analysed for this study interact.

Figure 14
Interaction of Key Factors in Labo
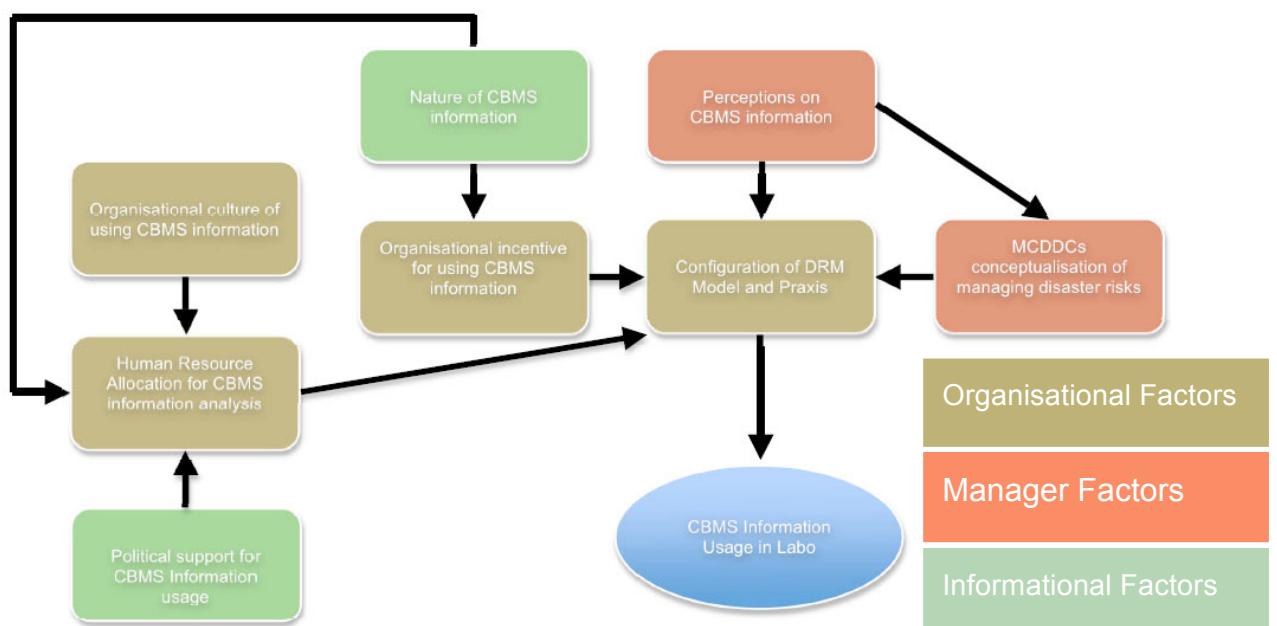
Chapter 5
Conclusions, Reflections and Prospects

This final chapter provides a conclusion to the study undertaken, recommendations and reflections as suggestions concerning the way forward for CBMS information usage for DRM.

5.1   Conclusions Based on the Research Undertaken

This research paper came to several key conclusions and observations. The discussion below deals with the nature of disaster risk management, the extent of CBMS information usage for DRM, the interactive nature of the factors affecting DRM and lastly, the very notion of decentralisation of DRM.[33]

CBMS information usage for DRM is limited

Results of the study indicate that CBMS information has been used sparingly and differently, in spite of the two local governments sharing virtually identical hazard susceptibilities, extensive CBMS information sets, and levels of experience in using CBMS information for local development endeavours. This brings into light the faultiness (or at the very least the incompleteness) of Oh's hypothesis about the tendency of decision-makers to utilise endogenous information as they place more trust in this. The study showed that "decision-maker's trust" is just one of the many factors to consider in understanding the utilisation of endogenous information. The availability of resources to analyse information, the characteristics of the information provided, and how decision-makers conceptualise the task at hand are equally important considerations.

The two cases show distinct modes of CBMS information usage- one uses it for rationalising resource use (Santa Elena) and the other for systematising DRM at the grassroots (Labo). The two municipalities make predominantly instrumental use of CBMS information, as inputs to make sure 'things work'. What is clearly non-existent is the conceptual role that CBMS can actually play for managing disaster risks. In the case of both localities, CBMS information has yet to shape the overall consciousness or influence the understanding of what initiatives would best help mitigate the vulnerabilities of their localities.

Several factors interact dictating 'if', 'how' and 'where' CBMS is utilised for DRM

The study highlighted the predominant factors that influence CBMS information usage for DRM. It also indicated how these factors interact in each of the local government cases. Those that are 'direct' factors (i.e. human resource allocations and configurations of DRM models and praxes) and those that are 'indirect' factors (i.e. characteristics of CBMS information, MCDDC perceptions on CBMS information usage for DRM, organisational incentives for using CBMS for DRM, and the MCDDC's concept of managing disaster

risks). These factors dictate whether and how CBMS information would be utilised for the said task.

DRM schemes are rooted on how MCDDCs perceive the task of managing disaster risks

The analysis of Santa Elena and Labo not only indicates the dominion and individual influence of MCDDCs in managing risks, but also gives implicit signals that at the local level, 'disaster risk management' is virtually open to their respective individual interpretations of the task at hand. While their disaster risk management schemes vary, the two LGUs place their respective MCDDCs at the core of DRM-related decisions. The DRM models and praxes that they employ for their localities are essentially expressions of how these individuals see disasters and how best to manage them given their local realities put into writing or in practice.

Santa Elena's 'focused and reactive' DRM approach and Labo's 'comprehensive and proactive' approach are both grounded on resource optimisation, albeit with different principles. The former considers resource optimisation as a matter of ensuring usability of government investments (particularly equipment) in the event of disasters. Stockpiling and devoting already limited resources exclusively for DRM is seen as impractical. The latter looks at investing in pre-emptive initiatives, as a means to eliminate the likelihood of even greater expenditures should the locality fail to cope with disasters. Essentially, the case revolves around the oft-cited notion that "an ounce of prevention is worth a pound of cure". Both gambits appear to be paying off. The question is, until when?

Decentralisation of DRM alone is a means, not an end

En route to the main objectives of this study, an examination of the very notion of decentralising DRM to LGUs revealed a reflective question: Does decentralisation of disaster risk management really work? This query is difficult to address in a straightforward manner given the scope and scale of this research paper. The study however points to realities of disaster risk management in Labo and Santa Elena that likely also occur in other local governments across the Philippines.

Typically, local governments act as "handmaidens" to higher levels of government and are given restrictive mandates. (Brillantes and Cuachon, 2002). In the case of DRM, local governments do not "get crushed under a regime of intrusive controls by higher levels of governments" as the authors suggest, but are "crushed" by delegated tasks that they can barely perform given the constraints they face. Decentralisation of disaster risk management tasks carries the weighty assumption that letting LGUs manage disaster risks is a sure fire way to ensure societal resiliency. What "crushes" the Santa Elena and Labo are not intrusive control mechanisms, but the lack of an enabling environment to manage disaster risks effectively. Without these preconditions, decentralisation of DRM appears as a 'hot potato issue' rather than a purposive endeavour to ensure societal resilience at the grassroots against disasters. In essence, the structural advantages of decentralising DRM would not translate to practical

benefits without prerequisites that empower local governments to manage disaster risks effectively. The issue of enabling environment ultimately finds its way to CBMS information usage for DRM. Without a definitive policy pronouncement to enjoin localities, CBMS information is likely to remain an unduly contingent venture.

5.2 Points to Ponder in Promoting Evidence-Based Disaster Risk Management

Based on the conclusions of this study, several points to ponder are outlined below that are can contribute to enhancing the use of evidence-based approaches and CBMS information to managing disaster risks at the local level. Below are several points to consider that would help enhance CBMS information usage for DRM, based on the conclusions drawn from this study. There are several points to ponder on. These are the following:

- Policies, rules and regulations need to provide an enabling environment to optimise CBMS information usage for DRM at the local level
- Further studies should be undertaken to understand how CBMS can better be used for DRM
- MCDDC capacities should be enhanced
- Horizontal linkages among local government units should be established to allow them to learn from different experiences in using CBMS information for DRM

First, policies, rules and regulations should be formulated with a conscious effort to create an ideal environment for local governments to perform DRM. Overall, rules and regulations should strike a balance between two aspects. First, they should be clear and standardised to avoid the current 'open for interpretation' status of disaster risk management. Second, it should be flexible enough to recognise and accommodate the distinct concerns and underlying aspects of vulnerability at the local level.

The two cases highlight the centrality of human resource allocations as a factor in analysing CBMS information that can be used for DRM. Local policies should be configured (or reconfigured) to usher more empirically grounded disaster risk management interventions. The most practicable initiative that can be performed by local governments is to schedule activities meant to analyse CBMS information in the locality before any executive decision would be made in relation to disaster risk management. Another plausible endeavour is to conduct training activities to train within the local government workforce and build capacities of other personnel in analysing and interpreting CBMS information for DRM. This way, the 'knowledge burden' of the existing knowledgeable personnel would be eased by passing knowledge to other personnel that may have available time to analyse or interpret CBMS information for DRM.

Disaster risk management is recognised as inherently interconnected with socioeconomic development (UNISRD, 2005). Essentially, DRM initiatives could (and should) be mainstreamed into local socioeconomic activities,

particularly in local development planning initiatives. DRM can be integrated into local government functions, such as local budgeting, accounting, education, agriculture, and engineering among others. These realms of local government function and service delivery are areas where CBMS information has been of great use. Fusing these realms with DRM would implicitly raise the demand for CBMS information in mitigating disaster risks. 'Integrating' disaster risk management in default local government functions in this sense is not merely inserting DRM-related items into budgets, engineering programs or development agenda. Integration entails developing a conscious effort to consider disaster risk management dimensions in development policies, plans and programs. As the strategic goals of the Hyogo Framework for Action suggests, development interventions should have due attention to pre-disaster initiatives to mitigate disaster risks (UNISDR 2005).

It is important to note the difficulty of assessing the compliance and responsiveness of local DRM policies and regulations without clear and stern mechanisms of supervision and oversight. Legislations, policies and frameworks have been less explicit on how DRM supervision and activities are to be performed. On the other hand, motivation of local governments should go beyond issuing incentives. The Gawad KALASAG has mainly been successful in recognising exemplary disaster management initiatives at the local level. However, it has not been successful in enticing a greater majority of local governments to exert efforts towards meaningful disaster risk management. Conceptually sound and responsive DRM is of such great importance that it should not be reduced to a "competition of the willing", curiously a key postulate of the decentralisation theorem.

Second, efforts should be made to better understand how CBMS information could be optimised for DRM use. Studies should concentrate on analysing the CBMS methodology on one hand and the practice of disaster risk assessment on the other. Precedents make these proposed initiatives highly feasible and less daunting. A previous study by Orbeta (2009) on how CBMS information can be used for local planning and budgeting provides a template for analysing the CBMS methodology for local development practice. The caveat though is that DRM presents inherent 'fluidities' and uncertainties in managing disaster risks unlike programmed and scheduled LGU functions such as local planning and budgeting. On the other hand, Bollin and Hidajat (2006) serves as a template for developing a localised disaster risk management index that takes into account the distinct vulnerability profiles of localities. Implementing these two intertwined initiatives would require different actors to come on board. The government (both national and local), non-government organisations (particularly those focused on disaster risk management), the academe, and the general public would be essential actors.

Another possible initiative is to study, identify and understand existing best practices in CBMS information usage for DRM. A number of CBMS-implementing local governments have been reported to utilise CBMS for managing disaster risks in one way or another. As such, it is possible that a wealth of knowledge on CBMS information usage for DRM is still left unexplored, let alone identified. This activity may go a long way in further enhancing CBMS information usage for DRM.

Third, from a pragmatic standpoint, hastily taking away the influence of MCDDCs from the DRM dynamics of their local governments in favour of more inclusive decision-making structure may create more harm than good. A presumption is that these persons have the experience and technical capacities in managing disaster risks in their respective localities. The national government has exerted effort to technically equip local governments through trainings and disseminated publications[34]. However, cognitive abilities should go beyond the technical aspect of disaster risk management to the conceptual realm. Specifically, MCDDCs should have a clearer perspective on what is entailed by disaster risk management. Otherwise, performing DRM would be reduced to a compliance activity, rather than an active pursuit to ensure resilience of their localities.

Fourth, local governments would benefit from establishing better horizontal linkages. Paradoxically, while having the same mandated tasks and roughly similar natural hazards, the neighbouring local governments of Santa Elena and Labo have divergent ways of managing disaster risks, with minimum contact or exchange. The establishment of channels with which the two CBMS-implementing local governments can share and exchange experiences, practices and innovative ways of using the CBMS information they have would greatly improve disaster risk management capacities for both.

This section does not intend to negate previous and current efforts to improve disaster risk management capacities of local governments in the Philippines. In fact, during the conduct of this study, the House of Representatives of the Philippines ratified a law that would redefine the paradigms of disaster risk management in the Philippines. The succeeding section points to the ways forward for disaster risk management, and the prospects of greater CBMS information usage for the said task.

5.3   Republic Act 10121: What Does It Hold for CBMS Information Usage for DRM?

In early 2010, the Philippine congress ratified an act that sought to strengthen the disaster risk reduction and management initiatives of the Philippines. Known as Republic Act 10121 or the *Philippine Disaster Risk Reduction and Management Act of 2010*, the law encapsulated a paradigm shift of the country with regard to managing disasters. Provisions set forth in the law formalised a new thrust in managing disaster, from a mainly reactive mode of managing disasters towards solving the underlying causes of disasters and implementing proactive measures to build resilience at the local level. The passing of this law is a clear indication of the attempts of the Philippine government to realign the disaster management frameworks of the country with the overarching conventions set forth in the Hyogo Framework for Action. This new law to some extent touches on most of the proposed initiatives identified in this paper. Among the salient features of RA 10121 are the following:

- It realigns the national definition of 'disaster management' by emphasising on the underlying factors that lead to disasters
- It provides some indication that implementing rules and regulations would leave less space for interpretation.

- A separate local government office would be organised specifically for disaster risk reduction and management that supersedes the previous ad hoc governance structure of disaster coordinating councils.
- It reconfigures the resource allocation schemes into an annually accruing and multipurpose fund superseding the restrictive nature of the resource allocation provisions of the law it overrides
- It outlines the importance of embedding disaster risk reduction and management in local government efforts of sustainable local development.
- It holds the organisations accountable for oversight and supervision of local disaster risk reduction efforts.
- It emphasises training and capacity building of personnel as an integral element in local disaster risk reduction

The law shows much promise not only in improving disaster risk management in the Philippines, but also in providing a greater potential for CBMS information to play a greater role as a tool for disaster risk management. At the time of writing this concluding chapter, the implementing rules and regulations of the said law has yet to be released.

All indications point towards CBMS information being able to play an important role in ensuring societal resilience and helping build a more empirically grounded system of managing disaster risks under this new paradigm.

Notes

[1] Based on compiled figures from the International Disaster Database, the Philippines is the most disaster prone country in the world with a total of 25 major disasters recorded, much higher than China (24), the United States (16) and India (15). Bankoff (2003) provides an extensive statistical account of the history of hazards in the Philippines in his book: Cultures of Disaster: Society and Natural Hazard in the Philippines (Chapter 3).

[2] Among the 5 priorities of action of the Hyogo Framework for Action for 2005-2015 is to "Use knowledge, innovation and education to build a culture of safety and resilience at all levels"

[3] These working papers and publications that highlight CBMS usage for local governance can be found in the Poverty and Economic Policy Website: www.pep-net.org.

[4] This void of knowledge is considered paradoxical for three main reasons. First, a substantial number of LGUs in the country implement CBMS[4]. Second, managing disaster risks is explicitly considered a local government task, as outlined by different statutes indicating the local level as the focal point. Lastly, DRM is not just a geophysical, or meteorological issue, but also a socioeconomic one; and as such would require information on the socioeconomic realities of the localities.

[5] A graphical representation of this model is included in this study as Appendix 1

[6] See Appendix 2 for the query points for that guided the interviews and Appendix 3 for the persons interviewed for both Santa Elena and Labo.

[7] Most studies on this matter commit the fundamental error of not defining what is meant by the 'use' of empirical information (Nutley, Walter and Davies, 2007:67). This generates ambiguity as the term 'use' in public policy and practice is wide ranging, from simple browsing of research results to building policies around evidence. The study avoids this flaw by defining what is meant by the concept of 'use'. The study looks into the direct applications of the CBMS-based information in the DRM policy and practice of the case localities.

[8] Local politicians in Santa Elena were proclaimed on 15 June, 2010. On the other hand, the politicians from Labo were proclaimed declared winners on 23 May, 2010.

[9] See Appendix 4

[10] Evidence-based policy and practice has been traced back as a concept originating from the field of medicine (e.g. Spring, 2007; Gambrill, 2006; Mullen, 2002).

[11] The term 'evidence' can be interpreted in a number of ways, in different contexts. The study refers to how the Cabinet Office of the United Kingdom (as cited by Davies, *et al.* 2000) outline the kinds of information that may serve as evidence: expert knowledge; existing local and international research; existing statistics; stakeholder consultation; evaluation of previous policies; new research (if appropriate); or secondary sources (including the internet). In line with this study, CBMS information is evidence that comes in the form of local research, which has significant statistical components.

[12] Nutley, Walter and Davies (2007) understood the implications of artificially restricting the term 'research' for the purpose of evidence based policy and practice. Thus, they indicated that this should be understood broadly, but contingent to the context the term is utilised (p.30). The study therefore understands the term 'research'

in the same token as 'CBMS information' as to arrive at such, local governments go through a structured process wherein data is collected, processed and analysed (CBMS methodology) in order to discover facts (the socioeconomic and geospatial situations of the locality).

[13] Appendix 5 is a graphical representation of the coverage of CBMS implementing LGUs throughout the Philippines.

[14] Another key notion on disasters do not affect the members of society equally (Heijmans and Victoria, 2001). In the event of disasters, the poor oftentimes experience the brunt of disasters the most given their inherent socioeconomic vulnerabilities.

[15] FAO documentation on disaster risk management (2004), their previous conceptualisation closely resembled that of the GTZ's

[16] Baas *et al.* (2008) define disaster risk reduction as conceptual framework of elements aligned with mitigating societal vulnerabilities in the face of disaster risks. These are mainly focused on avoiding the adverse impact of hazards (through prevention) or by limiting its adverse impacts (through mitigation and preparedness). Authors note that disaster risk reduction falls in the ambit of sustainable development.

[17] At the time of the conduct of the study, the disaster management structure of the Philippines is undergoing changes with the introduction of the National Disaster Risk Reduction and Management Framework (NDRRMF). This framework however has not been fully operationalised as the implementing rules and regulations remain pending at that time. More details can be obtained from Republic Act 10211 or the Philippine Disaster Risk Reduction and Management Act of 2010 ratified by the Fourteenth Congress of the Philippines.

[18] Santa Elena has yet to release official results of the 2009 CBMS implementation as it is still in the process of revalidation.

[19] The consequent 'up scaling' of CBMS implementation in the country resulted into technical partnerships with other organisations to assist in capacity-building activities at the local level. This is considering the rapid increase in demand for CBMS implementation in several local government units in the Philippines. Partnering with the CBMS Network Coordinating Team in training local government units were the Department of the Interior and Local Government (DILG), the National Anti-Poverty Commission (NAPC), the National Economic and Development Authority (NEDA), non-government organisations (NGOs) such as Social Watch and the Development through Active Women Networking (DAWN).

[20] Republic Act 7883 passed by the Congress of the Republic of the Philippines define the barangay health workers as follows: "a person who has undergone training programs under any accredited government and non-government organization and who voluntarily renders primary health care services in the community after having been accredited to function as such by the local health board in accordance with the guidelines promulgated by the Department of Health (DOH)".

[21] Santa Elena was formerly a site for the Social Reform Agenda (SRA), the overarching anti-poverty program of the government under the administration of then President Fidel Ramos. The SRA called for the locality to implement the Minimum Basic Needs approach for collecting grassroots level information. Santa Elena was bound to implement the said approach to provide local level information that they can use for socio-economic development initiatives.

[22] Bautista (2006) anecdotally states that in the case of Labo, a Planning Officer (Mr. Ramon Lagatuz) attended a poverty reduction forum in Palawan (the first province to ever implement the CBMS). Having seen presentations that showcased CBMS data and appreciating its potentials for their own locality, he proposed the implementation of the technology to their municipality. Santa Elena on the other hand was stirred by the initiative of Labo to set up their CBMS.

[23] Sample layouts of CBMS information from the two localities are included in this research paper as Appendix 6

[24] Through the years, different local policies and laws have been passed in support of the DRM framework Labo. DRM falls within the overall executive agenda of the locality as a significant number of infrastructural interventions outlined by the local government is in line with the local agenda of "Onwards for Change and Opportunity" or OCO, particularly in improving drainage systems, enhancing community development and environment friendly technologies for the locality.

[25] The Municipality of Labo fundamentally performs a familiar map overlaying method known as "layer cake" or "sieve mapping" technique. This technique uses multiple geographical layers to generate visual representations of different cases. This method has been used for a number of uses from identifying suitability of areas for a project or an activity (Harris, 2008 and Baumann, 2009), to creating 'green' architectural designs (Yeang, 2005).

[26] In the case of Labo, droughts are considered biological threats in the locality. These however are seen as concerns falling squarely within the realm of the Municipal Agricultural Office (MAO)

[27] A literal translation in English reads: "Fight Calamities and Accidents, Self-Reliance leads to Safety")

[28] Labo even has a weekly talk show in their community radio station aired through DWLB-FM 89.7 megahertz wherein topics revolve around the CBMS results in their municipality The talk show entitled "CBMS, at iba pa" (literally translated as CBMS and others) is aired every Saturday at 8:30 to 10:00 in the morning. Mr. Jose Ramon Lagatuz, a Planning Officer for Labo who is a prime mover of the CBMS implementation in the locality, is the host of the programme. The author had the opportunity to serve as a guest in this program discussing the research that was undertaken.

[29] There are other identified personal characteristics that may influence 'how' and 'if' decision makers utilise information. For instance, Nutley *et al.* (2007) notes that personal characteristics such as career history, personal incentives, academic background, professional advancement opportunities and even age can be significant factors influencing information usage for public policy and practice. Oh (1997) notes that older decision makers tend to make lesser use of information, unless there are inherent rewards and/or incentives for making use of such. Supplemental information gathering in line with this research revealed that the MCDDCs of the two municipalities have been career employees of their respective local governments and have permanent employment status. In terms of personal incentives, the Labo MCDDC has received KALASAG Special Citations in 2008 for exemplary disaster management. His citation is credited mostly to the innovations conceptualised for their local disaster management scheme. One of these integral innovations is incorporating localised hazard mapping with CBMS-NRDB geospatial information to facilitate grassroots-based DRM initiatives that are seen as one of the hallmark

innovations introduced for DRM. On the other hand, analysing CBMS information and utilising this for DRM may actually serve as a disincentive for the MCDDC of Santa Elena, considering the workload that he performs for the local government. The MCDDCs from the two localities have divergent academic backgrounds. In the case of Santa Elena, the MCDDC finished with a degree in Industrial Engineering. On the other hand, the MCDDC of Labo holds an undergraduate degree in Commerce and a doctorate degree in development management, where he focused on the disaster management practices in the Bicol region. In terms of professional advancements, both MCDDCs, have limited opportunities within the municipal bureaucracy. The posts they occupy are high in the local administrative hierarchy. In the case of the two municipalities, their respective MCDDCs are nearing latter stage of their government tenures. At the time of the conduct of the research, the MCDDC of Labo is 55 years old, while the MCDDC of Santa Elena is aged 51. In the Philippines, the mandatory retirement age for civil service personnel is 60 years old.

[30] Doria (2005) notes that CBMS information has been crucial in rationalising their local social sector budgets, refocusing of social investments, improving provision of utilities (particularly water), land use planning, and preparation of feasibility studies or project proposals. The CBMS experience of the Santa Elena has been featured in several national and international conferences on CBMS. For instance, the local development planning experience of Santa Elena was featured in an international conference in Sri Lanka in 2005.

[31] Previously, local government officials place majority of funds for infrastructural projects. Upon availability of CBMS data however, an increase of 1.5 million Philippine Pesos (roughly a 50% increase) was seen for the social development sector primarily due to the CBMS results they have obtained that highlighted the nagging problems on nutrition and social well being of their constituents. As a consequence, the municipality undertook several educational, maternal health, nutrition, health, and water provision investments. The municipality also used CBMS information to source out funds to improve rural accessibility and enhance agriculture-related infrastructure. The municipality benefitted development projects such as the Infrastructure for Rural Accessibility Program (IRAP) and the Infrastructure for Rural Productivity Enhancement Sector (InfRES) and the Kapit Bisig Laban sa Kahirapan (KALAHI-CIDSSS) program that are administered by the national government Santa Elena was also chosen as one of the target sites for the Agrarian Reform Council Project II (ARCPII) funded by the Asian Development Bank. There are other projects in the pipeline for the municipality as a result of presenting proposals presented mainly by the geospatial and socioeconomic data from their CBMS.

[32] Oco (2004) identified that CBMS information has been the main tool of Labo in identifying appropriate social development interventions and in identifying eligible beneficiaries of such. For instance, the 2003 CBMS survey results were utilised to identify eligible beneficiaries for the massive toilet bowl dispersal project of the Municipal Health Office (MHO of Labo). CBMS survey results were also utilised to identify priority barangays for water systems projects under the IRAP-InfRES project. Furthermore, the CBMS community validation results were the basis for the passing of Municipal Ordinance 188-2004 that sought to provide financial assistance and school supplies for indigent school children. Identification of eligible beneficiaries again relied on CBMS survey results.

[33] There are other emergent observations regarding the disaster risk management of the two local governments worth noting. The first is that the two local governments

concentrate on natural hazards they 'expect' to encounter. Disaster management and coordination schemes are skewed to address hazards that occur intermittently like typhoons and floods. Less efforts are exerted on less determinate hazards, most notably earthquakes or tsunamis (in the case of Santa Elena).

[34] The national government provides intermittent capacities for local government use. Specifically, the National Disaster Coordinating Council through its regional offices conduct trainings for local officials on disaster preparedness, contingency planning and emergency response. On the other hand, the national offices formulate manuals and technical handbooks that serve as reference for local government focal persons.

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Appendices

Appendix 1: Pressure and Release Model (Blaikie *et al*. 1994)
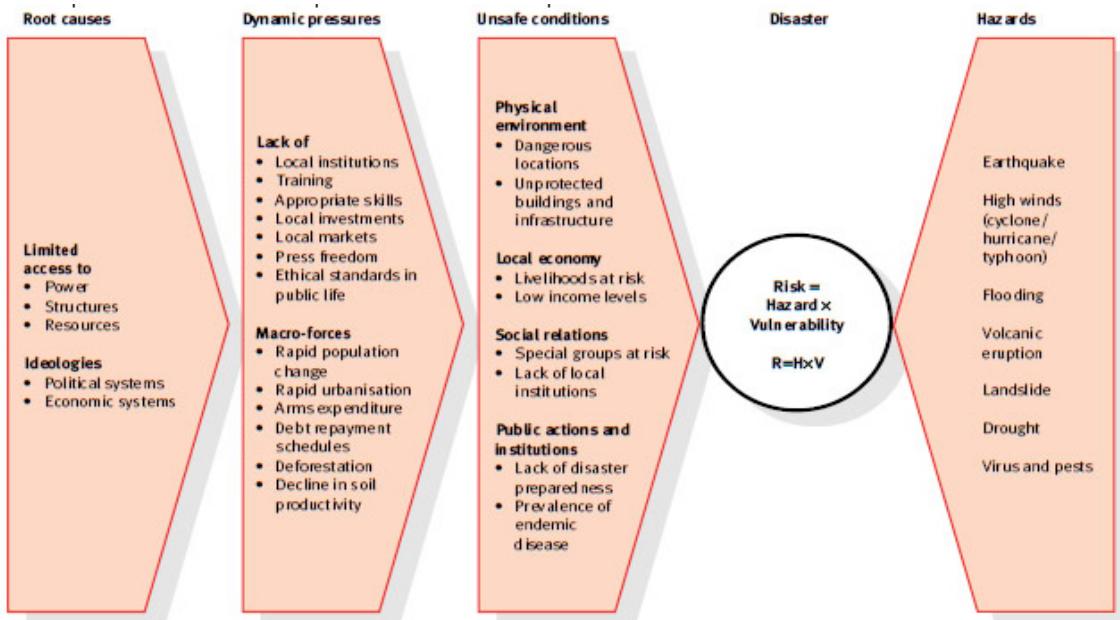
Source: Twigg (2004)

Appendix 2: Query Points for the conduct of interviews

Factor Group	Variable	Specific Query Point
Key Characteristics of the Local Government	Local DRM models and praxes	- How can their DRM praxis and models be described? - What kind of information is demanded by the DRM praxis or model?
	Government incentives for information use in DRM	- is there an existing incentive? What is it exactly? - (if there is) Is the local government motivated by this incentive? Why or why not?
	Organisational culture of using CBMS information	- how does the local government regard CBMS information? - Other than DRM, where else have they used the data?
	Human resource allocation for CBMS information analysis or interpretation	- Who knows how to analyse the CBMS data? - Is s/he analysing data? - Is there enough time, workforce to analyse CBMS data?
Perceptions, and conceptualisations of MCDDCs	Perceptions of the MCDDCs on the CBMS information in the locality	- Are the perceptions on quality, clarity, user-friendliness and appropriateness good?
	MCDDC's concept of managing disaster risks	- How is the task of DRM seen? - What is their priority?
Characteristics of their CBMS information	Nature of CBMS information	- What is the information they collect? - How are these presented? - What types of information do their maintain? What types of information do they use?
	Political support for CBMS information usage	- Are there local legislation in support for CBMS use? - Does their local documentation use CBMS information?

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Appendix 3: Persons interviewed for the research

Name	Designation/s
Engineer Bimbo Doria (Santa Elena)	- Municipal Planning and Development Coordinator - Municipal Civil Defence Deputised Coordinator
Engineer Evaristo Pandi (Labo)	- Municipal Planning and Development Coordinator
Jose Ramon Lagatuz (Labo)	- Planning Officer
Dr. Carlos Galvez (Labo)	- Municipal Information Officer - Municipal Civil Defence Deputised Coordinator

Apendix 4: Oh's Integrated Model
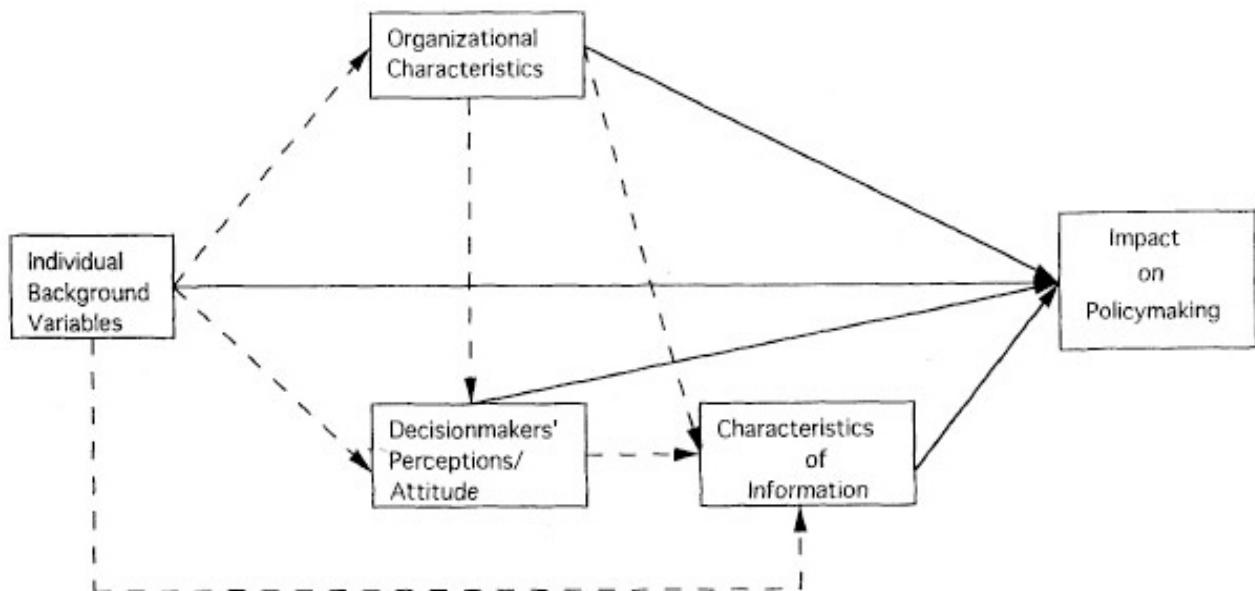
Note: Solid line with arrow represents direct effect; solid line without arrow represents intercorrelation; and dashed line with arrow stands for indirect effect.

Appendix 5: CBMS-Implementing Local Government Units in the Philippines

As of October 6, 2010, CBMS is implemented in 81 Provinces, 32 of which are province wide, 46 cities, 710 municipalities and 18,706 barangays throughout the Philippines.

With Technical Assistance from:

- DILG-BLGD and CBMS Team with support from WB-ASEM
- DILG-BLGD and CBMS Team with support from UNFPA
- DILG-BLGD, DILG Regional offices and CBMS Team
- Eastern Visayas CBMS TWG and CBMS Team
- Bicol CBMS TWG and CBMS Team
- Bicol CBMS TWG and CBMS Team with support from Spanish Government
- MIMAROPA CBMS TWG and CBMS Team
- NAPC and CBMS Team with support from UNDP
- Dawn Foundation and CBMS Team
- Social Watch Philippines and CBMS Team
- SRTC, SUCs and CBMS Team
- Kagabay and CBMS Team
- SRTC, NEDA IV-A and CBMS Team
- CBMS Team

Source: www.napc.gov.ph/CBMS/status.htm
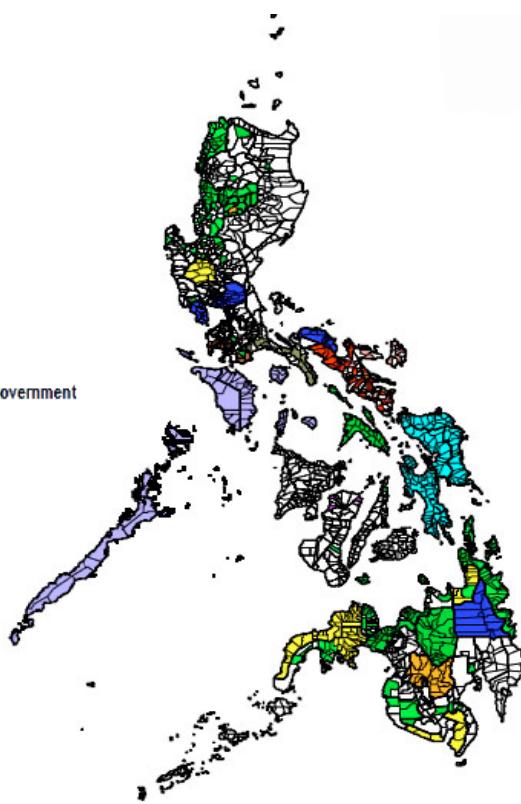
Appendix 6: Sample CBMS Outputs from the Santa Elena and Labo

1. Sample Simulated Tables

Construction Materials of walls, San Vicente, Santa Elena, Camarines Norte

Housing

Province: CAMARINES NORTE, V - BICOL REGION
City/Municipality: SANTA ELENA

Construction materials of wall, Barangay

Barangay: San Vicente

Table 8. Construction materials of wall, by Barangay

Barangay	number of Total households	Construction materials of wall*	
		Magnitude	Proportion**
San Vicente	220		
Strong materials (concrete, brick, stone, wood, galvanized iron)		101	45.91
Light materials (bamboo, sawali, cogon, nipa)		80	36.36
Salvaged/makeshift materials		0	0
Mixed but predominantly strong materials		15	6.82
Mixed but predominantly light materials		23	10.45
Mixed but predominantly salvaged materials		1	0.45

*Construction materials of wall of housing unit
**Number of households by construction material of wall over total number of households
Source: CBMS Survey 2008

Households Living in Makeshift Housing, by Barangay, Santa Elena, Camarines Norte

Households living in makeshift housing, Barangay

Table 1. households living in makeshift housing, by Barangay

Barangay	2003			2006		
	number of households	households living in makeshift house*		number of households	households living in makeshift house*	
		Magnitude	Proportion**		Magnitude	Proportion**
SANTA ELENA	7521	251	**3.34**	7848	315	**4.01**
Basiad	494	11	2.23	483	5	1.04
Bulala	332	24	7	382	53	13.87
Polungguitguit	337	2	0.59	353	32	9.07
Rizal	445	6	1.35	467	8	1.71
Salvacion	133	1	1	157	1	0.64
San Lorenzo	1191	57	4.79	1128	63	5.59
San Pedro	295	24	8	311	37	11.90
San Vicente	208	2	1	220	2	0.91
Santa Elena (Pob.)	1559	57	3.66	1652	58	3.51
Villa San Isidro	61	3	5	68	1	1.47
Don Tomas	432	8	1.85	433	12	2.77
Guitol	117	15	13	128	2	1.56
Kabuluan	390	3	0.77	434	0	0.00
Kagtalaba	226	1	0.44	231	1	0.43
Maulawin	442	16	3.62	463	2	0.43
Patag Ibaba	126	0	0	122	24	19.67
Patag Iraya	106	0	0	116	2	1.72
Plaridel	297	12	4.04	323	1	0.31
Tabugon	330	9	2.73	377	11	2.92

*Households with makeshift walls or roof
**Number of households with makeshift walls or roof over total number of households
Source: CBMS Survey 20003 & 2006

2. Sample NRDB Maps

Households without access to water, Bayan-bayan, Labo, Camarines Norte

70
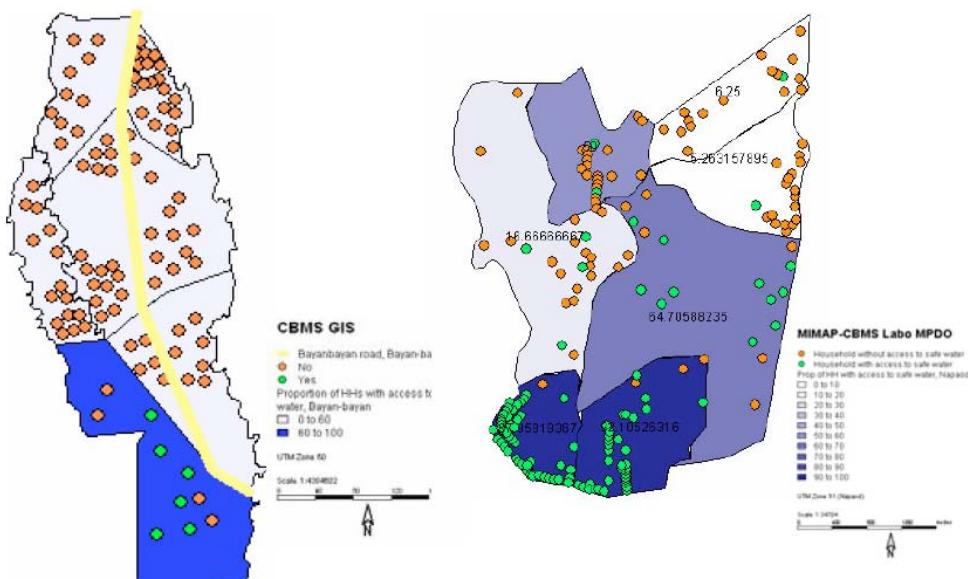
Barangays, Labo, Camarines Norte
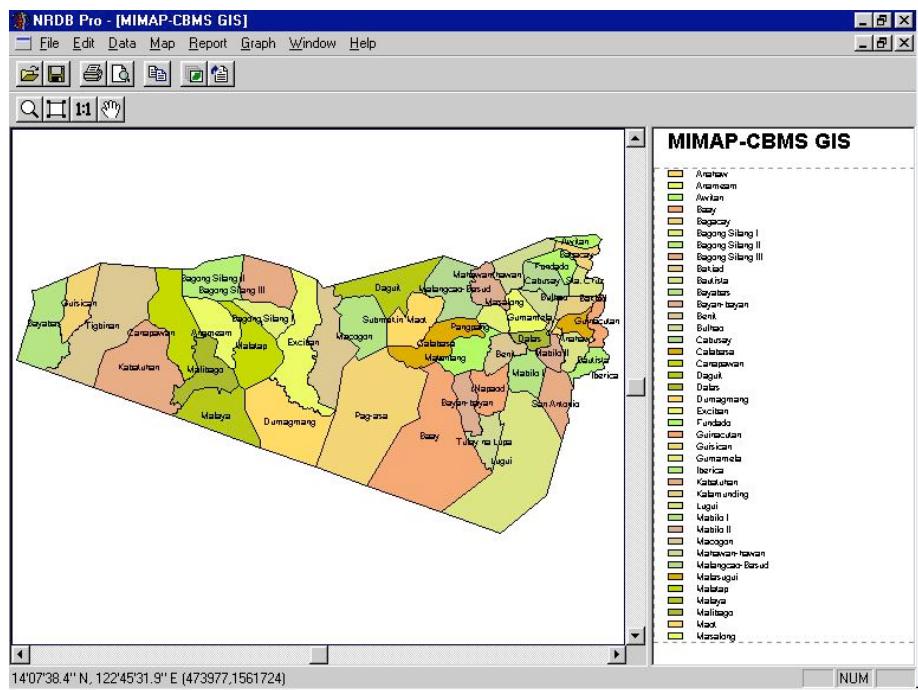
3. Sample Inventorial Output from CBMS-NRDB

CBMS Core Indicators, Labo, Camarines Norte

MIMAP-CBMS GIS
Rm I-1016, 10th Flr, Angelo King International Ce
Manila
Philippines

Household core indicators

Municipality	Barangay	Purok	Household	Household	Date	HH not in makeshift housing	HH is a formal settler	HH with child death	HH with at least 1 malnourished 0-5 yrs children	HH availed of feeding program
Labo	Awitan	Purok 4	99	99	11 Jun 2003	Yes	Yes	No		Yes
Labo	Sta. Cruz	Purok 2	99	99	6 Jun 2003	Yes	Yes	Not Applicable	Not Applicable	Not Applicable

4. Sample Chart

Households with Access to Clean Water, Labo, Camarines Norte
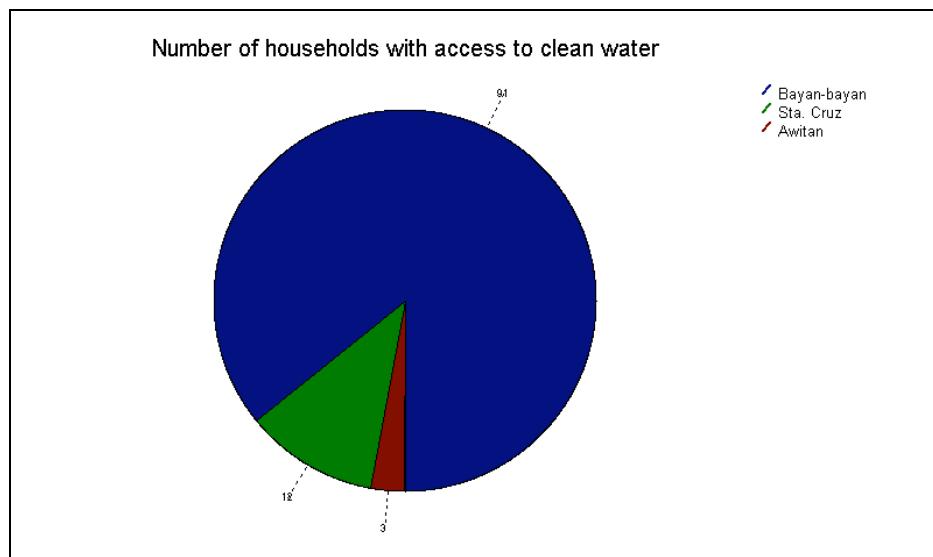
5. Cross Tabulated data

Civil status by Sex

Table 4. Civil Status by Sex

Civil Status	Sex		
	Total	Male	Female
Total	1,367	724	643
Single	723	430	293
Married	555	261	294
Widow/er	68	22	46
Divorced / Separated	19	9	10
Common Law / Live-in	-	-	-
Unknown	2	2	-

Appendix 7: Household Profile Questionnaire Used (Pp 73-84)

Appendix 8: Barangay Profile Questionnaire Used (85-90)

Community-Based Monitoring System
Household Profile Questionnaire
C O N F I D E N T I A L I T Y

This survey is authorized by the Provincial Government of _____ per SP Resolution No. _____
All information collected will be held strictly confidential.

A. IDENTIFICATION

I.　Identification of Location

　　a. Province : _____ ☐☐☐☐
　　b. City/Municipality : _____ ☐☐☐☐
　　c. Barangay : _____ ☐☐☐☐
　　d. Purok / District : _____ ☐☐☐☐

II.　Household Identification Number : _____ ☐☐☐☐

III.　Household Address : _____
　　　_____

IV.　Name of Respondent : _____

V.　Date of Interview : ☐☐☐☐

VI.　Time Started : ☐☐☐☐

VII.　Time Finished : ☐☐☐☐

VIII. Name of Enumerator : _____

IX.　Assessment of the quality and reliability of elicited information.

　　_____

　　_____

　　_____

DIRECTIONS: FILL-UP ALL THE NEEDED INFORMATION ABOUT THE HOUSEHOLD BASED ON THE ANSWERS GIVEN BY THE RESPONDENT.

B. DEMOGRAPHY										C. MIGRATION	
(1A)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	IF YES IN (9) (10)	(11)	(12)
N U M B E R	How many members are there in the household? Who is the head of the household? Who are the other members of the household?	How is __ related to the head of the house-hold?	Is ___ male or female?	When is ___'s date of birth?	Was __'s birth registered with the local civil regis-trar?	What is __'s civil status?	What is __'s religious affiliation?	Does __ belong to any indi-genous tribe?	What indigenous tribe does __ belong to?	How long has __ been staying in the barangay?	Where was __'s last place of residence before staying in the barangay?
	FULL NAME (SURNAME, FIRST NAME)	(SEE CODES BELOW)	1. Male 2. Female	MM / DD / YYYY	AGE	1. Yes 2. No	(SEE CODES BELOW)	(SEE CODES BELOW)	1. Yes 2. No (GO TO 11)	(SEE CODES BELOW)	(NUMBER OF YEARS STAYING IN THE BARANGAY)	BARANGAY, CITY/ MUNICIPALITY, PROVINCE & COUNTRY
1		**1**									
2											
3											
4											
5											
6											
7											
8											
9											
10											

ARE THERE MORE THAN 10 MEMBERS IN THIS HOUSEHOLD? ☐

1 YES, USE NEW FORM

2 NO

(3) Relation to head of the household
1 - Head
2 - Spouse
3 - Son/Daughter
4 - Son/Daughter-in-law
5 - Grandchildren
6 - Parents
7 - Other relatives, specify
8 - Housemaid/boy
9 - Others, specify

(7) Civil status
1 - Single
2 - Legally Married
3 - Widowed
4 - Divorced/Separated
5 - Common Law/ "Live in"
6 - Unknown

(8) Religion
1 - Catholic
2 - Protestant
3 - Iglesia ni Kristo
4 - Aglipay
5 - Islam
6 - Others, specify
7 - None

(10) Indigenous tribe
1 - Bago
2 - Ibanag
3 - Kankanaey
4 - Mangyan
5 - Ibaloi
6 - Aeta
7 - Tagbanuas
8 - Cuyonen
9 - Subanen
10 - B'laan
11 - Mandaya
12 - Manobo
13 - Teduray
14 - Bukidnon
15 - Ati
16 - Cimaron
17 - Itom
18 - Pullon
19 - Badjao
20 - Batak
21 - Palawano
22 - Tau't Bato
23 - Dumagat
24 - T'boli
25 - Others, specify

CHECK FOR THE RELEVANCE, COMPLETENESS AND ACCURACY OF THE INFORMATION ELICITED FROM THE RESPONDENT.

	D. EDUCATION AND LITERACY					E. COMMUNITY & POLITICAL PARTICIPATION				F. NUTRITION
(1B)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
N U M B E R	FOR 3 YEARS OLD & ABOVE			What is __'s highest educational attainment?	FOR 10 YEARS OLD & ABOVE			FOR 17 YEARS OLD & ABOVE		FOR MEMBERS 0-5 YEARS OLD
	Is __ attending school?	IF YES IN (13)			Can __ read and write a simple message in any language or dialect?	Is __ a member of a community organization?	IF YES IN (18)	Is __ a registered voter in the municipality/city?	IF YES IN (20)	GET THE NUTRITIONAL STATUS OF CHILDREN 0-5 YEARS OLD FROM THE BARANGAY NUTRITION SCHOLAR
		What grade or year is __ currently attending?	Is _____ attending a private or public school?				What is the name of community organization?			Did __ vote in the last election?	
	1. Yes 2. No (GO TO 16)	(SEE CODES BELOW)	1 - PUBLIC 2 - PRIVATE	(SEE CODES BELOW)	1. Yes 2. No	1. Yes 2. No (GO TO 20)	NAME OF COMMUNITY ORGANIZATION)	(SEE CODES BELOW)	1. Yes 2. No (GO TO 22)	1. Yes 2. No	(SEE CODES BELOW)
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

(14) Grade/Year Level and (16) Highest Educational Attainment

00 - No Grade Completed	ELEMENTARY	SECONDARY	POST SECONDARY
01 - Day Care	11 - Grade I	21 - 1st Year HS	26 - 1st Yr Post Secondary
02 - Kindergarten / Preparatory	12 - Grade II	22 - 2nd Year HS	27 - 2nd Yr Post Secondary
	13 - Grade III	23 - 3rd Year HS	28 - 3rd Yr Post Secondary
	14 - Grade IV	24 - 4th Year HS or higher	29 - Post Secondary Graduate (specify course)
	15 - Grade V	25 - HS Graduate	
	16 - Grade VI/ VII		
	17 - Elementary graduate		

COLLEGE
31 - 1st Year College
32 - 2nd Year College
33 - 3rd Year College
34 - 4th Year College or higher
35 - College Graduate (specify course)

POST GRADUATE
36 - Post Grad w/ units
37 - Graduate (specify PhD / Master's course)

(19) Community organization
1 - Religious
2 - Youth
3 - Cultural
4 - Political
5 - Women's
6 - Agricultural
7 - Labor
8 - Civic
9 - Cooperatives
10 - Senior citizens
11 - Others, specify

(22) Nutritional status
1 - Above normal
2 - Normal
3 - Below normal (moderate)
4 - Below normal (severe)

G. ECONOMIC ACTIVITY

(1C) NUMBER	WRITE DOWN FIRST THE NAMES OF EACH MEMBER	(23) Did __ work, have a job or business during the last three months?	(24) What was __'s primary job, occupation or business during the past three months? SPECIFY FOR EX., PALAY FARMER, FILING CLERK, FACTORY WORKER, ELEM. TEACHER, ETC.		(25) What business or industry is __ engaged in or worked in job, occupation or business (refer to Q.24)? SPECIFY FOR EX., PALAY FARM, FISH CANNING FACTORY, PUBLIC ELEM. SCHOOL, ETC.		(26) What is the nature of ___'s employment?	(27) How do you classify __'s job or employment?	(28) Did __ look for work/try to establish business during the past three months?	(29) What has __ been doing to look for work?	(30) Why __ did not look for work during the past three months?	(31) When was the last time __ looked for work?	(32) Had opportunity for work existed during the last 3 months or the next month, would __ have been available?	(33) Is __ willing to take up work during the past 3 months or within the next months?
		FOR 5 YEARS OLD & ABOVE	IF YES IN (23)						IF NO IN (23)	IF YES IN (28)	IF NO IN (28)				
	FIRST NAME	1. Yes (GO TO 24) 2. No (GO TO 28)	PRIMARY JOB, OCCUPATION OR BUSINESS	(SEE CODES BELOW)	INDUSTRY/ SECTOR	(SEE CODES BELOW)	(SEE CODES BELOW)	(SEE CODES BELOW)	1. Yes 2. No (GO TO 30)	(SEE CODES BELOW)	(SEE CODES BELOW)	1 - 4 to 6 mos. ago 2 - more than 6 mos. ago 3 - never	1. Yes 2. No	1. Yes 2. No
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

(24) Job, occupation or business
1 - Officials of government and special interest organization, corporate executives, managers, managing proprietors and supervisors
2 - Professionals
3 - Technicians and associate professionals
4 - Clerks
5 - Service workers and shop and market sales workers
6 - Farmers, forestry workers and fisherfolk
7 - Trades and related workers
8 - Plant and machine operators and assemblers
9 - Laborers and unskilled workers
10 - Special occupations

(25) Industry/sector
1 - Agriculture, Hunting and Forestry
2 - Fishing
3 - Mining and Quarrying
4 - Manufacturing
5 - Electricity, Gas and Water Supply
6 - Construction
7 - Wholesale & Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods
8 - Hotel and Restaurants
9 - Transport, Storage and Communication
10 - Financial Intermediation
11 - Real Estate, Renting and Business Activities
12 - Public Administration and Defense; Compulsory Social Security
13 - Education
14 - Health & Social Work
15 - Other Community, Social and Personal Service Activities
16 - Private Households with Employed Persons
17 - Extra- territorial Organizations & Bodies

(26) Nature of employment
1 - Permanent job/ business/unpaid family work
2 - Short-term or seasonal or casual job/ business
3 - Worked on different jobs on day to day or week to week

(27) Class of Worker
0 - Worked for a household
1 - Worked for a private establishment
2 - Worked for government/ government corporation
3 - Self employed without employees
4 - Employer in own family- operated farm or business
5 - Worked with pay on own family operated farm or business
6 - Worked without pay on own family operated farm or business

(29) Job Search Method
1 - Registered in public employment agency
2 - Registered in private employment agency
3 - Approached employer directly
4 - Approached relatives / friends
5 - Placed or answered private advertisements
6 - Others (specify)

(30) Reasons not looking for work
1 - Believes no work is available
2 - Awaiting results of previous job application
3 - Temporary illness/ disability
4 - Bad weather
5 - Waiting for rehire/job recall
6 - Too young/old, retired permanently disabled
7 - Housekeeping
8 - Schooling
9 - Other reasons (specify)

H. OTHER FAMILY MEMBERS

(34) Do you have family members who is at present not in the household but is expected to return in the household within the next twelve months?		(35) What is the name of the family member?	(36) What was the age of ___ as of last birthday?	(37) Is ___ male or female? **1 - Male** **2 - Female**	(38) How is ___ related to the head of the household? **(SEE CODES BELOW)**	(39) What is the reason why ___ is at present not in the household? **(SEE CODES BELOW)**
		1				
1 Yes **(GO TO 35)**		**2**				

(38) and (42) Relation to the head of the household		(39) Reason
2. Spouse 5. Grandchild 3. Son/daughter 6. Parent 4. Son-in-law/daughter-in-law 7. Others, specify ___		1. Schooling 2. Working 3. Others, specify

2 No   **(GO TO 40)**

I. OVERSEAS FILIPINO WORKER

(40) Was there any former household member who is an OFW?		(41) What is the name of the OFW?	(42) How is ___ related to the head of the household? **(SEE CODES OF QUESTION 38)**	(43) In what country does ____ work abroad?	(44) What kind of work is ____ doing abroad?
1 Yes **(GO TO 41)**					
2 No **(GO TO 45)**		1			
		2			

J. HOUSEHOLD MEMBERS - SOLO PARENT

(45) Does the household have a member who is a solo parent taking care of a child/children?		(46) What is the name of the member who is a solo parent? **NAME**	(47) What is the reason why ___ is a solo parent? **(SEE CODES BELOW)**
1 Yes **(GO TO 46)**		1	
2 No **(GO TO 48)**		2	

(47) Reason why member is a solo parent
1 - Death of spouse
2 - Imprisonment of spouse for at least one year
3 - Mental and physical incapacity of spouse
4 - Legal or de facto separation from spouse for at least one year
5 - Annulment of marriage as decreed by court or church
6 - Abandonment of spouse for at leat one year
7 - Unmarried mother or father who preferred to keep the child instead of others caring for him/her

8 - Any other person who solely provides parental care and support to a child provided he/she is a duly licensed foster parent of DSWD, or duly appointed legal guardian by the court through adoption or legal guardianship
9 - Any family member who solely assumes the responsibility as head of the family as a result of death, abandonment, prolonged absence or disappearance of parent for at least one year
10 - Other reasons, specify _____

J. HOUSEHOLD MEMBERS - DISABILITY

(48) Does the household have any member who has any physical or mental disability?		(49) What is the name of member who has disability? **NAME**	(50) What type of disability does ___ have? **(SEE CODES BELOW)**	(51) What is the cause of ___'s disability? **(SEE CODES BELOW)**	(52) What assistance did ___ receive for his/her disability? **SPECIFY**	(53) From whom did ___ receive this assistance? **(SEE CODES BELOW)**
1 Yes **(GO TO 49)**		1				
2 No **(GO TO 54)**		2				

(50) Type of disability
1 Total blindness
2 Partial blindness
3 Low vision
4 Totally deaf
5 Partially deaf
6 Hard of hearing
7 Oral defect
8 One hand
9 No hands
10 One leg
11 No legs
12 Mild cerebral palsy
13 Severe cerebral palsy
14 Regularly intellectually impaired
15 Severely intellectually impaired
16 Regularly impaired by mental illness
17 Severely impaired by mental illness
18 Regularly multiple impaired
19 Severely multiple impaired
20 Others (specify)

(51) Cause of disability
1. In-born
2. Illness
3. Accident
4. Others, specify

(53) Assistance from
1. Government
2. NGO
3. Others (specify)

J. HOUSEHOLD MEMBERS - SENIOR CITIZENS

(54)	(55)	(56)
WRITE THE NAME OF THE HOUSEHOLD MEMBER WHO IS 60 YEARS OLD AND ABOVE	Does ___ have senior citizen's ID? 1. Yes 2. No	IF YES IN (55) Where was ___ able to use the senior citizens ID?
1		
2		

J. HOUSEHOLD MEMBERS - PROFESSIONALS

(57) Do you have any household member who passed the board or bar exam? [ ] 1 Yes (GO TO 58) 2 No (GO TO 60)	(58) What is the name of the household member who passed the board or bar exam? NAME	(59) What profession did ____ pass in the bar / board PROFESSION
	1	
	2	

K. HEALTH

(60) During the past twelve months, did you or any member of the household avail of medical treatment for any illness? [ ]
1 Yes   (GO TO 61)
2 No   (GO TO 62)
3 Did not get sick   (GO TO 62)

(61) During the last illness of any member of the household, where did you go to avail medical treatment? [ ]
1 Public hospital (Provincial hospital)
2 Public hospital (Municipal/City hospital)
3 Public hospital (District hospital)
4 Public hospital (National)
5 Private Hospital/Clinic
6 Rural Health Units
7 Brgy. Health Station/Center
8 Non-medical/non-trained Hilot/Personnel
9 Others, specify

(62)	(63)	(64)	(65)
How many married couples are there in the house-hold?	What are the names of the married couples? NAMES	Do ___ and ___ use any family planning method? 1. Yes 2. No 3. Don't Know	IF YES IN (64) What type of family planning method do ___ and ___ use? (SEE CODES BELOW)
1			
2			

(65) Family Planning Method
1. Basal body temperature (BBT)
2. Billings ovulation method
3. Standard days method
4. Symptothermal method
5. Lactational Amenorrhea Method (LAM)
6. Barrier method (condom, diaphragm)
7. IUD
8. Pills
9. Injectible
10. Vasectomy
11. Tubal ligation
12. Don't know
13. Others, specify ___

L. PREVIOUS HOUSEHOLD MEMBERS

(66) Was there any previous household member who died in the past twelve months? [ ]

1   Yes   (GO TO 67)
2   No   (GO TO 71)

IF YES IN (66)

(67)	(68)	(69)	(70)
What is the name of the person who died? NAME	Is ___ male or female? 1 - Male 2 - Female	What was ___'s age at the time of death? AGE	What was the cause of ___'s death? (SEE CODES BELOW)
1			
2			

(70) Cause of death
1. Disease of the heart
2. Disease of the vascular system
3. Pneumonia
4. Tuberculosis
5. Cancer
6. Diarrhea
7. Measles
8. Complications during pregnancy or childbirth
9. Other causes, specify

M. INCIDENCE OF CRIME

During the past twelve months, have you or any member of the household been a victim of any of the following crimes?

Type of Crime	(71) 1 - Yes 2 - No	(72) TOTAL	(73) MALE	(74) FEMALE
		How many members?		
1. Murder/ Homicide				
2. Theft/Robbery				
3. Rape				
4. Physical Injury				
5. Others, specify				

N. WATER AND SANITATION

(75) What is your household's main source of drinking water? ☐

1. Community water system - own use
2. Community water system - shared with other households
3. Deep well - own use
4. Deep well - shared with other households
5. Artesian well - own use
6. Artesian well - shared with other households
7. Dug/shallow well - own use
8. Dug/shallow well - shared with other households
9. River, stream, lake, spring and other bodies of water
10. Bottled water/Purified/Distilled water
11. Tanker truck/Peddler
12. Other sources (specify) _____

ASK QUESTION 76 IF THE ANSWER IN QUESTION 75 IS "1", "2", "3", "4", "5", "6", "7", "8", "9" OR "12". IF THE ANSWER IS QUESTION 75 IS "10" OR "11", GO TO 77.

(76) How far is the source of drinking water from your house? ☐

1. Within premises
2. Outside premises but 250 meters or less
3. 251 meters or more
4. Don't know

(77) What kind of toilet facility does the household use? ☐

1. Water sealed flush to sewerage system/septic tank - own use
2. Water sealed flush to sewerage system/septic tank - shared with other households
3. Closed pit
4. Open pit
5. No toilet
6. Others, (specify) _____

O. HOUSING

(78) What is the tenure status of the housing unit and lot occupied by your household? ☐

1. Owner, owner-like possession of house and lot
2. Rent house/room including lot
3. Own house, rent lot
4. Own house, rent-free lot with consent of owner
5. Own house, rent-free lot without consent of owner
6. Rent-free house and lot with consent of owner
7. Rent-free house and lot without consent of owner
8. Other tenure status (specify) _____

ASK QUESTION 79 IF THE ANSWER TO QUESTION 78 IS "1", "3", "4", "5", "6", "7" OR "8". IF THE ANSWER IS "3", ASK ONLY FOR THE IMPUTED RENT FOR THE HOUSE. IF THE ANSWER TO QUESTION 78 IS "2", GO TO QUESTION 80.

(79) In your own estimate, how much is the imputed rent per month for the house and/or lot?

(80) Is there electricity in the house/building? ☐
1. Yes **(GO TO 81)**
2. No **(GO TO 83)**

(81) What is the source of electricity in the house/building?

	1. Yes 2. No
1 Electric company	
2 Generator	
3 Solar	
4 Battery	
5 Others (specify)	

(82) How much does your household usually pay for your electric consumption per month?

(83) Does your household own any of the following items?

	1. Yes 2. No
1 Radio / Radio Cassette	
2 Television	
3 CD/VCD/DVD	
4 Stereo/Component	
5 Karaoke	
6 Refrigerator / Freezer	
7 Electric Fan	
8 Electric Iron	
9 LPG Gas Stove/Range	
10 Washing Machine	
11 Microwave Oven	
12 Personal Computer	
13 Mobile Phone / Cellular Phone	
14 Landline Telephone	
15 Air-conditioner	
16 Sewing Machine	
17 Car, Jeep, Motorcycle and other motorized vehicles	

ANSWER BASED ON YOUR OBSERVATION OF THE CONSTRUCTION MATERIALS USED IN THE SAID PART OF THE HOUSING STRUCTURE.

(84) Construction materials used on the WALLS of the house ☐

(85) Construction materials used on the ROOF of the house ☐

1. Strong materials (concrete, brick, stone, wood, galvanized iron, asbestos)
2. Light materials (bamboo, sawali, cogon, nipa)
3. Salvaged/makeshift materials
4. Mixed but predominantly strong materials
5. Mixed but predominantly light materials
6. Mixed but predominantly salvaged materials

P. SOURCES OF INCOME

P.1. ENTREPRENEURIAL ACTIVITIES		NET INCOME	
During the past twelve months, did you or any member of your household engage as operator in any of the following entrepreneurial activities to earn income or profit?	1 - YES 2 - NO	What was the total net value of income from these activities during the past twelve months? (in pesos)	
		(A) IN CASH	(B) IN KIND
(86) Crop farming and gardening such as growing palay, corn, roots and tubers, vegetables, fruits, nuts, ornamental plants, etc.		86A	86B
(87) Livestock and poultry raising such as raising of carabaos, cattle, hogs, horses, chicken, ducks, etc., and the production of fresh milk, eggs, etc.		87A	87B
(88) Fishing activities such as capture of fish; gathering of fry, shells, seaweeds, etc.; culturing fish, oyster, mussel, etc.		88A	88B
(89) Forestry and hunting activities such as tree planting (falcata, gmelina, rubber trees etc.), firewood gathering, small-scale logging, charcoal making, gathering of forestry product (cogon, nipa, rattan, bamboo, resin, gum, etc.) or hunting of wild animals/birds, etc.		89A	89B
(90) Wholesale and retail trade including market vending, sidewalk vending and peddling, etc.		90A	90B
(91) Manufacturing activities such as mat weaving, tailoring, dressmaking, bagoong making, fish drying, etc.		91A	91B
(92) Community, social and personal services such as medical and dental practice, practice of trade, operation of school, restaurants and hotels, etc.		92A	92B
(93) Transportation, storage and communication service such as operation of jeepneys or taxis, storage and warehousing activities, messengerial services, etc.		93A	93B
(94) Mining and quarrying activities such as mineral extraction like salt making, gold mining, gravel, sand and stone quarrying, etc.		94A	94B
(95) Construction like repair of house, building or any structure		95A	95B
(96) Activities not elsewhere classified, including electricity, gas and water, financing, insurance, real estate and business services		96A	96B
(97) TOTAL NET INCOME FROM ENTREPRENEURIAL ACTIVITIES		97A: Add the net income from (86A) to (96A) 97A	97B: Add the net income from (86B) to (96B) 97B

P. SOURCES OF INCOME		
P.2 SALARIES AND WAGES FROM EMPLOYED MEMBERS		
(98) During the past twelve months, how much was the gross salaries and wages earned of employed members of your household?	**GROSS SALARY**	
	(A) IN CASH	**(B) IN KIND**
NAME OF EMPLOYED MEMBER 1 _____		
2 _____		
3 _____		
4		
TOTAL SALARIES AND WAGES	**98A**	**98B**

P.3. OTHER SOURCES OF INCOME		
During the past twelve months, how much did you or any member of your household receive from the following?	**INCOME**	
	(A) IN CASH	**(B) IN KIND**
(99) Net share of crops, fruits and vegetables produced or livestock and poultry raised by other households	**99A**	**99B**
(100) Remittances from Overseas Filipino Workers	**100A**	**100B**
(101) Other Cash receipts, gift, support, relief and other income from abroad including pensions, retirement, workmen's compensation, dividends from investments, etc.	**101A**	**101B**
(102) Cash receipts, support, assistance, relief and other income from domestic sources, including assistance from government and private sources	**102A**	**102B**
(103) Rentals received from non-agricultural lands, buildings, spaces and other properties	**103A**	**103B**
(104) Interest from bank deposits, interest from loans extended to other families.	**104A**	**104B**
(105) Pension and retirement, workmen's compensation and social security benefits	**105A**	**105B**
(106) Dividends from investments	**106A**	**106B**
(107) Other sources of income not elsewhere classified	**107A**	**107B**
(108) TOTAL INCOME FROM OTHER SOURCES OF INCOME	**108A: Add the income from (99A) to (107A)** **108A**	**108B: Add the income from (99B) to (107B)** **108B**
(109) TOTAL IMPUTED RENT FROM OWNED OR RENT-FREE HOUSE AND/OR LOT	**109B: Get the monthly imputed rent from (79) and multiply by 12 months** ➡	**109B**
(110) TOTAL INCOME IN CASH AND IN KIND	**110A= (97A) + (98A) + (108A)** **110A**	**110B = (97B) + (98B) + (108B) + (109B)** **110B**
(111) TOTAL HOUSEHOLD INCOME	**111= (110A) + (110B)** ➡	**111**

Q. AGRICULTURE	R. LIVESTOCK RAISING

Q. AGRICULTURE

INSTRUCTIONS:
IF CODE "1" IN (86), ASK QUESTIONS (112) TO (117)
IF CODE "2" IN (86), GO TO (118)

(112) What is the tenure status of the agricultural land being tilled by the household?
 1 Own or owner-like possession
 2 Rent
 3 Not owned but with consent of owner
 4 Not owned and without consent of owner
 5 Others, specify _____

(113) What is the area of the agricultural land?
 1 Less than 1 hectare
 2 1 - 3 hectares
 3 3.1 - 5 hectares
 4 More than 5 hectares

(114)	(115)
During the past twelve months, what type of crop or fruit-bearing trees did your household harvest?	During the past twelve months, how much did you harvest?
1 Palay	
2 Corn	
3 Coconut	
4 Other crops, specify ___	
5	

(116)		(117)	
Do you or any member of the household use any of the following agricultural equipments/facilities?		Does the household own the equipment?	
	1-Yes 2-No	1-Yes 2-No	
1 Beast of burden			
2 Plow			
3 Harrow			
4 Mower			
5 Thresher/Corn sheller			
6 Insecticide/Pesticide sprayer			
7 Farm tractor			
9 Hand tractor			
10 Turtle/Mudboat			
11 Planter/Transplanter/Dryer			
12 Mechanical dryer			
13 Multipurpose drying pavement			
14 Rice mill/corn mill/feed mill			
15 Harvester, any crop			
16 Warehouse granary			
17 Farmshed			
18 Irrigation pump			
19 Others, specify			

R. LIVESTOCK RAISING

INSTRUCTIONS:
IF CODE "1" IN (87), ASK QUESTIONS (118) AND (119)
IF CODE "2" IN (87), GO TO (120)

(118) For the past twelve months, what were the livestock or poultry that your household raised to earn income?	1 - Yes 2 - No	How many?
1 Hog for fattening		
2 Sow		
3 Goat		
4 Carabao		
5 Cow		
6 Chicken		
7 Chicken for egg laying		
8 Duck		
9 Other livestock/poultry specify		

(119) For the past twelve months, what was the usual volume of production of livestock or poultry raised by your household?	
1 Live animals (number of heads)	
2 Meat (weight - in kilograms)	
3 Milk (in liters)	
4 Eggs (number)	

S. FISHING

INSTRUCTIONS:
IF CODE "1" IN (88), ASK QUESTIONS (120) TO (128)
IF CODE "2" IN (88), GO TO (129)

(120) Where does your household do fishing?	1-Yes 2-No
1 Fishpond **(IF YES GO TO 121)**	
2 Fishcage **(IF YES GO TO 122)**	
3 Sea	
4 Marsh	
5 Lake **(IF YES GO TO 124)**	
6 River	
7 Stream/Creek	
8 Others, specify ____	

(121) What is the area of your fishpond?
 1 Less than 1 hectare
 2 1 - 3 hectares
 3 3.1 - 5 hectares
 4 More than 5 hectares

(122) How many fishcages does your household have?

(123) What is the area of your fishcage?	(SQ. M.)
1 Fishcage 1	
2 Fishcage 2	
3 Fishcage 3	
4 Fishcage 4	

S. FISHING

(124) For the past twelve months, what were the fishes or aquatic animals cultured or caught by your household?	(125) How much was the volume of fish harvested/caught in the past twelve months? **(in kilograms)**
1 Tilapia	
2 Milkfish	
3 Catfish	
4 Mudfish	
5 Carp	
6 Others, specify ____	
7	
8	
9	
10	

(126) Do you have a fishing boat?

  1 Yes, motorized
  2 Yes, non-motorized
  3 No

(127) Do you or any member of the household use any of the following equipment for fishing?		(128) Does the household own the equipment?	
	1-Yes 2-No	**1-Yes 2-No**	
1 Fish net			
2 Electricity			
3 Bagnets			
4 Gillnets			
5 Traps			
6 Hooks and line			
7 Sift net			
8 Others, specify			

T. WASTE MANAGEMENT

(129) What is the system of garbage disposal by the household?

	1. Yes 2. No
1 Garbage collection	
2 Burning	
3 Composting	
4 Recycling	
5 Waste segregation	
6 Compost pit with cover	
7 Compost pit without cover	
8 Others, specify	

ASK QUESTIONS (130) AND (131) IF THE ANSWER TO (129.1) IS YES (CODE 1). IF THE ANSWER TO (129.1) IS NO (CODE 2), GO TO 132.

(130) Who collects the garbage?

  1 Municipal/city garbage collector
  2 Barangay garbage collector
  3 Private garbage collector

(131) How often is the garbage collected?

  1 Daily
  2 Thrice a week
  3 Twice a week
  4 Once a week
  5 Others, specify

U. NATURAL CALAMITIES

(132) During the past twelve months, was your household severely affected by natural or manmade disasters such as typhoon, flood or fire?

  1 Yes   **(GO TO 133)**
  2 No   **(GO TO 134)**

(133) What was the natural or manmade disaster that affected your household?	1. Yes 2. No
1 Typhoon	
2 Flood	
3 Drought	
4 Earthquake	
5 Volcanic eruption	
6 Armed conflict	
7 Fire	
8 Others, (specify)	

V. FOOD ADEQUACY

(134) In the last three months, did it happen even once that your household experienced hunger and not have anything to eat?

  1 Yes   **(GO TO 135)**
  2 No   **(GO TO 137)**

IF YES IN (134)

During the past 3 months, how many days did your household experience hunger and not having anything to eat?	(135) NAME OF MONTH	(136) NUMBER OF DAYS
a. First Month		
b. Second Month		
c. Third Month		

W. ACCESS TO PROGRAMS

(137) Did you or any member of your household a recipient of the Comprehensive Agrarian Reform Program?

1 Yes (GO TO 138)

2 No (GO TO 139)

IF YES IN (137)

(138) When did you become a recipient of the program?

Month	Day	Year

(139)		(140)	(141)	(142)	(143)
During the past twelve months, did you or any member of your household receive or avail of any of the following programs?		IF YES IN (139) What was the name of this program?	Who implemented this program?	How did this program affect your household?	How do you classify the effect of this program in your household?
TYPE OF PROGRAM	1 - YES 2 - NO	FULL NAME OF PROGRAM	(SEE CODES BELOW)	EFFECT OF THE PROGRAM	1 - Positive effect 2 - No effect 3 - Negative effect
1. Philhealth for Indigents					
2. Health assistance program (Ex. free eye checkup, dental services, etc.)		1. 2.			
3. Supplemental feeding program		1. 2.			
4. Education / scholarship program		1. 2.			
5. Skills or livelihood training program		1. 2.			
6. Housing program		1. 2.			
7. Credit program		1. 2.			
8. Other types of program, specify		1. 2.			

(141) 1-national 2-province 3-city/municipality 4-barangay 5-private organizations / NGOs 6 - don't know

Barangay Profile Questionnaire
Year _____

CBMS

NOTE: The respondent for this questionnaire should be the Barangay Captain or the Barangay Secretary

Name of Enumerator: _____

Name of Respondent: _____

Position: _____

Date: [   ]

Time Started: [   ]

Time Ended: [   ]

I.   Physical and Demographic Characteristics

1.   Province : _____   [| | |]

2.   City / Municipality : _____   [| | |]

3.   Barangay : _____   [| | |]

4.   Classification : 1 Rural   2   Urban   [   ]   (enter code)

5.   Number of Puroks/ Sitios _____

6.   Total land area : [   ]   (in square kilometers)

7.   General Description and Characteristics of the Barangay :

_____

_____

_____

8.   Boundaries :

_____

_____

9.   Major source of livelihood : _____

Demographic Reference :

10.   Population :   Male: [_____]   (enter number)

                              Female: [_____]   (enter number)

                              Total: [_____]   (enter number)

              Reference period: _____

              Source of data: _____

11.   Number of Households :   [_____]   (enter number)

              Reference period: _____

              Source of data: _____

12.   Total number of   Male: [_____]   (enter number)
       registered voters :
                              Female: [_____]   (enter number)

                              Total: [_____]   (enter number)

              Reference period: _____

              Source of data: _____

13.   Number of Barangay Personnel:

	Total	Female	Male	
a. Tanod:	[____]	[____]	[____]	(enter number)
b. Health Worker:	[____]	[____]	[____]	(enter number)
c. Nutrition Scholar:	[____]	[____]	[____]	(enter number)
d. Purok Leaders:	[____]	[____]	[____]	(enter number)
e. Librarian:	[____]	[____]	[____]	(enter number)
f. Day care worker:	[____]	[____]	[____]	(enter number)
g. Utiliy worker:	[____]	[____]	[____]	(enter number)
h. Others, specify:	[____]	[____]	[____]	(enter number)

              Reference period: _____

II. Proximity of Barangay Location to Basic Services and Service Institutions* :			
Facility	**(14)** Is the facility present in the barangay? 1 Yes **(GO TO 15)** 2 No **(GO TO 16)**	**IF YES IN (14)** **(15)** How many facilities are present in the barangay?	**IF NO IN (14)** **(16)** What is the distance from the barangay to the nearest facility? (in kms.)
Education facility			
a. day care centers			
b. pre-school			
c. elementary			
d. secondary			
e. vocational			
f. college/university			
g. others, specify			
Health facility			
a. private medical clinic			
b. hospitals			
c. maternal and child clinic			
d. barangay health centers			
e. family planning centers			
f. health posts			
g. drugstores			
h. others, specify			
Service facility			
a. post office			
b. police station			
c. women's center / crisis center			
d. bank			
e. market			
f. multi-purpose hall			
g. others, specify			

* Reference point for the following questions is the barangay hall which is considered the center of the barangay.

Public Transport

(17) What are the types of public transportation present in the barangay?

	1-Yes 2-No
1 Bus	
2 Taxi	
3 Jeepney	
4 Tricycle	
5 Pedicab	
6 Boat	
7 Other modes of transportation (please specify)	

Road Network

(18) Do any of the following roads/streets present in the barangay?		1-Yes 2-No	(19) What is the length of the road/street? (IN KMS.)	(20) What is the present condition of the road/street? (SEE CODES BELOW)	(21) Who is maintaining the road/street? (SEE CODES BELOW)
a. concrete	IF NO GO TO 22				
b. asphalt	IF NO GO TO 23				
c. gravel					
d. natural/earth surface	IF NO GO TO 24				

(20) Present condition of the road/street
1. Good
2. Fair
3. Poor

(21) Maintained by
1. Private   4. municipal/city
2. National   5. barangay
3. provincial   6. others (specify)

(22) If there are no concrete roads or streets in the barangay, what is the distance from the barangay to the nearest concrete road or street?   _____ (in kilometers)

(23) If there are no asphalt roads or streets in the barangay, what is the distance from the barangay to the nearest asphalt road or street?   _____ (in kilometers)

Water Supply

(24) Is the barangay being served by a water station/company?	(25) What is the name of the water company or association that is providing or maintaining the water service?	(26) Is the water system level II or level III? 1 - Level II 2 - Level III	(27) How many households are being served?
1 Yes (GO TO 25) 2 No (GO TO 28)	1		
	2		
	3		
	4		

(28) Is any of the following water facilities present in the barangay?	1-Yes 2-No	(29) How many units/stations?			(30) How many households are being served?
		total	functioning	not functioning	
a. deep well (Level I)					
b. artesian well (Level I)					
c. shallow well (Level I)					
d. commercial water refill stations					
e. others (specify)					

** To be filled by at the municipal/ city level if information at the barangay level is not available

Garbage/Waste Disposal System

(31)		IF YES IN (31)	IF NO IN (31)
Is any of the following community garbage disposal facility present in the barangay?	**1 - Yes** **2 - No** **(GO TO 33)**	**(32)** How many households are being served?	**(33)** What is the distance from the barangay to the nearest disposal facility?
a. open dump site			
b. sanitary landfill			
c. incinerators			
d. compost pits			
e. others (specify)			

Electricity Servce

(34) Is the barangay being serviced by any electric company or cooperative?		IF YES IN (34)		
		(35)	**(36)**	**(37)**
		What is the name of the company or cooperative that is providing or maintaining the electricity?	What is the source of electricity of the company?	How many households are being served by the electric company or cooperative?
1 Yes **(GO TO 35)**		1		
		2		
2 No **(GO TO 38)**		3		
		4		

(36) Source of electricity: 1 - Electric Company   2 - Generator   3 - Solar   4 - Battery 5 - Others (Specify)

IF NO IN (34)

(38) What is the distance from the barangay to the nearest electrical station/ company?   (in kilometers)

Credit Institution

(39) Are credit institutions present in the barangay?		IF YES IN (39)	
		(40)	**(41)**
		What are the names of the credit institutions?	Who is the contact person?
1 Yes **(GO TO 40)**		1	
2 No **(GO TO 42)**		2	
		3	

III. Peace and Order

(42) Does the barangay have reported cases on the following crimes in the past 12 months?	1 - Yes 2 - No	IF YES IN (42) (43) How many were the victims of the reported cases?						
		Total	Male			Female		
			Total	0-17 years old	18 years old & above	Total	0-17 years old	18 years old & above
Crimes against persons								
a. murder								
b. physical injury								
c. rape								
Crimes against property								
a. theft								
b. robbery								
Other crimes								
a. substance abuse								
b. human trafficking/								
c. illegal recruitment								
d. prostitution								
e. spousal/ partner abuse								
f. sexual harrasment								
g. economic abuse								
h. Other types of crimes, specify								

IV. Barangay Programs and Services

(44) What were the programs/services implemented in the barangay for the past 12 months?	(45) Provide a brief description of the program or service	(46) What is the barangay committee primarily spearheading in providing the program or service?	(47) How many were the beneficiaries of the program for the past 12 months?
a.			
b.			
c.			
d.			
e.			
f.			
g.			

V. Barangay Spotmap