

**AN ASSESSMENT OF LOCAL GOVERNMENT CAPACITY IN
MANAGING FLOODS
CASE STUDY: MUNICIPALITY OF CIREBON, WEST JAVA,
INDONESIA**

THESIS

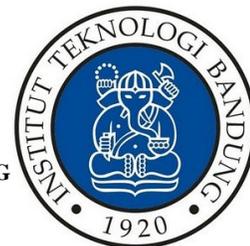
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ABSTRACT

Cirebon Municipality is one the regions in Indonesia that experienced flood in every rainy season. Since it located on the northern coast of Java Island, climate change will increase the impacts of the flood. Flood risk management is an important program that has to be undertaken by government to ensure the preparedness in overcoming flood. Physical measures such as canals, sewerage system and dykes are needed to be built in line with the capacity building of the government and the societies. This research is intended to assess local government capacity in flood risk management in municipality of Cirebon. The Capability Assessment for Readiness developed by FEMA and NEMA in the USA is used as the analytical base for this research. Criteria are set by connecting the functions of management (Terry, 1975) with the institutional capacity (Khakee, 2002). The information analyzed under this model is synthesized from interviews, documents, internet sources, and observations of the researcher. Descriptive analysis is used to explain the capacity related to the flood management. Findings of this research show that the local government of Cirebon Municipality has higher capacity in social capital and in planning function of the flood management. Meanwhile, the other management function (organizing, actuating, and controlling) still needs to be raised. It is because the organization that manage flood is just started in this year. Another reason is that the big flood is just stroke in this year, so that this municipality is just started to make integrated flood risk management. From the results of this research, one of the important recommendations is that the flood risk management should be part of regional development that integrates all aspect for sustainable development.

Keywords: *capacity assessment, flood risk management, local government, municipality of Cirebon, disaster mitigation*

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ABBREVIATIONS

Bappenas	<i>Badan Perencanaan Pembangunan Nasional</i> (National Development Planning Board)
NGOs	Non-Governmental Organizations
BPS	<i>Biro Pusat Statistik</i> (Central Statistical Agency)
Bappeda	<i>Badan Perencanaan Pembangunan Daerah</i> (Regional Development Planning Board)
BNPB	<i>Badan Nasional Penanganan Bencana</i> (National Coordinating Agency for Disaster Management)
Bakosurtanal	<i>Badan Koordinasi Survei dan Pemetaan Nasional</i> (National Coordinating Agency for Surveys and Mapping)
FEMA	Federal Emergency Management Agency
NEMA	National Emergency Management Agency
Kelurahan	Village
BBWS Cisanggarung (Jabar)	River Area Agency (West Java)

1. INTRODUCTION

1.1 Background

As a country located in one of the most disaster-prone areas, Indonesia has been often hit by series of devastating natural disasters. In the last ten years, there are more than ten thousands disaster occurred in Indonesia (BNPB, 2012). One of the most common disasters in Indonesia is flood. From the fig.1, it can be seen that flood has the biggest percentage of all disasters that occurred in Indonesia within almost two hundred years (BNPB, 2012).

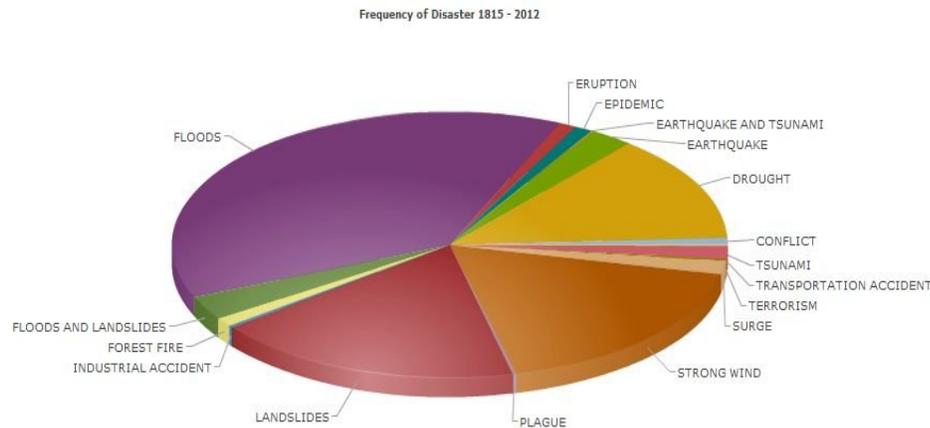


Figure 1.1 Disaster in Indonesia from 1815 to 2012 (Source: BNPB, 2012)

Almost every year, in rainy season, many regions in Indonesia are being flooded. This often yields to stagnancies or even deteriorates the nationwide development process. Lives are lost, capital investments are destroyed, decades of development are erased, economic activities are interrupted and productive capacities are reduced. Consequently, even if development plans are available, after the disaster strikes, development funds are diverted to the emergency (Kunreuther and Linnerooth-Bayer, 1999).

The risk of potential flood damage is being bigger because aggravated by the complexity and incoherence of policies, demography, socio-economic condition, infrastructure, and applied technologies due to lack of awareness and preparedness to a disaster in the development planning. Spatial planning, in flood

risk management context, plays an important role in protecting the entire people's lives and sustaining the expansion of social economic activities in disaster vulnerable areas.

Managing flood is important since the impact of this disaster is very big. Local government, as well as central government has to make good plan to overcome flood, because flood is not about disaster that we cannot expect to come. In Municipality of Cirebon, West Java, Indonesia, for example, the flood is there, happen every year, and with the issue of climate change, it can be worse and worse. According to BNPB (2012), Cirebon is one of the regions that potential to experience flood. Therefore, if government neglect it, as it is only accidental disaster, the impact will be very bad.

Flood risk management is an important program that has to be undertaken by government to ensure the preparedness in overcoming flood. According to Article 47 of Law 24 Year 2007 on Disaster Management, “mitigation means disaster risk reduction, either through physical construction or community’s capacity building. Disaster mitigation can be done through: (1) spatial planning; (2) building code and infrastructures; and (3) capacity building”.

Spatial planning, building code, infrastructure and other physical measure such as canals, sewerage system, and dykes is important for reducing negative impact of flood. However, without taking capacity in more serious consideration, those physical aspects will not be sufficient.

Capacity means the ability of a group or a person to combine various forms of capital within institutional and relational contexts to produce desired results or outcomes (Beckley et. al., 2008). In this research, it refers to a wide range of skills and expertise to deliver better flood risk management. Thus, this research is intended to assess local government capacity in flood risk management. In doing so, the study will focus on single case study in municipality of Cirebon.

Municipality of Cirebon is located on the east part of northern coast of West Java Province. This location is very beneficial for Cirebon because transportation route

from Jakarta, the capital city of Indonesia, to other province, such as Central Java, pass through this city. With its strategic geographic location, Cirebon is an important city for trading and services. Moreover, it also has four kingdoms in past time, which are Kasepuhan, Keprabon, Kanoman, and Kacirebonan. The palaces and other historical building are still there. It makes Cirebon also known as one of the tourism destinations.

As a city that located in flood-prone area, Cirebon should be prepared for the upcoming flood. When the flood strikes, not only the city will be experienced negative impact, but also other regions. Economic activities will be postponed and transportation route from and to Jakarta will be disconnected. Thus, municipality of Cirebon should be ready to minimize the impact of flood.

1.2 Problem Statement

Flood risk management is needed in reducing the unwanted loses from flood. Many studies (van der Brugge et. al., 2005; Pahl-Wostl, 2007; Butler and Pidgeon, 2011) find that there is needs of transition from avoiding-water approach to live-with-water approach that taking social aspect to flood management. Local government has important role in setting up, managing, and monitoring the whole process in mitigating flood, because floods touch many fields (coastal issue, solid waste, land use plan, resilience, etc) and many agencies and authorities (public works, NGOs, central government, environmentalists, etc).

In doing its roles, local government should have adequate capacities for delivering new regulations and ensuring new concepts runs well. It needs intellectual capacity for understanding floods, social capacity for organizing all stakeholders related to floods, and political capacity for ensuring regulations and programs are well supported by communities. Therefore, assessing local government capacities would be the solution for preparing this institution in mitigating flood when their regions experience flood.

1.3 Research Objectives

Assessing local government capacity in all phases of flood management is the main objective of this research. The higher capacity that local government has, the better flood risk management will be, because with higher capacity, government can enhance both standards (policies, regulations) and defenses (walls, dikes). Therefore, this research can give recommendations for policy and decision maker.

1.4 Research Questions

1. What are the criteria of local government capacity in flood risk management?

This question is needed in setting standard for capacity. This is a tool for assessing local government capacity.

2. To what extent local government capacity in municipality of Cirebon supports its flood risk management?

This question will be answered by describing current capacity level in municipality of Cirebon.

3. To what extent the capacities of local government meet the criteria of good flood risk management?

This question is important in finding the gap between the ideal and the real situation, so that local government can improve the capacity in the future.

1.5 Research Scope

According to Lavery and Donovan (2005), Flood Risk Management can rely on three aspects which are standard (building codes, development permit, etc), defense (dykes, canals, etc), and social (warning, education, self-sustaining, etc). It needs adequate capacities from all actors in combining those aspects in minimizing the impact of upcoming flood needs. Thus, this research is focusing on assessing capacities in order to reduce the impact and the incident of flood.

Sutton and Tierney (2006) argue that there are three important units in preparing flood management which are households, public sectors, and communities. Those units are the actors that give significant contributions in shaping the vulnerability

in disaster. This research is focusing on public sectors capacity that will organize all actors in flood risk management.

Public sectors consist of many organizations from state government, provincial government, local government and other organization. As the lowest authority in the governmental hierarchy, local government plays an important role in understanding the situation in the field and bridging the gap between people (the potential victims) and central and provincial government (the authority). Therefore, this research is focusing on assessing local government capacity in managing flood. The capacity will be assessed in three phases of disaster which are before flood, during flood, and after flood.

Base on the explanation discussed above, the scope of the research is limited to:

1. Local government preparedness in managing flood in municipality of Cirebon
2. Finding data from in depth interview with key people that involve in flood risk management
3. Finding supporting data from in depth interview with people living in flood prone areas

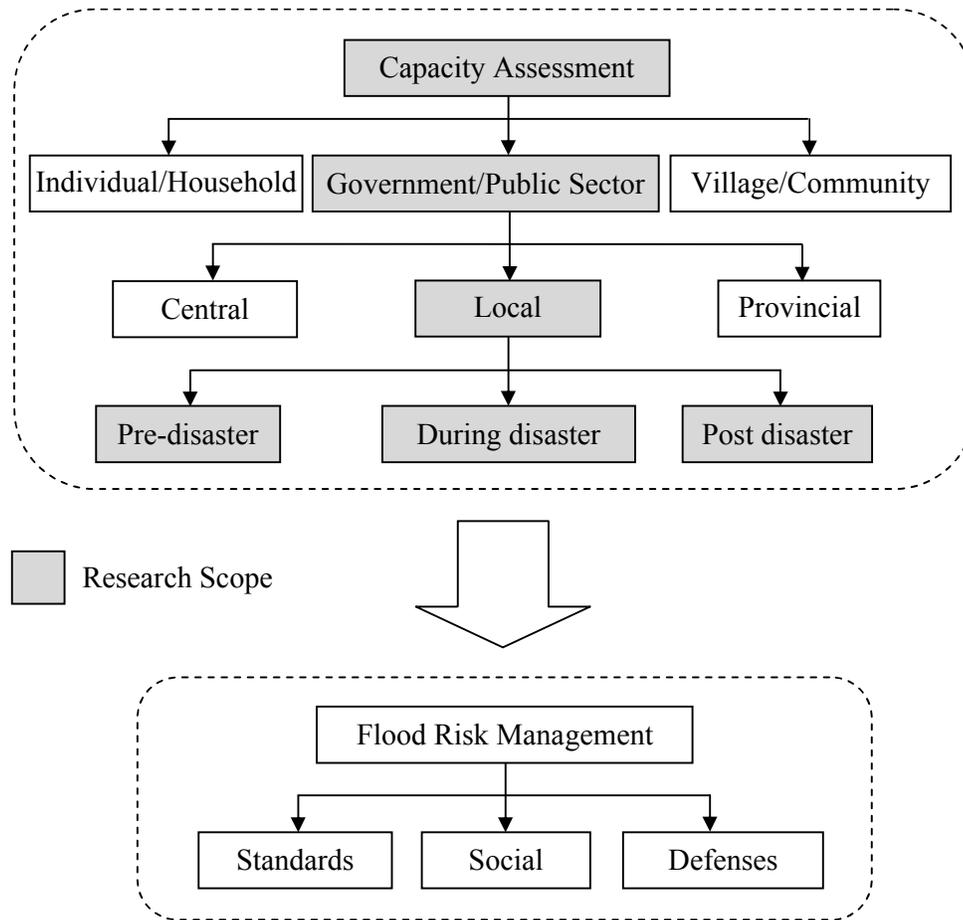


Figure 1.2 Research scope

1.6 Research Stages and Frameworks

This research mainly consists of three stages of processing. The first stage is literature review. This activity will build theoretical base of flood risk management and what capacity needed in establishing appropriate flood risk management. It is also includes previous research about capacity assessment.

The second stage is data collecting stage in one specific region as a study case. A case study was chosen to give more focus on the phenomenon in the real context (Yin, 2009). In this stage, data was obtained from deep interview with the key persons that have expertise in flood risk management. In finding the actual situation, interviewing certain people living in flood-prone areas and observing

documents also conducted to support primary data from local government interview. All interviews will be recorded and then transferred to script.

The third stage is analyzing data. This is the last stage of the research. All data from case study will be analysed and compared with literature review. From this activity, the assessment of local government capacity will give reflexion to local government, so that they can improve their capacity in the future.

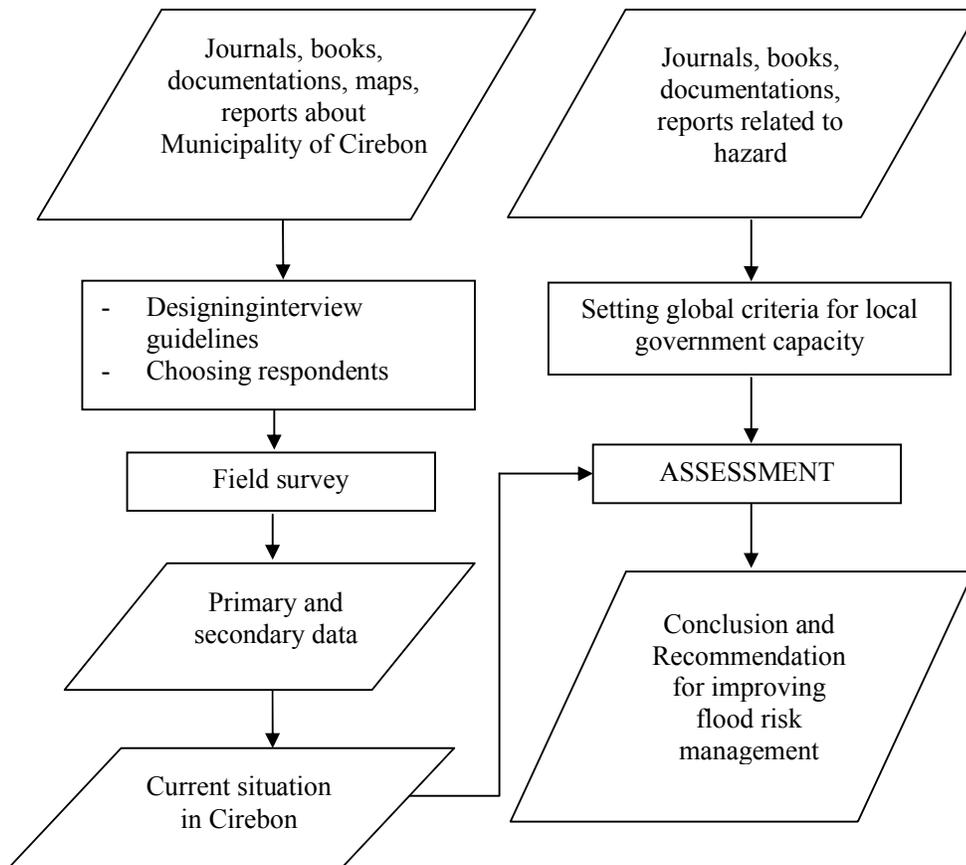


Figure 1.3 Research Frameworks

The third stage is analyzing data. This is the last stage of the research. All data from case study will be analysed and compared with literature review. From this activity, the assessment of local government capacity will give reflexion to local government, so that they can improve their capacity in the future. Further research method will be discussed in chapter 3.

1.7 Structure of Report

This research consists of five chapters. Each chapter explained briefly as follows:

Chapter 1 – Introduction

This chapter describes general overview of this research, including background of the research, research objectives, research problems, and structure of research.

Chapter 2 – Local government capacity as an important factor for flood risk management

This chapter provides conceptual background from available literature related to this research.

Chapter 3 - Methodology

This chapter specifically explains about methodology that being used in this research.

Chapter 4 –Research Findings

This chapter explains about current flood risk management in Cirebon. This chapter also compares theoretical and empirical phenomena in municipality of Cirebon by assessing local government capacity for overcoming future flood.

Chapter 5 - Conclusions and Recommendations

The final chapter consists of conclusion of the research and recommendations for the involved parties and the next research.

2. LOCAL GOVERNMENT CAPACITY AS AN IMPORTANT FACTOR IN FLOOD RISK MANAGEMENT

2.1 Introduction

This chapter presents a literature review to define the importance of local government capacity to support good flood risk management. It is started with management concept as a key concept of flood risk management; followed by flood risk management, from doing-nothing response to long-term strategic plan. Then, it is continued by understanding capacities should be owned by local government to decrease vulnerability in municipality of Cirebon.

This literature review is important in understanding the concepts of flood risk management before assessing local government capacity. In the end of this chapter, there will be a set of criteria that will be used as a guideline for assessing local government capacity and answering the second research question.

2.2 Management

Management is the use of people and other resources in accomplishing the goal (Boone and Kurtz, 1984). Other scientists define management as integrating processes by authorized individual to reach the objectives (Ballou, 1999). Basically, the idea of management is a set of process in the utilization of all resources to accomplish the goal.

Management has many basic functions as defined by Terry (1975) which are planning, organizing, actuating, and controlling as management functions. These functions, although seems too old for modern organization, still being used as a reference.

2.2.1 Planning

In general, experts believe that the first function of management is planning. Planning is a basic function of management (Terry, 1975). Other functions, which are organizing, actuating, and controlling, actually the implementation of decision

that already set in planning. Planning defines as a basic process in which management determines the purpose and means (Terry, 1975). Handoko (1984) defines planning as the selection of activities and the subsequent termination of what to do, when, how, and by whom.

Hasibuan (1987) defines the plan (the result of planning process) is a decision that serve as guidelines to achieve a certain goal. Meanwhile, every plan contains two elements, namely "objective" and "guidelines". Once the plan was established, it should be implemented. At any time during the process of implementation and supervision, plans may require modification in order to adjust in the real situation. Thus, "re-planning" can sometimes be a key factor in achieving a successful goal.

2.2.2 Organizing

Organizing is the second function in management, which means implementing the plan by placing competent people to execute the plan (Terry, 1975). Organizing is the process of developing an organizational structure. Handoko (1984) suggests that the structure of the organization is structured to help achieve organizational goals effectively.

The organizational structure is a framework that shows all the activities for the achievement of organizational goals. It shows the position, duties, authority, and responsibility in an organization. Organizational structure is an important subsystem within the system of formal organization. To develop the organizational structure, objectives or goals of the organization should be clearly formulated. Goals are the things that want to achieve either material or non material by doing an activity. For organizations, the goal will be the basis of all activities and leads the activities to meet the objective.

In an organization, an important factor in organizing is cooperation among its members within the organization. This cooperation will affect the motivation of employees, thus will affect the productivity. If the employees can maintain their high level productivity, it is expected that the organization will have a high level of productivity as well.

2.2.3 Actuating

Actuating is to drive people to work independently to achieve the desired goal. Managers should raise working spirit of people, maintain the spirit, and encourage positive activities, supervise, give commands and assignments, so that the activities absolutely toward the objective of the plan. In this function of management, leadership is needed to bring over people to work with heart, so that objectives can be easily achieved.

2.2.4 Controlling

Control can be defined as a process to ensure that the goals of the organization are achieved (Terry, 1975). The process of controlling is as followed: (1) determining the standard or basis for control; (2) measuring the performance; (3) comparing performance with the standard, and ascertaining the difference, if any, and (4) correcting deviation by means of remedial action.

2.3 Flood Risk Management

Naturally, flood is a phenomenon caused by the increase of runoff surpasses river capacity significantly. However, Walker et. al. (2011) sees flood as socio-natural-technical assemblage that relates each other. Human behavior and technology can change nature as nature also can force human to adapt the changes of environment. Therefore, Walker et. al. (2011) argues that understanding flood in smaller region, resident for example, will give better perception than only generalizing the concept.

A traditional way to avoid flood is by making flood defenses, such as walls, dykes, etc. As Lavery and Donovan (2005) propose in their research, the response to flood move from doing nothing, response to flooding, to long-term strategic planning. They also says that flood risk management is the way to reduce the impact of flood holistically through defense (by making embankments, walls, etc.), social (warning, response planning, etc.) and standards (property regulation,

insurance, etc.). A comprehensive approach that includes all aspects is important for flood risk management.

Kabat et. al. (2005, p. 284) states that “*developing a climate-proofing strategy now is likely to be more cost effective than taking drastic actions later*”. It means that focusing on mitigation process is more effective than moving the fund to the relief phase after disaster happen. Because, when disaster attacks, the lost will be very big. This research is focusing on mitigation phase, before the flood occur. Figure 2.1 represent the cycle of emergency response. Mitigation procedure can increase preparedness in facing flood. Therefore, when flood come, with good flood risk management, people as well as government should be ready for reducing the impact of it.

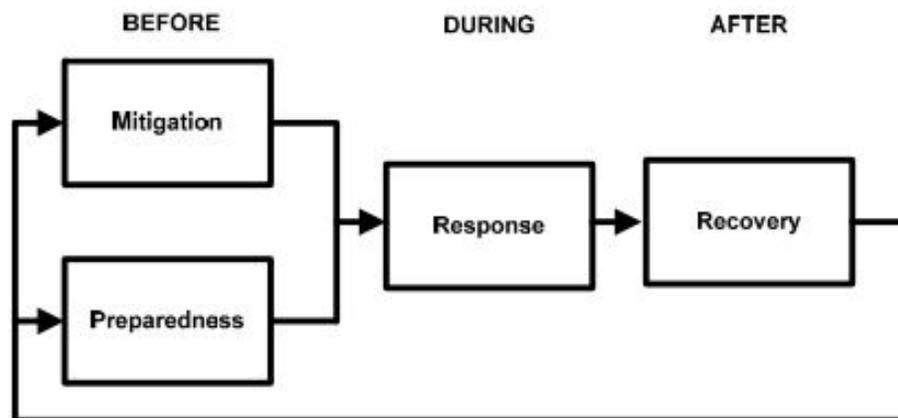


Figure 2.1 Schema of emergency management cycle. Source: Boisvert and Moore (2003) on Eriksson (2008)

From those literatures, it can be conclude that flood risk management is the important tools in minimizing the negative impact of flood. This approach can be done by making long-term strategy, considering all aspects, and including many actors. Without support from people, government will work harder in strengthening the region’s resilience.

2.4 Local Government Capacity

In Indonesia, since 1998 there has been a shift in how local government is run. Today central government directs more power to local government. Community governance is the key policy driver in helping people and organizations to become more effective at improving communities. “*Local government is the government institution closest to citizens and the one that is best placed to acquaint itself with city problems*” (Ibanez, 2010). Thus, it is a key contributor to improvement of quality of life of its citizens and of all social groups. Moreover, since the way in managing cities change from centralization to decentralization, local government has greater power in decision making for citizens (McIntyre and Halsall, 2011).

Managing flood risk in every region is unique. Although those regions experience exactly the same flood, caused by heavy rainfall for example, the plan for flood risk management is not always the same, because each region has different context that relates to its vulnerability. Blaikie (1994) argued that the disaster would be more risky when both hazard and vulnerability is high. However, although the occurrence of hazard is high, but the vulnerability is almost zero, the risk is also zero. It can be written as $R = H * V$, R for risk, H for hazard, and V for vulnerability. Vulnerability, according to Blaikie et al., 1994 is the product of the characteristics of a person or group in terms of their capacity to anticipate, cope with and recover from the impact of a hazard. Therefore, higher capacity is needed in minimizing vulnerability.



Figure 2.2 Risk factors

According to Hall (2008) capacity is a stock of resources that own by organizations or human to reach their goal. He also argued that capacity always

link to its own application. Without linking them, the meaning can be too broad, depend on the organizations and individuals. This research focuses on local government capacity in term of flood risk management in the municipality of Cirebon. The assessment only touches local government's capacity to gather more accurate and reliable information to support the decision making process.

2.5 Assessing Local Government Capacity

According to Khakee (2002), there are three groups of criteria for assessing institutional capacity. There are intellectual capital, social capital, and political capital. Table 2.1 shows the type of institutional capital with their characteristics. These capitals are intangible assets of organization that cannot be measure by simply looking at the physical things. Therefore, assessing these capitals needs deeper understanding that can be obtained by in depth interview with key persons.

Assessing capacity more or less will also relate to assessing preparedness. More capacity is needed to increase preparedness. The concept of disaster preparedness related to enhancing life safety when disaster occurs, such as protective actions during a flood. It also includes actions designed enhance the ability to undertake emergency actions in order to protect property and disaster damage and disruption, as well as the ability to engage in post-disaster restoration and early recovery activities (Sutton and Tierney, 2006).

Type of institutional capital	Elements	Evaluation criteria
Intellectual capital	Range and frame of knowledge, knowledge linkages, attitude towards new knowledge.	Knowledge resources, use of knowledge, justification of ideas, degree of understanding, diffusion of knowledge and values, openness to new sources of information
Social capital	Range of social relations, linkages between networks, power relations.	Extent of stakeholder involvement, character of networks, nature and density of network linkages, access to networks, forces linking networks
Political capital	Structure of mobilization, methods for collective efforts, change agents	Selection and identification of issues, range of mobilization techniques, consensus-building practices, character and role of key agents

Table 2.1 Institutional capital (Khakee, *Planning Theory and Practice Vol. 3 No. 1*, p. 57, 2002)

In the United States, the Capability Assessment for Readiness (CAR) that was developed by FEMA (Federal Emergency Management Agency) and National Emergency Management Association (NEMA) identifies thirteen elements that should be address by the state in their preparedness efforts. They are (1) Laws and Authorities; (2) Hazard Identification and Risk Assessment; (3) Hazard Mitigation; (4) Resource Management; (5) Planning; (6) Direction, Control, and Coordination; (7) Communications and Warning; (8) Operations and Procedures; (9) Logistics and Facilities; (10) Training; (11) Exercises, Evaluations, and Corrective Actions; (12) Crisis Communications, Public Education, and Information; (13) Finance and Administration.

FEMA defines preparedness as the leadership, training, readiness and exercise support, and technical and financial assistance to strengthen citizens, communities, state, local, and tribal governments, and professional emergency workers as they prepare for disasters, mitigate the effects of disasters, respond to community needs after a disaster, and launch effective recovery efforts (www.fema.gov, 2012).

Preparedness for disaster is very essential for households, businesses, and communities (Sutton and Tierney, 2006). As recent disasters serve to highlight the need for individual responsibility, local coordination, and continuity plans to ensure the ability to respond to and recover from major events, the central government has prioritized national preparedness as a goal without developing a system to achieve and maintain it. Furthermore, public entities have been charged with assessing their state of capacity and identifying strengths and areas of weakness as requirements for communities have chosen to utilize all resources.

Sutton and Tierney (2006) argued that dimension of preparedness should cover eight activities. They are: (1) hazard knowledge; (2) management, direction, and co-ordination of emergency operations; (3) formal and informal response agreements; (4) resource acquisition aimed at ensuring that emergency functions can be carried out smoothly; (5) life safety protection; (6) property protection; (7) emergency coping and restoration of key functions; and (8) initiation of recovery activities.

Lopez-Mareno and Tschakert (2011) found that enhancing resilience in the communities requires support for social learning by building existing knowledge, stressing the importance of developing flood management options and promoting linkages and collaborations between community members and emergency managers. It means that increasing preparedness will be in accordance with the increasing capacities of both government and society. In flood management context, all capacities have to link together, because mastering one capacity without having other capacities will be useless. For example, although local government has strong intellectual capacity in managing flood by making great plan, without social capacity in communicating the plan to society and other actors, the plan will be nothing. Because plan needs action to make it happened.

2.6 Criteria

After studying those literatures, criteria are set by connecting the functions of management (Terry, 1975) with the institutional capacity (Khakee, 2002). The assessment will be conducted by ensuring all criteria is working properly in every phases of flood risk management. Those criteria will be the key factors in assessing local government capacities. There are four criteria that represent four functions of management for each capacity (table 2.2).

Function /Capacity	Intellectual	Social	Political
Planning	Understanding	Network	Strategy
Organizing	Training	Staff	Coordination
Actuating	Motivation	Communication	Directing
Controlling	Standard	Evaluation	Correction

Table 3.2 Criteria for local government capacity (Author, 2012)

2.6.1 Understanding

According to Sutton and Tierney (2006), all activities in preparedness must be based on hazard knowledge. It is impossible to make a good plan for mitigate flood without having deep knowledge about the hazard. The activities include hazard identification, risk, impact, and vulnerability analysis, and providing hazard information to diverse stakeholders. Ashley et. al. (2007) in Djordjevic et. al. (2011) also says that knowledge is important for preventing and mitigating

flood in urban area. Indicator for assessing this activity is hazard identification and risk assessment.

Understanding in this context is more than just knowing or mastering the knowledge. It means getting into deeper comprehension about hazard and the people. Adamides and Karacapidilis (2006) say that understanding is trying to interpret others' view and strengthen our view by associating different facts and different meanings.

In pre-flood phase for example, local wisdom plays an essential role for mitigate flood. It gives appropriate outlook, since local people know better about the event that brings direct impact to them than others. There are a lot of researches that bring local knowledge into planning system. For example, the paper of Peters-Guarin et. al. (2012) that takes local knowledge from people in Naga City, Philipines about flood is taken into geographic information system. The research focused on understanding coping strategies of flood hazards as defined by communities. This concept can be used for *“improving practice at the municipal level by legitimizing local coping strategies, providing better indicators, and developing understanding of flooding as a recurrent threat”*. Another interesting research by White, et. al. (2010) also discuss about how to link local knowledge into the system. They use public participatory Geographic Information Systems within shoreline management planning to support flood risk management policies. From this background, it can be concluded that knowledge interaction between people and experts in shaping the flood management is important.

Deeper understanding is also worthwhile in obtaining people preferences and necessities during and after flood. Sometimes assistance comes to the wrong people or places and the distribution of aid is disproportioned. Lack of understanding will result in bigger loss and long recovery phase.

2.6.2 Training

Training for government employees is important to enhance their capacity in every aspect of flood base on their roles and responsibilities. For people, training

relates to socialization about flood mitigation, about regulations to keep the well informed. It also includes simulation on responding flood.

2.6.3 Motivation

Government has responsibility in protecting its citizen. Local government, which is the closest authority to citizen, has a big role in motivating people to participate in every program. Motivation is not only important for citizen, but also for every government officers. Leaders or managers are expected to have strong ability in keeping every individual's spirit alive.

2.6.4 Standard

Standards are essential as guidelines for every objective. In term of flood risk management, the indicator is the existence of procedures, laws, and regulations that would be the referrals of programs and projects.

2.6.5 Network

Local government needs support from other stakeholders in managing flood, both vertically (with provincial and national government) and horizontally (with NGO's, neighboring local government, community). Sharing personnel, equipment, and facilities is needed when government inadequate to handle the flood. Therefore, maintaining wide range relations is crucial.

Before flood, government should make stakeholders map to classify their interest so that government can ask for their involvement in their interest area. This map can be guidance in deciding what kind of roles and responsibilities that would appropriate for each of them. During flood, government could figure their real actions in assisting the victims, so that the plan can include their participation. It can be traced from previous event or by asking them. In the end, for recovery phase, government would have a view which contributions are appropriate in the certain condition.

2.6.6 Staff

According to Khakee (2002), one of criteria in political capital is mobilizing structure that includes gathering all stakeholders' ideas into agenda and activities. In flood risk management, it can be identified by assessing plan (emergency plan, recovery plan for example), that includes collective opinions and emergency legislation. These plans should represent mutual relation among stakeholders.

In general, planning refers to the process of setting goals, developing strategies, and outlining tasks and schedules to reach the goals. In disaster context, the goal of land use planning for disaster risk management is to achieve a utilization of land and natural resources which is adapted to local conditions and needs, and takes into account disaster risks (Salzer, 2012). In mitigating flood, local government should organize a comprehensive emergency management plan, action plans, and mitigation plans as a guide line in implementing policies and regulations.

In emergency situation, mobilizing all resources to reach one goal is not always easy. Even when all participants are skilled at what they are called on to do, coordinating their efforts is one of the most troublesome aspects of emergency management (Granot, 1997). Emergency legislation will regulate the roles and responsibilities all actors in ensuring the goal of the plan will be reached. Therefore, identifying this indicator as one of key aspects would be essential.

2.6.7 Communication

During flood phase, there should be a good coordination among actors. Personnel in each agency should know their responsibilities. Moreover, people also have to know where to go, who the leader is, what to bring, and other operational stuffs. Therefore, organization, communication, and collaboration system has to be well defined. This criterion will be assessed by ensuring all operational policies, plans and procedures implemented. How government organizes emergency response personnel, warn the public, and effectively manage the response will be assessed.

2.6.8 Evaluation

Evaluating is comparing the existing plan with the real action and reaction in the field. Sometimes the reaction to the plan is not as good as the expected result. Therefore, evaluation is needed to ensure that the objective could be reached.

2.6.9 Strategy

Reaching the expected objectives is not an easy job. Local government should have appropriate strategy to ensure the process will run smoothly and the results are acceptable.

2.6.10 Coordination

After having extensive relations, government should know how to integrate them in reaching the common goals. Partners from community, local agencies, and business may have their own capacity to go for their objective. Local government should know how to coordinate and organize all different activities to enhance its capacity for flood risk management

The assessment would be based on the agreements and partnerships among government and other stakeholders, the procedures for evacuation plans, and how the information among them can be shared and accessed easily.

Managing all actors with different interest and characteristics is a challenging activity. Khakee (2002) defines it as building consensus, focus group discussion, etc. In flood management, it can be identified by finding mutual trust among stakeholders, allocating resource management, and partnership.

2.6.11 Direction

In a disaster, context changes rapidly, communications are typically weak, and command and control can easily fall apart. What is needed for us to have good leadership during and after a disaster: clear command and control authority. We need for our leaders at all levels of government to quickly gain an agreement on command and control authority and be able to change those understandings as the

local needs of people and the nature of the disaster change. FEMA centralizes command and control authority for federal resources in a natural disaster after a national emergency has been declared by the president. Although FEMA can preempt local authority, it does not automatically take responsibility for all services.

2.6.12 Correction

Management is a looping process. One of the activities in controlling function is correcting the things that tend to go in wrong direction. The indicator for this criterion is re-planning the existing plan.

2.7 Concluding remark

In conclusion, this chapter gives basic perception about the important of local government capacity in flood risk management. Its big role as representation of higher authority (provincial and central government) in protecting citizen, make it more essential in having high capacity to manage flood. This chapter ended by adding a set of criteria that not only answers the first research question, but also provides a standard for assessing local government capacity.

3. METHODOLOGY

3.1 Research Area

The research was conducted in Indonesia, one of developing countries which are actively increasing the development in every field. It focuses on municipality of Cirebon as a single case study that represent unique characteristic in managing flood. Preference single case study is expecting to obtain an in-depth description of local government capacity in managing flood, as part of planning process in development.

3.2 Data Collection

This research was conducted in three stages of collecting data, which are pre-fieldwork, fieldwork and post-fieldwork.

3.2.1 Pre-fieldwork

Most activities before fieldwork were literature research. In this stage, all data is obtained from journals, reports, newspapers, maps, books, etc. that related to local preparedness in flood management. The first question about criteria of local preparedness in flood risk management in my research questions was answered by setting criteria derived from previous journals and articles. All criteria will be include all three phases of disaster management, which are pre, during and post disaster. After that, interview guidelines will be constructed. Respondents from flood-prone areas and government bodies relate to flood management also selected based on literature findings. Interview was arranged in local government institutions in Cirebon as well as local people in flood-prone areas.

3.2.2 Fieldwork

Answering the second research question about current programs, rules, and regulations related to flood risk management in Cirebon was the most important thing in fieldwork activity. It was conducted using qualitative research method. There were three main activities in this stage. The first one is collecting primary

data through interview to local government in Cirebon. This interview is conducted to gather information about flood risk management and how the information connects to people. The second activity is collecting another primary data from local people in flood-prone areas. This activity was conducted to recheck the information from government officers. The third activity is collecting secondary data from reports, products, and documentation from local government institutions that support the primary data. This activity is very essential in checking the validity of the data.

3.2.3 Post-fieldwork

After gathering data from respondent, the next stage is data validation process, followed by data analysis. Some of respondents' answers were verified by comparing them with reports and documentations. This process will make the result more valid. In the end, this report will be used as input for improving flood risk management in Cirebon.

After that, answering the last research question is also main activity in this stage. Comparing clean primary data with the criteria and indicators that already set before will be conducted by scoring the answers. From that score, it will be clear what the strongest and weakness points in relate to flood risk management in Cirebon.

3.3 Surveys

Field survey that was conducted in Municipality of Cirebon is the key activity in answering the second research question. The interview has been taken in municipality of Cirebon in May 2012, together with field survey. Figure 3.1 shows the interview process (left) and the field surveys (right). The right photograph in the figure shows the inflatable boats that use for evacuating people.



Figure 3.2 interview (left) and flood equipments (right)

There are eight key persons from various agencies in Cirebon that have been interviewed. They are from local planning board, disaster management section, and local public work. They were picked as the interviewees because those people are experts that work for the agencies or section that play important role in flood risk management. In addition, according to the head of disaster section, Kelurahan Larangan and Kecapi are the two of regions that experience flood most often. Therefore, besides interviewing people from local government, there are local people that have been informally interviewed in obtaining more data to support local governments' answers.

Number	Institution	Position
1	Local planning board	Head of physics and environment section
2	Local planning board	Officer
3	Local planning board	Officer
4	People protection	Officer
5	People protection	Officer
6	Fire brigade and disaster management agency	Head of disaster management section
7	Fire brigade and disaster management agency	Officer
8	Public work	Officer
9	Kecapi region	Formal local leader
10	Larangan region	Informal local leader

Table 3.1 List of interviewees

3.4 Research type

The research is intended to be a qualitative-descriptive research based on evidence obtained from the case study. Neuman (2000) argues that qualitative research has the ability in capturing authentic perceptions in particular context of case study. Therefore, the case study in municipality of Cirebon would address the real capacity of local government in managing flood.

3.5 Indicators

Indicators are set in every phase of flood management that connects to one criterion. They are set to simplify the assessment process. While criteria are still too broad, indicators focus on specific programs or key words that have strong connection to criteria. These indicators are the factors that relates to criteria with justifiable to every phase in disaster management. The indicators will be the interview guideline in finding and capturing the real capacities of local government in municipality of Cirebon.

Capacity	Criteria	Indicator		
		Pre-flood	During flood	Post-flood
Intellectual	Understanding	identification	evacuation	risk assessment
	Training	flood mitigation	simulation	hazard recovery
	Motivation	involvement	initiative	self-recovery
	Standard	mitigation plan	evacuation plan	recovery plan
Social	Network	agreements	actions	continuity
	Staff	resources management	search & rescue	recovery officers
	Communication	communication system	warning	information exchange
	Evaluation	plan	exercise	monitoring
Political	Strategy	method	problem solving	urgency
	Coordination	establishment	well organize	maintenance
	Direction	procedure	activation	recovery acceleration
	Correction	documented	flexible	experience

Table 3.4 Indicators (Author, 2012)

The assessment is conducted by linking the criteria with the flood risk management phase. In obtaining the relevant answers from the respondents, the questions will be made in practical way focus on each indicator. Every question

will be followed by another question to get the reason of the answers. Because sometimes the respondent needs to explain more before the expecting answer emerged. One answer also can be interpreted to answer more than one criterion.

Intellectual Capacity

1. Does local government identify all floods and the likelihood of their occurrence?
2. Does local government identify all possible place and route for evacuation?
3. Does local government identify vulnerability and risk of people and properties?
4. Does local government provide training for people and officers for flood mitigation?
5. Does local government provide simulation for upcoming flood?
6. Does local government provide training for flood recovery?
7. Does local government motivate people and officers to enhance their ability?
8. Does local government motivate people for autonomously evacuation?
9. Does local government motivate people to participate in recovery phase?
10. Does local government have mitigation plan?
11. Does local government have evacuation plan?
12. Does local government have recovery plan?

Box 3.1 Questions of intellectual capacity

Social Capacity

1. Does local government have mutual aid agreement or partnership with other agencies or other authorities?
2. Do local government and other actors perform good actions in previous flood?
3. Does local government maintain the relationship with other actors?
4. Does local government have human resources required to carry out assigned day to day responsibilities?
5. Does local government have human resources required to carry out search and rescue?
6. Does local government have human resources required to carry out recovery activities?
7. Does local government have adequate communication system?
8. Does local government have reliable warning system?
9. Does local government have two direction information exchanges?
10. Does local government have formally documented evaluation principle?
11. Does emergency exercise program contain an evaluation component?
12. Does the previous flood handling being monitor and review?

Box 3.2 Questions of social capacity

Political Capacity

1. Does local government have appropriate method in flood risk management document?
2. Does local government use every resource efficiently?
3. Does local government define and recover the losses base of the urgency?
4. Does local government establish coordination among other agencies, volunteer, adjacent local government, and central government?
5. Does local government ensure coordination among actors runs well in emergency situation?
6. Does local government maintain continuous coordination among actors?
7. Does local government have documented procedure for every personnel in doing their responsibility?
8. Does local government able to activate all people participation in supporting flood management?
9. Does local government succeed in accelerating recovery in the previous flood?
10. Does local government have adequate corrective action guidance document?
11. Does local government have flexibility in responding unpredictable situation apart from the plan?
12. Does local government use previous data from exercises and actual floods for corrective plan?

Box 3.3 Questions of political capacity

Local government capacity would be assessed by connecting the interview result with the indicators in table 3.4. The questions in interview are made to obtain as much as indicators above (the list of questions can be seen on appendix). The capacity will be grouped in three different levels. There are: (+++) for high capacity; (++) for average capacity, and (+) for low capacity.

3.6 Validity

There are three sources of the data for every subject, which are interview result from government officers, interview result from people, and document verification. For every subject, there should be minimum two representations of different sources that support the issue. Meanwhile, each issue must have at least one support.

3.7 Limitations

As Flyvbjerg (2006) argues that it is hard to generalize a single case study, this study is not intended to generalize what phenomenon in municipality of Cirebon. However, this study can be an example of the current level capacity of local government, so that other region can learn from this case study.

Social capital is an aspect that attach to the person. It is hard to measure it in an organization. However, following Leitch et. al. (2012), it can be understood as a collective property that can move us beyond previous studies. It can influence each other (action-reaction), and in the end will shape the characteristic of the organization.

Another limitation is this study mainly discussed the social aspect related to flood risk management, while flood risk management is a complex system that incorporates data, standard, technical and institutional arrangement. Assessing technical and legal aspect is not the aim of this study.

3.8 Concluding Remarks

This chapter describes the method used in the research. It is important to set indicators as a guideline in interview process. Indicators are derived from criteria that already set in previous chapter. Institutional capacity that is used as basic criteria in this research focuses on Khakee's (2002) research because it represents other researches about community capacity. The indicators are set by linking the criteria with the phases of flood risk management. Meanwhile, the assessment will be base on those indicators.

4. RESEARCH FINDINGS

This chapter discusses about characteristics Cirebon and how this local government tackle down the flood issue. Resources for this chapter were obtained from documents and interview results. On the last part of this chapter, the discussion about research finding will be presented.

4.1 Introduction to Municipality of Cirebon

According to Alexander (1993), there are six approaches to disaster research (geographical, anthropological, sociological, developmental, medical and technical) but the most dominant disciplines are geography and sociology. The geographical approach focuses on human-environment interactions, whereas the sociological approach has as its premise that disasters are social events that reflect the ways, life and structure in societies and communities.

4.1.1 Geographical Characteristic

According to *BPS* (statistical bureau, 2010), Municipality of Cirebon is located between 108.33° and 6.41° south latitude. It stretches out 8 km from west to east and 11 km from north to south and 5 meter above sea level. The area is about 37.35 km^2 with surrounded by water as it boundaries. This area is bounded by Java Sea on the east, Kedung Pane River on the north, Kalijaga River on the south, and Canal River on the west. The only region that attaches this region is Cirebon *Regency*.

Figure 4.1 shows the location of municipality of Cirebon. On the upper left, there is a first map of Indonesia. On the map, there is an arrow that leads to the second map below it which shows the province of West Java. The starting point of the arrow is the location of municipality of Cirebon. The map on right is municipality of Cirebon map.

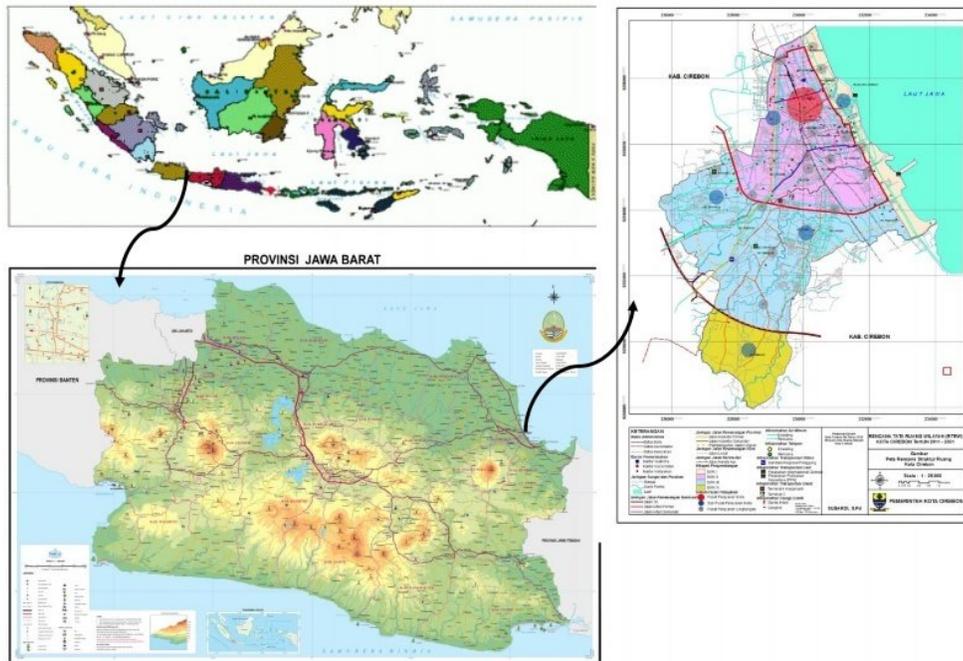


Figure 4.1 Map of Municipality of Cirebon (source: bakosurtanal, bappeda)

Many research shows that municipality of Cirebon is located in flood-prone area. BNPB also includes Cirebon as an area that should be aware of flood. In addition, Bakosurtanal (Indonesian coordinating agency for surveys and mapping), together with Kementerian PU (Ministry of Public work), and BMKG (meteorology, climatology and geophysics agency) also convince it by making flood map of Cirebon region that include municipality of Cirebon and Cirebon Regency (Figure 4.2).

Some criteria are used in the making of the flood map is taking land use, such as land system, rainfall, and incidents. From those criteria, it can be distinguished the level of vulnerability in five classes, which are red (high), yellow (average), green (low), black (safe), and grey (never). From the map, it can be seen from the map that most part of Municipality of Cirebon is marked in red color, that means those areas have high level of vulnerability.

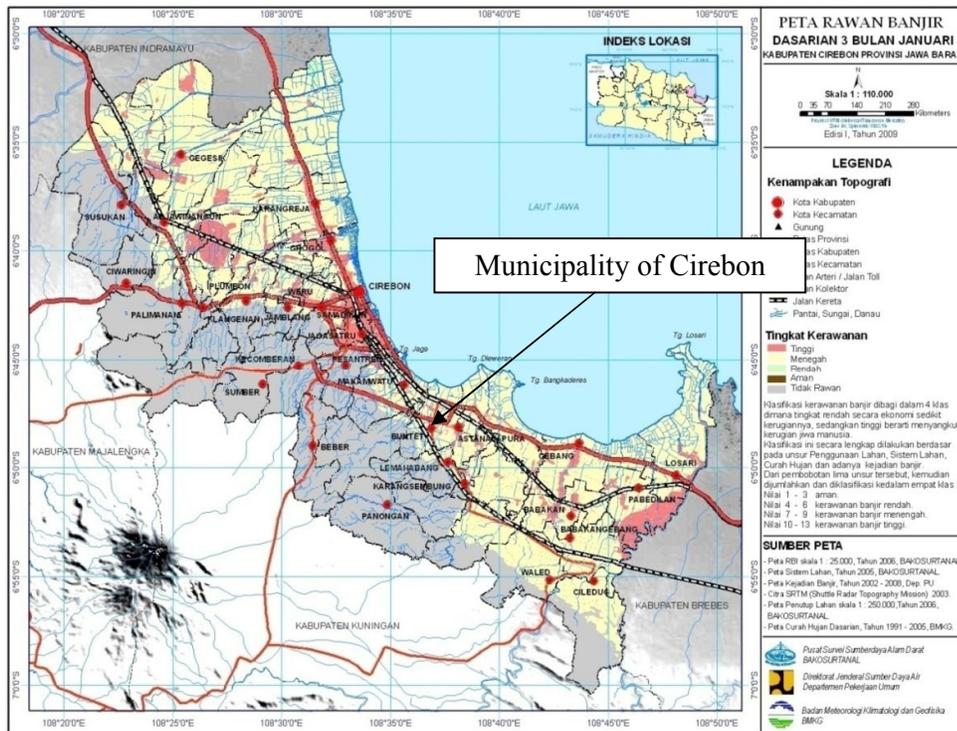


Figure 4.2 Flood map of Cirebon (source: bakosurtanal, 2010)

4.2 Social characteristic

According to census from BPS (statistical bureau) in 2010, there are 296,389 people live in municipality of Cirebon with equal number of women and men. In average, they live in middle class society. Kinship and friendship is still present in this region. Therefore, sometimes there is no need to legalize everything (land ownership for example), since everybody know who the owner of the land is.

There is a thing to be noted in leadership. According to one of citizen in kelurahan Harjamukti, the role of leader in municipality is very big. If people believe in the person, they will follow him/her without hesitation. Local governments that know this characteristic usually rely on this leader for everything. Although, it is not bad at all, 'one man figure' sometimes could be dangerous. Relying everything on only particular person will increase the risk because all system will be depend on him/her. If this person is absent, the system will not work.

4.3 Agency of Disaster Management in municipality of Cirebon

Mayor is the highest leader in Cirebonin controlling all local government activities. In operating daily activities, the Mayor is helped by regional secretary to implement programs that are listed in the government documents. Most of the documents are embodied in Mayor Regulations One of them is document related to flood risk management that can be obtained from Disaster Section and Local Planning Board. Before Mayor Regulation No. 17 year 2012 being applied, there is no agency in Cirebon for disaster management. According to Mayor Regulation No. 43 year 2009, municipality has a non-structural organization that consists of many experts from different institutions in municipality of Cirebon to overcome disaster in this region. Each of them has different roles and responsibilities in every phase of disaster management.

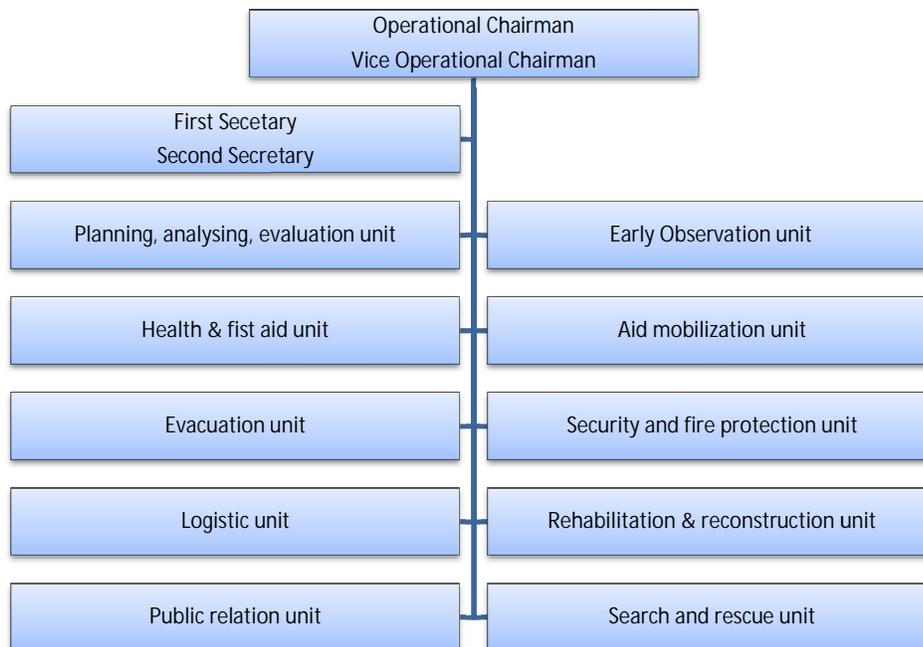


Figure 4.3 Organization diagram of disaster management in municipality of Cirebon

This organization, named Satlak PBPP (technical organization for disaster management and handling refugees), is led by the Mayor as chairman. The chairman is assisted by two vice chairmen, (head of policy agency and head of

military agency). In doing daily activities, there is an operational chairman that is assisted by working units from various institutions. According to head of disaster section, all members in this organization work in their institutions and give report to the Mayor. Each of working unit consists of many people from diverse local institutions in municipality of Cirebon (table 3.1).

Working Unit	Members
Early Observation unit	Kesbanglinmas, Proyek Cimanuk, Camat, Lurah
Planning, analysing, evaluation unit	Bappeda, Kesbanglinmas
Health & fist aid unit	DKK, RSUD Gunung Jati, PMI
Evacuation unit	KODIM, Polresta, Satpol PP, Arhanud, Linmas
Logistic unit	DPMS Perlengkapan, PKK, PDAM
Public relation unit	DKI, DISHUB, Kesbang
Search and rescue unit	BRIMOB, LANAL, KODIM, ARHANUD, BKPMMD
Aid mobilization unit	Kesra, Lions Club, Rotary club, BKPMMD
Security and fire protection unit	Polresta, Kodim, Satpol PP, Dishub, Damkar, Linmas
Rehabilitation & reconstruction unit	Kimpraswil, Depag, DKK, MUI, Gapensi, Kadin

Table 4.1 Working units of disaster and their members

In 16 January 2012, base on Mayor Regulation No. 17 year 2012, government formed an agency named Fire Brigade and Disaster Management Agency that has responsibility to handle fire and disaster in municipality of Cirebon. This agency has three sections. They are fire section, disaster management section, and data collection section. This agency is one of agencies in municipality of Cirebon that has vertical hierarchy and works for the Mayor though the regional secretary.

4.6 Assessment of local government capacity

According to the head of disaster management section, managing flood is not a simple job. It takes years or even decades and always takes looping process that never ended. Local government has important role, especially in making spatial planning and all instrument for flood risk management. Local government is the most important actor that will embrace all actors in managing flood. It can be a

leader, or a facilitator, or an agent of change in ensuring the goal of programs, rules, and policies to be reached.

Base on the criteria that already discussed in previous chapter, the findings will be categorized base on three capacities, which are intellectual capacity, social capacity, and political capacity (Khakee, 2002) in three phases of flood risk management, which are pre-flood, during flood, and post-flood.

4.6.1 Intellectual Capacity

Khakee (2002) defines intellectual capacity as various knowledge that built on previous experience, researches, and understanding of people, places, and interaction between them. In the context of flood management, it refers to knowledge from various sources, including ideas and creativity in understanding problems, and finding alternatives to overcome problems with new original approaches. It also links to motivation in accepting and learning new things. Keraminiyage (2008) argued that lack of appropriate intellectual capacity can be recognized as another factor hindering the implementation of successful recovery plans. His research about recovery phase after tsunami in Sri Lanka in 2004 found the recovery phase takes longer time when institutional capacity does not adequate.

4.6.1.1 Understanding (flood identification, evacuation, risk assessment)

Understanding is one step further from knowing. Each phase of flood management needs different type of understanding. Before disaster occurs, government of municipality of Cirebon should learn from many resources about the previous flood. The map in previous section (figure 4.2) is an example of knowledge of the government since the map considers many aspects, such as incident, rainfall, land use and land system. According to the head of physic and environment of local planning board, the map is very useful in making spatial planning. He guarantees that planning board considers many aspects, including flood issues before launching the spatial plan.

Another way for flood identification is by asking local leader to take part in planning process. These people can give good input as most of them are the witnesses of the event. Moreover, they can be an agent of change in disseminating the plan. Nevertheless, in municipality of Cirebon, having local people in planning process is not common yet. Government officers seem to have everything in their desk without justifying to the real context. As one of the officer in disaster section said,

“We are the local people. We experience what they experience. What would be different? We will do our best, because we have both knowledge and experience”.

During flood, there should be accurate evacuation routes. These routes must be the most reliable routes, not only the shortest and the fastest routes, but also the safest routes for victims. Fortunately, the head of disaster ensures the existence of evacuation routes, so that the evacuation process will run smoothly.

In the municipality of Cirebon, assessing people needs for flood relief is still unimagined. The officer from public work said that the most important thing is to ensure all public infrastructures recover. “We do not have budget to fulfill what people want”, he said. However, bringing a community back to normal and as strong as or better than before the disaster is the most important thing in recovery phase. Again, it needs deeper understanding on deciding which programs or developments are the more urgent than others.

According to the head of infrastructure section, after everything strikes and the loss is being calculated, public work will rebuild infrastructure. The provisional repair that was built as an emergency response will be replaced by definitive infrastructure. It is needed in ensuring all activities run as good as before disaster strike.

At different place, the head of physic and environment of planning board argue that although government knew that Cirebon is vulnerable to flood, they do not prepare for a big disaster. It is because they think that the incidents of flood in Cirebon rarely cause a great loss. The inundation only happened for one to five

hours. Since the biggest flood that was happened in 1983, there is no big flood in Cirebon. Except, when there is something wrong happened, such as a broken levee. Consequently, almost all people in Cirebon surprised when the big flood stroke Municipality of Cirebon in February 2012. The average height of the water is 100 cm in almost all area. The water inundated major roads, government offices, schools, shopping centers and residential.

From this information, it can be assumed that in Cirebon, it needs an event to wake both government and people up. After the event, there is a significant increase in awareness that might help government and people start to develop adequate flood risk management to anticipate future flood. It is a good sign of better intellectual capacity in flood risk management in the future.

The head of disaster section believes that the municipality of Cirebon can measure or at least estimate the loss caused by flood, because the information from previous incident as well as the recent economic and social information can be accessed easily. Every years statistical bureau launches the report named “municipality of Cirebon in numbers” that consist of every aspect in Cirebon shown in figures and numbers.

Up to this point, it can be conclude that government of municipality of Cirebon has average capacity in understanding. There is adequate information, from pre-flood phase until post flood phase that can be useful for minimizing total lost from the upcoming flood. However, there are some parts of indicators that still missing.

4.6.1.2 Training for flood mitigation, simulation, and recovery

According to one of the officers in disaster management section, mitigation is needed to minimize loss when flood strike. It is important to analyze how to make people ready before flood come and how to help them when flood come. Therefore, disaster management section and data collection section in fire brigade and disaster management agency tries to collect previous data that scattered in several agencies. This activity shows that government has strong willingness to learn, to get better knowledge from the previous data. Moreover, local

government also enhances the officer's capacity by conducting training for each officer. As the head of disaster said,

“usually provincial or national government invites couples time a year us to increase our knowledge or just to inform us new regulations or new programs for disaster mitigation”.

Training for improving staff capacity is really important to keep all officers well informed. The head of disaster said that besides the regular training from central government, there is also internal training for enhance officer's capacity. Nevertheless, training or socialization about mitigating flood is rarely planned. It was only addition to other socialization, not specific for flood.

Evacuation plan is the essential part of flood management. It combines all different aspects from finding the best place as evacuation place, resource management, shortest path of available route, until understanding demographic data. According to the officer of Kesbang, there is no such evacuation plan in Cirebon. They only have some evacuation points, but they have not yet make detail evacuation plan. Moreover, according to the officer from public protection, there is simulation of flood emergency for people, but it is not regular. It is only conducted with sponsor. Starting for this year, they propose for regular flood simulation.



Picture 036.jpg



Figure 4.4 Flood simulation (source: Kesbanglinmas, 2012)

Training for flood recovery in municipality of Cirebon is not specifically planned. As one of the officer in Kimpraswil, Public Work said,

“There is regular trainings for the officers, but it is usually general training, not only for flood. However, the purpose of the training is to increase capacity level of every officer suitable to his/her roles and

responsibilities, because with or without flood, we still have to maintain and enhance the infrastructure in line with the city and people needs”.

From this point of view, it can be concluded that there is not enough training and socialization for flood mitigation in this municipality. Government still put the training issues as “not urgent” activity.

4.6.1.3 Motivation (involvement, initiative, self-recovery)

Motivation is needed in encouraging people to follow the regulation, to aware of flood, and actively involved in government programs. One of example that represents low capacity of government in motivating people in simply follow the regulation or even actively involves in monitoring process is describe on the next paragraph.

One of citizen in Kelurahan Harjamukti said,

“Although government has good policies and regulations, monitoring processes are rarely to undertake. Government makes zoning regulation, for example, but illegal building still raises somewhere”.

It seems that there is lack of socialization and also control from government after launching regulations.

One man who built his garage on the river bank excused that no one complaint about the garage, so that he continue using that piece of land for his own benefit. When this issue was brought to his neighbour, the neighbour said that he knew about the regulation. He disagreed with the existence his neighbor’s garage that sacrificed a big tree and other plan that use to be a house for birds and protect his house from scorching sun rays. Nevertheless, he does not know where to complaint. Moreover, he does not want to fuss with the neighbor. He said that it is better for him to silent, since it is not his land. He thinks that government should tackle down this problem before other green area becomes another garage. This example shows the important of embracing all citizens from the planning until controlling process.

According to the head of disaster section, local government has pointed one representative in every region, so that in emergency situation this person will be the key in bridging government and people. This mechanism could be the reason why not all people know how to contact disaster section when flood strikes. Although head of disaster argues that there is a direct phone number for people for asking help, many people don't have the number. People just rely on one particular person to contact disaster section.

The capacity of local government in motivating people in taking action to bring back their previous life as soon as possible after disaster can be assess by looking at people willingness to recover themselves. Indonesian character that tend to be resign in accepting fate makes government to work harder in motivating people to accelerate recovery. One example is when Japan television broadcast information and motivate people by playing very vibrant song to raise people spirit after experienced bad tsunami in 2011. In Indonesia, after disaster, local and national television usually broadcast information about disaster with sad song at the background. It makes people too long to realize that live must go on.

Another important thing for self-recovery is insurance. Unfortunately, the finding is dispirited, since local government know the important of insurance. As one of officer from public work said,

“People should have their own insurance to recover their private properties, because government does not have budget to recover their belongings”.

Nevertheless, this officer said that government has no program in educating people about insurance.

In conclusion, local government of municipality of Cirebon still has low capacity in motivate people to learn, to act, and to actively support government for flood risk management.

4.6.1.4 Standard

Local government of municipality of Cirebon does not have legalized mitigation plan now. The organization for disaster management was just founded in January 2012, so that it still needs time to arrange everything. However, according to the

head of disaster management section, there are some of activities that can be done by people to avoid flood, which are (1) never dispose garbage to rivers/canals/irrigation systems; (2) no building on the flood-plains; (3) make open space in every house; and (4) dredge the sediment on the river. Unfortunately, he said that although those activities should be socialized to people, since he just started his incumbency, he has not started the socialization.

Local government of Municipality of Cirebon also has not finished both evacuation and recovery plan progress.

“Usually, everything goes without documented procedure, because officers that handling each issue has experience. However, I will start to make documented procedure for mitigation and recovery plan to simplify the coordination among all actors.” (head of disaster section, 2012).

After discussing all criteria for accessing intellectual capacity in municipality of Cirebon, table 4.2 will simplify the result of the assessment.

Capacity	Criteria	Indicator		
		Pre-flood	During flood	Post-flood
Intellectual	Understanding	++	++	++
	Training	+++	++	+
	Motivation	+	+	+
	Standard	+	+	+

Table 4.2 intellectual capacity assessment

4.6.2 Social Capacity

“Structural measures like embankments can provide protection against many types of flooding. Physical flood structures alone, however, often do not provide a robust, long-term solution for addressing flood risk. Such structures may offer solutions to critical aspects of the flooding problem if they are used in conjunction with other non-structural measures, are planned and implemented with the participation of local people and with an understanding of possible negative consequences, and are integrated in the overall developmental policy”(ADPC, 2012).

Social capacity is a key success in ensuring all robust physical structures and orderly plan goes well. Assessing social capacity will bring around local government to the existing situation in its region and finally will increase their awareness to adjust the plan for long-term goal.

4.6.2.1 Network

The officer from local protection section said that people in Cirebon still live in traditional manner, because most of relation with regency of Cirebon, the only region that has direct connection to the municipality, has not documented. For example, in managing flood, there is no formal memorandum of understanding that if one of the region experience disaster, other region will also take the responsibility to minimize loss. However, according to head of disaster section, anytime regency of Municipality of Cirebon needs help, they will come to help and vice versa.

According to officer in kesbang, local government has good relationship with many stakeholders in flood management. Many organizations involve in flood programs in every phase. Rotary club and Lions club for examples is regularly funded flood socialization program. Those organizations also involve in aid mobilization unit (table 3.1) as one of working unit of previous disaster management agency.

After flood, local government also has strong relation with other institutions.

“Youth organizations usually help cleaning and landscaping agency in removing debris” (head of disaster section, 2012).

Many stakeholders also involve in estimating losses after disaster. This information ensures the involvement of various stakeholders in managing flood in municipality of Cirebon.

Head of disaster section said that Cirebon has rescue team. However, if the flood is big and this team cannot conquer, they will ask for Rescue team is for Cirebon metro areas (Municipality of Cirebon, Cirebon, Kuningan, Indramayu, and Majalengka regency), militer, and NGOs.

The head of disaster management section said that there always be reserve fund for disaster. If the flood is very bad, then government can state that it is a provincial or state disaster, than province or/and state government will fund to response the situation. The documents are ensuring this information. The head of kelurahan Kalijaga also said the same thing.

From those findings, it can be concluded that local government of municipality of Cirebon has broad network for flood risk management.

4.6.2.2 Staff

In municipality of Cirebon, there are written procedures for agencies or section without pointing specific person or position. This general guidance often overlaps each other in a complex emergency situation. It also needs time to wait for head of agencies or sections to send their reliable staffs to the field. It is another sample of bureaucratic procedure in local government. The system should be changed to make the emergency scenario well organized. Moreover, they do not have resource planning in paper although they have the document about the resources they have. They know how much inflatable boat they have, they know how much officers they have, but they do not have plan to empower all the resource they have.

The most challenging part in response phase is organizing all people, actors, victims, and volunteers to act in harmony to reach common goal. According FEMA, there should be a written guidance that will describe each personnel's roles and responsibilities. Moreover, there is also team that will ensure the personnel's families safety, so that the people who involve in emergency rescue will work all out without worrying their own families. Unfortunately, local government of municipality of Cirebon does not have specific and integrated resource plan for all phase of disaster.

4.6.2.3 Communication

According to the head of disaster section, government has make relation with local radio and television for broadcasting information. He also stated that people

know the number of this agency to ask for help. However, local leader said that he do not know the number. Local leader in kelurahan Larangan said (and also confirm by the head of disaster management section), local leaders has important role in emergency situation. They will give instruction in emergency situation. Usually local leader has wisdom to stir people in emergency situation.

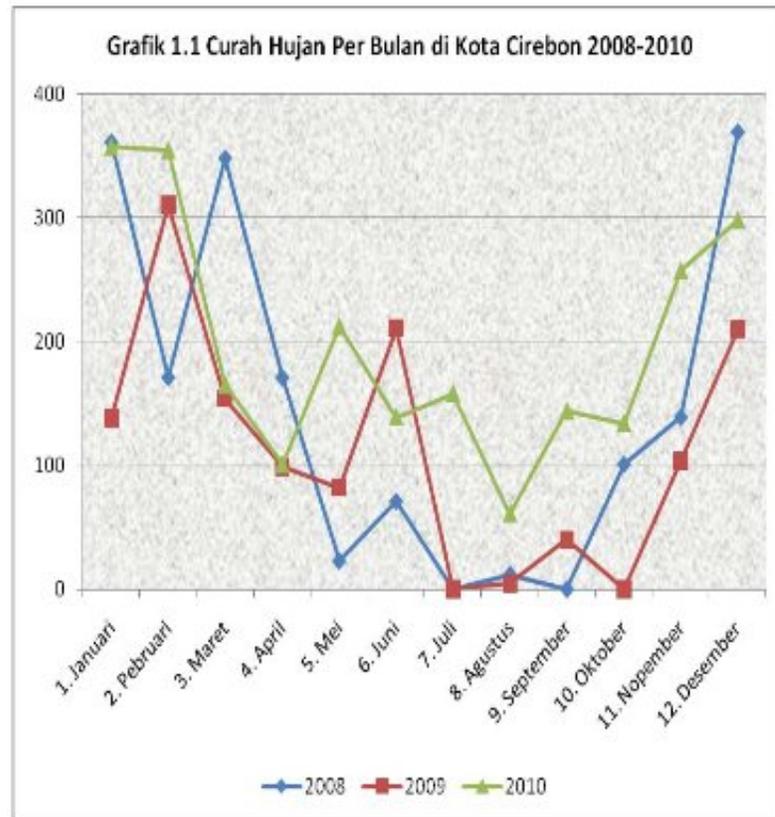


Figure 4.5 Rainfall figure in municipality of Cirebon

According to data from statistical bureau, from the month of November to March municipality of Cirebon has heavy rainfall. Figure 4.5 shows the rainfall pattern within three years from 2008 to 2010 per month. Local government should warn people to prepare for flood around those times. The head of disaster section said that they do warn people through their representative in each *kelurahan*. Supporting the information from the head of disaster section, local leader in kelurahan Larangan give the same information. He said that formal local leaders in their own community initiate to warn their people to prepare for flood.

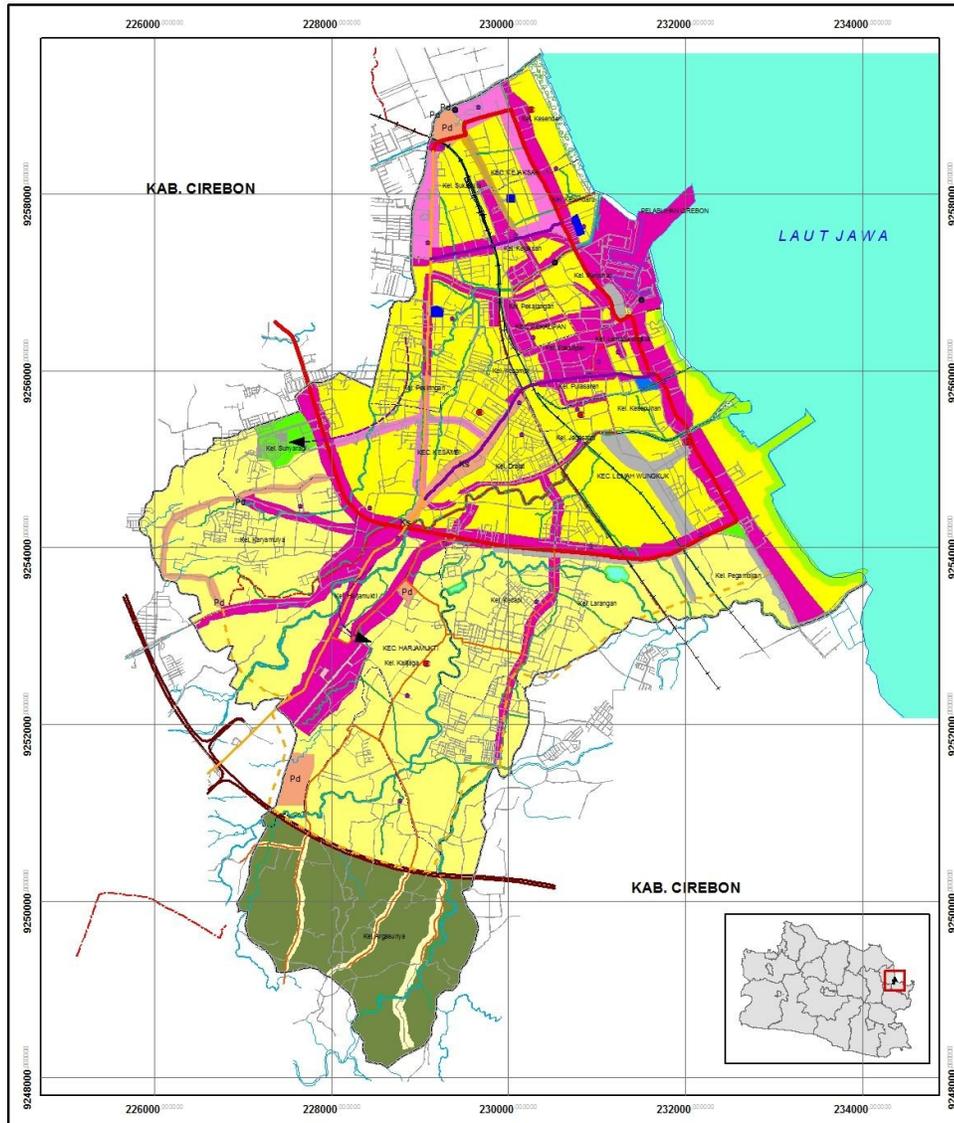


Figure 4.5 Spatial pattern map of Cirebon

The officer in the local planning board said that municipality of Cirebon ready to implement new spatial plan. The document named RTRW kota (municipality spatial plan). Figure 4.5 is spatial pattern plan map. The red colour represents space for trade and services. The dark green represents space for agriculture, while the light green for green area. The yellow colour represents residential area

(the darker the colour, the denser the area), and the grey colour is for industries. There is also evacuation route that marked in black arrow.

Head of Kelurahan Kecapi also stated that he knew this document. He said that every head of kelurahan has been introduced to municipality spatial plan. This program should raise the awareness of each kelurahan to support the planned development.

During flood, reliable data is needed to support decisions that often have to be taken in urgent situation. Without accurate data that can easily shared and accessed by diverse stakeholders, the decision making process will take longer time and ineffective. Municipality of Cirebon has to learn how to share the data among agencies in systematic ways.

Sharing means giving and to receiving in return. In the context of flood risk management, sharing is not only spread the data to all stakeholders, but also welcoming input from others. This issue already discussed at previous section that will take local wisdom as an input for planning. Unfortunately, this municipality is still fail in gathering information from people.

Accessibility in flood risk management means the simplicity in accessing resources. Governmental bodies usually have long bureaucratic procedure that will leads to the longer recovery. In municipality of Cirebon, this style of government still rooted.

“It is hard to use other agencies’ resources. It has to be approved by many officials before those resources can be used. When one of the officials is not in place, the document will stick in his/her desk for days”. (Officer in disaster section, 2012).

The stiffness and complexity of bureaucracy makes the development process stalled. It needs a transition in moving the system to be more simple and flexible.

Nevertheless, according to the officer of public protection, every agency has information about flood. They know the occurrence, the mitigation, and also possible causes of flood. However, this information is used only for their

purposes. “It is hard to get data from other institution”, he said. “Sometimes the same data is different among agencies because each agency has its own data and thinks that its data is the best”. Thus, it is hard to get reliable and accurate data as an input for good system.

4.6.2.4 Evaluation

The agency must present a response plan that is integrated with the community response plan. The plan describes not only the functional roles of the staff in emergencies, but also the answer of needs assessment. It should include plan to define who doing what, where to find what, etc. Therefore, all agencies should know exactly what they have and how to increase their capacity. The plan and the job action sheets should easily access to all staffs. Furthermore, the agency should demonstrate a process for regular exercise and updating the plan.

In municipality of Cirebon, on one hand, people living in the area that never experience big flood before, pointed government that make development permit to build new hotels, shopping centers in the swamp that used to be catchment area. Those developments change the green area into build area. It makes water will stay longer in the surface.

“Government only develops everything without calculating the risk that may come. This city has too many department stores and shopping malls that sacrificed green areas. I am not surprise if big flood hits Cirebon on the upcoming years.” (Interviewee, 2012)

On the other hand, government thinks that people who do not aware of the upcoming flood might cause a big damage. Many people still throw their garbage into the river, and illegal buildings rise on the green area. Local leader from kelurahan Larangan said that lack of supervision from the government might be one the causes of the unaware people.

From this information, it can be assumed that socialization and control become an important aspect for flood management. Therefore, regular evaluation is needed in keeping people act unanimously with the rules and regulation. In municipality of

Cirebon, since plan is still in progress, the evaluation process cannot implement yet, because evaluation needs plans as a benchmark.

Table 4.3 shows the social capacity of local government of municipality of Cirebon.

Capacity	Criteria	Indicator		
		Pre-flood	During flood	Post-flood
Social	Network	+++	+++	+++
	Staff	++	++	++
	Communication	+++	+++	+
	Evaluation	+	+	+

Table 4.3 Social capacity assessment

4.6.3 Political capacity

According to Khakee (2002), political capacity can be identified by finding out how local government mobilizes structure and method for collective efforts. In the context of flood risk management, the assessment will be based on the following criteria.

4.6.3.1 Strategy

According to BBWS Cisanggarung (Jabar), there are seven strategies for flood mitigation, which are (1) space utilization to meet the needs of community in harmonious and integrated way; (2) equality in flood understanding, including problems and the efforts to overcome it; (3) spatial plan that manage land utilization in flood-prone areas; (4) integrated flood management; (5) improvement of existing flood management; (6) division of roles and responsibilities to each actor for flood mitigation; and (7) increase community's preparedness in overcoming flood.

The head of disaster section sure that the strategies could be implemented in municipality of Cirebon.

“I am just starting my work, since the section of disaster is just formed. But, I guarantee that I will do my best in keeping citizen of municipality of Cirebon save from flood”

During flood, it is also important to understand local behavior in asking people to voluntarily evacuate, because sometimes many people reluctant to be evacuated for so many reason. Therefore, deeper knowledge and creativity is really needed. Officer in people protection section said that people reluctant to be evacuated because they are worrying their property. They had experience pillages before. So that they afraid when they leave their homes with no one look after their belongings, robbers would loot their homes.

To overcome this situation, local government with the help from military agency confirms that their properties will be safe when they were away. There are government officers, police and military officers who will guard the resident areas that were inundated. This service will calm people and make them easier to be evacuated. The officer of people protection also states that during flood, many problems raise and need to be solved fast. There is only one consideration at this time which is the safety. As long as the decision will make people safe, they will take the consequences.

In some cases, recovery phase after disaster may take longer time. It is not only because reconstruction the damaged infrastructures is time consuming, but also because knowing what people really want and need is not always easy. Learning from tsunami event in Aceh, Indonesia in December 2004 for example, after tsunami, government and other donator built a lot of houses for the victim. However, after sometime, many houses still empty and finally damaged. According to BRR (Reconstruction and Rehabilitation Agency for Aceh), there are many houses that was built below standard. Another reason is some of the houses were built too close to the sea that makes people who still have trauma reluctant to live in those houses. There are also houses for families that already died. Meaning that census on the number of victims, number of families that needs houses has to be accurate. Therefore, having good knowledge in assessing the need of the region after disaster strikes would be an important issue, because the development of flood damage has to be based on urgency or the need of people.

To ensure that all efforts are appropriate, the officer from public work guarantees that his agency has strategy in overcoming some issues. For example, when the bridge that will be used as evacuation road broken, the agency will build provisional bridge to reduce construction time. After every citizen safe, there will replace the bridge with the permanent one. The document and the head of kelurahan Kalijaga also support the interviewee.

From the findings, it can be concluded that although the strategy is still in progress, the embryo is already there. Government knows the important strategy for flood management.

4.6.3.2 Coordination

According to the head of disaster section, before Mayor Regulation No. 17 year 2012 being applied, municipality of Cirebon has problem in coordination. Many agencies involved in flood management without structural organization. However, this problem step by step will be solved. He argued that he still maintain relationship with other agencies and organization while he strengthen the new organization that he led.

During flood, good communication skill is important to organize all related actors. Miss communication can make fatal impact. In the last flood incident in municipality of Cirebon, each actor seems to considers their organization goals without communicate their view to others. For example, as one of citizen said:

“In the last flood (February 2012), there were many volunteer came for helping us. However, there is no coordination among them. One volunteer took me to the school (temporary place for refugees) while other took my son to mosque (another temporary place for refugees). It made me worrying my families so much.” (Interviewee, 2012).

After flood, when the development pace should be increased, collaboration is the key answer in uniting all actors to work together. In municipality of Cirebon, there is still dichotomy in dividing work. For example, building roads is public work responsibility, others just do not involve in any ways. However, although building roads and other public infrastructure is public work responsibility,

people should also have responsibility in maintaining those infrastructures. In recovery phase, people are expected to work together to accelerate the recovery.

4.6.3.3 Direction

One of the functions of management is actuating (Terry, 1975) that will need a leader to direct all people to work independently to reach the goals. Therefore, it should be a procedure to direct people and government officers. Unfortunately, there is no such document that shows the procedure for flood response in municipality of Cirebon. The head of disaster section said that everyone already knows the roles and also knows where to find the stuffs. He just do not realize, in emergency situation, where everything is unpredictable, he needs backup plan, or even just a plan that sometimes can easily forget in rush situation.

The second indicator for directing people is activation. It means that leaders should know how to encourage both people and officers to actively involve in government programs. One of citizens said that most people do not care to local government activities, because sometimes the benefit is does not clearly define. This is a critic for local government. Next time, they should come with creative programs to embrace people with the clear objective that can be easily understood.

After disaster, government should ensure the acceleration of recovery process. For example asking businesses to start their activities, so that economic will run to support the recovery. Another example is to start the process of calculation of infrastructure damage immediately, so that decision makers could decide which infrastructure that needs immediate recovery to bring back people to normal life. However, in municipality of Cirebon, since there is no particular agency that calculates all damage, the information, sometimes, is not reliable. Each agency hasits own version about the damage. It delayed the recovery process.

4.6.3.4 Correction

According to the head of physic and environment of local planning board, policies are formal statements of a course of action. They may establish long-term goals,

assign responsibilities for achieving them, establish recommended work practices, and determine criteria for decision making. However, in emergency situation that needs decision in very short time, the hierarchy of decision making makes the decision hard to take. Therefore, it needs emergency legislation that will bypass the regular hierarchy. There is government regulation number 10 year 2008 about emergency response explain how government should form emergency response command when disaster strike. However, there is no explanation about correction or change response in emergency situation, because this document only explains about temporary command during disaster.

After describing all criteria in political capacity, it can be wrapped up in table 4.4 below.

Capacity	Criteria	Indicator		
		Pre-flood	During flood	Post-flood
Political	Strategy	++	+++	++
	Coordination	++	+	+
	Direction	+	+	+
	Correction	+	+	+

Table 4.4 Political capacity assessment

4.7 Concluding remark

From the recapitulation table (table 4.5) it can be seen that local government of municipality of Cirebon has higher capacity in social capitaland in planning function.

Function /Capacity	Intellectual	Social	Political
Planning	+++++	+++++++	+++++
Organizing	+++++	+++++	++++
Actuating	+++	+++++++	+++
Controlling	+++	+++	+++

Table 4.5 recapitulation of capacity assessment

5. CONCLUSION AND RECOMMENDATIONS

This chapter will answer the research question on the first chapter and wrap up the findings on previous chapters. There are two sub-chapters in this chapter, which are conclusion and recommendation. In conclusion, there are three things that will be discussed. Firstly, it will highlight the capacity that should government has in succeeding its flood risk management. Secondly, it will answer the existing capacity of local government of municipality of Cirebon. Thirdly, it will discuss about the gap between the concept and the existing condition. In the recommendation sub-chapter, there will be two important things which are recommendation for both local government and future research.

5.1 Conclusion

Before assessing local government capacity, it should be a standard that will be the guidance for this research. Criteria were set by associating basic management functions (Terry, 1975) with the institutional capacity (Khakee, 2002). There are twelve criteria that already assessed in ensuring local government preparedness for flood management. Those criteria are understanding, training, motivation, standard, network, staff, communication, evaluation, strategy, coordination, direction, and correction.

Each criterion influences each other. For example, lack of communication and evaluation will decrease people's motivation, because without socialization as one of communication programs, people do not know the importance of the program. Moreover, without monitoring process as one of indicators in evaluation, there is no different between people who supporting the regulation and the ignorance people. Thus, in this situation, it is not surprising if people tend to unaware of flood mitigation program.

In municipality of Cirebon, where people usually influence each other, the role of the leader is very important. It can be seen by looking at the research finding that local government has the highest capacity in social capital. It has good relationship with other actors that can be good partners in reaching the objectives.

However, for now, flood risk management in municipality of Cirebon, is still in work in planning function. Other management function (organizing, actuating, and controlling) still needs to be raised. It is because the organization that manage flood is just started in this year. Or maybe after years, the big flood is just stroke in this year, so that this municipality is just started to make integrated flood risk management.

For now, the gap between the concept of expecting capacities for flood risk management and the existing situation in municipality of Cirebon is still wide. In the upcoming years, hopefully this municipality can increase its capacity. Without higher capacity in intellectual and political capital, high capacity in social capital is not enough.

5.2 Recommendation

5.2.1 Recommendation for government

First, according to Berke et. al. (2006), development plan is defined from macro level to micro level. The higher level becomes reference for the lower level. Therefore, central government should have clear and adequate plan that would be guidance for the lower level government. In the context of flood management, central government can force the local government preparedness by forming the agency for disaster in flood-prone regions (for example), so that no regions will be left in flood mitigation.

Second, sustainable development is the key issue in regional development. Adiningsih (2007) stated that national development in Indonesia still focus on economic development. It gives impact on regional development. Thus, development is not only for economic matter. It should also consider environment and society. Flood risk management should be part of regional development that integrates all aspect for sustainable development.

Third, in several place in Indonesia, water gives a lot of problems. People experienced flood in rainy season and also suffered because of drought in dry season. Therefore, managing flood is cannot be separated with maintaining the

availability of clean water, because water is a looping process that can be managed to overcome both flood and drought.

Forth, we have to learn from the past. The disaster that already happens should make people tough. They can take the wisdom to increase the resilient level in facing similar disaster. Government should analyse previous flood by learning the causes, the interval, and the loss and use them to evaluate the future risk.

Fifth, in developed countries, when people's primary needs already adequate, insurance become very important. Life insurance, health insurance, until property insurance are become necessity. However, for most of people in Municipality of Cirebon, who are still struggling with basic needs (food, shelter, education), insurance become something luxurious. Moreover, they still believe that insurance is complicated. Government should have program in educating people about the important of insurance, because after disaster, people have nothing left.

5.2.2 Recommendation for future research

This research is only focusing on government capacity. However, without support from other parties such as community, the goals will be harder to reach. Therefore, there should be future research about community capacity in municipality of Cirebon that will give good input for flood risk management. Technical aspect assessment is also important in preparing a region for future flood. Another research could be conducted in other regions, since this research is only for one particular region that cannot be generalized.

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