A Comparative Study on Flood Management and Local Government Role between Japan and the Philippines
- A Case study on Shiga Prefecture and Laguna Province –

Abstract:

This paper aims to investigate the possible flood risk management by focusing on the role of local governments. We have been conducting field surveys Laguna Province in the Philippines and Shiga Prefecture Japan since 2013. Floods are natural and inevitable. However, some floods are extreme and others are not. We aim to minimize their risk to the people, industry and infrastructure.

There are so many measurements to reduce the flood risk such as contraction of dikes and protection of river banks, however, we focus on the role of the local governments since it is the most effective way to reduce the risks. We have developed the awareness programs for communities in flood prone areas.

By comparing the two different actions between Japan and the Philippines, we found the unique characteristics and similarities of each area. The impact of the flood are heavily depend upon the preparedness. And the relationship between people and the governments is another main cause of damages. Historically, flood was a part of their life.

However, we found that the rapid urbanization around Lake Laguna and Biwa Lake brought rapid change of land use and life style. This comparative study encourages collaborations between the two local governments.

Key Words: Economic resilience, Floods, Role of Local Governments, Community empowerment, Risk communication,
JEL classifications: M14

1. Introduction

1.1 Background and Research questions

This paper aims to investigate the role of the local government by comparing the management system between Japan and the Philippines. There are several similarities between these two countries including floods, typhoons, volcanoes and earthquakes. In this study, we focused our survey on flood risks and management issues of the local government.

For over 30 years, the Japanese Government has been working on the flood management program of the Pasig/Marikina River, running through the Philippines’ metropolitan area. Through this program, Japan has been engaged in the disaster risk factor analysis, and worked out countermeasures combining both structural and non-structural solutions. [1] The rural poor,
who are most at risk, are often no longer subsistence peasants. Instead, rural dwellers depend on complex livelihood strategies, including seasonal migration or inputs from remittances sent from relatives living in cities or overseas. These new survival strategies are reconfiguring risk in the countryside. [7]

Now, the role of the local government for mitigation and preparedness for the flood risk has been expanded to prevent and mitigate the potential risks. In Japan, we had several big typhoon in 2016. Especially, the typhoon No. 10 hit Northeast Japan and Hokkaido in August 2016 revealed new problems including capacity of local small governments. Many of the local governments were unable to manage the risks properly. It is not easy to issue the warnings to the community on the right time. With increasing flood risk, there are significant challenges for local governments in helping communities to achieve sustainable economic growth.

In this study, we examined the role of the local governments both LGUs (Local Government Units) in the Philippines and Kusatsu city, Takashima city and Nagahama city, Shiga prefecture, Japan. We started our project called “FACE”, Flood Awareness and Community Empowerment under JICA partnership program with LLDA (Laguna Lake Development Authority), UPLB (University of the Philippines Los Baños) and LGUs (Santa Rosa, Calamba and Angono) from October 2013. This study is based upon the findings from the project.

Our research question is to understand the effectiveness of early warnings by the local government on the potential danger to the community. Flood risk should be recognised as an important issue which provides both opportunities as well as a challenge to building sustainable communities. However, some local governments are quite small to tackle these challenges. Decentralization of the flood risk management can be not realistic in some cases. There are so many measurements to reduce the flood risk such as construction of dikes, protection of river banks and rehabilitation of river system, however, we focus on the community awareness since it is the most effective way to reduce the food risks to the community itself. We are developing the supporting education system and awareness programs for communities in flood prone areas, in collaboration with LGUs, LLDA and UPLB. The flood prone area lacks flood prevention infrastructure. Furthermore, residents are economically vulnerable to flood as they have limited options for relocation, improvement of their housing, or insurance methods. Although the community had an evacuation plan in the event of typhoon, the absence of reliable property security systems prevented the community from mobilizing quickly enough to avoid injuries and loss of valuable assets. Prior to the intervention, residents would rely on the word-of-mouth to determine if river levels were high enough to warrant evacuation. And the community people in the Philippines receive frequent warnings from the government authority and they were insensible to the warnings. And even in Japan, we found similar problems such as frequent warnings.
1.2 Expected local government role and Research questions

We identified the following facts via a series of discussions in the Philippines;

i) Flood is a part of their life.

ii) Before the industrialization, flood water was clean and it was not so dangerous.

iii) DRRMO (Disaster Risk Reduction Management Office) in LGU is using Facebook to is expanding their delivery of their latest flood warning information to the community

iv) Local universities are closely working with local community and local government

v) In case of the evacuation, people cannot leave their house because of their property.

In the Philippines, some of river basins where flood control works have been implemented is increasing year by year. However, they had serious damages caused by flood disasters every year, especially in rapidly developing areas.

On the contrary, we identified the following facts from the survey in Kusatsu, Takashima and Nagahama city in Shiga prefecture, Japan; [2][3][5]

i) Flood was one of the highest risk, but in some risk area well managed now,

ii) No flood experience except elderly people, and no research work with the university

iii) Direct e-mail services of the disaster risks including flood, typhoon and security issues to the community started after 2010,

iv) Monitoring system are operating at some risk area, but not well known to the community,

v) In case of the evacuation, community people cannot evacuate properly because of their aging problems,

In Japan, we have some sophisticated monitoring equipment, but the important information about the potential risks are not well delivered to the community.

II. Previous study; Flood Mitigation and the Community Empowerment

2.1 Organizations and Responsibility LGUs around Laguna Lake in the Philippines

The National Risk Reduction and Management Council (NDRRMC) was mandated by virtue of the Republic Act 10121 (The Philippine Disaster Act of 2010), which enacted the creation of localized Risk Reduction and Management Offices (RRMO) to design risk reduction plans and management strategies. And finally Local Government Unit (LGU) became the final responsible organization. But it has very limited experiences and in confusion.

Figure-1 Facebook of DRRM, Santa Rosa city; they are sharing updated information via Facebook with pictures and pdf documents.
2.2 Organizations and Responsibility in Shiga prefecture, Japan

In Japan, all the measures are based upon “Disaster Countermeasure Basic Act” in 1961. All the local governments including prefecture and city government are responsible to manage the flood risks under the act. The Central Disaster Management Council was to formulate the overall policy for DRM and to function as the national coordinating body for disaster management. [1] Direct communications from the local governments are very limited and only official announcement via official home pages is the main measures to the community. Recently, Takashima and Kusatsu city introduced daily e-mail services including Typhoon, flood risks and other community problems including unexpected witness the bear in the community and fire accidents. Especially, Takashima city government is quite actively announces all the problems and events directly informing to the registered readers of the e-mail, called “Real time Takashima”. The basic idea is to include warning information into their daily life.

III. A comparative study (Methodology)

We conducted our study by looking at available secondary data, and have ensured the credibility of our study by evaluating various sources regarding the information required in order to answer our research questions. And we have identified many flood related ODA projects in the Philippines including World Bank, ADB and JICA. Those targets were mainly infrastructure including dike and drainage system. We reviewed those challenges and findings. As we have installed web based camera along the river system in Angono, SantaRosa and Calamba, we have conducted several interview survey in those target area. In this study, we will focus on the communication problems between the community and the local governments.
3.1 Impact of new communication technology in the Philippines and Japan

Japan holds abundant experience and technology gained from past disasters, having coped with natural disasters over years. With these experience and technology, Japan has contributed to improvement of disaster management measures in developing countries.

However, for the communication technology, used for the community and people, we have many things to learn from the Philippines. In this chapter, we will examine the lessons learned from the Philippines on the usage of SNS and the new role of regional university.

3.2 Information management and the role of the governments in the Philippines

For small governments, it is not easy to manage all the aspects of the natural disaster. UPLB has several research projects in the Philippines. On Flood and Drainage Management, UPLB targets to 1) decrease percentage of mortality; 2) decrease areas vulnerable to flood; and 3) minimize inundation duration. [6] These projects indicated the importance of both community involvement and flood risk management. Community involvement and information transparency is crucial for the continuation of the projects. Continuous dialogue with the affected communities is expected to occur directly and indirectly including Facebook and other SNS as well while the projects are implemented.

IV. Findings

4.1 A comparison between Japan and the Philippines

Our study area has many similarities including geographical conditions, environmental problems and the differences on the challenges on the community. (See table-1)

Table-1: A Comparison between LGUs in the Philippines and local governments in Japan

<table>
<thead>
<tr>
<th></th>
<th>LGUs around the Laguna Lake</th>
<th>Local governments around Biwa Lake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>911.7 km²</td>
<td>670.4 km²</td>
</tr>
<tr>
<td>Average depth</td>
<td>2.8 m</td>
<td>41m</td>
</tr>
<tr>
<td>Reservoir capacity</td>
<td>2.25 km³</td>
<td>27.5 km³</td>
</tr>
<tr>
<td>Social challenge</td>
<td>Rapid urbanization,</td>
<td>Depopulated village</td>
</tr>
<tr>
<td>Environmental problem</td>
<td>Bad waste management such as limited collection system and dumping posts, untreated discharge</td>
<td>Agriculturual water pollution such as phosphorus and nitrogen House hold untreated discharge</td>
</tr>
<tr>
<td>COD (Chemical Oxygen Demand)</td>
<td>Extremely bad (e.g. 80mg/l (1996), 60mg/l (2005))</td>
<td>Getting worse (e.g. 2.7mg/l (1984) , 3.5mg/l (2012),(South lake))</td>
</tr>
<tr>
<td>Evacuation problems</td>
<td>Limited, such as illegal settlers, Low land evacuation center, Limited space capacity, Security</td>
<td>Limited, such as dementia elderly home, single elderly households, Slow reactions caused by elderly</td>
</tr>
<tr>
<td>Information delivery to the community</td>
<td>Printed newsletters, Facebook, Transceiver (140Mhz band) among community leaders and DRRMO</td>
<td>e-mail, Laud speaker (Limited usage of SNS such as Facebook, Twitter and special application for smartphone)</td>
</tr>
<tr>
<td>Community link</td>
<td>Barangay based</td>
<td>Residents’ association</td>
</tr>
<tr>
<td>Role of Local University</td>
<td>Research, Trainings and seminar with students and specialists</td>
<td>Participate in the risk management committee as a specialist</td>
</tr>
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Because of the recent floods in both countries, the responsibilities of the local governments are increasing dramatically. Especially, how to mobilize the local community is the most challenging risks for the countries.

4.2 Summary of the findings

In spite of the similarities between the two regional challenges for the flood disaster management, we found many uniqueness, those can be very useful to each other. From the Philippines, we can learn how each officer of DRMM can contribute the quick delivery of the information. And to upgrade the local government capacity, local university must work together.

V. Conclusions and further studies

We are first interested in studying the similarity of the reaction of the community on the alert from the local government. According to the local government authorities both the Philippines and Japan, the reaction of the community was quite limited and should be investigated clearly. Several interesting insights were discovered during our study. In general, Japan can learn the new role of the local governments including usage of SNS and university from the Philippines.

In case of flood, the good management of the information is able to reduce economic damages and loss of property and even life. But it is not perfect still needs some improvement to activate people’s awareness to the information management. All the donors are trying to introduce new sophisticated technologies to improve flood mitigation system, especially early warning system. However, it takes much costs and is unable to reduce consecutive risks. Disaster risk communication must be practiced regularly, so that people are able to better understand the possible potential risks. Consultations between community, local university and local government representatives could assure complementarities and synergies across roles and activities.

Selected References