Disaster Adaptation by Community for City Sustainability. Case Study : "Poor vs Rich Settlements"

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Abstract
The presence of events caused by climate changing hit communities in Asia such as declining agricultural production and sea level rise at coastal area(Peng et al, 2004 in IPCC The Third Assessment Report). This phenomenon occurs at Jakarta's coastal area that is manifested in damaging 5 year-flood. This study aims to look the process how two different types and strata of neighbouring communities deal with flood. It happened in coastal communities at Muara Baru which is slum area and Kawasan Pluit which is dominated elite housing. As one developed coastal ecosystem, limitation access to integrated management of flooding becomes problem. Community's adaptation strategies are emerged to find out as an integrative solution to build resilience. Collective ability (in this case at coastal area) could as the potential strengths for community to keep away their activity and area residential from disasters (Dynes, 2002). This study uses qualitative methods that are explorative and comparative between sites through in-depth interviews and observations. The results obtained different adaptation strategies from two types neighbouring communities although they live at the same ecosystem. It identify by 3 factors consists: perceptions, ways of life and adaptation behaviours based on disaster cycle (pre, during, after). Therefore, the recommendation stated that the implementation of flood management can not be made uniform, it must adjust with local community's character.

Keywords: disaster management, adaptation, climate change,disaster, social class, community

Introduction

In most developing world like Asia, cities are facing increased risk of disasters with potential of economic and human losses from hazards as an impact of gaining development welfare. Hazards could threaten city development and sustainability by its disaster. Nowadays hazards are potentialy harm peoples become disaster because multiple factors such as vulnerbality and capability. It depends on how vulnerable and capable the city could coping the hazard, so it will reduce the impact of disaster.
Climate hazard become hot topic to describe the impact of climate change. Many cities througout South East Asia are potentially risk on climate hazards. Below is the visualization of Asia through the climate hazard map :

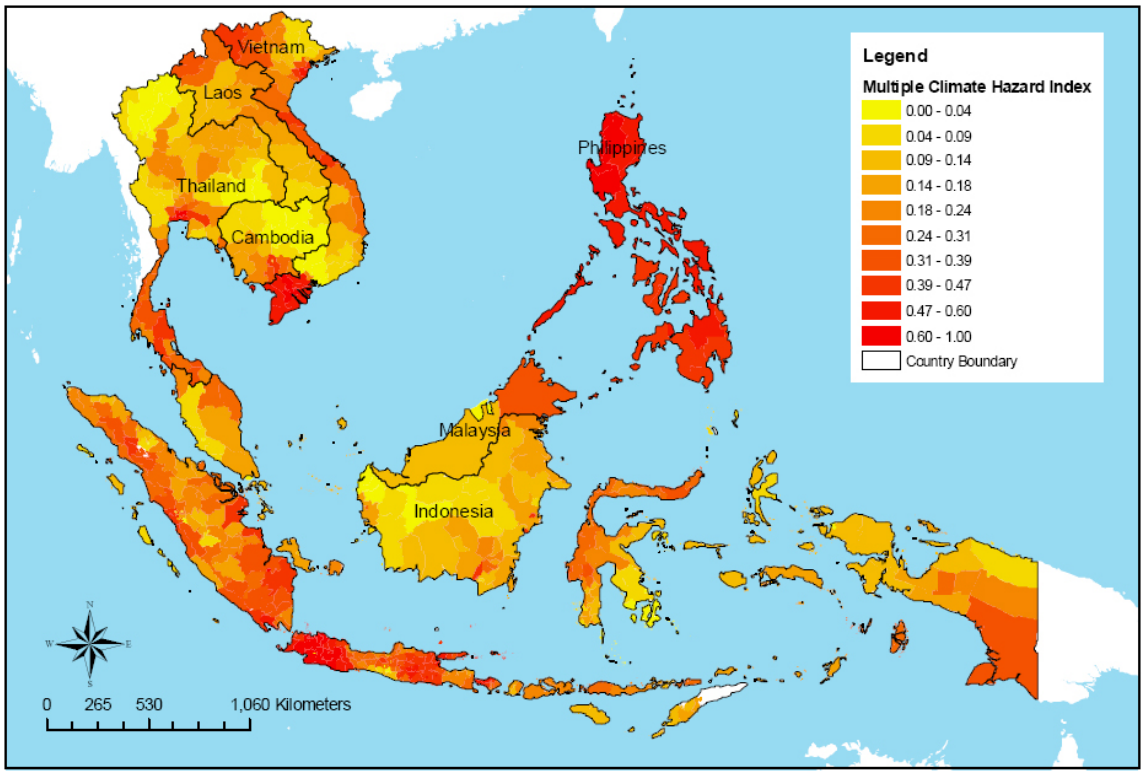

Figure 1: Climate Change Vulnerability Mapping in Southeast Asia

One of the impacts of climate hazard is flood disaster. Many Asia's city deal with this kind disaster because of the physical environment condition and quite dense population.

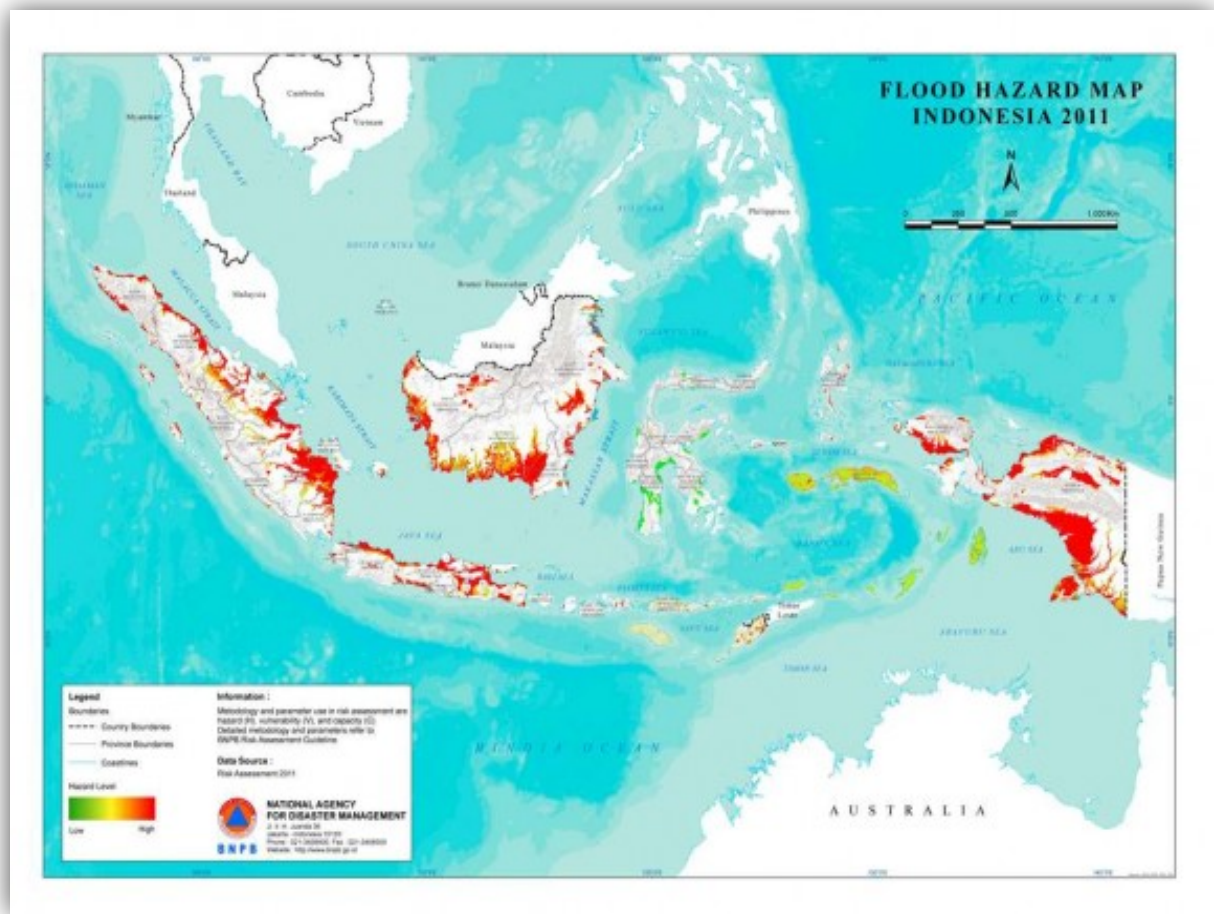

Figure 2 : Flood Hazard Map Indonesia 2011

Indonesia itself is the highest risk prone area at South East Asia. This country consist of more than 17.000 islands at the tropical area. Indonesia has special identity according to the location geologically and demographically as risk –prone area . It may be responsibility from all stakeholder in urban area to realize and "do" something for coping it.The most hazard could threaten is flood.

In the other hand, Indonesia is a huge country with more 8 megacities surround. Moreover, rapid population makes rapid activity at limitation space. It will increase the potential of conflict within natural or social resources and Indonesia faces this phenomenon. While density as social vulnerable meet the physical vulnerable, it become more risky this country having magnificeient disaster.

North Jakarta, Its Surrounding and Hazard

Jakarta is one example for disaster-prone cities in developing countries. According to mapping studied held by National Disaster Management Agency of Indonesia or usually called with BNPB (2012), Jakarta potentially hit by 10 types of disaster which are flood, extreme weather, high tide and abrasion, landslide, earthquake, tsunami, epidemic outbreaks of disease, building and settlement fires, social conflict and technology failure. The most frequent incident happen in Jakarta is flood, conflict social and building and settlement fires. For Instance Jakarta with Jabodetabek is the

6th rank densest of urban agglomeration in the world with 22 million population live at 1000 square miles (Demographia-World Urban Areas, 2011)

Meanwhile, North Jakarta faces an environmental problem, such as in 2009 flooding occurred in the northern coast of Jakarta derived from sea water or flooding of the river estuary abundant in Muara Baru, Penjaringan village and in the region Marunda, Cilincing Village as high as 50 s / d 150 cm. (www.kompas.com). This region experienced floods that have an impact on everyday activities paralysis for several months. Based on the interviews have been conducted with several leaders in the region, these events are often repeated during the tides and heavy rains in upstream areas. Although it has happened repeatedly, but still cause great material losses. Therefore, the incident is classified as a coastal disaster by the local government.

The other things that have serious problem at North Jakarta is the social segregation. It could bes seen at Penjaringan. The neighbourhood is extreme beetwen the elite housing and the slum area only separated by a high wall or common resources like dam. In general, the elite housing consist of rich people also Chinese as majority ethnic there and slum area consist of poor and local etnic communities.The extreme diffrences could trigger a horizontal conflict beetwen them.

This social potential problem will be tapered due to environment degradation and floods. It’s not surprise, considering Jakarta as dense populated city in low land of rivers delta. Through the activities of reclamation and the construction of elite residential -besaran along with construction of the plant - the plant in the port resulted in a decrease in environmental conditions such as widespread flooding, loss of mangrove habitat and deprivation of rights - social rights such as the loss of the existence of a public beach (WALHI in SEA Seminar in Jakarta, 2008).

Despite the complexity of these issues, but people still choose to stay and activities in the region that is "difficult" due to the floods and their impact. Adverse flooding and is seen as a barrier to the move by many people in general, but it is understood differently by communities living on the coast. Purport to be important to explore to find out why they have remained in the disaster prone region.

Type of collective action in the form of adaptation also seen in Penjaringan, North Jakarta. The strategy used from residents in each community varied but not coordinated with one another. This region consists of a variety of community based on economy class residential dwelling identified from either the well-planned luxury residential, as well as traditional irregular settlements with the term "kampung".

Muara Baru and Pluit in Penjaringan are mutually neighboring region ever flooded. Muara Baru included in the high category in the coastal vulnerability index issued by the Ministry of Marine Fisheries. Based on the results of interviews to kelurahan office (Fitrinitia and Bayu, 2010) states that the Muara Baru is RW worst affected by the floods and floods when the overflow reservoir. Almost every year there is a major flood as high as 50 -100 cm and the time post at a particular location will experience a puddle for 2-3 months (Sentosa, 2009). While it is still from the same source, to the Pantai Mutiara is located in Pluit also been flooding due to levee 2006 -2007. However, for the past few years till now not been a big flood. Only in some areas near the shoreline were flooded when the tide.

It is a very unique conditions, whether two difference types of communities living together neighborhood deals with flood, but most of them have minim effort to move away their settlements to other part of cities. It lead us to have big question “Why they still love their setllements area whereas the flood hit them every year and have big potential of social segregation”? Based on that question, we could draw how they adapt about that condition,-the condition that in risk prone zone?

Methodology

However, also based on BNPB’s studies, disaster risk reduction initiated by local government not yet run optimally particularly on vulnerable groups of the poor. Even, Fitrinitia (2011) stated that Jakarta government mechanism for disaster management still as top down process and has not put forward the abilities of community that is already owned by them although with limited access.

This study used a qualitative approach in synergy with the method of collection, processing and data analysis is qualitative. It aims to demonstrate the community's response to the flooding. After that just knowing their adaptive measures in order to survive. So that these things into consideration most appropriate to use a qualitative approach.

By using a qualitative approach as well, researchers can obtain other symptoms that may arise at the time of data collection, data processing and data analysis considering the introduction of research on the character of a society is quite extensive, so it is not hindered by the limitations of the movement of researchers.

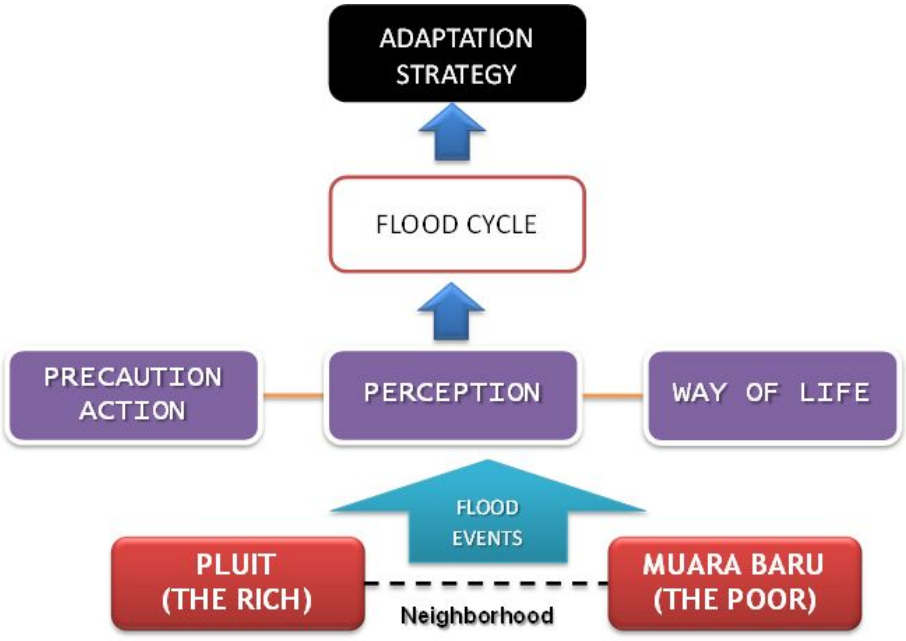

Figure 3 : Research Mindset

There are 17 respondents which are representative from Muara Baru-the Slum and Kawasan Pluit-the elite housing.

Findings – The Situation and Floods between Pluit and Muara Baru

Muara Baru and Pluit community area indeed never experienced flooding. It is still common until 2011 in Muara Baru, while in Pluit area for the 2002 flood and tidal flood in 2008. But in both communities still felt alive under threat of flooding taking into account the physical conditions of the region continues to decline quality. It is the cause of the continuous undermining the sustainability of life experienced by residents in the coastal border. The threat of environmental degradation in the end does not recognize the economic and social strata, as well as with the case. Both of these communities is the description of "risk society" as a result of environmental stresses such terminology presented by Beck, 1992. In this case the actual likelihood of exposure due to flood conditions at comparable or lower-middle between the community and the luxury communities.

Figure 4 : People live in Muara Baru

The difference is the impact felt by citizens. Muara Baru feel the impact interfere with the activity of work, reducing the revenue to health while the impact is felt in Pluit the extent of the disruption of activities and distrust of insurance against residence. When returned to the sociological terminology, the impact of flooding that occurred in these two communities can have a massive social implications both material and immaterial.

Figure 5 : People live in Pluit

The size of this effect is influenced by the capacity to overcome the ability of prevention is done by the citizens. This is the criticism of thought Beck delivered by Mythen, 2004 that the economic and social class remains into consideration when talking about the capacity of the prevention of environmental damage. This looks like in Pluit community with all its financial capabilities, they can fill the vacuum environment and disaster management that should be filled by the local government. This community is quite optimal answer to the problems of environmental solutions.
Things look different in Muara Baru community, with prevention capabilities materially limited, they rely on the efforts of disaster management to the government. But the process was not optimal so that is done by people in this community are only reducing the impact of flooding to adapt to those things that happens like a flood.

Findings- Perceptions, Ways of Life and Adaptation behaviours

As has been stated in the literature, that action can be manifested as a result of the perception that emerged in response to external stimuli. Continuation of the perception that this is a form of resistance to stimulate the emergence of adaptation actions undertaken by each of -masing community.

Differentiation is visible when Muara Baru community compared to Pluit area mainly of physical infrastructure such as luxury homes and permanent while in Muara Baru with a semi-permanent occupancy even tend rundown. However, this differentiation does not mean anything -what when these two areas under threat of disaster (flooding) due to the location of its location on the coast.

The district stated that the limitations of this region does not become a hindrance to increasing population in each - each community. Motivating factor to stay in this area is stronger than fears of a flood-prone.The response of the flood together with the community in Muara Baru, eventually got used even though in the beginning feel troubled. The process of adaptation to the environment given what happened in this community. When in the beginning was worried then interrupted, after already handled well they perform usual activities especially when it has no flood again.

Therefore, from the perception of these two communities when portrayed in the range, then the following is the description of a range of adaptation experienced by the community:

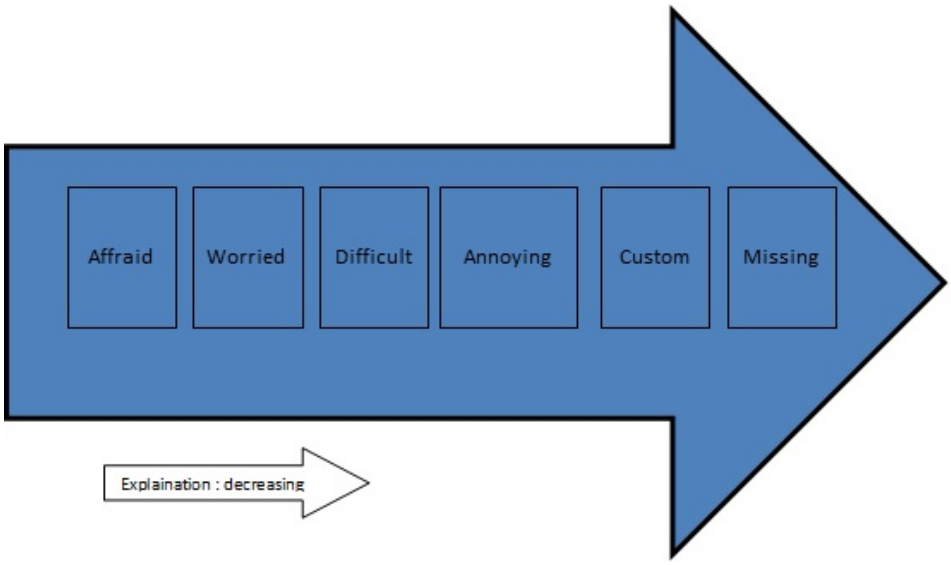

Figure 6 : Adaptation gradation range by Community

Based on the picture can be seen the process of adaptation to erode the fear community accustomed to the extent that there are two communities. This process does not look at the economic and social strata. Even an informant expressed his desire to be the flood after so long they do not feel the floods.

Findings- Way of Living

Seeing the quality of life it can be identified by way of daily community life. In this study will try to see through livelihood, the fulfillment of daily needs and habits - kebiasaan done collectively.

It will be seen the difference of the way of life in these two communities are still Society and patembayan which are characteristic community still familial / traditional and modern industrialized community governed by a formal reference. This characteristic difference is marked by interaction with the citizens and the environment.

Findings- Adaptation Activity

Resilience according to Pelling, 2003 is the ability of people to take action adaptation of the suppression of the threat of catastrophic events in this case is flooding. Conditions how people can face the floods but can perform everyday life is an act that reduces the impact of the flooding.

In the section that describes the response of citizens against floods both in the community and Pluit Muara Baru think they are friends and no longer be a problem that has worried the flood. The assumption is of course accompanied by actions that they think this is enough to manage the impact of flooding. This action appears at the initiative of citizens in each - each community is not based on the direction of the government for performing actions harm reduction. The results of the manifestation of perception and way of life also affects the actions taken at the time of the action (resilience) in flood management

Conclusion

Potential disaster for the poor and the rich are relatively the same, but the adaptation process is slightly different depending on the economic and cultural strata layer. The difference in the level of needs of each community to its environment. The difference is obvious when the need for a clean environment, healthy, comfortable, safe from the threat of disaster appeared in the community with economic and social strata above. As for the community's economic and social strata below have not felt as a necessity for a good environment. They have not felt good environmental conditions will also provide feedback to the health, quality of life and lack of hazards. As an initial hypothesis, one of the influential factors are the factors that determine the level of education that need. Through education will get a further understanding of the feedback to the human environment should work in harmony.

Disaster adaptation strategies is also a picture of a reciprocal relationship between humans and the surrounding environment. It is obtained in order to get the point of balance between man and his environment. Once the objective has given environmental -keuntungan advantage for the community living in it, then more and more people will depend on that. When the greater reliance primarily for gain, the greater the human behaviors that are destructive to nature. At the time the environment was no longer provide benefits but trouble for the community in it, then there is kompromisitas community to the surrounding environment. This is affecting the reasons to perform management actions that are tapping -These actions against environmental threats. If not maintained, then there human relationship with nature deadlocked on two sides.

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