

**Policy Options for Increasing Efficiency and Effectiveness
in Reducing The Vulnerability Caused By Climate Change**

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Part 1

INTRODUCTION

Currently, it becomes a reality that climate change is an unavoidable global phenomenon around the world. Global warming as a result of over concentration of greenhouse gases in our atmosphere has caused significant changes and uncertainty in our climate. Some of the most significant climate change features are the global average temperature rise, sea level rise, precipitation patterns changes, and occurrences of extreme weather. Climate changes which result in extreme changes lead to disasters. In fact, many disasters tied to climate changes have occurred in several regions in Indonesia.

Besides flooding, abrasion, droughts, and landslides, the impact of climate change also influences social economic conditions of communities. Recently, many disasters related to building damage, loss of assets and even unemployment, have been tied to climate change. A large number of people in lower regions of cities frequently experience flooding, while those living in high elevated regions of cities are prone to land slides due to extreme precipitation during the rainy season. Some regions of coastal cities have a high risk of inundation caused by sea level rises. In worst situations, community assets such as homes and aquaculture ponds, which are very critical for their livelihoods, disappear due to sea level rises, without no apparent substitution. In other parts of cities, a prolonged drought might pressure to surface water and urban water supply. As a result, many communities will experience '*stress and shock*' as climate is changing. This stress and shock significantly influences communities in negative way especially those which are categorized as marginal people.

There are also many indirect impacts of this declining economic situation for families. Some of these include declining health and environmental conditions, and crucially, the ability to pursue proper education. It can be concluded from many cases, that the quality of life of most people is decreasing; multi-dimensional impacts on people's social and economic activities in climate affected regions might hamper out the development progress and achievement. Therefore, it is possible to say that negative impacts of climate change are a threat for sustainable development.

The most complicated issue concerns those who are categorized as poor and marginalized. Therefore, it is important to consider stress and shock as further agenda to create resilience community related to the climate change impacts.

Local capacity to response the changing climate is not equal across country. Physical and environmental capacity across and within regions are vary so do their social and economic capacity. A significant factor which influence to the variability of cities' capacity in responding to climate change also lays on governance and institutional capacity. It includes the awareness of local government as well as other stakeholders and the availability of climate information in which vulnerability mapping are critical. The gap between capacity to response and impact of climate changes is more serious in developing countries as the issue of climate change is quite new for their local government and stakeholders. Currently, actions in coping climate change is done by many parties from the community themselves, local government/institutions, national level institutions and international level institutions. A lot of programs especially have been done when the destruction occurred is quite big and many losses incurred. But, there is no coordination among parties in doing programs. Sometime programs done are overlapping each other and even opposite each other. Many programs are carried out half-baked or temporary because of budget constraints.

It necessary to shift policy attention away from reactive short term safety policies toward a risk reducing strategy which is more effective and efficient. Policies that can reduce people expenditure caused by climate change and support more secure and more lucrative livelihoods. The policy paper attempts to answer what policies are needed to maximize programs to reduce the community vulnerability caused by climate change.

1.1 Purpose

In order to maximize programs done to cope climate change impact, this policy paper aims to:

(1) To promote active climate change collaboration of local governments and their associations in global, regional and national networks; it includes how to communicate this initiative at local level to gain a wider support for national-wide actors since national scale dialogue are also

important part to accelerate more commitments and further recommendations to implementation of climate change adaptation and vulnerability reduction action plan

- (2) To enhance policy dialogue so that climate change is firmly established on the agenda
- (3) To foster the implementation of awareness and capacity building strategies supporting the implementation of climate change strategies.
- (4) To improving resilience to climate change at the local level and at the same time also reducing the impacts of climate change on the poor.
- (5) To maximize local community and stakeholders involvement to design and proposes action to increase their resilience and reduce possible current and future disaster.

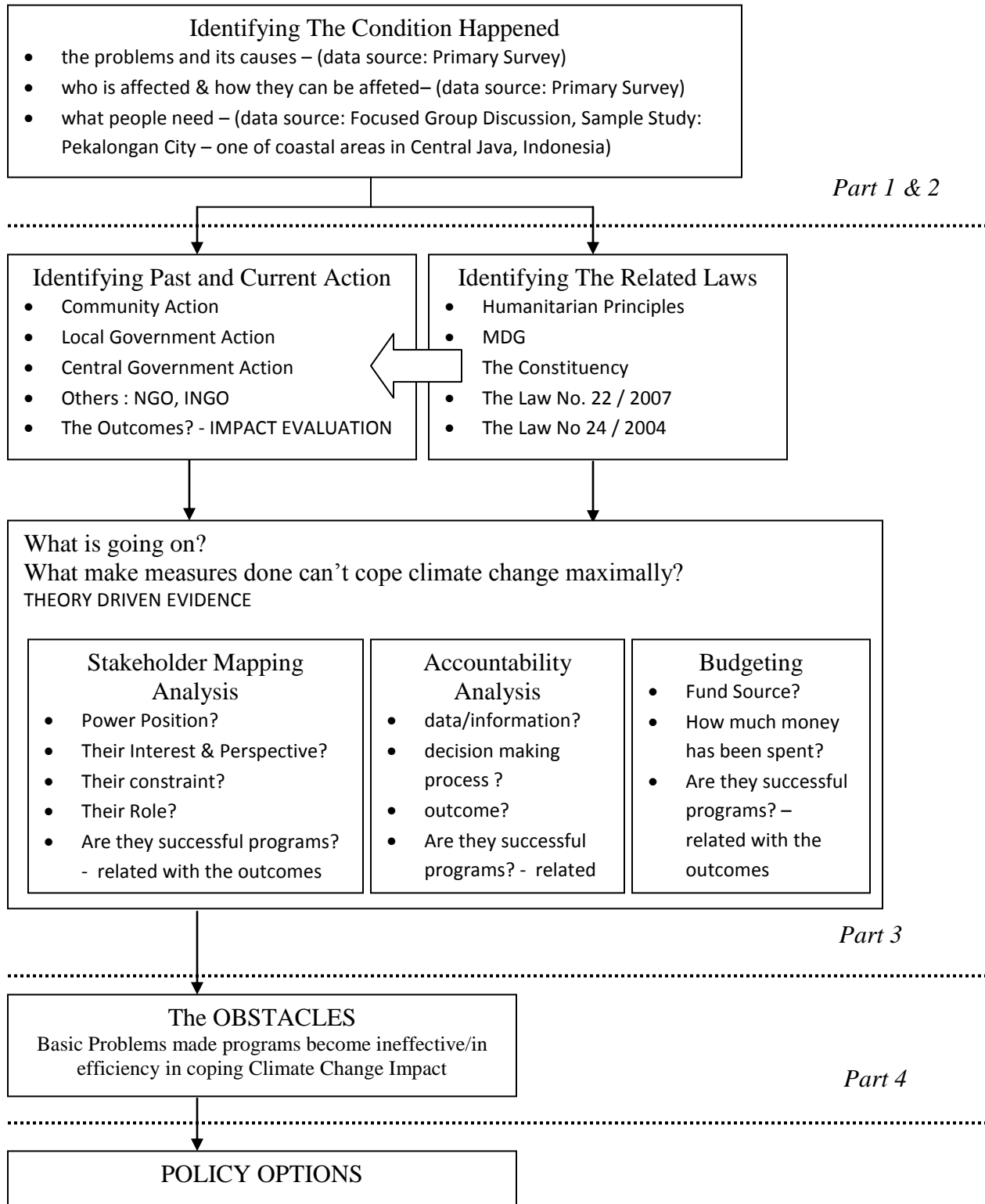
1.2 Methodology

Analysis on this paper will use inductive approach since the analysis of data and examination of practice problems within the climate change context are used a start point to get the general situation. Impact analysis and theory driven evidence are approaches to examine the existing condition in order to know basic problem faced including the related policies. The basic problems will guide the next step in generating policy options that is possible to be done along with Indonesian Government characteristics.

Pekalongan city will be a region used to represent the problems caused by climate change impact. The characteristic of Pekalongan City are experienced by many regions, that are:

1. Pekalongan City is coastal area where the impact of the climate change significantly influence (chronically vulnerable)
2. Livelihoods existed in Pekalongan City represents the majority livelihood of Indonesian people (such as: Agriculture, Fishery, Industry and Home Industry, Office and Trade)
3. Dense City
4. Several program have been conducted by national and local government in this region

Diagram 1. Study Framework



1.3 The Limitations of the study

Considered many aspects and the lack of data in the field, this paper will only discuss the system of climate change chain. It will seem to be a general approaches because of lack of time and data provided. Each sector analysis will not emerge in depth. It seems to be just like summarize apparent problem and the main cause.

Data used is primary data obtained from vulnerable and resilience mapping done in Kota Pekalongan City in 2010 by P5 UNDIP, ACCCRN and UN Habitat. Actually, result of this mapping will be used as a basic material in doing national quick scoping. Pekalongan City case will as an evidence represent several regions in Indonesia.

Part 2

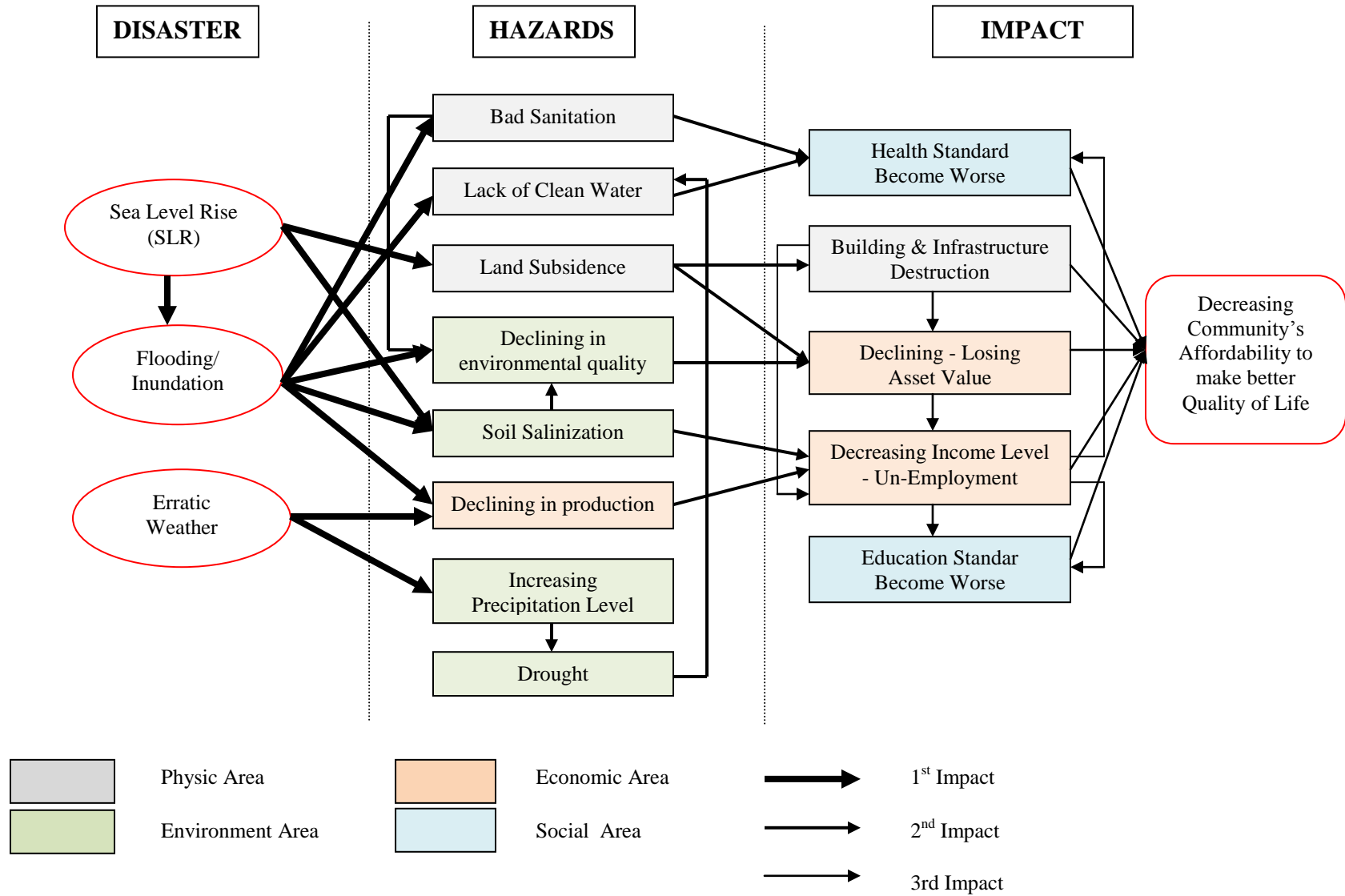
OVERVIEW

Case Study: Pekalongan City - Central Java - Indonesia

It is previously stated that climate change impact influence many sectors of human life. Not only stop in the hazards caused, climate change make the quality of human life become worse. As a chain, an impact of climate change will affect the other. These chains are cross-cutting. Therefore, handling in one sector will impact on other sectors. The measures done to cope upstream impacts will affect on downstream impacts. Conversely handling only the downstream impacts will never solve the problem as long as unsolved problem in the upstream.

Generally in Pekalongan City, sectors that get significant influences from climate change are physical, environmental, economic and social sector. Up to this time, climate change handling did sectorally ignoring the cross-cutting characteristic of climate change impact. This part explore about what people need from the government since they get negative impact of climate change. Stakeholder mapping was done to trace what is behind the programs more. Both was used as a basic to evaluate efficient and effective level of government programs/measures. Besides, this part also explored one by one measure/program have been done by government in Pekalongan City, both local and national government. By doing impact analysis and ending by theory driven evidence to each measure done by the government, this part is a session that aims to find problems make program done inefficient and ineffective.

Diagram 2. Problem Caused by Climate Change



2.1 Who is Affected

Table 1. Vulnerability Categories
Case Study : Pekalongan City

Impact	Affected Groups	Specific Group	Vulnerability Categories	How They are Affected	Scope of Concentration
<ul style="list-style-type: none"> • Building & Infrastructure Destruction • Declining – Losing Asset Value • Bad sanitation • Lack of clean water 	<ul style="list-style-type: none"> • Coastal Area Inhabitant. Indonesia is a tropical country which has more than 17.000 islands. So many areas experience what Pekalongan city has experienced. (see map) 	<ul style="list-style-type: none"> • shore line inhabitants • near shore inhabitants • border river inhabitants • inhabitants in areas with an altitude below sea level 	<p>Chronically Vulnerable:</p> <ul style="list-style-type: none"> • The building and infrastructure in this area which are listed in previous column are highly vulnerable to the occurrence of the tide, floods and inundation (it happens almost daily and the amount will increase when rainfall happened • People can't access clean water for free 	<p>Physically at Risk</p> <ul style="list-style-type: none"> • House become inundating. • Industry area (especially home industry) become inundating • Infrastructure become inundating (roads, health & education infrastructure, offices) • Sanitation is disrupted since the water in the drainage system can not be discharged into the sea • Bad drainage and sanitation system cause ground water contaminated • Areas prone to flooding and inundation increased from only 300 m from the shoreline to 1.5 km from the shoreline in the past 10 years 	<ul style="list-style-type: none"> • Housing • Infrastructure <ul style="list-style-type: none"> → Roads → Drainage → Sanitation → Health → Education • Water Supply • Industry • Agriculture
				<p>Economically At Risk</p> <ul style="list-style-type: none"> • elevation of the building carried out at least 2-3 years to prevent water and since it needs so much money, only the have can elevate their building and become save from water. • At least one a year, Municipality of Pekalongan elevates the roads. • People in this area can't use their ground water. They should buy water 	

				<p>to access clean water.</p> <ul style="list-style-type: none"> • The value of lands and building decreased • Hectares of land farm can't be planted again 	
				<p>Socially At Risk</p> <ul style="list-style-type: none"> • Disease outbreaks • Slum areas • Dead region 	
<ul style="list-style-type: none"> • Decreasing Income Level – Un Employment • Health Standards become worse • Education standards become worse 	<p>In general, coastal inhabitants are divided in three group considering their livelihood</p> <ol style="list-style-type: none"> 1. Fisherman 2. Fish farmers 3. Farmers 4. Industry support the fisherman activities (salted fish, ice maker, salt, shrimp paste 5. Tourism (specific regions) <p>Most of them are categorized as poor and vulnerable poor. These groups isat risk to be impacted by climate change.</p>	<ul style="list-style-type: none"> • Fisherman • Fish farmer • Farmers • Industry support the fisherman activities (salted fish, ice maker, salt, shrimp paste • Tourism (specific regions) 	<p>Chronically Vulnerable:</p> <p>The five groups who are listed in previous column can be categorized as Extractive Industry. Since their activity in earn money (livelihood) is depended on the natural condition, the climate change happened significantly influence this group's life</p>	<p>Economically At Risk</p> <p>How much they can earn is depended on nature goodness.</p> <p>FISHERMAN: Because of erratic weather, fisherman can't go to the sea regularly so their income variations around mean income become wider. sometimes within a week they could not go to sea at all. Their income is zero for days. They can do nothing since they don't have other jobs. This phenomenon happens to small fishermen whose boat has limitations in dealing with weather. And this kind of fisherman is the majority. Climate change makes many fisherman become un productive or lose their livelihood.</p> <p>FISH FARMER :</p> <p>Rob cause pond submerged by water and the loss of fish that is cultivated by farmers before they can be harvested. They can do nothing since they don't have other asset.</p> <p>INDUSTRY SUPPORT THE FISHERMAN ACTIVITY:</p> <p>Since fishing activity decreases due to</p>	<ul style="list-style-type: none"> • Agricultural Productivity • Marine Productivity • Tourism Productivity • Housing • Education • Health

				<p>erratic weather, supporting industry activities also decreased its activity. It causes many unemployment.</p> <p>TOURISM</p> <p>Flooding and Sea Level rise make the environment become worse. bad environment causes the area to be no longer attractive to visit. Decrease in number of tourists cause not a lot of money spinning which means a reduction of income</p>	
				<p>Socially At Risk</p> <ul style="list-style-type: none"> • Since the affordability to earn money become small, the affordability to support their life became small also. Their quality of life is decreasing likewise the ability to access the health and education or a decent environment • They can do nothing to move forward. • Rising Crime • Lost generation 	

2.2 What is needed by people from government

Climate Change influence in a way that society can't fulfill their basic needs and safety needs normally. The policy paper will be aimed at two most basic of human needs that are basic need and safety needs. Due to diagram below, it will be addressed to cope 1st and 2nd impact of climate change. The theory developed by Abraham H. Maslow basically revolves around the notion that humans have five levels or hierarchy of needs, namely:

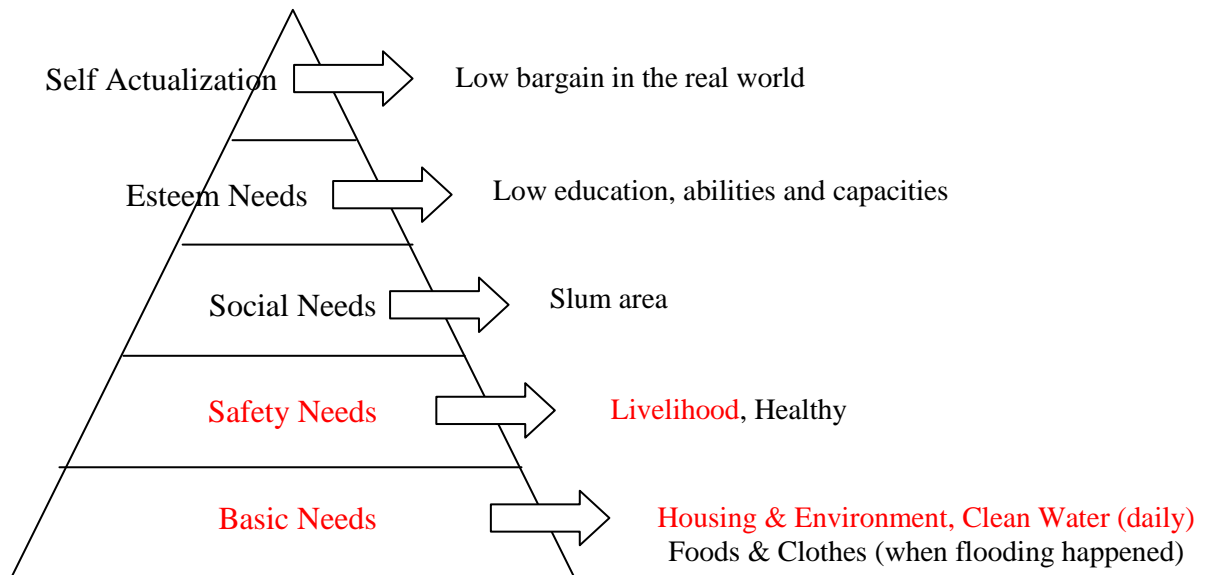


Diagram 3. Human Needs (Maslow Theory)

As described in the previous session, climate change caused many hazards that affect many sector in people's life directly and un directly. Many people suffer. They lose their livelihood, losing their asset, disease outbreak, etc. In general, it can be said that their quality of life worse because of climate change. In the previous diagram and table can be seen how the climate change influence many sector including who is the vulnerable affected and the way they are affected. So it can be summarized by an outline of what is needed by the society related by climate change impacts. Broadly speaking, there are four society needs, that are

1. Security in Livelihoods (Agriculture, Marine, Home Industry)
2. Better Housing and Environment
3. Good Infrastructure (roads, education & health infrastructure)
4. Security to access clean water

According to the government duties – to protect, to promote, to support the citizen life and since there is no specific law on how government should take action to cope climate change impact, actions are done by each agencies according to their domains. The next session will map government agencies who deal with problems caused by climate change.

2.3 Related Government Agency

Within the organizational structure of governance that exist in Indonesia, the fulfillment of 4 basic needs (Security Livelihoods, Housing and Environment, Good Infrastructure, Security to acces clean water) intersect with the responsibility of many ministries and agencies. It can be mapped as listed below:

	Government Level		
	National	Province	Local
Agriculture	Ministry of Agriculture	Agriculture Agency	Agriculture Agency
Fishery	Ministry of Maritime Affairs and Fisheries	Maritime Affairs and Fisheries Agency*	Maritime Affairs and Fisheries Agency*
Tourism	Ministry of Tourism	Tourism Agency*	Tourism Agency*
Un Employment	Ministry of Manpower	Manpower Agency	Manpower Agency
Education	Ministry of Education	Education Agency	Education Agency
Health	Ministry of Health	Health Agency	Health Agency
Infrastructure	Ministry of Public Works	Public Works Agency	Public Works Agency
Housing	Ministry of Settlement and Regional Infrastructure	-	-
Clean Water	-	-	Regional Drinking Water Company
Environment	Minister of Environment	Environment Agency	Environment Agency
Disaster Management	National Agencies for Disaster	Local Agencies for Disaster	Local Agencies for Disaster
Fund**	Ministry of Finance	Regional Revenue Agency	Regional Revenue Agency
Plan**	National Development Planning Agency	Regional Development Planning Agency	Municipality Development Planning Agency

** Agency related with the scope of concentration will be different each region refers to The Law No. 24 / 2004 (article 1)which states that every region has the right, authority and obligation to manage their own affairs and interests of the community government. *Operating System Tasks and Procedures of each agency will differ among region refers to The Law No. 24 / 2004*

*** Ministry and Agency that are not directly deal with climate change impacts but they have significant role*

Part 3

What have been done in coping climate change impact?

As stated in The Universal Declaration of Human Rights 1948, saving lives is an imperative that must be followed whatever the cost. It is the duty and responsibility of government to enable it. Not only with the efforts to increase revenue but also to reduce the level of vulnerability.

Most of the citizen, especially in coastal area need social protection from government since Climate Change significant causes negative impact to their life. Citizen has right to have a good quality of life and it become government duties to facilitate, to support and to assist. The Law No 22 / 1997 about disaster management is the only law which closely related with Climate Change Impact. The law arranges the role play and mechanism of government action in facing disaster. There is no specific policy due to climate change impact. Actions to cope climate change impact are done locally by each agency whose domain is related with the problem caused. The next session will analyze the related law and actions that have been done by government to cope climate change impacts in Pekalongan City. At least there are nine measures analyzed from physical & environmental sector, economic sector and clean water.

1. The Law No 22 /1997 about Disaster Management

No	Items	What is regulated
1	Principle in disaster management (article 3)	<ul style="list-style-type: none">• fast and precise• priority• coordination and integrity• efficient and effective• transparency and accountability• partnership• empowerment• non diskriminatif• non protelisi
2	Actors (Article 1,5,	<ul style="list-style-type: none">• Central Government (The President)

		<ul style="list-style-type: none"> Local Government (The Head of Province, The Head of Municipality) National Agencies for Disaster, Local Agencies for Disaster (formed only when a disaster occurs)
3	The Government Responsibility (Article 6,8)	<ul style="list-style-type: none"> guarantee the fulfillment of peoples' rights in accordance with minimum service standards protection of society from the impact of disasters disaster risk reduction and integration with the development program the allocation of disaster relief funds
4	Domain of Government in Disaster Management (Article 7,9)	<ul style="list-style-type: none"> determining the status and level of disaster (The President's domain) establishment of disaster management policies in line with policy development
5	Domain of National/Local Agencies for Disaster (Article 11,19)	<ul style="list-style-type: none"> The director The actor Local Agencies for Disaster works refer to Local Government Policies and National Agencies for Disaster
6	The Role of business institutions and international agencies	<ul style="list-style-type: none"> The Actor (without specific direction/authority to implement program from government as long as it doesn't against the social background, culture and religion of the local community)
7	Variable in determining status and level of the disaster (Article 6)	<ul style="list-style-type: none"> number of victims loss of property damage to infrastructure and facilities wide range of areas hit by disaster socio-economic impacts caused
7	Fund (article 60-64, 67)	<ul style="list-style-type: none"> disaster relief fund is the responsibility of central government and local government The fund allocation is the responsibility of central government and local government in emergencies, the national agencies for disaster uses provided ready funds made by the central government in emergencies, the national agencies for disaster can direct all resources provide from all related sector

Analysis and The Findings:

- a) Type of disaster that is set in The Law 22 / 2007 is different with Climate Change disaster. Climate Change causes negative impact little by little, slowly but surely damaging. Disaster spreads over time so does the number of victims. If we refer to variables that are used to determining status and level of disaster, climate change impact can't be categorized as a disaster. Therefore there is no specific action done by central government related to the climate change impacts. It differs when in case of volcanic eruption. Climate Change hazards due to that law can't be categorized as emergency conditions that can attract the attention of the government to allocate its resources.
- b) In disaster management mechanism, there is a mixed between Central Government and Local Government. It means there is an integration between top down approach and bottom up approach in disaster management. But there is no integration between government policy and other institution. Government has no domain to direct programs done by other institution and international agencies.
- c) Since there is no specific direction from government due to program done to cope the negative impact of climate change, at this moment negative impact of climate change cope separately by each local agency related with the problems. Each agency implement program according to their interest and value. There is no integration among programs done by each agency.

The next session will explore programs have been done by each government agency in coping climate change impact (Case Study: Pekalongan City)

2. Physical & Environment Measures

(a) Construction Stage

About the programs	
What is it?	Home improvement program for fisherman families who experience rob and floods by financing house elevation o their own land
What is the purpose?	Proper house for the community
Who did the programs?	Ministry of Maritime Affairs and Fisheries (National Level)
Who paid the programs?	Ministry of Maritime Affairs and Fisheries (National Level)
What is the outcome of the	Some of families get proper house (minority). But only a small portion of

programs?	the community who are save from flooding and inundation.
Is it effective and Efficient? Why Not?	<ul style="list-style-type: none"> • No it isn't. • Elevation only on the part of the house cause water soaking the house that aren't elevated near the elevated house • Unsustainable programs since it can't solve the real problem. • In the future, the house build could become useless because its surrounding is sink (the infrastructure, the road, the neighborhood) • Or it can be useless because the house must be restored because there is another plan of the government from their land.
Is there problem caused?	<p>Social Conflict, it is because:</p> <ul style="list-style-type: none"> • Program harms other party • there is no clarity in the selection of homes which is repaired.
Findings	<ul style="list-style-type: none"> • Lack of resources • There is no legitimate data source represent the vulnerable condition of the community • Ignoring community norms/value • Problem identification is bias / problem of capture • lack opportunity of get local citizen to relate with government. Program is driven where the aims of the programs isn't suitable with the community aspiration but depend on donor value/interest (clientalism) • unsustainable development, they focus on projects rather than long term change • different values in considering programs • there is no vertical accountability - the lack in monitoring the outcomes. It is an one way program – there is no feedback – impact analysis to measure the achievement in supporting people quality life, how much progress already achieved can't be measured, there is no risk assessment • there is no horizontal accountability – no synergizing each other

Source : p5 undip analysis, 2010

(b) Road Elevation

About the programs	
What is it?	Elevation program of submerged roads (yearly)
What is the purpose?	Maintain accessibility of community movement run well

Who did the programs?	Public Works Agency (Local Government)
Who paid the programs?	Public Works Agency (Local Government)
What is the outcome of the programs?	Daily movement isn't quite disturbed
Is it effective and Efficient? Why Not?	No, it is not because: <ul style="list-style-type: none"> • elevation must be done each other • elevation causes the surrounding buildings (including houses) sink
Is there problem caused?	<ul style="list-style-type: none"> • Program harms other party • it needs much money to be spent by government
Findings	<ul style="list-style-type: none"> • Lack of resources • Problem identification is bias / problem of capture • unsustainable development, they focus on projects rather than long term change • there is no vertical accountability - the lack in monitoring the outcomes. It is an one way program – there is no feedback,, there is no risk assessment

Source : p5 undip analysis, 2010

(c) Dike construction

About the programs	
What is it?	Levee built along the shoreline to prevent sea water entry inland
What is the purpose?	<ul style="list-style-type: none"> • to make settlements along the shoreline isn't submerged in water • prevent from coastal erosion
Who did the programs?	Public Works Agency (Local Government)
Who paid the programs?	Public Works Agency (Local Government) + Ministry of Public Works
What is the outcome of the programs?	Secure the area around the shoreline from flooding and sea level rise
Is it effective and Efficient? Why Not?	No it is not, because: <ul style="list-style-type: none"> • Program harms other party. It is because water is flowing to other places with a larger pressure • Lack of resources make dike not too strong to resist water entry • Not more than ten years after the dike was built, sea water began to enter again
Is there problem caused?	<ul style="list-style-type: none"> • Program harms other party • it needs much money to be spent again

Findings	<ul style="list-style-type: none"> • Lack of resources • Problem identification is bias / problem of capture • unsustainable development, they focus on projects rather than long term change • there is no vertical accountability - the lack in monitoring the outcomes. It is an one way program – there is no feedback,, there is no risk assessment, • there is no horizontal accountability – no synergizing each other (among region)
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Source : p5 undip analysis, 2010

(d) River Normalization & Water gate Construction

About the programs	
What is it?	River Normalization: mud removal from the riverbed to make the capacity of the river bigger
What is the purpose?	To prevent river water doesn't overflow
Who did the programs?	Maritime Affairs and Fisheries Agency (Local Level)
Who paid the programs?	Ministry of Maritime Affairs and Fisheries (Local Level) + donor
What is the outcome of the programs?	Condition has not changed much. Flooding and inundation still happen daily
Is it effective and Efficient? Why Not?	<p>No, it is not, because it doesn't solve the problem from its roots.</p> <p>There are several reasons why river and drainage overflow:</p> <ul style="list-style-type: none"> • Flood from surrounding area (Rapid development led to the loss of recharge area and create high surface water discharge) • waste disposal in the river either from nearby rivers and headwaters
Is there problem caused?	Free rider of other region (upper region)
Findings	<ul style="list-style-type: none"> • single actor approaches rather than co responsibility for impact make outcome can't be reached maximum achievement (inefficient & ineffective) • there is no vertical accountability - the lack in monitoring the outcomes. It is an one way program – there is no feedback,, there is no risk assessment, • there is no horizontal accountability – no synergizing each other (among region)

Source : p5 undip analysis, 2010

(e) Mangrove Planting

About the programs	
What is it?	Planting mangrove surrounding the shoreline
What is the purpose?	<ul style="list-style-type: none"> • Preventing coastal erosion. • Mangrove is able to trap sediments, thus forming a new plateau.
Who did the programs?	Environment Agency (Local Agency)
Who paid the programs?	Environment Agency (Local Agency)
What is the outcome of the programs?	There are several areas in which mangroves have been planted but the results are not significant according to the expected results
Is it effective and Efficient? Why Not?	<ul style="list-style-type: none"> • there is no space allocated specifically • planting done in partial • people do not quite understand the function of mangrove planting
Is there problem caused?	<ul style="list-style-type: none"> • unsustainable program
Findings	<ul style="list-style-type: none"> • there is no synergy between spatial planning and programs • limited local ownership

3. Economic Measures

(a) Group Lending

About the programs	
What is it?	loans granted by the government as capital to boost community economy
What is the purpose?	Increasing community welfare
Who did the programs?	National program of independent community empowerment
Who paid the programs?	National Government
What is the outcome of the programs?	Some classes of society receive the loan
Is it effective and Efficient? Why Not?	<p>No it is not.</p> <p>Because the community spent the loan for consumption because they have no regular income.</p>
Is there problem caused?	Unsustainable problem solving
Findings	

Source : p5 undip analysis, 2010

4. Lack of clean water problems

An effort have been done by central government as a very strong commitment to achieving the Millennium Development Goals (MDGs). One of them is to support the community with maximum access to clean water.

(a) **Drinking water programs and community-based sanitation (namely PAMSIMAS)**

About the programs	
What is it?	<ul style="list-style-type: none"> • Production deep well as a clean water resource that can be used together by the community. It has been done in north Pekalongan City that is lack of clean water. Government give fund for deep well drilling then community who want to access should pay for the pipe costs. The maintenance of the machine will be community contribution. (the cost is less than PDAM cost) • Public Toilet Construction
What is the purpose?	Declining number of people who do not have access to drinking water and basic sanitation.
Who did the programs?	Central government with the assumption that for some reason local governments can not afford to provide clean water for communities, especially marginalized and vulnerable communities
Who paid the programs?	Central Government
What is the outcome of the programs?	<ul style="list-style-type: none"> • Because of limited resources, some people helped to access clean water but neither do others. They can not reach because there were limited PAMSIMAS. • Sanitation still remain bad
Is it effective and Efficient? Why Not?	<ul style="list-style-type: none"> • Only some people who can access it • Most of Public Toilet isn't used by community because the prefer to use river • Regional Drinking Water Company suffers many losses.
Is there problem caused?	<p>Clean Water Supply Programs</p> <ul style="list-style-type: none"> • social conflict because there are many people who can't have the access • there are many inefficient resources due to PDAM • there are many good income families and the mechanism in water producing is being replicated by the have (industry) to met their need of clean water. So that the drilling of deep well happen mushroom around

	<p>the region along the expanding area of contaminated. It encourages worse environment because of water sea intrusion and land subsidence caused as the long impact</p> <p>Sanitation</p> <ul style="list-style-type: none"> • public toilet becomes inefficient building since the community prefer to use river as toilet then sanitation still remains bad.
Findings	<ul style="list-style-type: none"> • Lack of resources • There is no horizontal correlation between National Government program and PDAM. Identify how partners can do no harm. • Ignoring community norms/value (there is no approach to close with the community along public toilet construction) • Single actor approaches rather than co responsibility for impact • Different values in considering programs (the risk of deep well in long term) • Limited local ownership

Source : p5 undip analysis, 2010

(b) Suppress the price of Regional Drinking Water Companies

About the programs	
What is it?	Efforts done by PDAM (Regional Drinking Water Company to attract new consumers using their water.
What is the purpose?	Survive in competition with free deep well drilled by the community and PAMSIMAS
Who did the programs?	PDAM
Who paid the programs?	PDAM
What is the outcome of the programs?	<p>Number of consumer remains low.</p> <p>Only people who can't access PAMSIMAS and dig deep well use PDAM (compulsion). The compulsion can be seen where they just use the water for drinking purposes. They prefer to use contaminated surface water for shower toilet and wash.</p>
Is it effective and Efficient? Why Not?	<ul style="list-style-type: none"> • No. Number of consumers isn't much increased by the cost reduction program undertaken because the unit cost still remain high. • PDAM can't reduce their unit cost because limited sources of clean water causes them should pay dearly. PDAM motion limited to the bars where the use of deep well as water source is forbidden.

	<ul style="list-style-type: none"> • There is no prohibition to dig deep wells in the community
Is there problem caused?	PDAM suffered losses since they can't reduce the unit cost
Findings	<ul style="list-style-type: none"> • There is no horizontal correlation between National Government program and PDAM. • Single actor approaches rather than co responsibility • The condition cause people trying to meet their own needs by making the deep well (especially upper class society/industry)

Source : p5 undip analysis, 2010

Part 4

Obstacles Faced In Coping Climate Change Impact

From nine of the government program that has been done in Pekalongan can be said that there are ineffectiveness and inefficiency in addressing climate change impacts. Some of the findings that led to inefficiency and ineffectiveness of the program are as follows:

1. There is no law related on how government must take action to cope climate change impact
2. Government policies don't consist climate change agenda in their development policy
3. Problem identification is bias (problem of capture). It is because there is no commitment in seeing the problems due to the data/information, indicator/parameter and value in which the program based on (legitimate data source)
4. Ignoring community norms/value. It is caused because of lack opportunity of local citizen to relate with government. There is 'musrenbang' that is set up to grab community aspirations but the community doesn't know on how the government choose their aspiration to be implemented. The community tend to not trust the government and make they tend to be cool in making process then. because in general, it is only a little of the community aspiration which is implemented by the government.
5. Limited local ownership
6. Most of the programs are given (top down). Many programs are driven by the donor or specific interest (government, INGO, researches). Most of the aims of the programs isn't suitable with the community aspiration but depend on donor value/interest (clientalism.)
7. Unsustainable development where in doing program, government tend to focus on projects rather than long term change
8. Single actor approaches rather than co responsibility for impact
9. Lack of resources (funds, technology, and capacity)
10. There is no vertical accountability (lack in monitoring the outcomes). Because the programs done has characteristic as follow:
 - one way programs – there is no feedback – impact analysis to measure the achievement in supporting people quality life
 - how much progress already achieved can't be measured

- there is no risk assessment
 - there is no role about minimum services standard (monitoring each other)
11. There is no horizontal accountability – no synergizing each other → lack of sufficient inside in interest, needs & power analysis on side the development actors
 12. There is no effort to identify macro – meso – micro linkages that affect domestic accountabilities (related to develop enabling voices among the development actors). There is no effort to identify how partners can do no harm, who have the same target and who will get the benefit in macro system
 13. Lack capacity of the community. It makes no punishment of the government to do accountability
 14. Free rider problems.

From the findings obtained above, it can be concluded that programs that are done separately, not integrated and not consider the long term impacts tend to be more expensive and inefficient. Handling which refers to the local scope will direct free rider and will not absorb funds maximum. Inefficiency and ineffectiveness occurred in climate change program implemented in Pekalongan City happened because there is no mechanism that can structure programs well. There is no mechanism that set about relation about actors - programs - problems, the decision making and the funds. It will be a significant step if there is a policy which arranges the mechanism.

Part 5

Policy Options

In general there are three forms of mechanisms that can be applied by governments in addressing climate change impacts.

1. Centralization in Mechanism

Centralization is said to be a process where the concentration of decision making is in a few hands. All the important decision and actions at the lower level, all subjects and actions at the lower level are subject to the approval of top management. According to Allen, “Centralization” is the systematic and consistent reservation of authority at central points in the organization. The implication of centralization can be :

- Reservation of decision making power at top level.
- Reservation of operating authority with the middle level managers.
- Reservation of operation at lower level at the directions of the top level.

This kind of mechanism was applied in several programs described previously (see part 3) that are:

- a. Construction stage for fisherman family
- b. Dike construction
- c. Mangrove Plantation
- d. Drinking Water and Sanitation programs based on the community (PAMSIMAS).

From analysis before, this mechanism isn't efficient and effective to be implemented in coping climate change impact. Many problems are occurred because the long distance between decision makers (supply) and community beneficiaries (demand) in the decision making process mechanism such as: problem identification is bias, limited local ownership, etc. It can be concluded that this mechanism isn't appropriate in decision making process.

2. Decentralization in Mechanism

Centralized mechanism not only has weaknesses but also has advantages, especially in implementing program. This mechanism also enables relationships among a plurality of local government. Relation, bearing the burden together, thinking macro create a lot of effectiveness and efficiency.

From analysis above, several programs used decentralized mechanism such as road elevation programs, river normalization & water gate construction. There are many inefficiency and ineffectiveness occurred with that mechanism because of single actor approaches in solving problem rather than co responsibility, different values in considering programs, no vertical – horizontal accountability, occurring free rider and facing limited resources.

As concluded before, decentralized mechanism is good when it is used to grab community aspiration in decision making process. But it isn't efficient and effective when implementing program. More actors mean more resources can be absorbed. Thinking more macro means much accountability can be implemented. It can be concluded that this mechanism isn't appropriate in implementing process. Making efficient can be done by involving more actors more comprehensive programs and more resources and it is only can be done by centralized mechanism.

3. **Mixed Mechanism Between Decentralization and Centralization**

From the field case, both decentralized and centralized has each advantages and disadvantages in coping climate change impacts. It would be better if there is mechanism that can eliminate the weaknesses and take only the advantages. It cab be happened by using that two mechanism in proportion.

Combination between decentralization and centralization is the best policy that can be afforded by government to reduce inefficiency and ineffectiveness. According to the findings, then the shape of the proposed combination of these mechanisms are as follows: (see diagram 4)

1. Centralization in managing programs.

The step that is purposed includes:

- Take Climate Change Adaption Program into National Policy
- Integration in Programs done by each Ministry and Agency Related with Climate Change Adaption
- Add Functional Task of Coordinating Ministry of Social Welfare as a coordinator to make sure Cooperation and Synergies in Vertical and Horizontal Line happened
- Add Functional Task from one of the agencies at local government to be coordinator program (Reservation of operation at lower level at the directions of the top level).

2. Centralization in allocating budget

The step that is purposed includes:

- Allocate Funding for Climate Change Adaptation

3. Decentralization in decision making process

The step that is purposed includes:

- Take Climate Change Adaption Program into Development Policy in All Region
- Participatory Process in planning process

Diagarm 4. Mixed Mechanism Between Decentralization and Centralization

