



NATIONAL COUNCIL ON CLIMATE CHANGE
INDONESIA

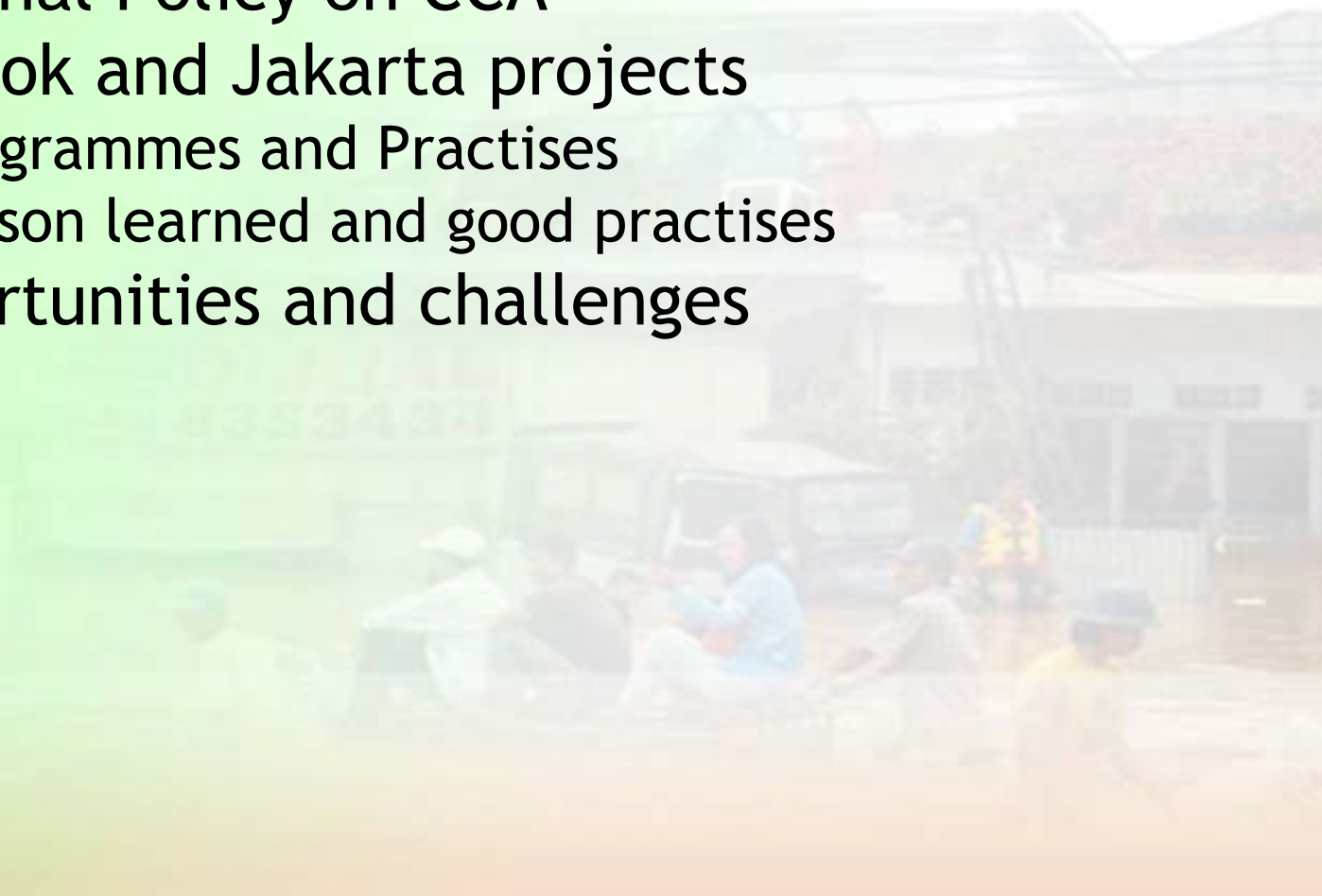
INTEGRATION OF ADAPTATION PLANNING ACROSS ECONOMIC SECTORS: **INDONESIA EXPERIENCES**

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National Council on Climate Change - Indonesia

NWP Technical Workshop on Integration of Approaches to Adaptation Planning
12 - 14 October 2009, Bangkok, Thailand

Outline

- Vulnerabilities of Indonesia
- National Policy on CCA
- Lombok and Jakarta projects
 - Programmes and Practises
 - Lesson learned and good practises
- Opportunities and challenges



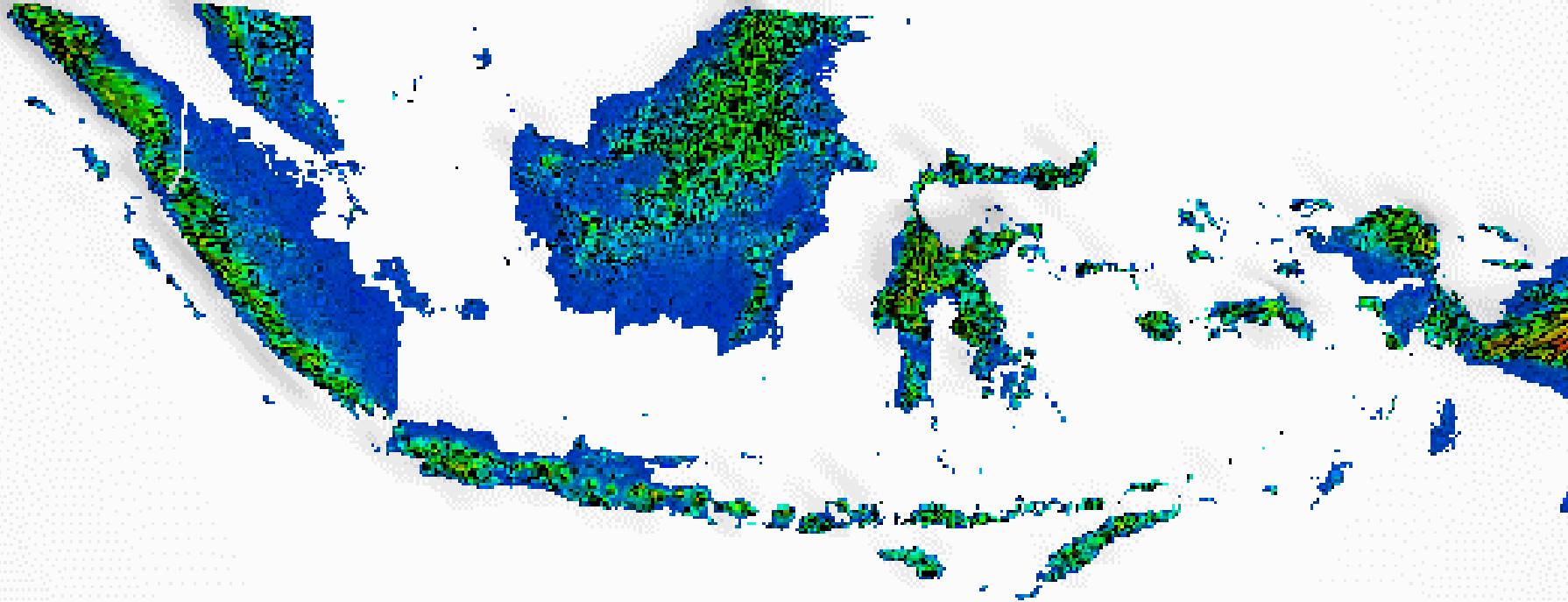
Vulnerabilities of Indonesia

1. Developing country with 240 million of population (2008)
2. Tropical country with two seasons
3. Archipelago country (infrastructure, costal and coral reef)
4. Rich of biodiversity

Climate change Impacts:

1. Floods
2. Droughts
3. Forest fire
4. Health problems

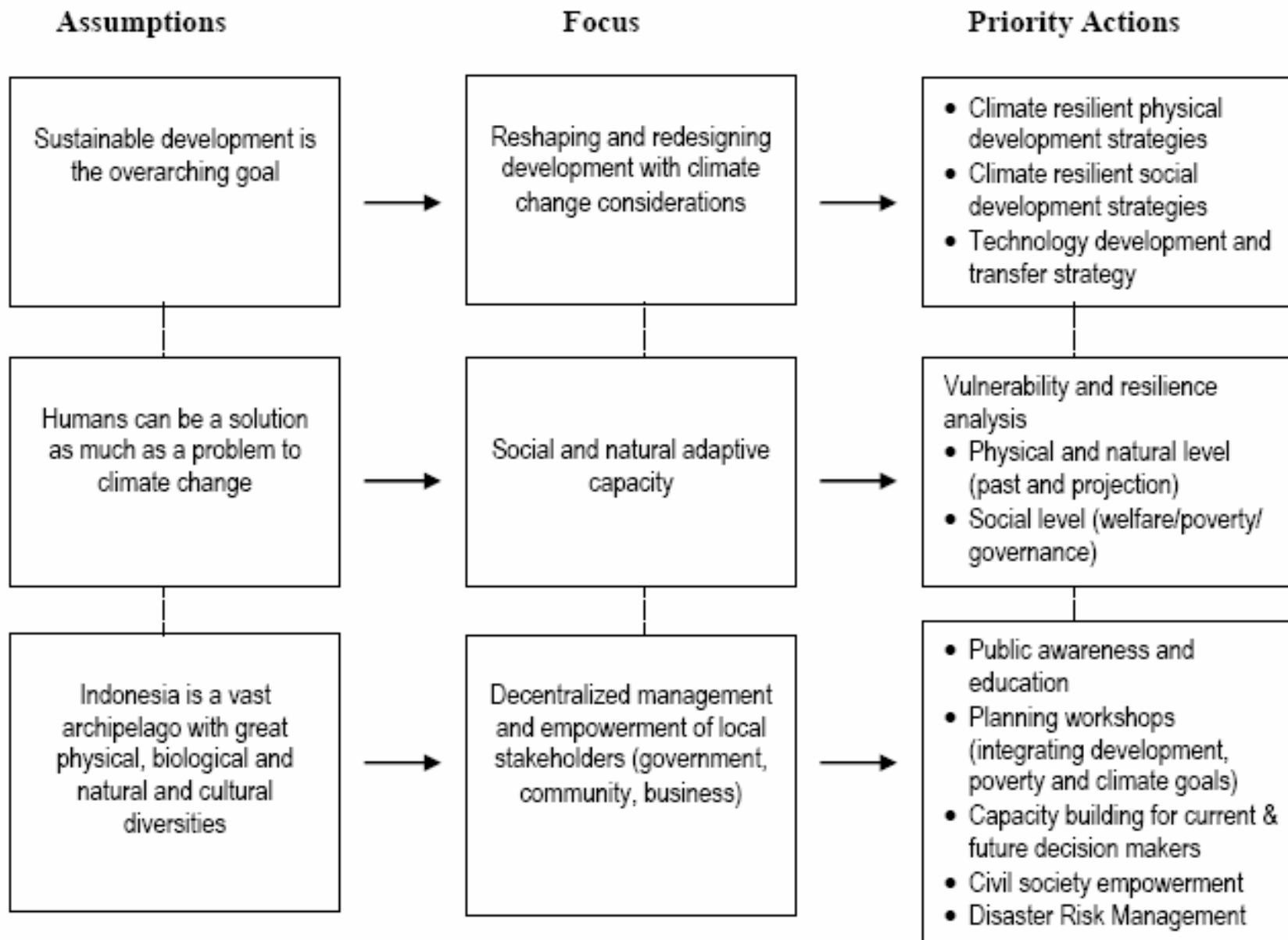
Projection of Sea Level Rise in Indonesia



Year	Lost Area (km ²)	Sea Level Rise (m)
2010	7,408	0.4
2050	30,120	0.56
2100	90,260	1.1

Source :
Susandi, et
al.. 2008

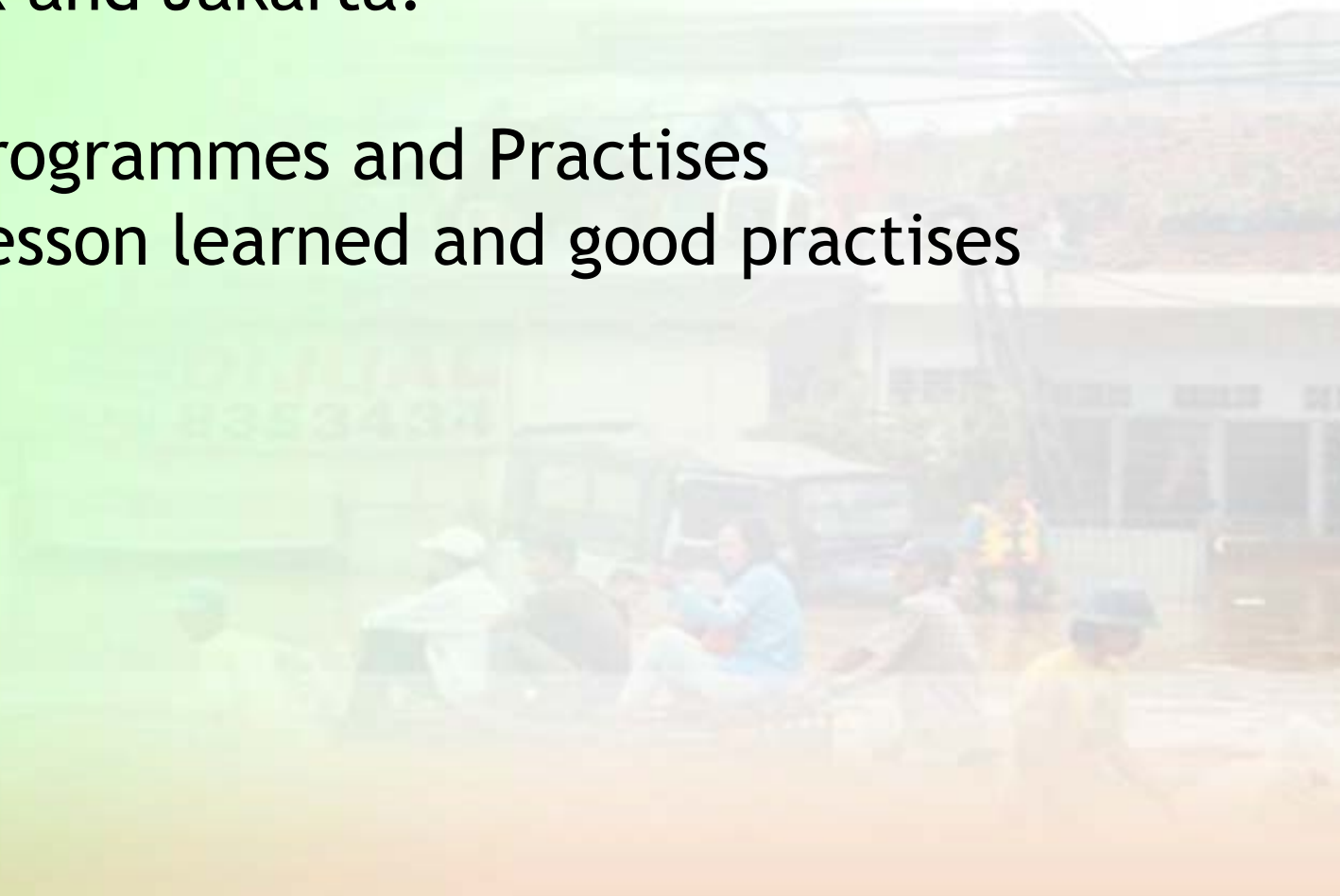
National Policy on CCA



Adaptation Projects in Indonesia

Lombok and Jakarta:

1. Programmes and Practises
2. Lesson learned and good practises



LOMBOK

Mainstreaming Climate Program
into Small Island development in
Lombok, West Nusa Tenggara

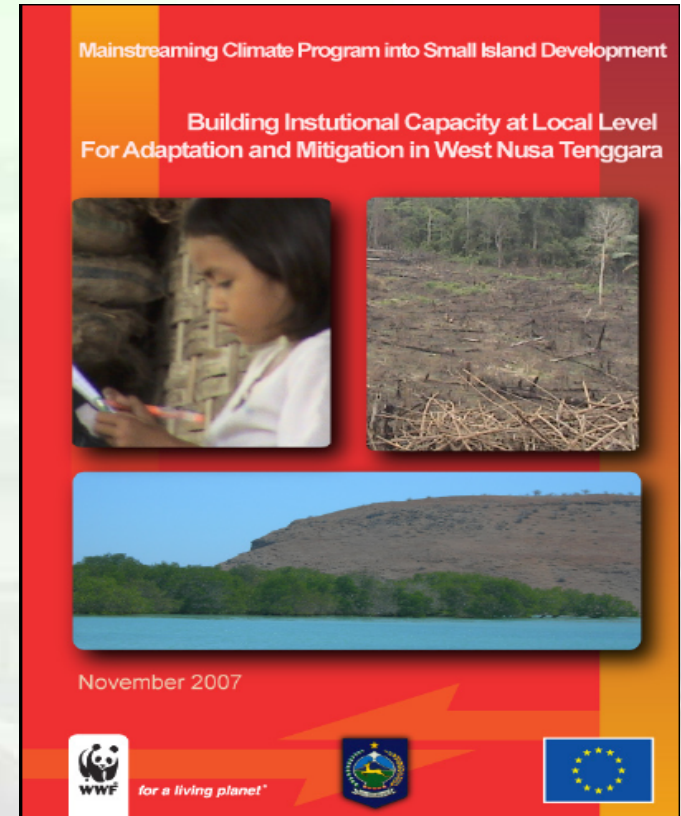


Project Goal

- Mainstreaming climate program into small island development in Lombok, West Nusa Tenggara for building institutional capacity for adaptation and mitigation.

Project Purpose

- Building government capacity and mobilizing relevant and influential stakeholder groups.



Background

- They are losing several of their water springs and their rate of water flow is decreasing.
- Other major catastrophes are flooding in Sembalun and Sambalia in the year 2006 and in Sumbawa on April 2007.
- Those who are worst affected from the climate change is the agricultural, coastal and marine, and also the health sector.



Process of Activities

1. **Institutional Capacity Building** in the Local Level for adaptation and Mitigation for Global Climate Change in the Province of West Nusa Tenggara.
2. **Assisted the local government** in bringing together key elements of local stakeholders to assure that the issue of climate change issue is highlighted and that it will shift the new paradigm of development in the local level.
3. **Sharing and supporting data/information/document related to climate issue**, to create understanding of local stakeholder and have them be inconvenienced of its importance.

Outcome of the Process

1. Pre-identified constraint of mainstreaming climate change i.e. lack of political support and unavailability of policies, action programs and education for the common people.
2. 8 elements of adaptation strategy (responsibility, plan, legislation, link with other planning, education, other people, science, money) is elaborated under adaptation and mitigation programs.
3. Integration of risk reduction strategies is integrated specifically in each sector.
4. A taskforce was established under Gubernutorial Decree (SK Gubernur) with clear goal, role division, members, working mechanism, activities and facilities needed

Highlight

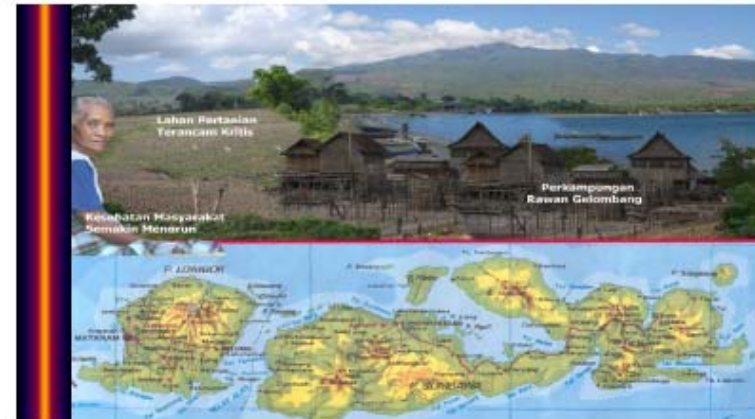
GOVERNOR OF WEST NUSA TENGGARA

GUBERNATORIAL DECREE OF WEST NUSA TENGGARA
NUMBER 219 YEAR 2007

ON
FORMATION OF THE TASK FORCE FOR MAINSTREAMING THE ASPECTS OF
CLIMATE CHANGE IN THE PROVINCE OF WEST NUSA TENGGARA
BUDGET YEAR 2007

GOVERNOR OF WEST NUSA TENGGARA

- Considering :
- that the area of West Nusa Tenggara has potentials to be negatively affected by climate change caused by the global warming phenomenon that is interacting with regional and local factors;
 - that in the effort to develop adaptation and mitigation strategy that is inline with local characteristic to reduce the negative effect of the global climate change as mentioned in point a, there is a need to establish a task force to mainstream aspects of climate change in the Province of West Nusa Tenggara;
 - that based on the consideration as mentioned in point a and b, there is a need to pass a Gubernatorial Decree on the Formation of the Task Force for Mainstreaming the Aspects of Climate Change in the Province of West Nusa Tenggara for the Budget Year of 2007.
- Referring to :
- Law Number 64 Year 1958 on the Formation of Area Level I Bali, West Nusa Tenggara and East Nusa Tenggara
 - Law Number 5 Year 1990 on Conservation of Natural Biodiversity Resources and its Ecosystem;
 - Law Number 23 Year 1997 on Environmental Management;
 - Law Number 10 Year 2004 on Drafting of Regulations;
 - Law Number 32 Year 2004 on Local Government as it has been replaced with Law Number 8 Year 2005 on the Passing of Government Regulation replacing Law Number 3 Year 2005 on the Changing of Law Number 32 Year 2004 on Local Government as Laws;
 - Law Number 33 Year 2004 on the Division of Finance between the Central and Local Government;
 - Government Regulation Number 6 Year 1988 on the Vertical Coordination of Institution in the Local Level;
 - Government Regulation Number 13 Year 1884 on Hunting of Animals;
 - Government Regulation Number 68 Year 1998 on Nature Reserve Area and Nature Park;
 - Government Regulation Number 89 Year 1999 on the Usage of Plants and Wild Animals;



DRAFT RENCANA STRATEGIS

ADAPTASI DAN MITIGASI DALAM MENGHADAPI
PERUBAHAN IKLIM GLOBAL DI PROVINSI
NUSA TENGGARA BARAT

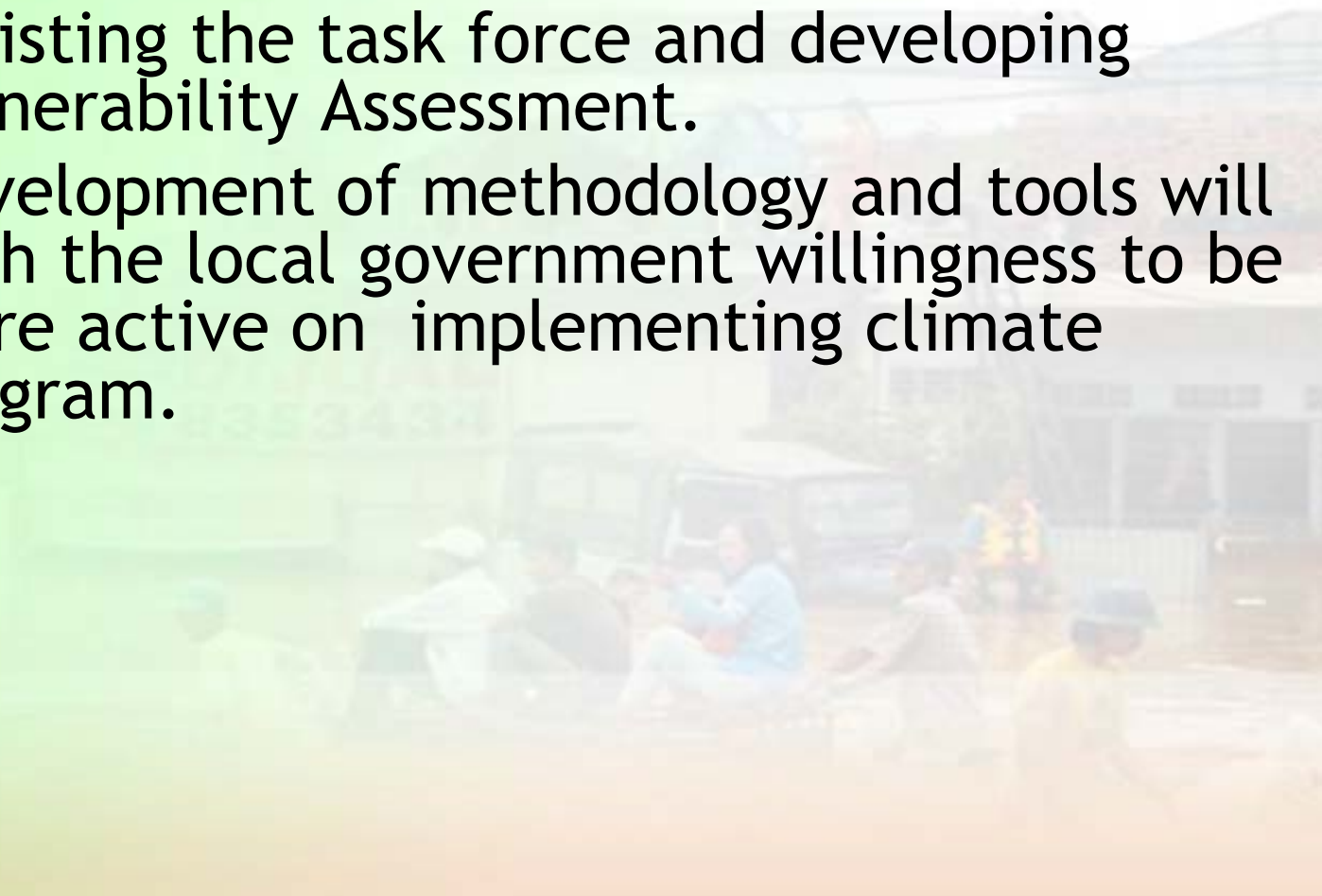
Mataram, Desember 2007

Syryasana :



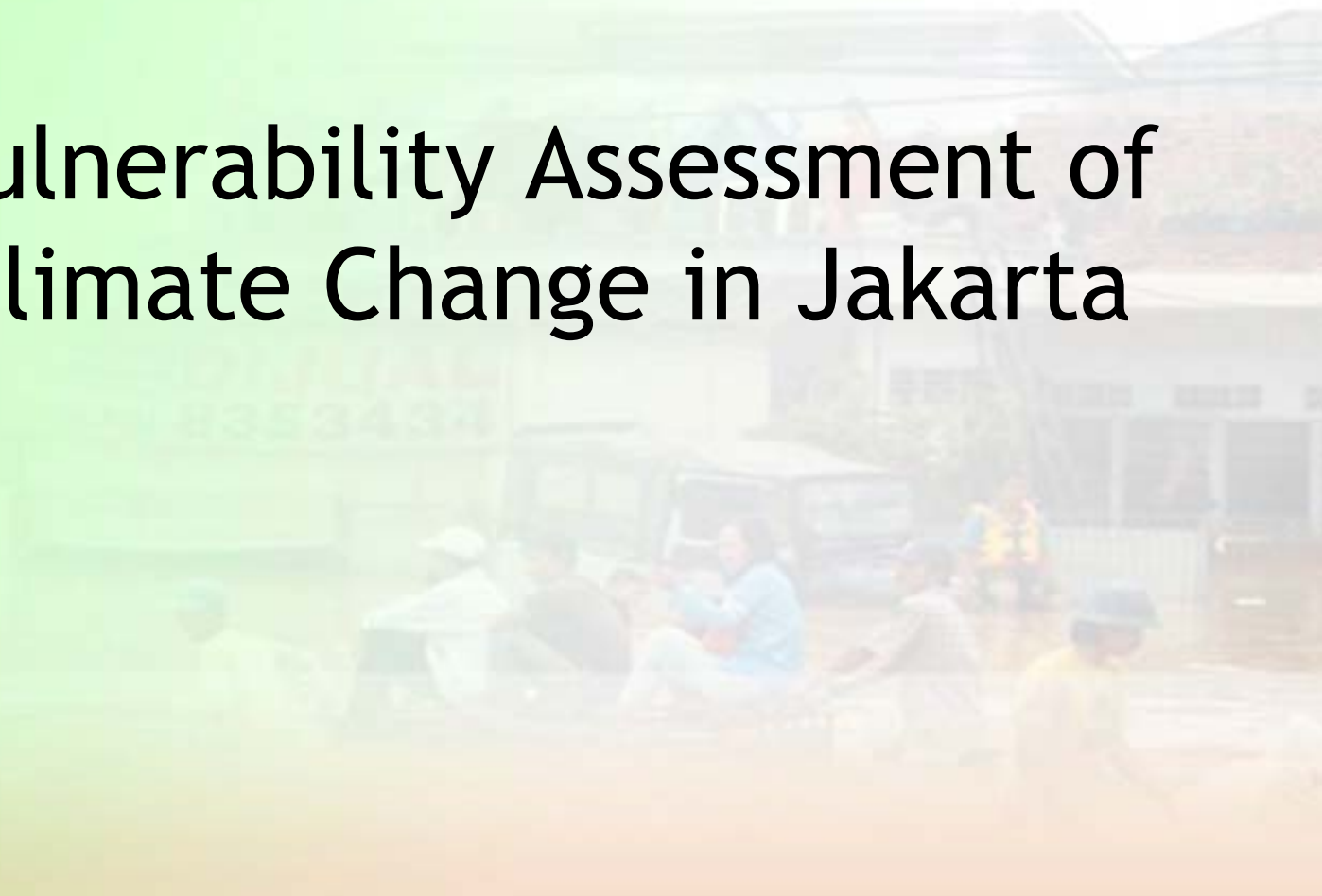
Opportunities and Challenges

- ❑ Implementation of Gubernatorial Decree Number 219 Year 2007.
 - ❑ Assisting the task force and developing Vulnerability Assessment.
 - ❑ Development of methodology and tools will push the local government willingness to be more active on implementing climate program.

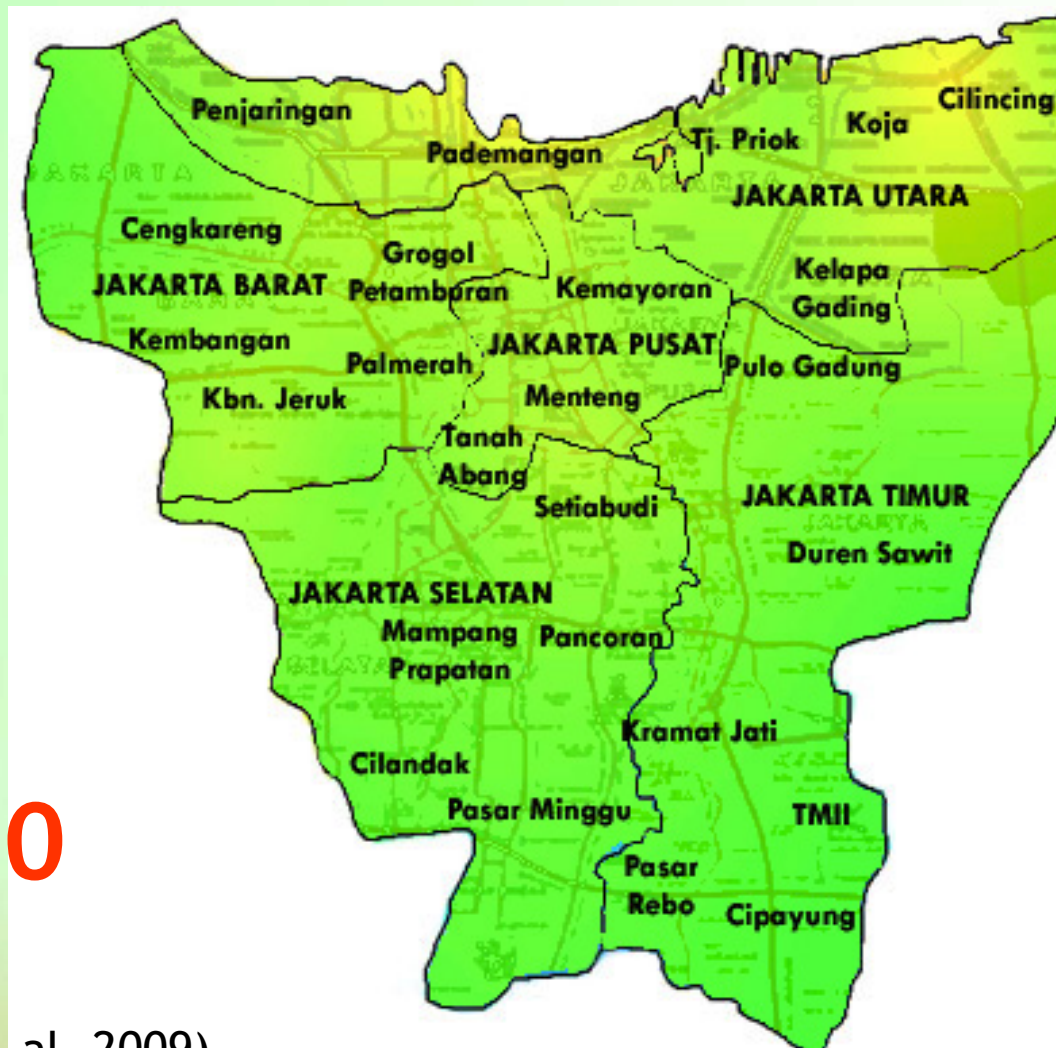


JAKARTA

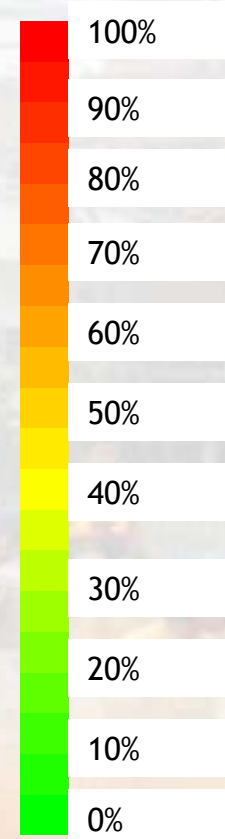
Vulnerability Assessment of Climate Change in Jakarta



Map of Climate Change Vulnerability in Jakarta



Index of Climate Change Vulnerability



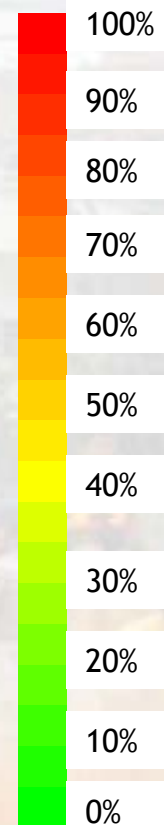
2010

(Susandi et. al, 2009)

Map of Climate Change Vulnerability in Jakarta



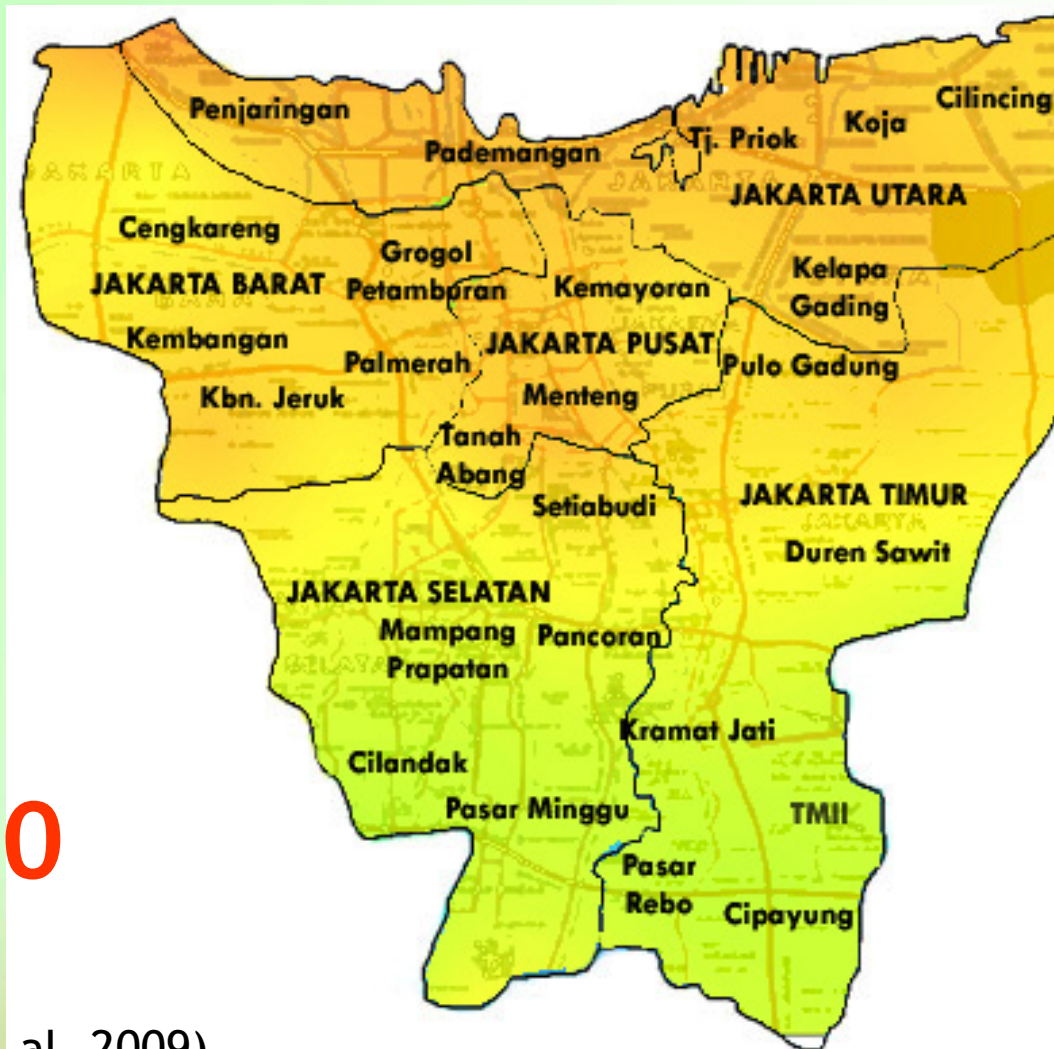
Index of Climate Change Vulnerability



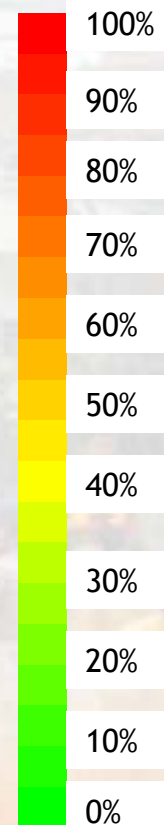
2015

(Susandi et. al, 2009)

Map of Climate Change Vulnerability in Jakarta



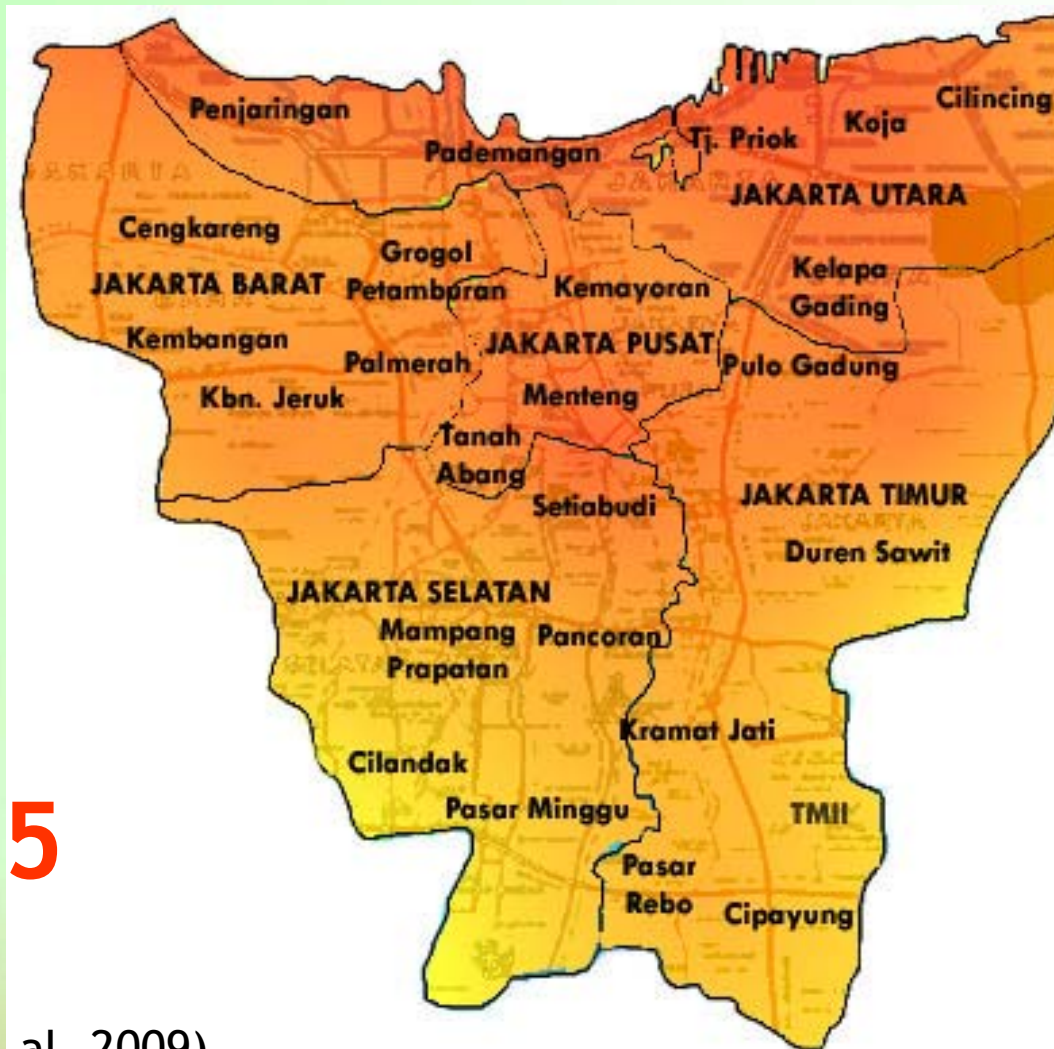
Index of Climate Change Vulnerability



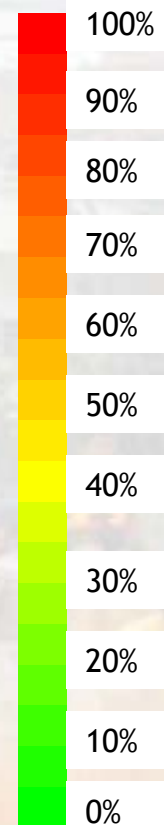
2020

(Susandi et. al, 2009)

Map of Climate Change Vulnerability in Jakarta



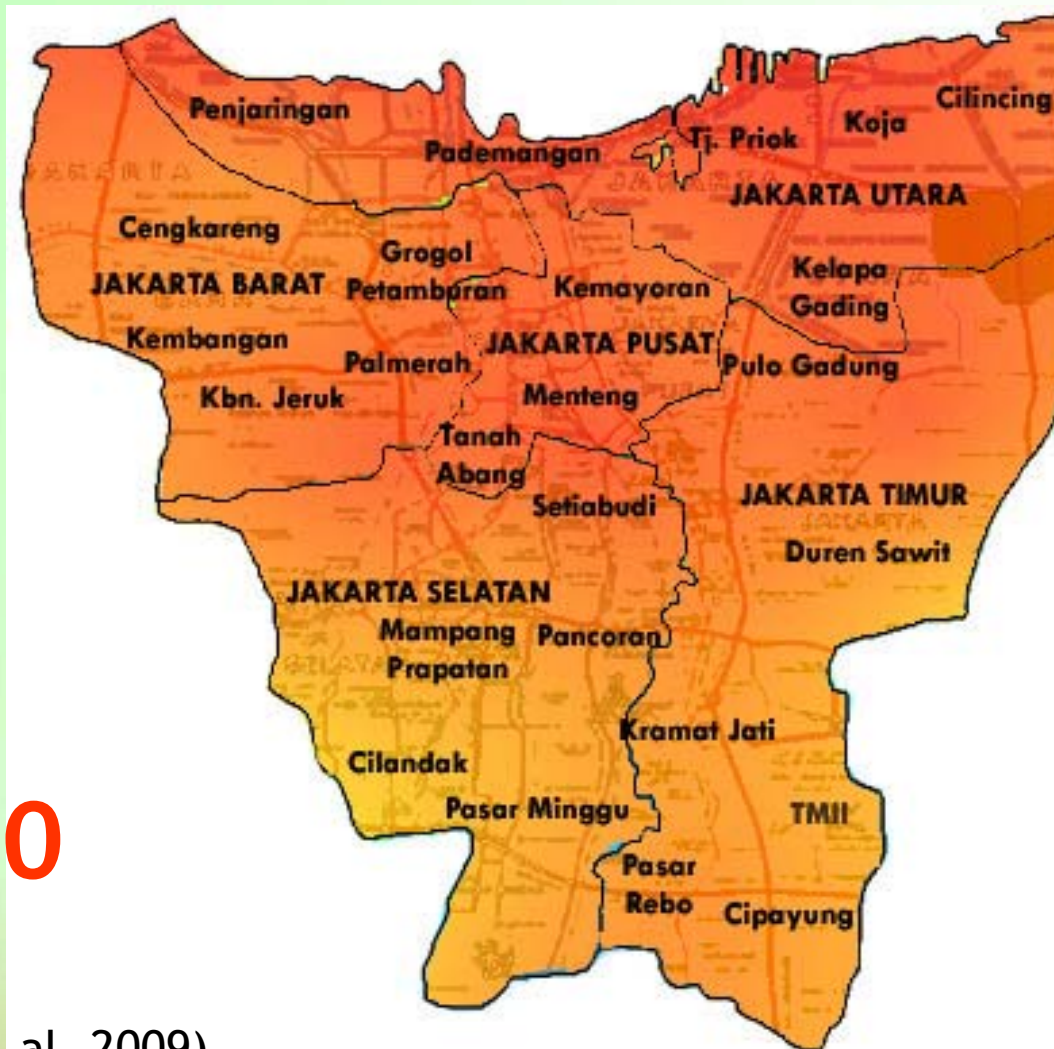
Index of Climate Change Vulnerability



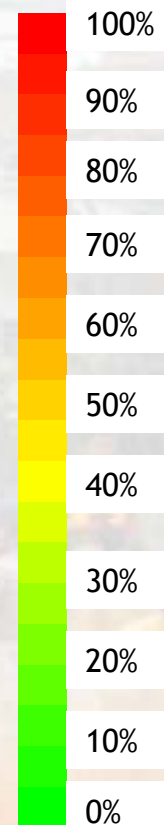
2025

(Susandi et. al, 2009)

Map of Climate Change Vulnerability in Jakarta



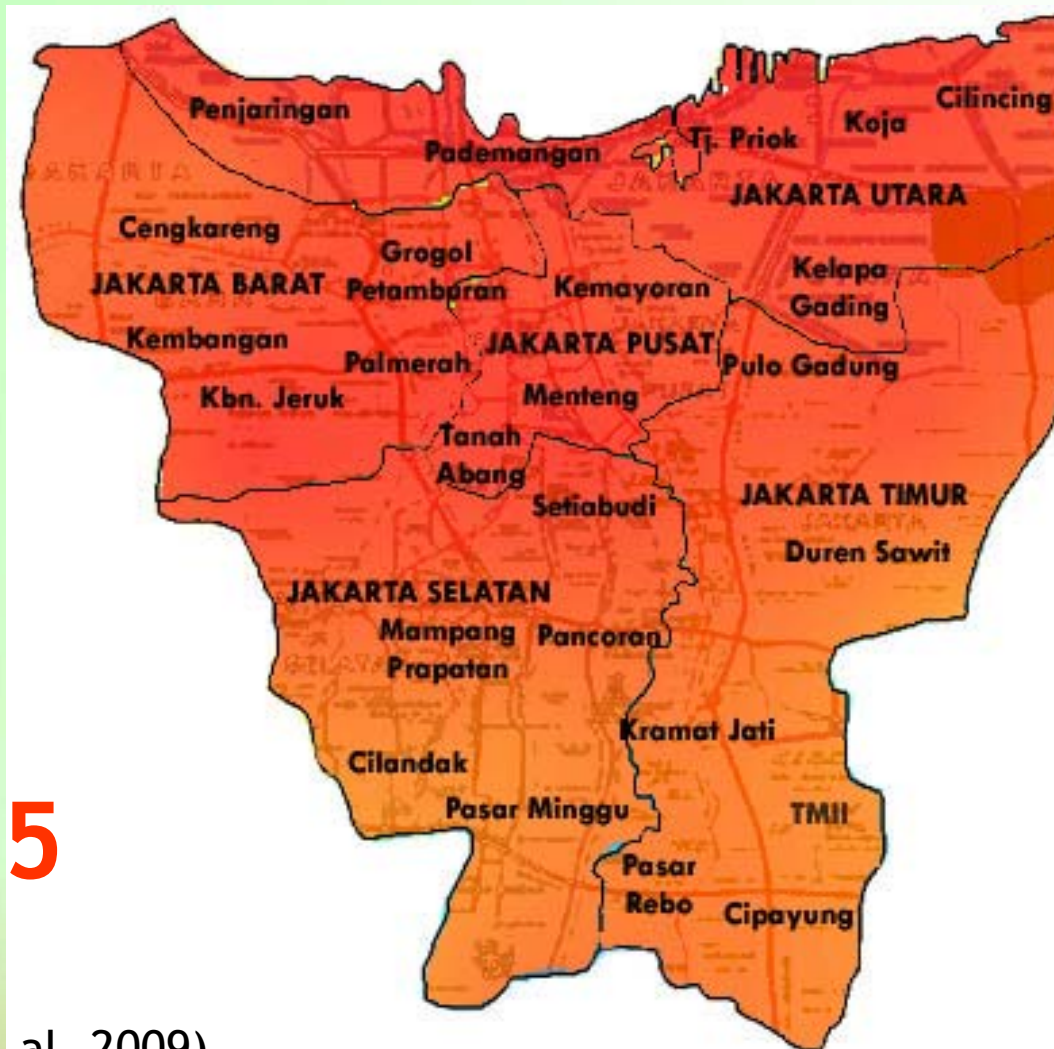
Index of Climate Change Vulnerability



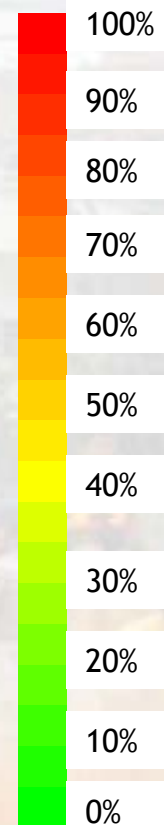
2030

(Susandi et. al, 2009)

Map of Climate Change Vulnerability in Jakarta



Index of Climate Change Vulnerability



2035

(Susandi et. al, 2009)

Jakarta Flood 2007



Jakarta Flood 2007

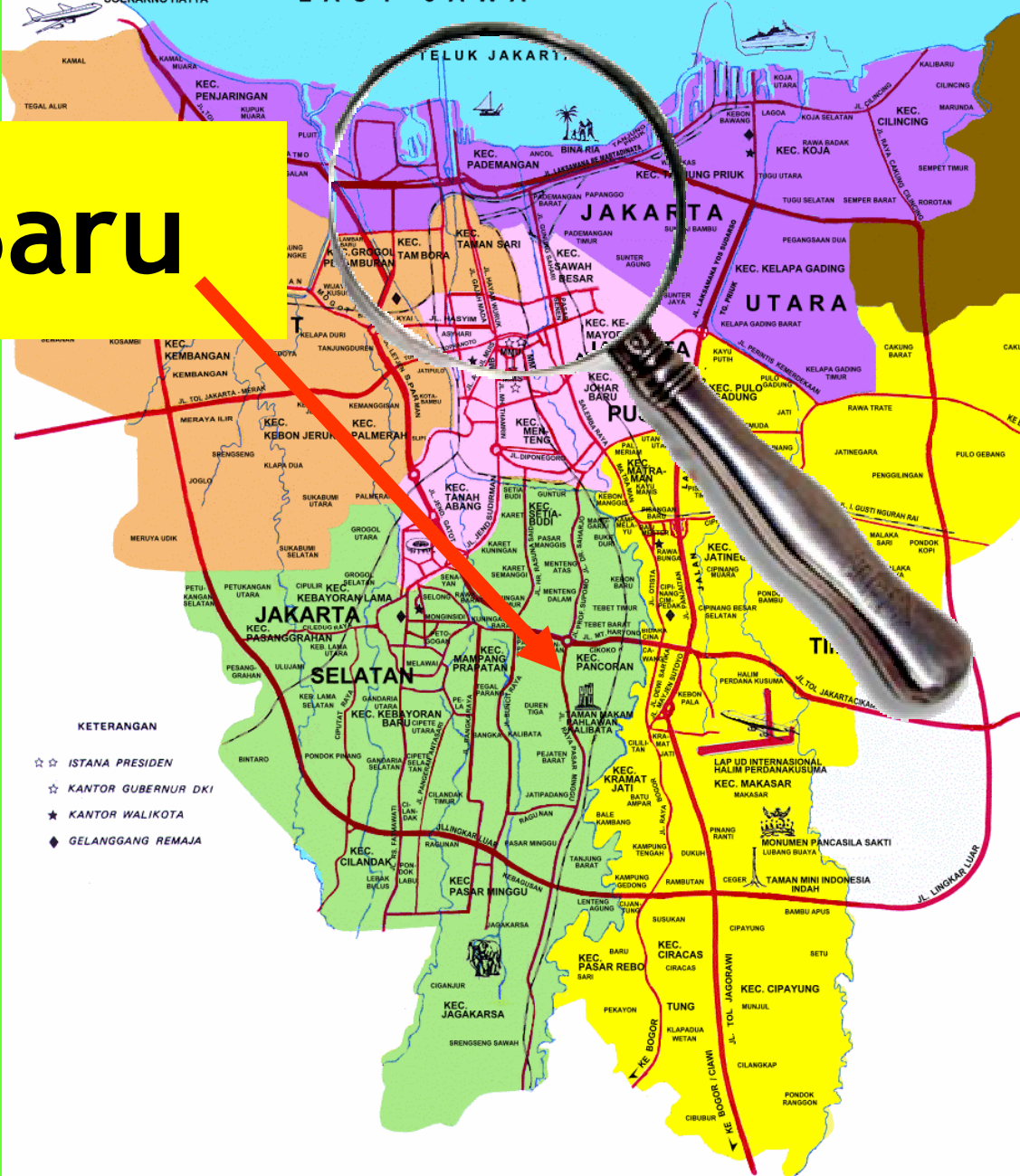


Jakarta Flood 2007



Muara Baru

JAKARTA, INDONESIA



Muara Baru





One of the housing in the slums of Muara Baru
in the mouth of the river



Industrial area located in coastal area (Muara Baru) with very bad drainage system which affected entire surface of the road inundate by flood



Existing condition of Muara Baru when just hit by flood and height of flood reach at the knee of human and inundated all the way of road in Muara Baru Street

Result and Discuss

1. Household Adaptation Behavior
 2. Adaptive Capacity of Local Government Unit
 3. Adaptive Capacity of Local Community Organization
 4. Adaptation Option Possibilities
-

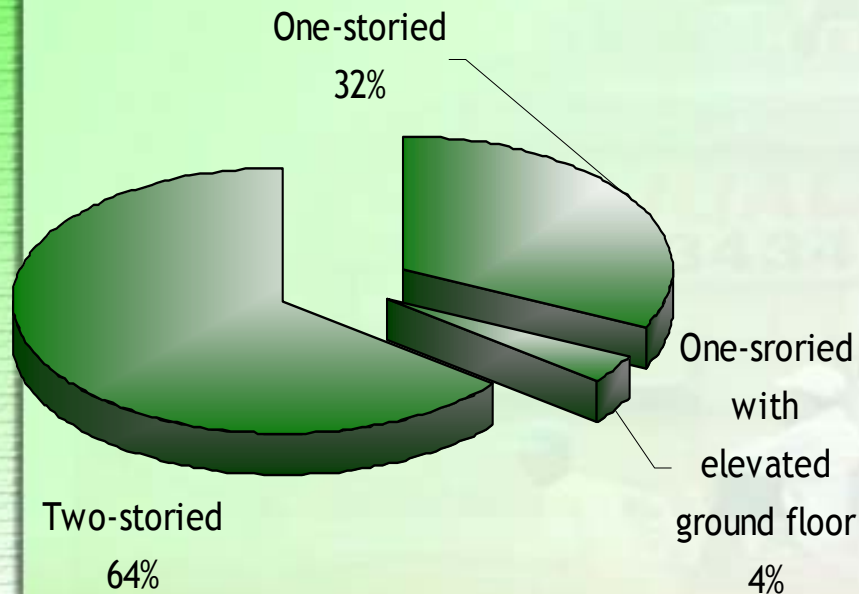
1. Household Adaptation Behavior



Adaptive Capacity Indicator

b. Infrastructure Indicator

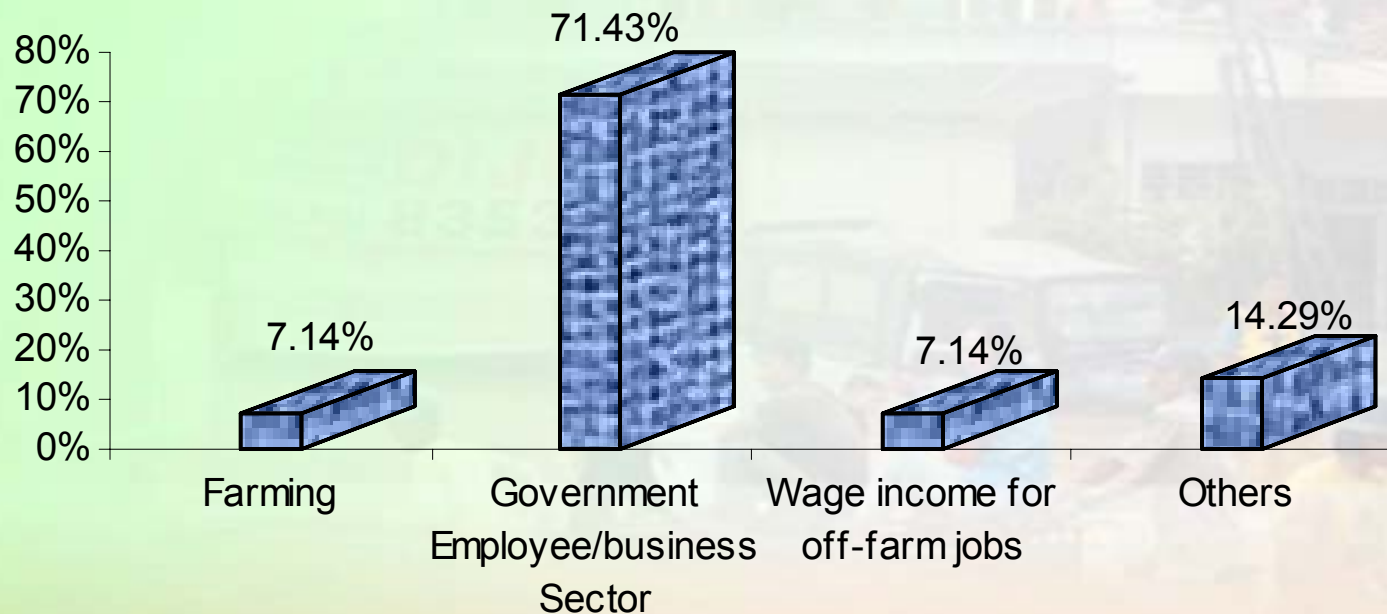
Number of Storey



Adaptive Capacity Indicator

C. Economic Indicator

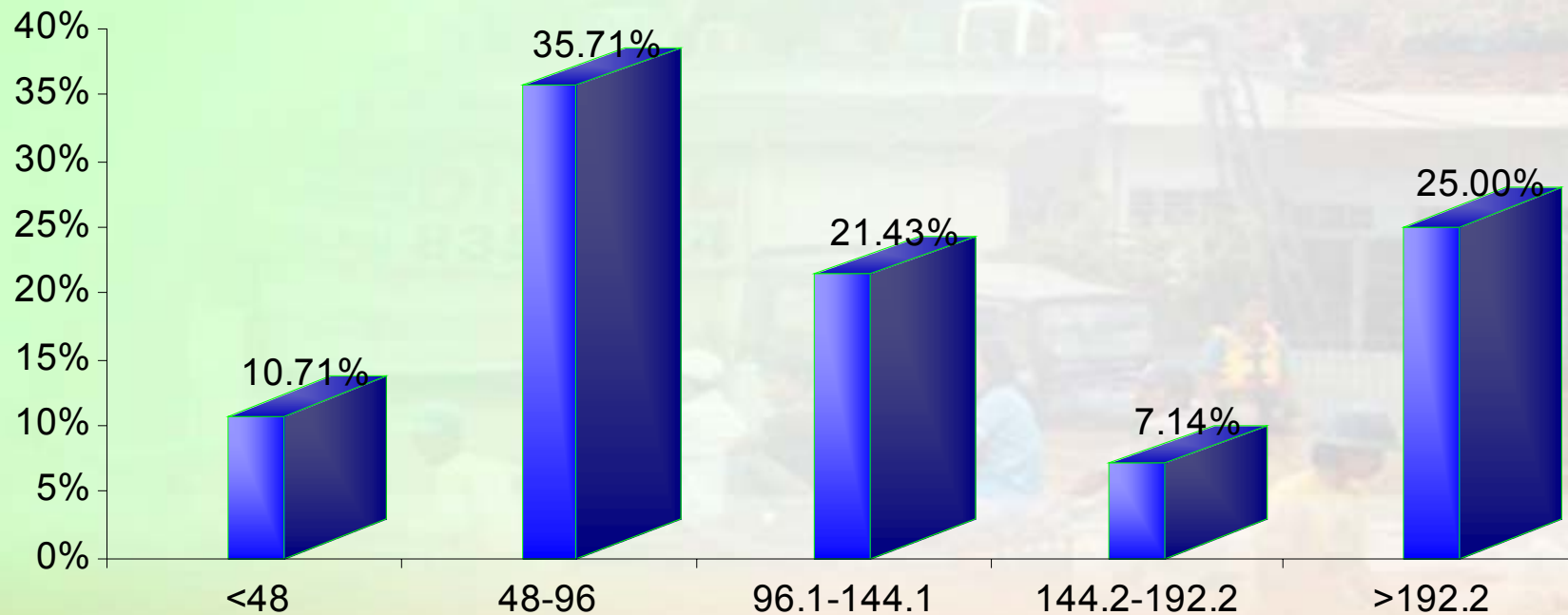
Source of Income 2008



Adaptive Capacity Indicator

C. Economic Indicator

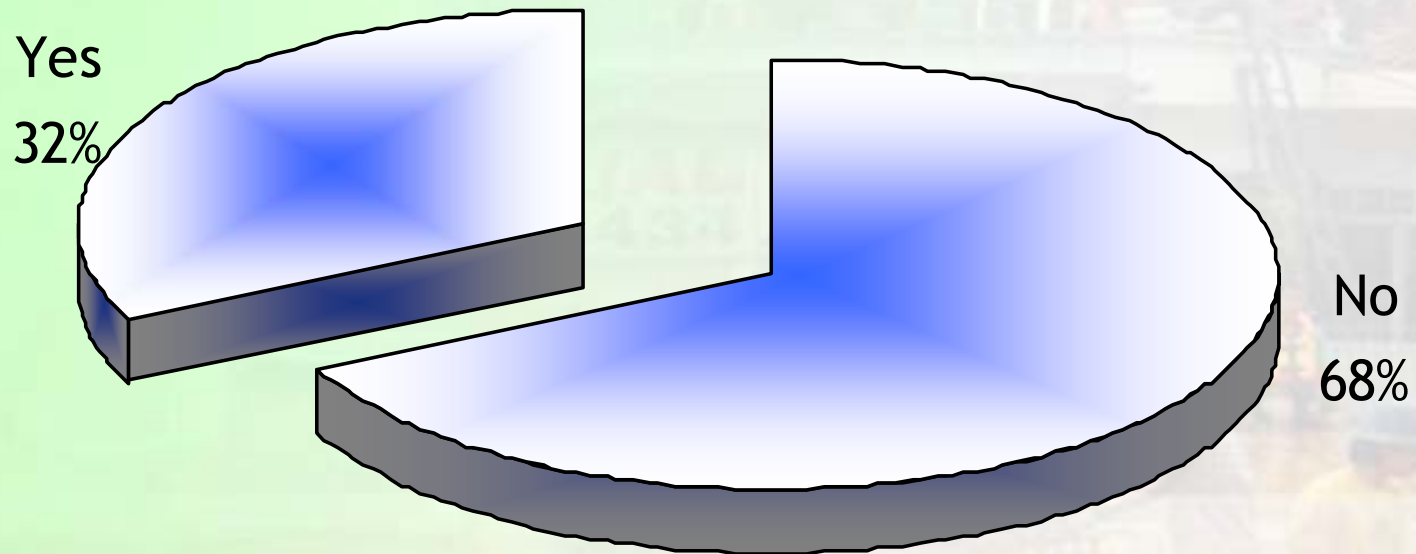
Total Incomes (US\$) per Month



Adaptive Capacity Indicator

F. Skill, Knowledge Indicator

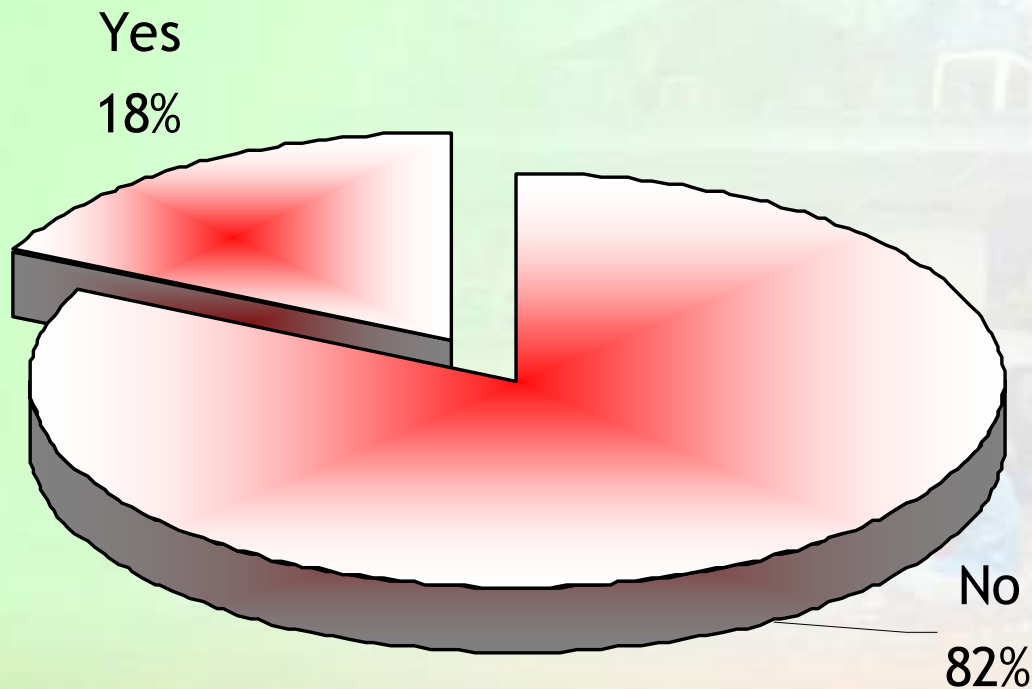
Disaster Preparedness Class Attendances



Adaptive Capacity Indicator

F. Skill, Knowledge Indicator

Traditional Knowledge on Disaster Management



Jakarta's Flood 2007 and Its Impact

b. Recovery Time

1-6 Month

4%

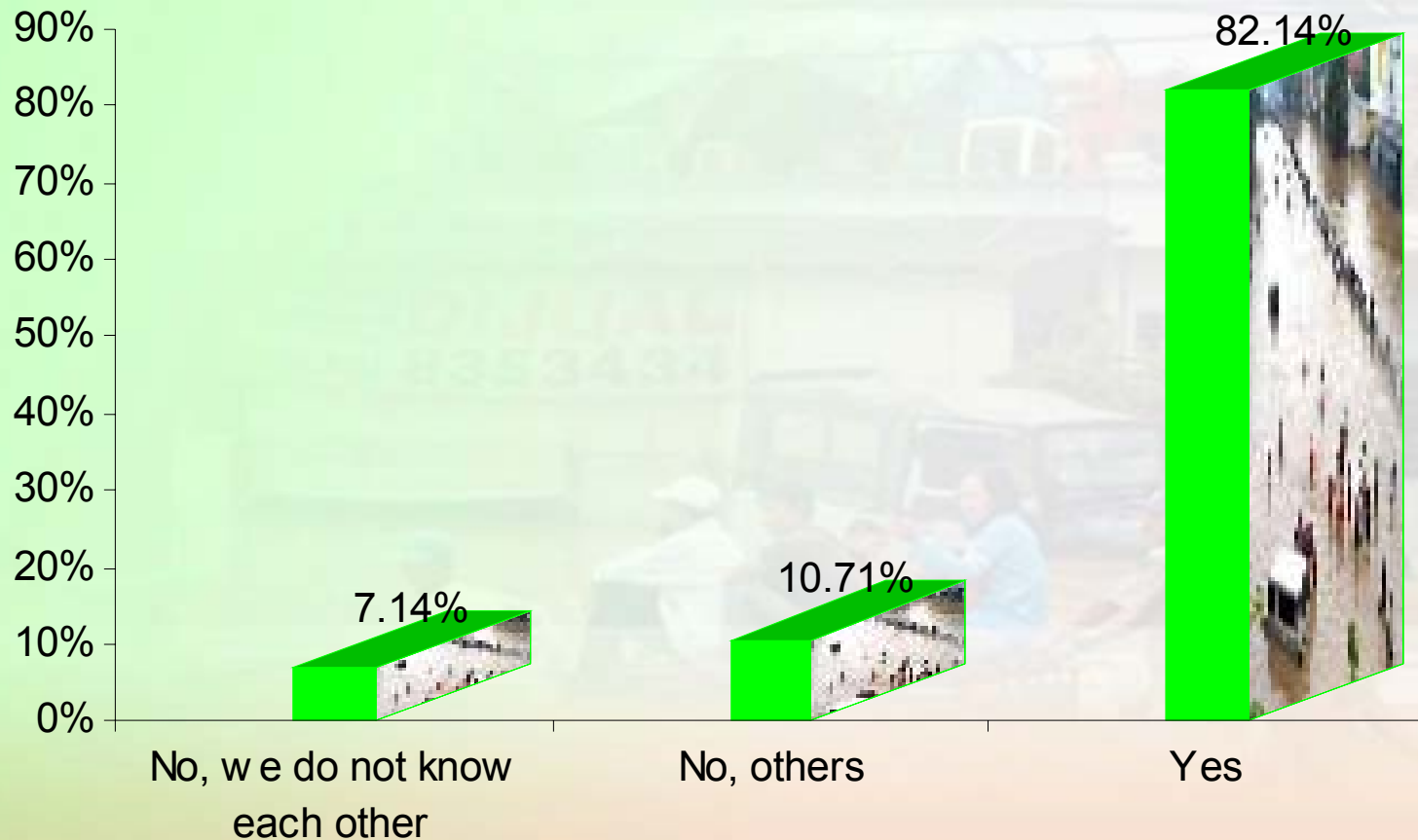


< 1 Month

96%

Adaptation Behavior

j. Community Actions Collectively



Adaptation Behavior

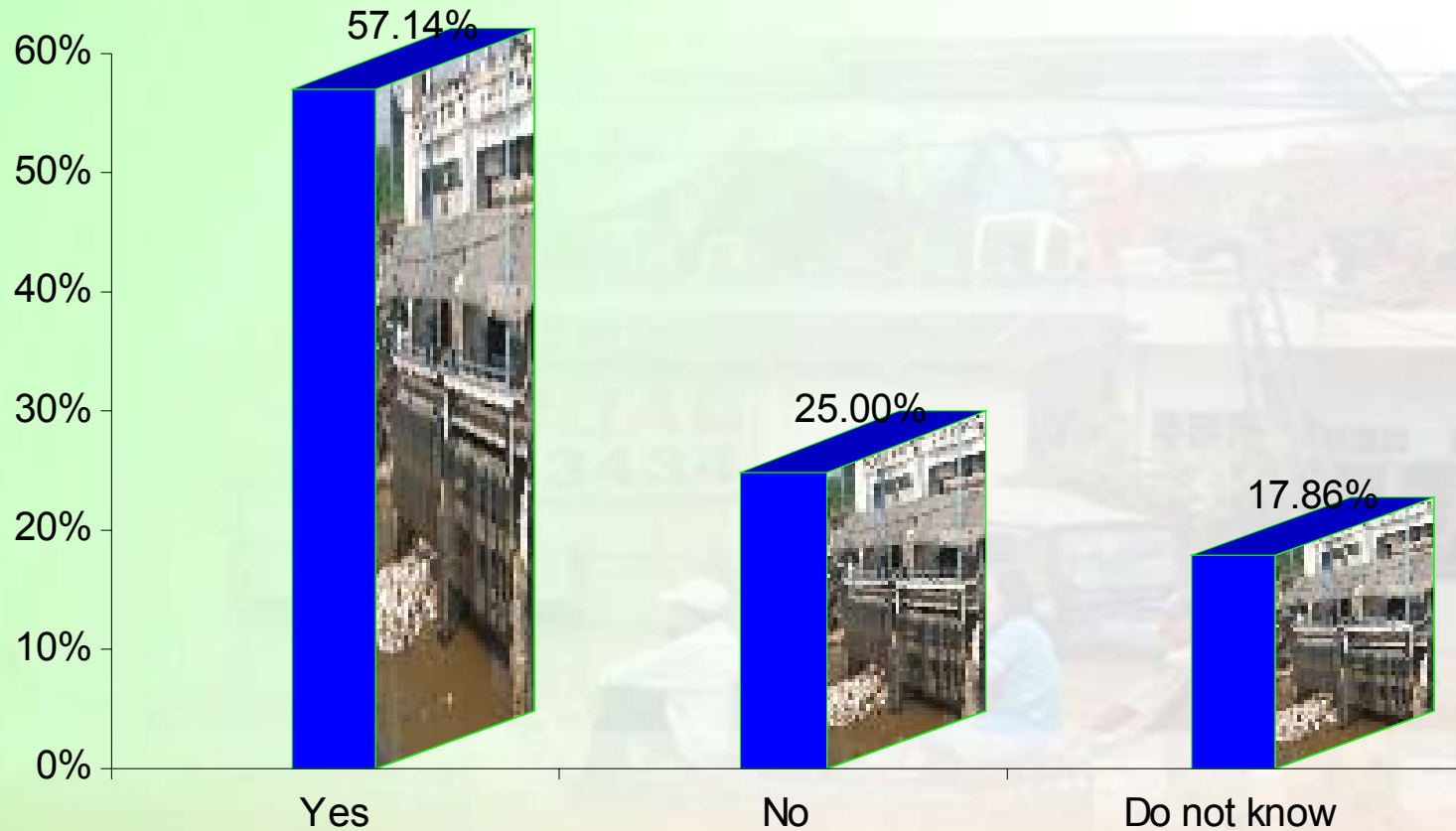
(Perception toward future risk of
Climate Change-induced event)

b. Household Prevention Plan



Gaps and Needs

a. Satisfaction of Disaster Adaptation



Adaptation Gaps to flood in Jakarta

Stakeholder	Adaptation Activity	Goal	Barrier
Environmental Management Agency of Jakarta District	Building the penetration well	Reduce water to the north of Jakarta	Low awareness of community. Limited socialization. Low quality water.
Local Government Unit	Cooperation between Province of Jakarta and West Java	Management of North Coastal Java	Low coordination between stakeholder
	Development of Sea Dyke	Protecting coastal area from flood	High Cost

Adaptation Gaps to flood in Jakarta

Stakeholder	Adaptation Activity	Goal	Barrier
Indonesia Red Cross	Providing evacuation center	Reducing risk	Do not support by community: <ul style="list-style-type: none">•Community though that flood happened in short term•They prefer to secure their property
Local Community	Development infrastructure such as sea dyke and drainage	Protecting housing area from flood disaster	Limited financial from community

Opportunities and Challenges

- Uncertainty on climate change prediction.
- Adaptation actions should be more local activities.
- Development of methodology and tools will push the local government willingness to be more active on implementing climate program.
- Climate change adaptation is lower priority on national/local government planning.
- Scaling-up pilot projects.
- Gaps between international negotiation and national/local policy.

Thanks a lot...

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Adaptive Capacity of Local Government Unit (INSTITUTIONS AND GOVERNANCE)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Frameworks and Structure	All of disaster management institution which is also working for climate change adaptation has limitation in capacities and resources in their institution.			
Financial Resources	Adequate budget allocated to enable adaptation to climate change-related event	Adequate budget allocated to enable adaptation to climate change-related event	Very limited budget allocated to adaptation to climate change related event	Very limited budget allocated to adaptation to climate change related event
Financial Reserves and Aid	Available quickly financial access to support rapid response to disaster	Available quickly financial access to support rapid response to disaster	Limited financial access to support rapid response to disaster	No Financial Access to support a rapid response to disaster

Adaptive Capacity of Local Government Unit (INSTITUTIONS AND GOVERNANCE)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Fund Source	District Budget Revenue and Expenditure	National Budget Revenue and Expenditure, UNDP	National Budget Revenue and Expenditure	
Human Resource	Providing training in adaptation to CC related event to community leader	Providing training in adaptation to CC related event to community leader but in some limited resources	Providing training in adaptation to CC related event to community leader but in some limited resources	Very limited extent to providing training in adaptation to CC related event

Adaptive Capacity of LGU (RISK ASSESSMENT, MONITORING, AND WARNING)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Climate Change-related risk assessments	Carrying out regularly meeting with representative of the local community to conduct climate change related risk assessment	Involved representative of the local community to conduct climate change related risk assessment but not in regular meeting	Involved representative of the local community to conduct climate change related risk assessment but not in regular meeting	Conducted climate change related risk assessment but in limited extent
Early warning system	Providing early warning system in vulnerable area	Providing early warning system in vulnerable area but it work not effective	Providing early warning system	Providing early warning system in vulnerable area but it work not effective

Adaptive Capacity of LGU (RISK ASSESSMENT, MONITORING, AND WARNING)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Climate-change risk management system	Providing risk management in risk area to monitoring hazard and risk	Significant scope for improvement to providing risk management in risk area	Providing risk management in risk area but limitation in resources	Providing risk management but in limited extent
Risk/Hazard map	All of Institution already have a risk/hazard map (land slide map, hazard zone, flood prone area, evacuation procedure in volcano area)			
Database system on Climate Change related impact	Do not have database system on cc related impact		Already have database system	Do not have database system on cc related impact

Adaptive Capacity of LGU (KNOWLEDGE, EDUCATION AND INFORMATION)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Information and management and exchange	Information on climate change related risk readily available effectively and accessible to key stakeholder	Information on climate change related risk readily available but in some limitation in capacities and resources to key stakeholder	Information on climate change related risk readily available effectively and accessible to key stakeholder	
Community Training	Community based training work effectively to all member of community	Community based training work effectively to all member of community	Community based training work effectively to all member of community	

Adaptive Capacity of LGU (KNOWLEDGE, EDUCATION AND INFORMATION)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Public Awareness	There are public education initiative to informing community and it work effectively	There are public education initiative to informing community but in some limitation in capacities and resources	There are public education initiative to informing community but in some limitation in capacities and resources	

Adaptive Capacity of LGU (CLIMATE CHANGE ADAPTATION TECHNOLOGY)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Technology or Infrastructure available	Radio, telematic, EWS	Network centre	Transmitter, satellite	



Adaptive Capacity of Local Community Organization



Adaptive Capacity of Local Community Organization

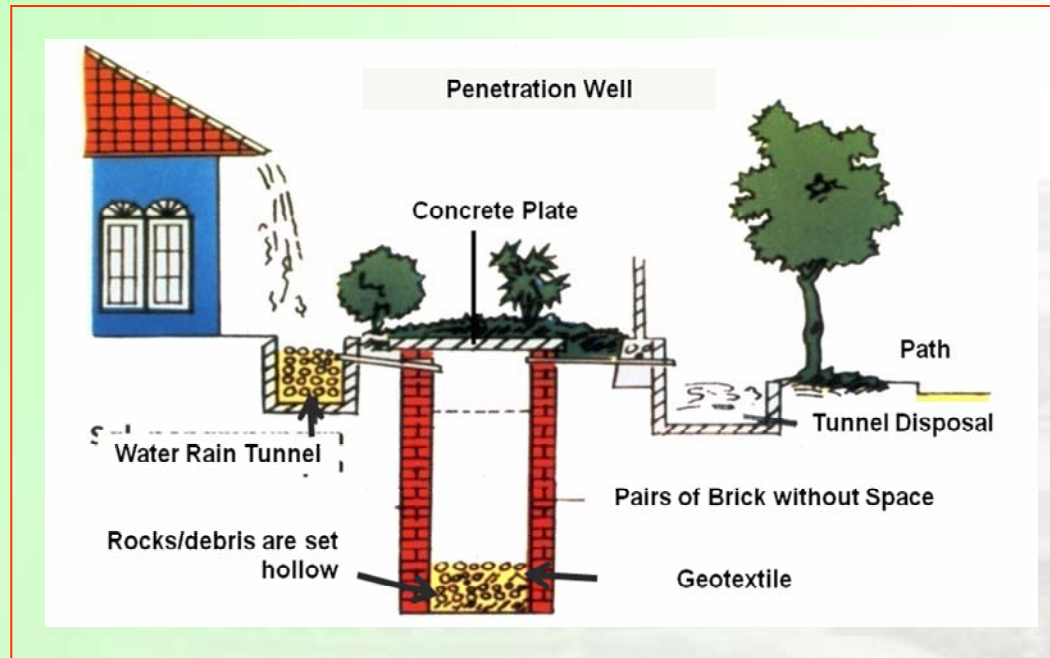
Indicator of Adaptive Capacity of Local Community Organization	Local Community Organization: Indonesian Water Partnership	Local Community Organization: Indonesian Environmental Organization
Institution and Network	This organization have meeting 3 times each year. This organization also get any support of other organizations such as from central government, local government and civil information, in form of supply water	The meeting of this organization are almost every week, month, and 3 months with the attendance of staff members are 100%. There are providing some members contribute in case for emergency, in kind of personal time, finance support, and information.

Adaptation Option Possibilities

Environmental Management
Agency of Jakarta
District/BPLHD

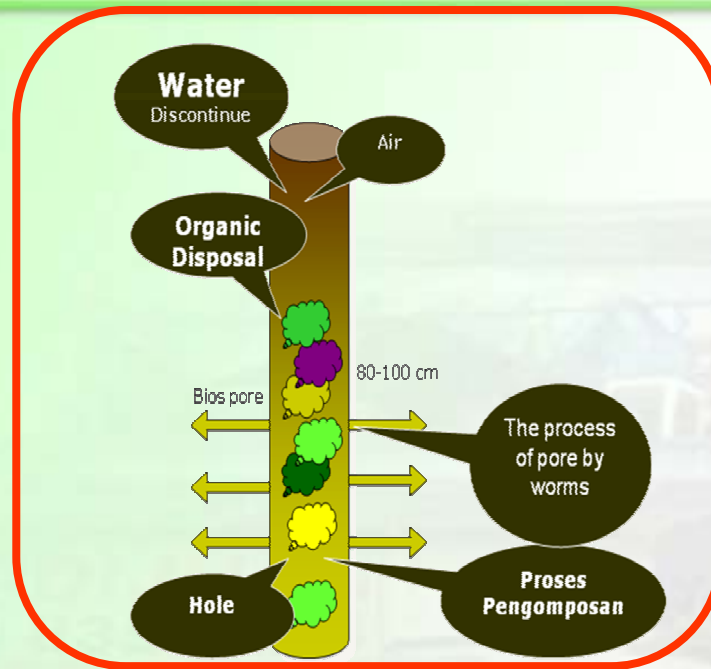


1. Building the Penetration Well



- This adaptation has been done in some location in Jakarta and based on Governor Regulatory No. 68/2005. On figure 3.38 describe the process of working of penetration well.

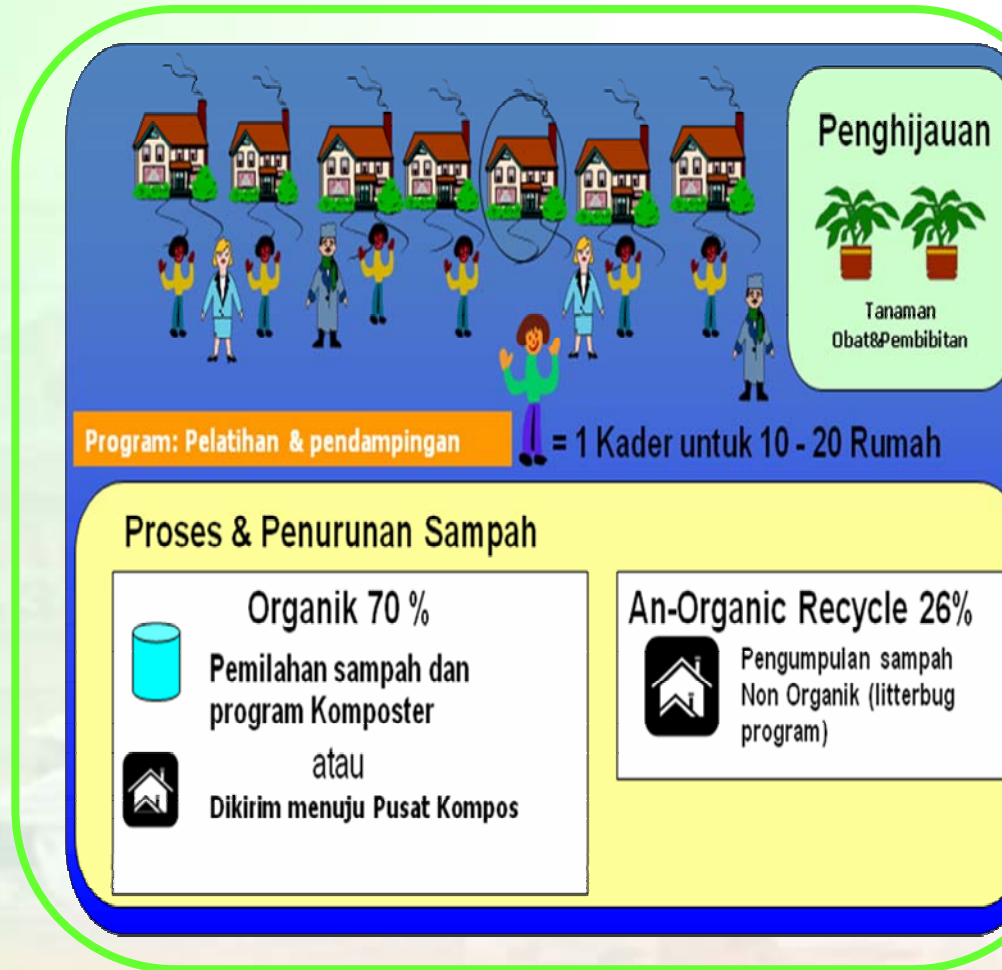
2. Socialization to Community about “Penetration Bios Pore”



- The Hole with 10 -30 cm diametric, depth <100 cm, filled with organic disposal
- Small diametric reduce penetration burden (volume of water / penetration surface). Spread can be made.
- The contents of organic disposal to the soil fauna habitat burrow horizontally. Penetration rate increase

3. Management of Waste

Community involvement in the management of waste from household / community to reducing the number of disposal domestic household and preventing to throwing the waste directly to the river (Clean and Green Program) and Tree Planting Movement Program



Others Explanation

4. Cooperation between Province of Jakarta, West Java about North Coastal Java planning with the Environment Strategic Studies model
5. Dam/Dyke conservation
6. Structural and Non-Structural Adaptation in Disaster Flood Mitigation.

Structural and Non-Structural Adaptation

STRUCTURAL ADAPTATION

(Physical)

- **Natural Methods of Protection**
(Mangrove, sand dune, coral)

- **Un-Natural Methods of Protection**

Breakwater, sea-wall, sea dikes, Protective Construction, Beach Nourishment/Reclamation, and house with stage model.

NON-STRUCTURAL

ADAPTATION (Non-Physical) ,

e.g. :

- Making Risk Disaster Map
- Early Warning System
- Relocation
- Integrated Coastal Management
- Community Based Disaster Management
- Public Awareness Building



REDUCE RISK DISASTER RELATED CLIMATE CHANGE ON JAKARTA'S COASTAL

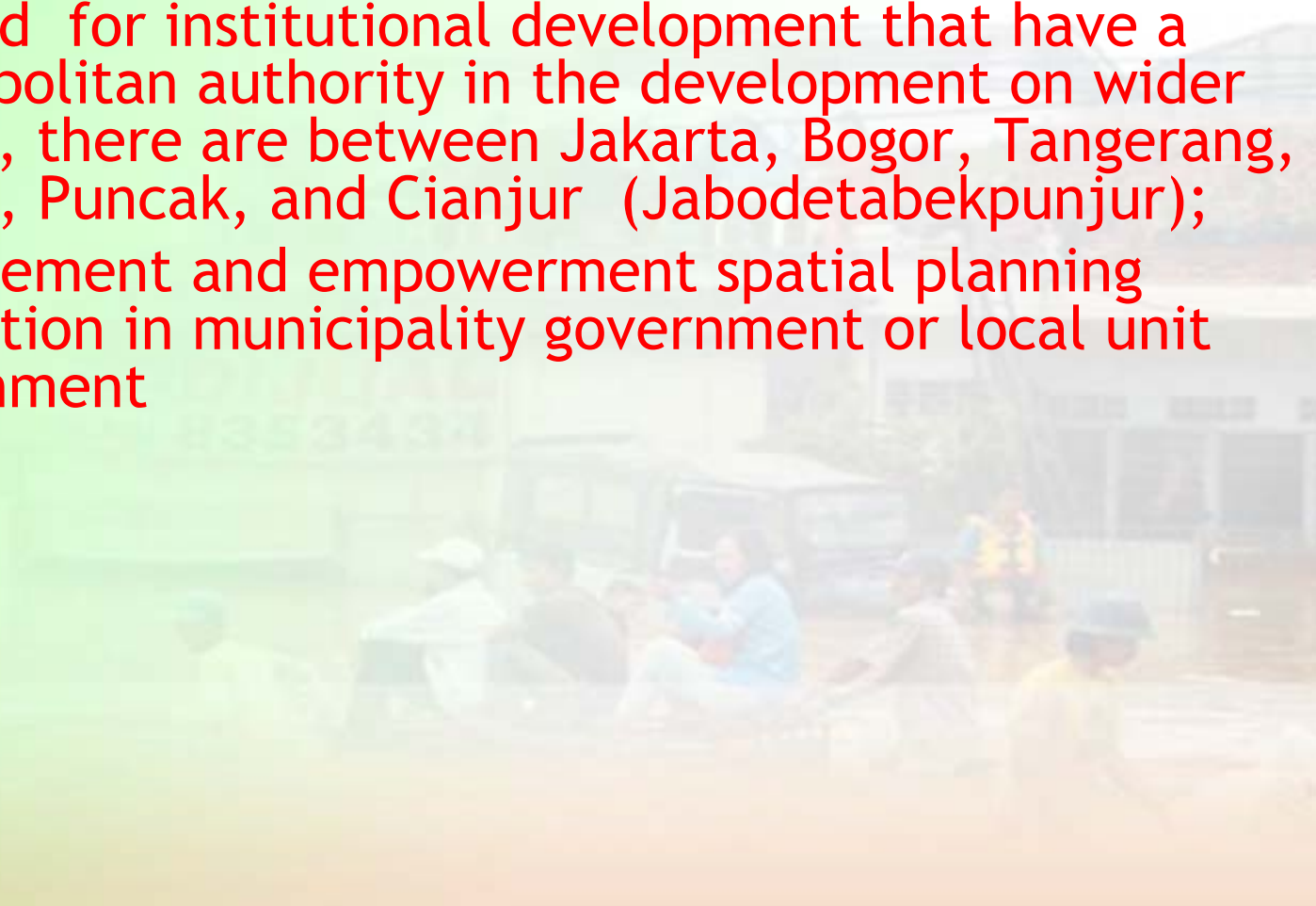
Adaptation Option Possibilities

Urban and Regional Planning
Expert

The background image shows a group of people sitting on the ground in a flooded urban area. They appear to be engaged in a community meeting or discussion. The water is murky brown, and there are buildings and utility poles in the background. The scene is somewhat hazy, suggesting a recent flood event. A green horizontal line is drawn across the bottom of the image, just above the text.

Urban and Regional Planning for based on Mitigation

- Controlling of land converting from Agriculture area to built-up area
- Needed for institutional development that have a metropolitan authority in the development on wider region, there are between Jakarta, Bogor, Tangerang, Bekasi, Puncak, and Cianjur (Jabodetabekpunjur);
- Enforcement and empowerment spatial planning institution in municipality government or local unit government



Urban and Regional Planning for based on Mitigation

- Monitoring physical development in urban area;
- Restricted land using for any economic activity such dwelling, industry, trading, etc in flood prone area in order to reducing density level of community on those risk area;
- Sustainability monitoring of spatial planning violence on risk area and preventing immediately; and
- In the long term, restoring the function of the risk area as open green space, low density population, moreover conservation area if needed

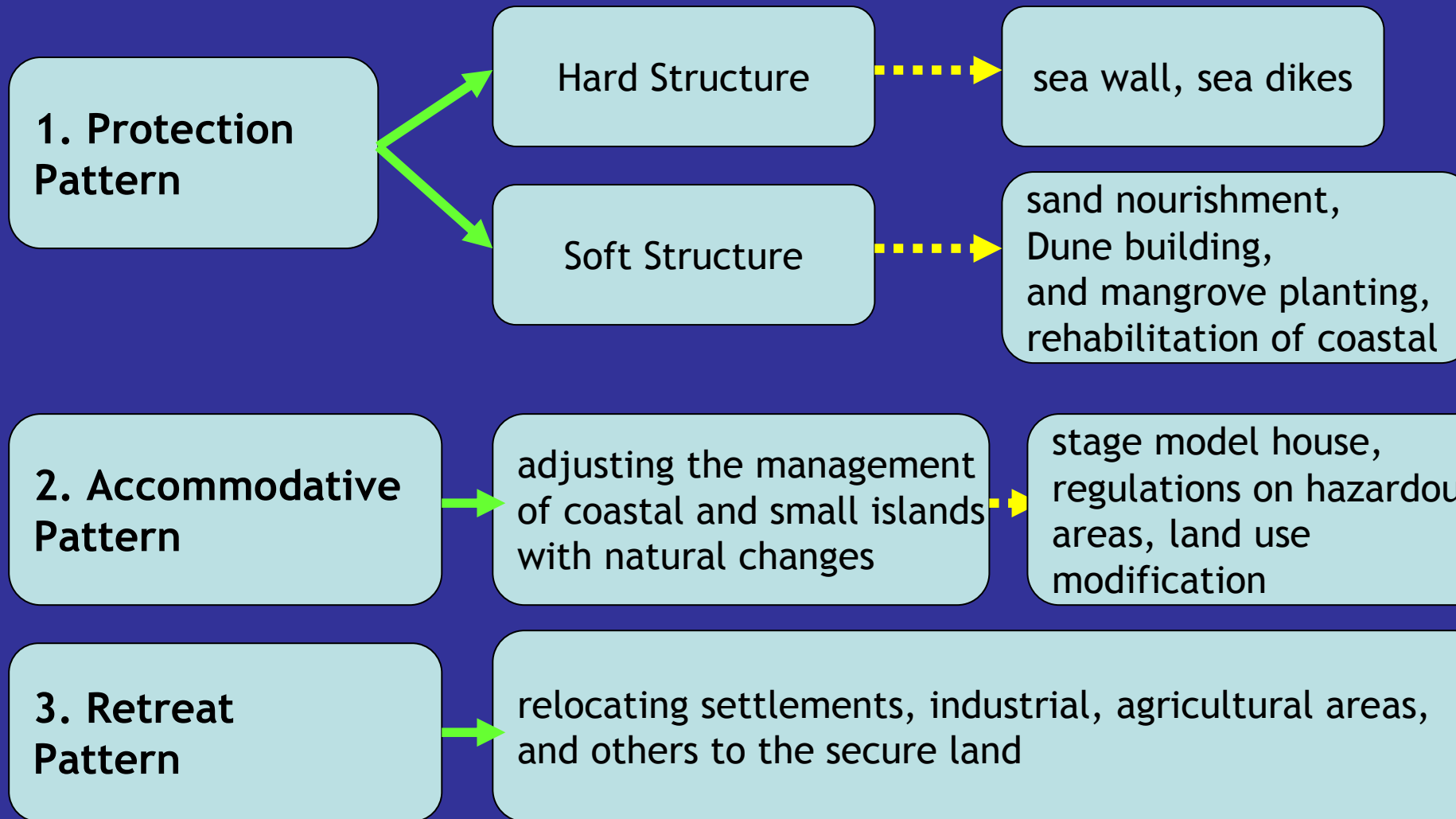


Adaptation Option Possibilities

Oceanography Expert

The background of the slide is a faded photograph of a flooded street. Several people are sitting on the ground in the water, some wearing hats and jackets. In the background, there are buildings, one of which has a sign that says "DIJUAL" (For Sale). The overall scene suggests a community affected by flooding, likely due to sea level rise or coastal erosion.

3 (Three) Strategy Anticipating Sea Level Rise:



Adaptation Option Possibilities

Indonesia Red Cross

The background image shows a flooded area with several people sitting on the ground. A sign that says "DIJUAL" (For Sale) is visible on a building in the background. The scene is hazy and appears to be a disaster relief or recovery site. A green horizontal line is drawn across the bottom of the image.

Adaptation Option adopted by Indonesia Red Cross

1. Building Community Based Disaster Based Management

1. Partnership of Indonesia Red Cross and local community
2. Building local capacity
3. Advocating and Socialization
4. Enhancing Community Awareness
5. Training drills and evacuation rehearsals
6. Sustainability

2. Adaptation After Disaster

1. First Aid
2. Disaster Response Immediately
3. Providing Evacuation Centre
4. Providing Free Medication treatment
5. Providing Public Kitchen

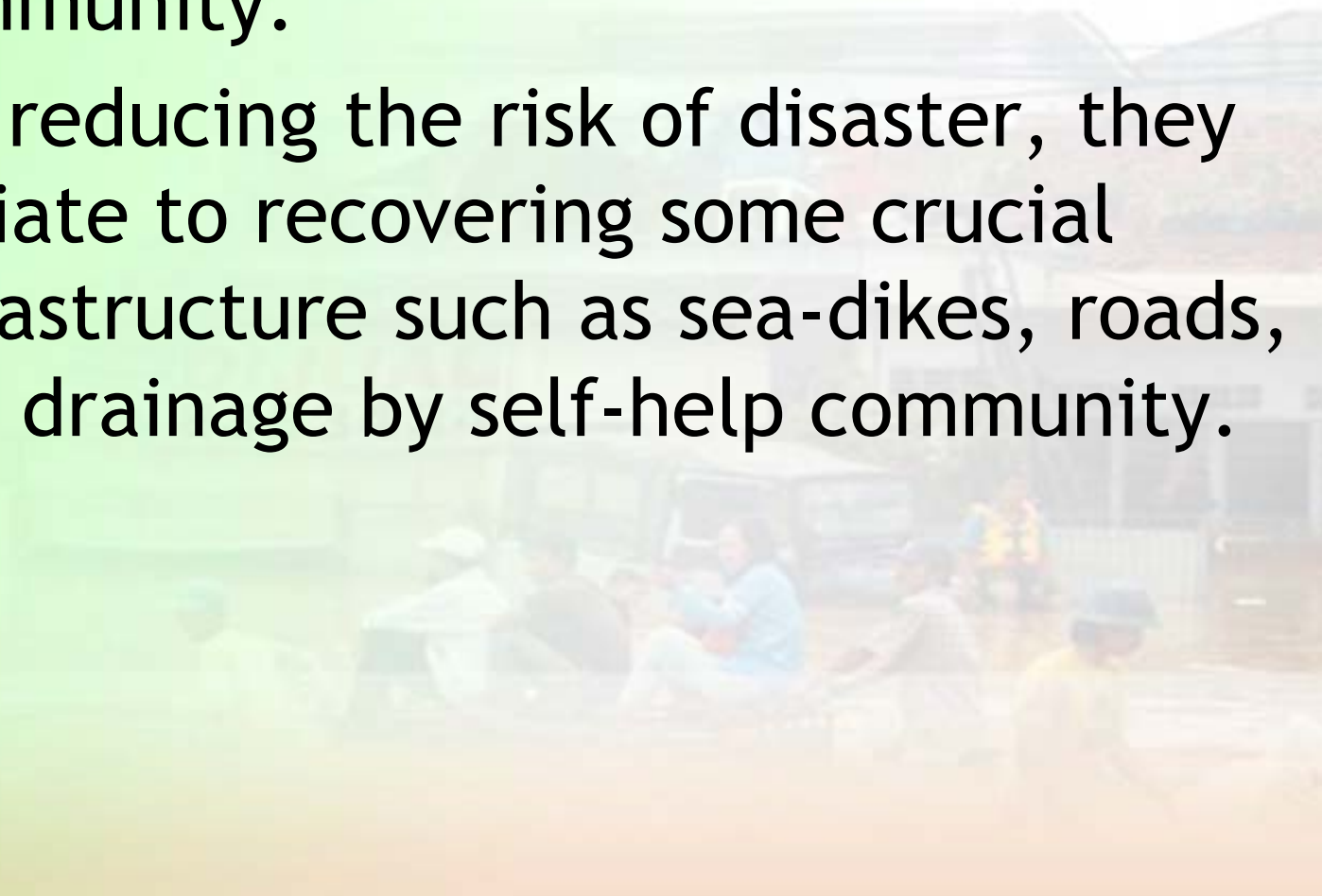
Adaptation Option Possibilities

Local Community

A photograph showing a group of people sitting on a bench in a flooded area. The water is murky brown. In the background, there is a building with a sign that says "DIJUAL". A person in a yellow vest is visible in the background. The scene is hazy, suggesting a flood or a similar disaster.

Adaptation Option Possibilities by Local Community

1. Conduct mutual-help among community.
2. For reducing the risk of disaster, they initiate to recovering some crucial infrastructure such as sea-dikes, roads, and drainage by self-help community.



Adaptation Option Possibilities

Summary

The background of the slide is a faded photograph of a flooded street. In the foreground, several people are sitting on a bench or low wall, some looking towards the camera. In the background, there is a building with a sign that partially reads 'EDJUAL' and '8'. The water is murky brown, and the overall scene suggests a community affected by flooding.

Adaptation Option Possibilities Adopted From All FGD's Participant

BEFORE THE EVENT

DURING THE EVENT

AFTER THE EVENT

BEFORE THE EVENT

Type Of Adaptation	Households	Community	Government
Structural	<ul style="list-style-type: none">• building flood wall using sandbags	<ul style="list-style-type: none">• Providing disaster evacuation space• Make a evacuate line• Building sea wall with self help community	<ul style="list-style-type: none">• Strengthen and enhance sea-dike, breakwater, and sea wall• Widen and improve the drainage channel• Extending green area• Reservoir conservation

BEFORE THE EVENT

Type Of Adaptation	Households	Community	Government
Behavior	<ul style="list-style-type: none"> • Maintaining drainage channel • Reduce household waste • Prepare emergency bag • Protecting valuable properties in higher place • See the latest information 	<ul style="list-style-type: none"> • Creating disaster preparedness team • Coordinating provide evacuate equipment • Persuade the public to maintain environmental hygiene 	<ul style="list-style-type: none"> • Coordination across ministries / institutions in the planning and mitigation of disaster • Improving disaster map of vulnerable area • Cooperating to create a monthly/daily weather forecasting • Monitoring the implementation of regulations • Facilitating adaptation • Empowerment in managing waste and tree planting movement initiated

BEFORE THE EVENT

Type Of Adaptation	Households	Community	Government
Financial	Allocating special budget for disaster preparedness	Collecting fund for environmental hygiene in local community	<ul style="list-style-type: none">• Allocating funds from budget revenue and expenditure of nation (APBN) and funds derived from the CSR business for disaster• Increasing ground water cost to reduce use of excessive ground water• provide incentives for maintaining the environment• provides insurance premium for the community

BEFORE THE EVENT

Type Of Adaptation	Households	Community	Government
Technology	<ul style="list-style-type: none">• Building two storied house• House with ceramic wall to make it easier to clean• Making a bios pore tunnel• Making Penetration well	<ul style="list-style-type: none">• Providing early warning system in commune level• Making tidal calendar	<ul style="list-style-type: none">• Provision weather monitoring equipment• Improving the technology of waste management in the coastal area

DURING THE EVENT

Type Of Adaptation	Households	Community	Government
Structural	<ul style="list-style-type: none">• Using robber boat for evacuating• Evacuating in provided disaster evacuation centre	<ul style="list-style-type: none">• Using robber boat to evacuate community• Providing evacuate area	<ul style="list-style-type: none">• Providing robber boat, rope, and evacuation vehicle• Providing ambulance



DURING THE EVENT

Type Of Adaptation	Households	Community	Government
Behavior	<ul style="list-style-type: none">• Disaster preparedness working program• Turning off the electricity in house• Relocate in safety place• Protecting the valuable goods immediately.• Calling the institution related with mitigation disaster.	Providing evacuating team to response with disaster and preparing to evacuate	<ul style="list-style-type: none">• Implementing disaster mitigation action• Sending evacuation disaster team immediately• Building the mitigation disaster center

DURING THE EVENT

Type Of Adaptation	Households	Community	Government
Financial		Fund rising to help affected people	Distribution donation to affected people from fund recovery disaster



AFTER THE EVENT

Type Of Adaptation	Households	Community	Government
Structural	Recovering the house and facilities with hard and protective construction	Recovering sea-dikes, roads, and drainage with self-help community	<ul style="list-style-type: none"> • Recovering the broken sea dikes with robust material • Recovering broken road • Recovering drainage channel
Behavior	<ul style="list-style-type: none"> • Inventory loss property • Sweeping the mud in the house by antiseptic • Relocating to safety place • Self-introspection 	<ul style="list-style-type: none"> • Inventory loss • Sending goods for affected people • Cleaning up the environment • Mobilize disaster goods assistance • Evaluating government policy. 	<ul style="list-style-type: none"> • Coordinating with NGO and local community • Providing safe area to relocating • Providing free medical for affected people • Monitoring condition of affected area and community

AFTER THE EVENT

Type Of Adaptation	Households	Community	Government
Financial	<ul style="list-style-type: none">• Exploring other income• Searching soft loan for business capital	Sending fund disaster assistances	<ul style="list-style-type: none">• Distribution fund disaster assistance to affected people• Providing soft loan to community who want to develop their own business
Technology	Using a water pump to remove water in the home because of the flood		Updating weather information (rainfall pattern and tidal) to community through television, radio, newspaper, etc

Next step?



Next Step of The Project

- Assessment of Adaptation Gap to Flooding in Jakarta
 - Analysis based on literature and “best practice”
- Priority of Adaptation behavior/capacity facing flooding in Jakarta (before, during, and after)
 - Conducting FGD and workshop
- Document on Adaptive Capacity for Jakarta Flooding

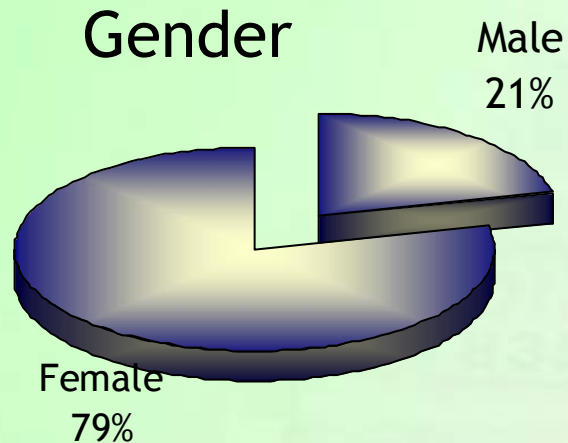
Thank You



armi@geoph.itb.ac.id
www.armisusandi.com

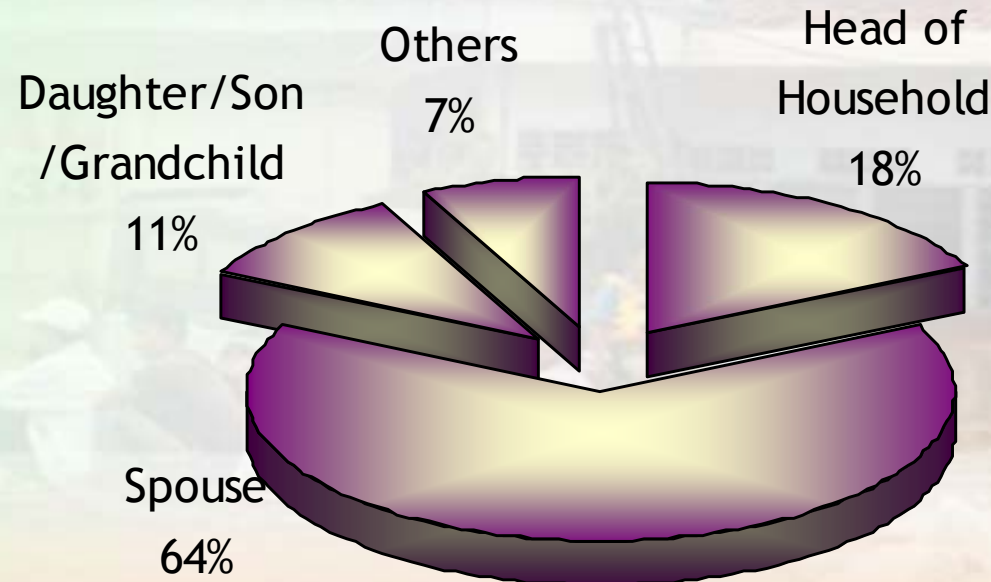
Adaptive Capacity Indicator

a. Characteristic of Household



Total = 28

Position in Household

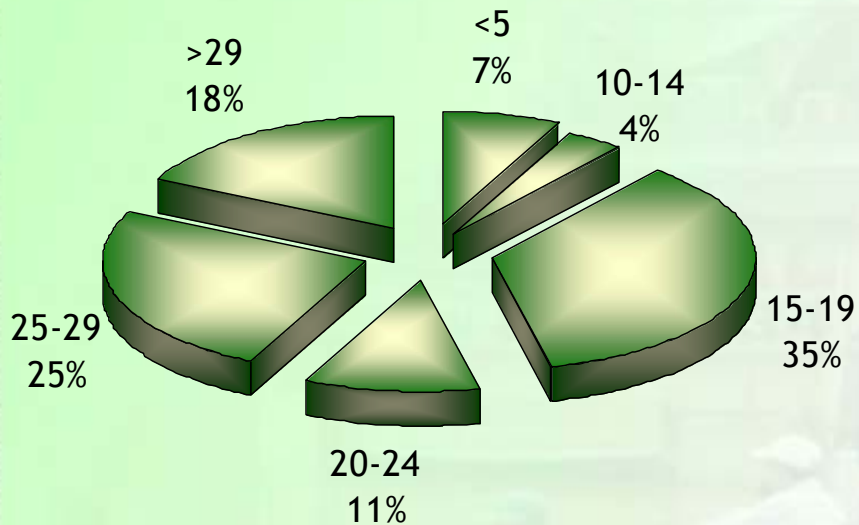


Total = 28

Adaptive Capacity Indicator

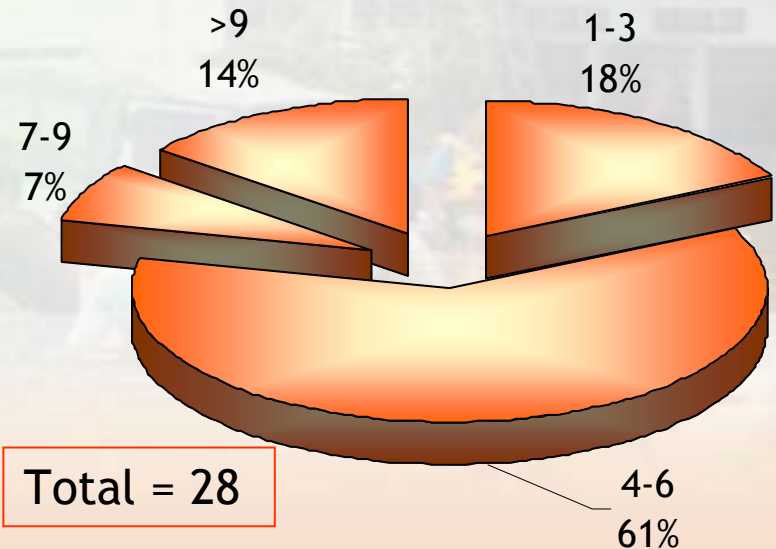
a. Characteristic of Household

Time of Family Lived here



Total = 28

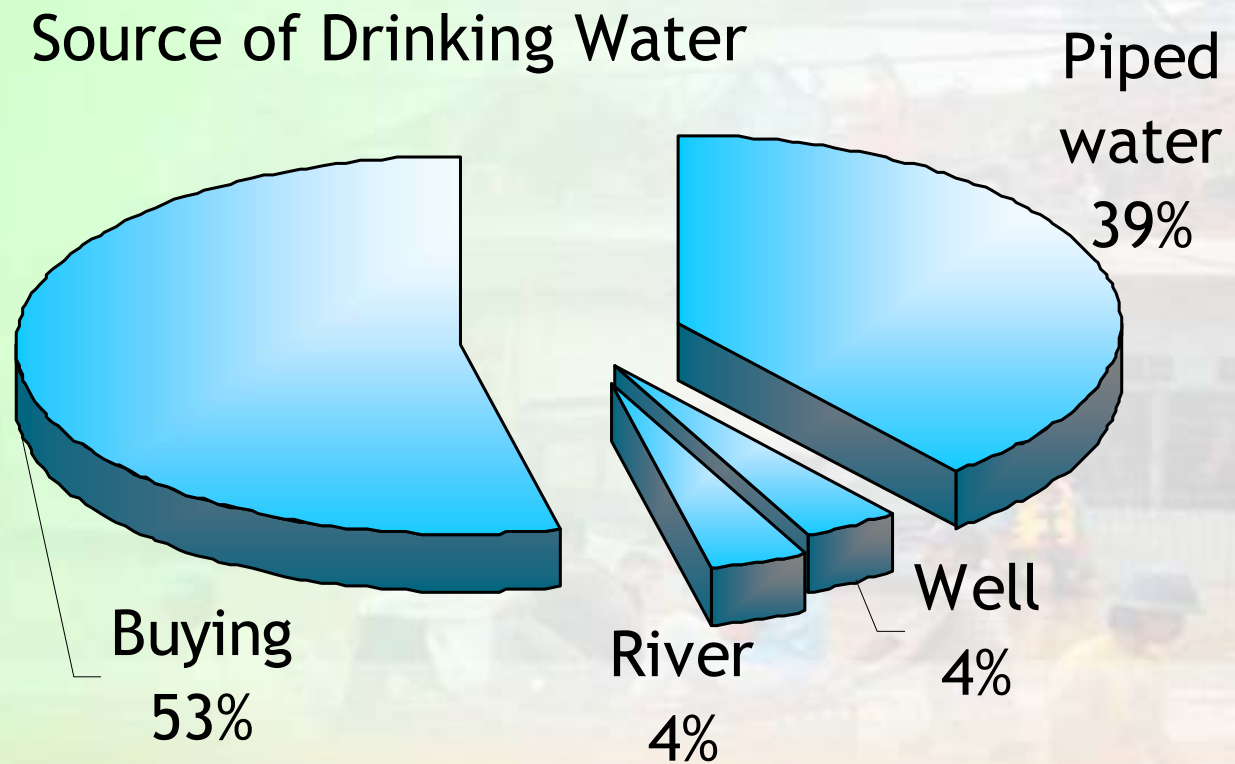
Total Number of Family Member



Total = 28

Adaptive Capacity Indicator

b. Infrastructure Indicator



Adaptive Capacity Indicator

C. Economic Indicator

Source of Income Before 2007



Adaptive Capacity Indicator

C. Economic Indicator

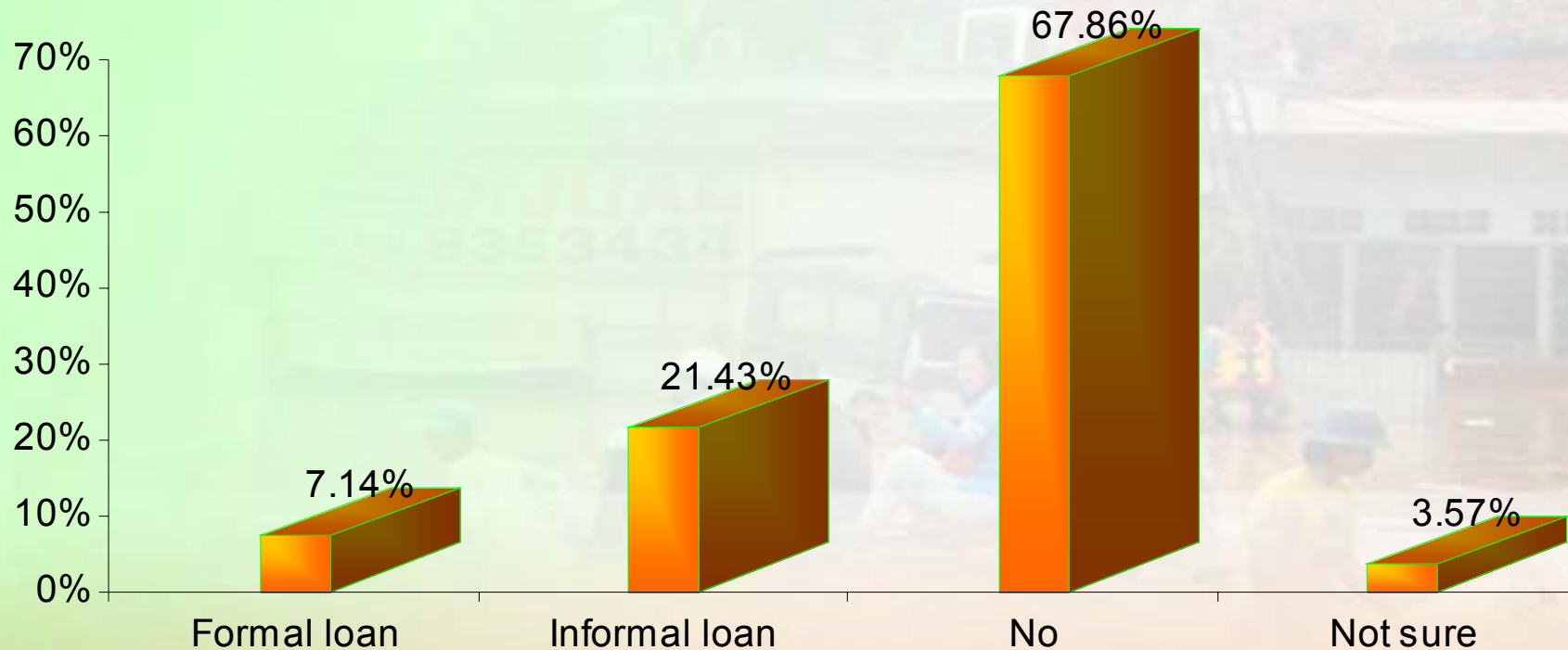
Proportion of Food Consumption of HH Produce



Adaptive Capacity Indicator

C. Economic Indicator

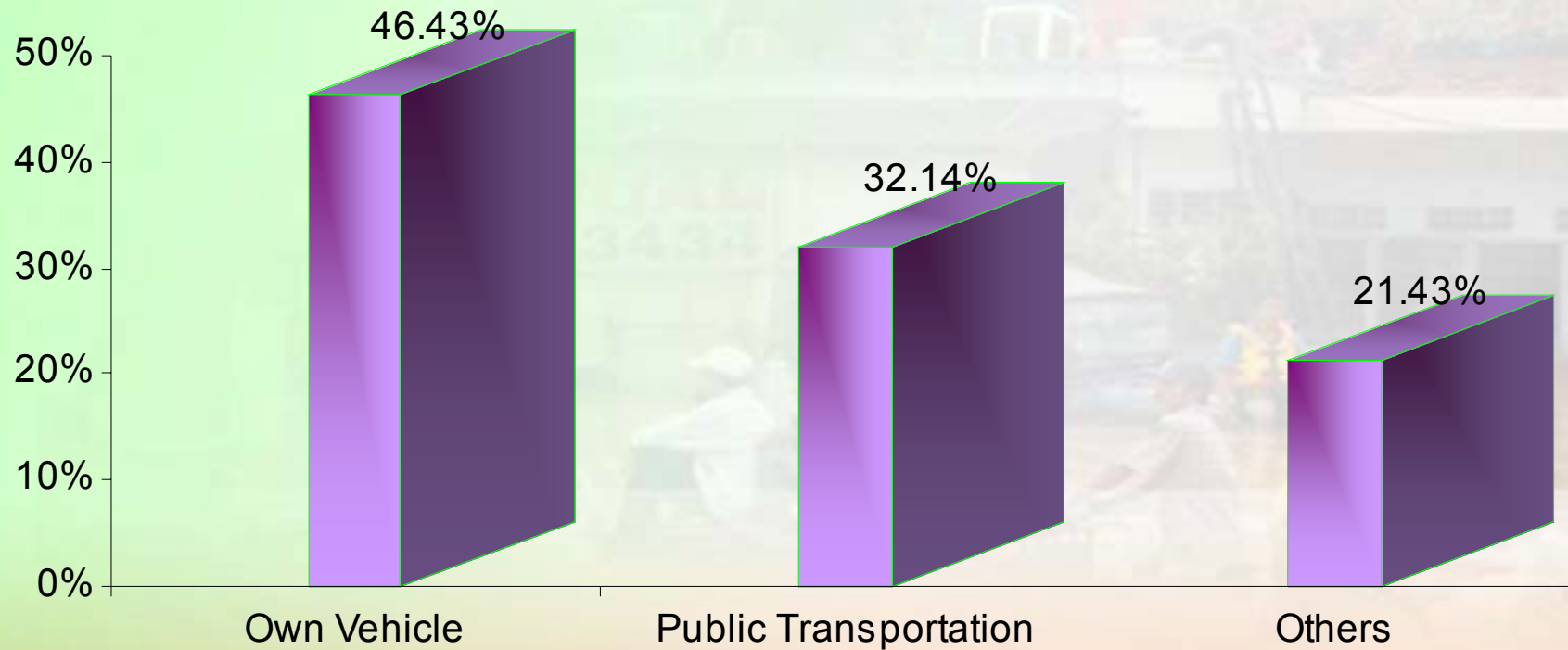
Source of Loan



Adaptive Capacity Indicator

D. Technology Indicator

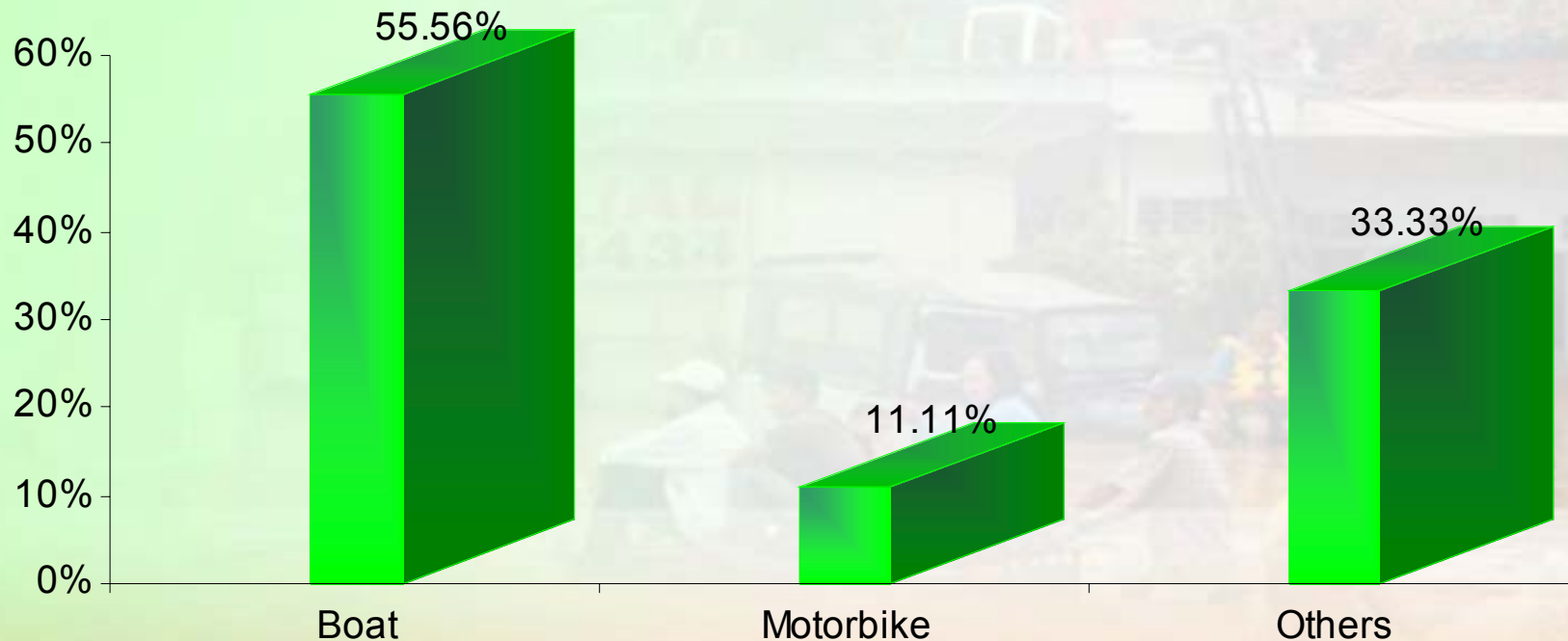
Travel / Commute for Working / Studying



Adaptive Capacity Indicator

D. Technology Indicator

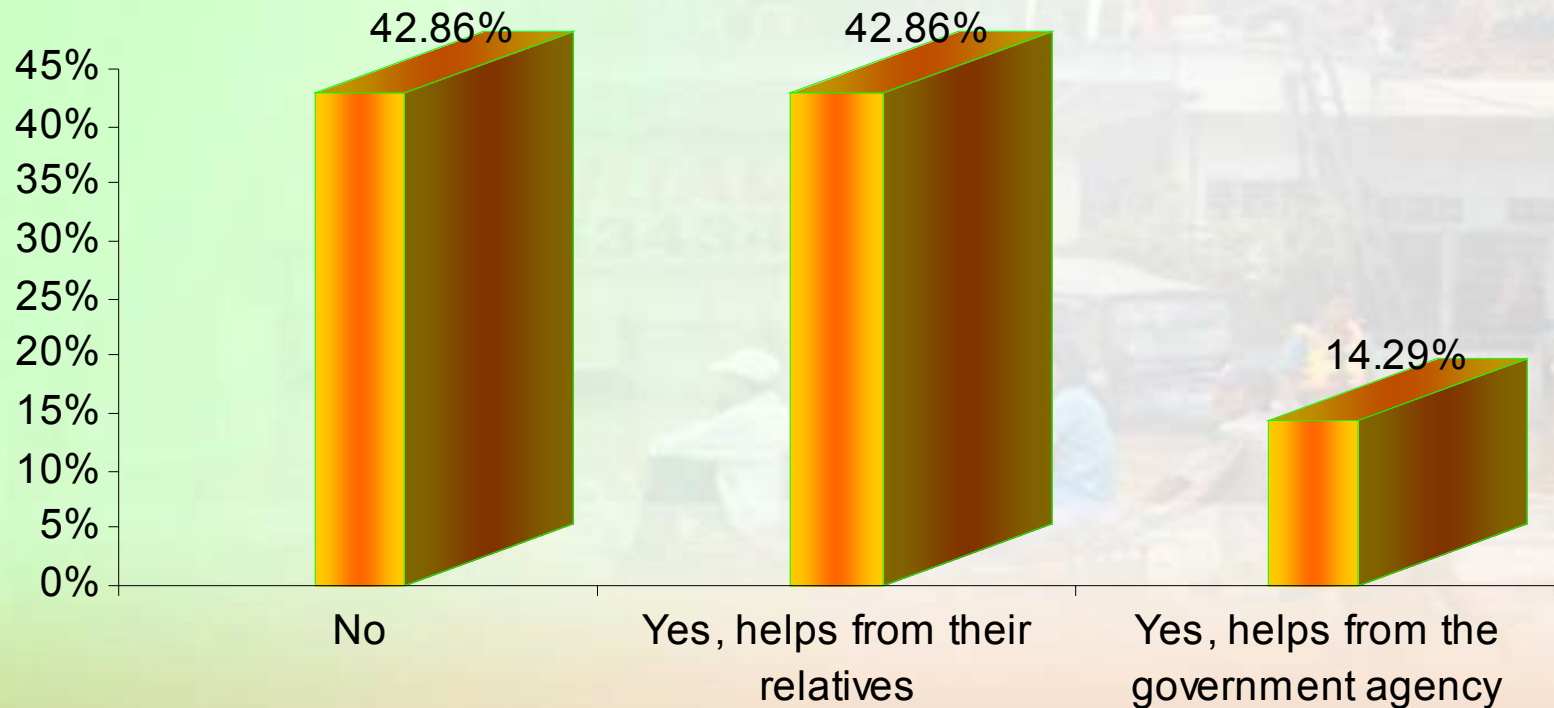
Mode Transportation to the Public Building/Shelter



Adaptive Capacity Indicator

E. Social Capital Indicator

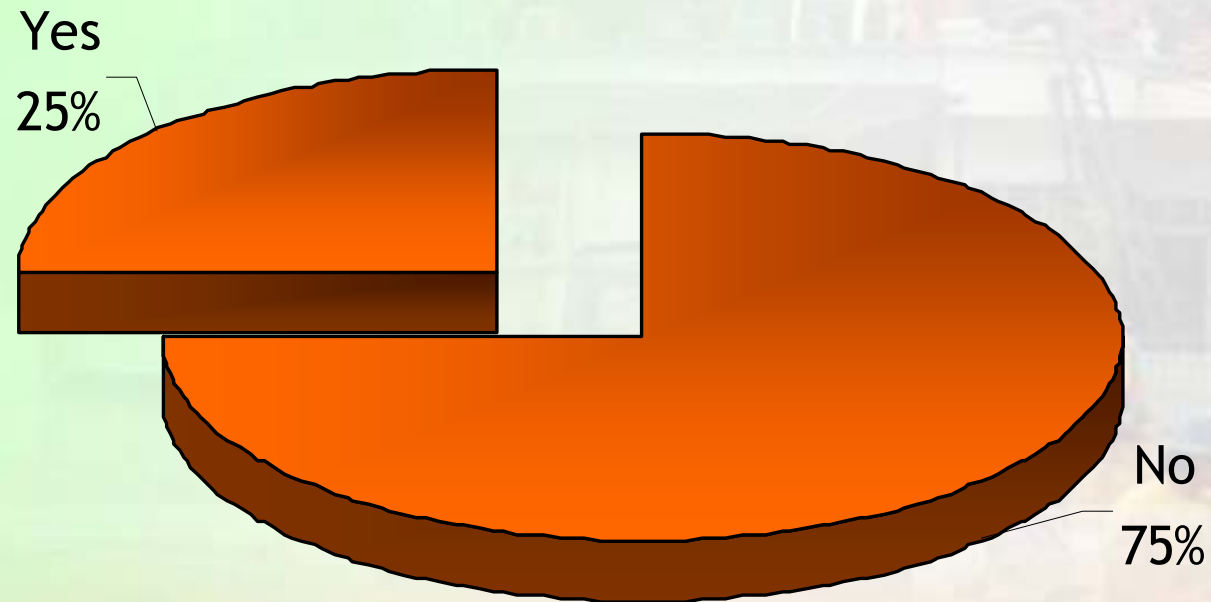
Turned For Help



Adaptive Capacity Indicator

E. Social Capital Indicator

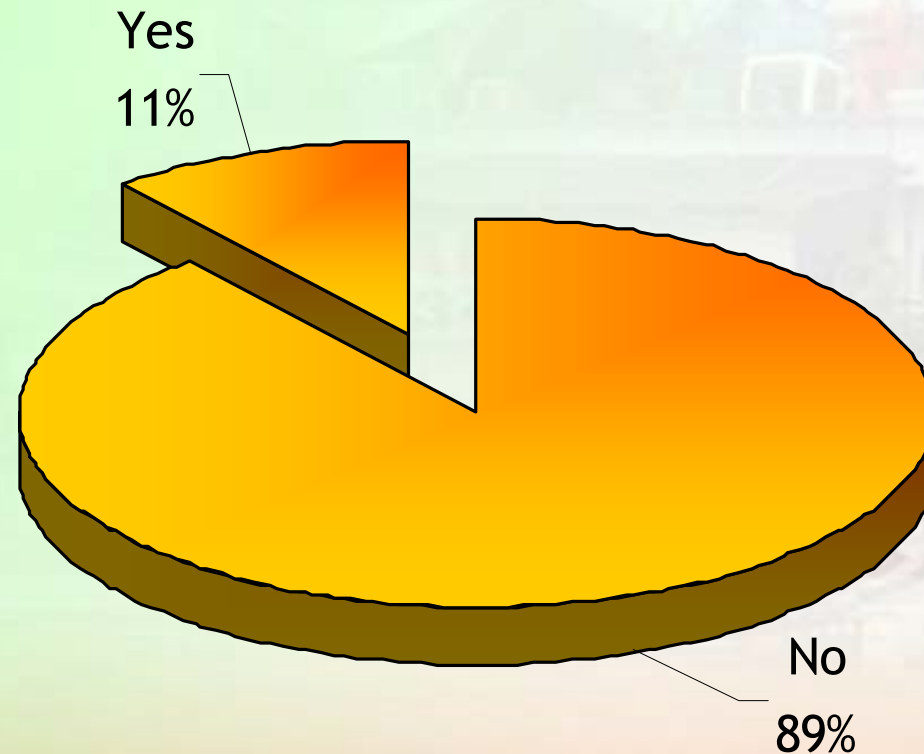
Member of Community Organization



Adaptive Capacity Indicator

E. Social Capital Indicator

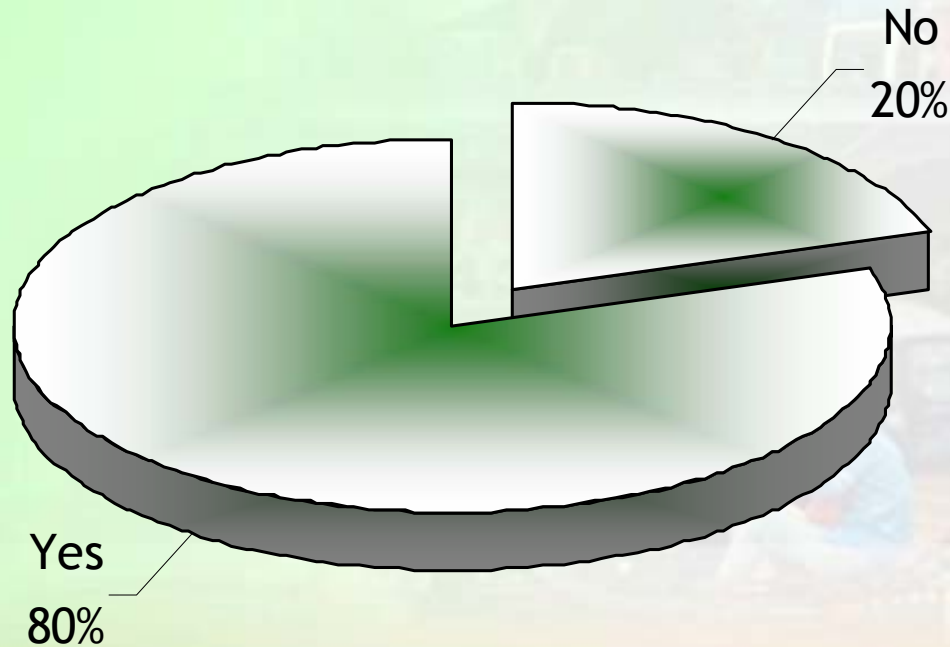
Active Member



Adaptive Capacity Indicator

F. Skill, Knowledge Indicator

Disaster Preparedness Class Usefulness



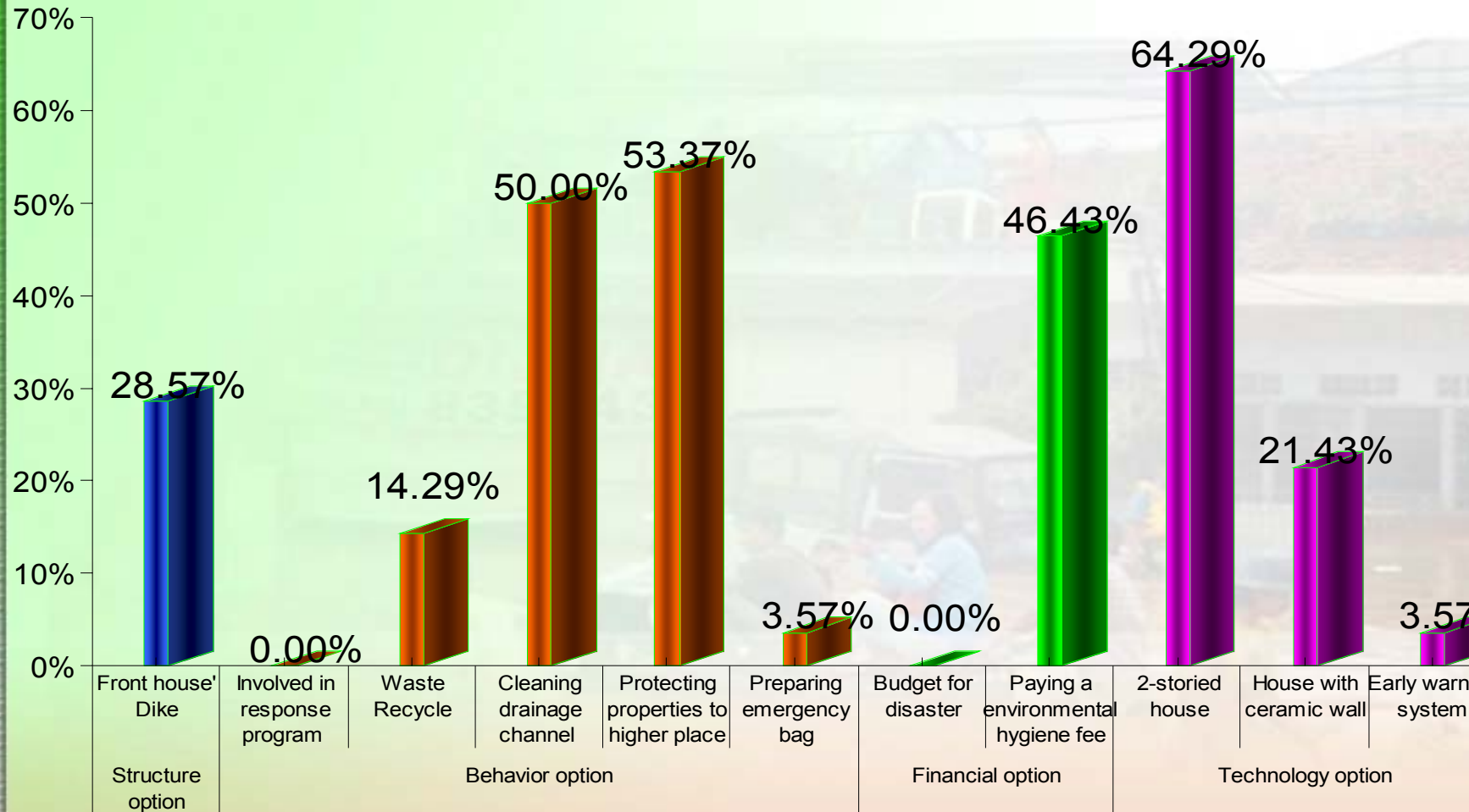
Adaptation Behavior

f. Disaster Warning Message Received Time (Day)



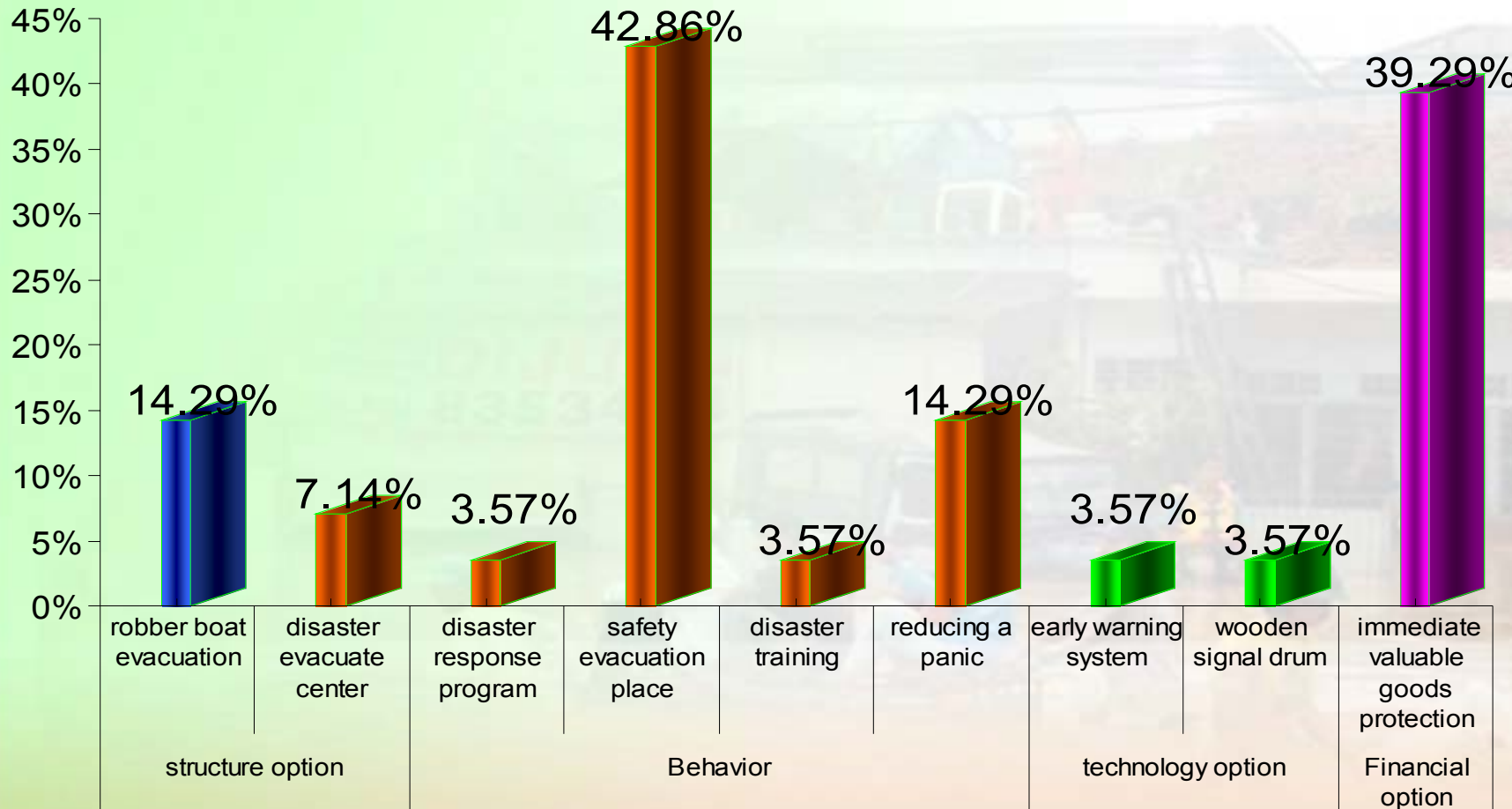
Adaptation Behavior

g. Number of Respondent Adopting Adaptation Options (Before the event)



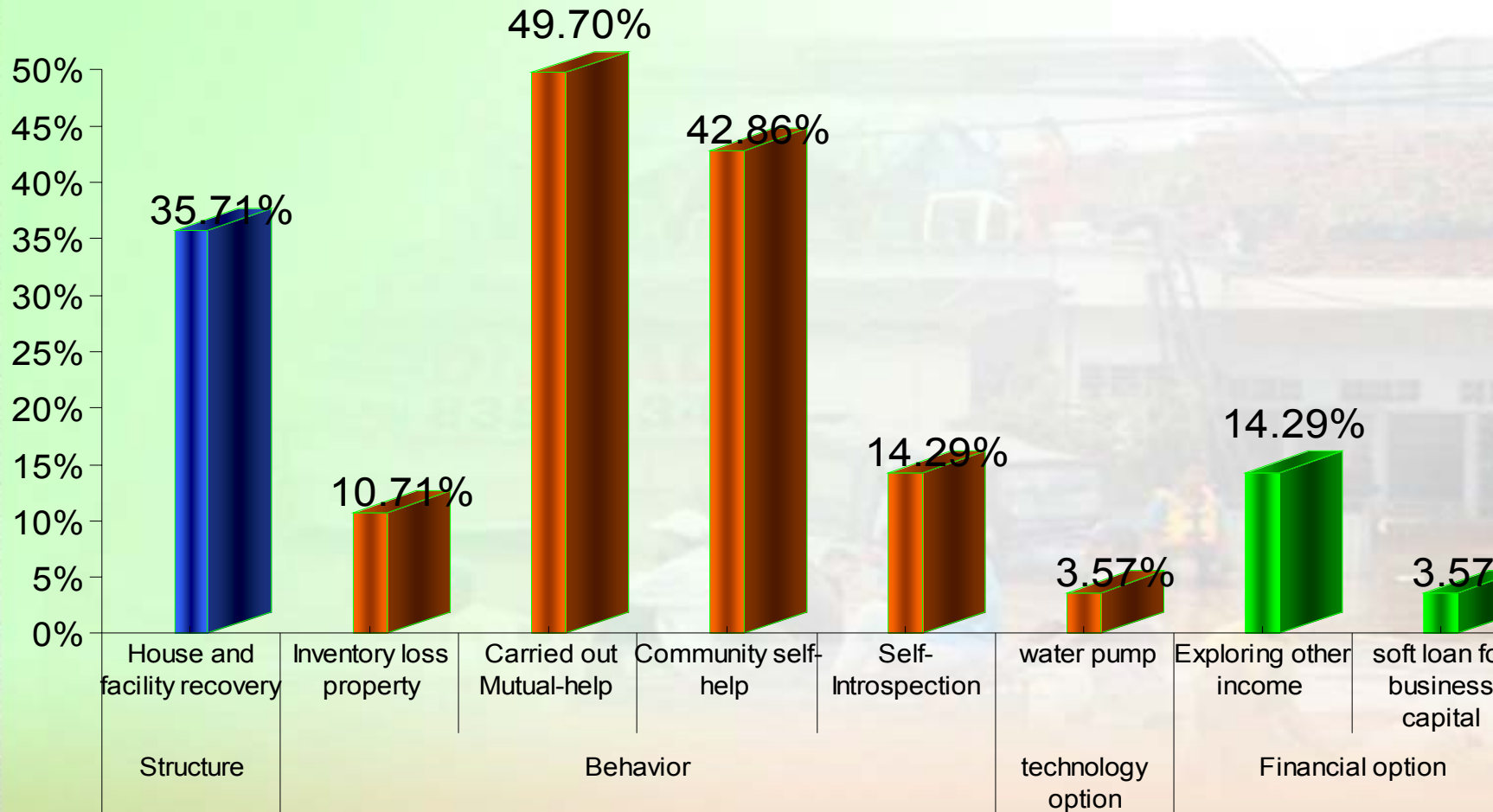
Adaptation Behavior

h. Number of Respondent Adopting Adaptation Options (During the event)



Adaptation Behavior

i. Number of Respondent Adopting Adaptation Options (After the event)



Adaptive Capacity of LGU (KNOWLEDGE, EDUCATION AND INFORMATION)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Training Drills and Rehearsal	The training drills and evacuation rehearsals done effectively with local civil organization	The training drills and evacuation rehearsal have not effective yet because still has some limitation in community capacity to involved	Do not conduct the training drills and rehearsal	

Adaptive Capacity of Local Government Unit (INSTITUTIONS AND GOVERNANCE)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Conducted Training/Dialogue	This institution has ever conducted training on Climate Change with the number of participants were 30 persons/class	This institution has ever conducted	This institution has ever conducted training with the number of participants were 50 persons (farmers and journalist)	

Adaptive Capacity of Local Government Unit (INSTITUTIONS AND GOVERNANCE)

INDICATOR	Local Government Unit			
	Public Work Division	National Disaster Management Agency	Meteorology, Climatology, and Geophysical Agency	National Planning and Development Agency
Staff Attended Training	Staff of institution has ever attended the seminar in adaptation CC related event that conducted by Department of Public Works and Universities with the number of staff were 60 persons	Staff of institution has ever attended disaster preparedness training that conducted in Singapore and Oman	Staff of institution has ever attended a Climate Prediction Training that conducted in university	

Adaptive Capacity of Local Community Organization

Indicator of Adaptive Capacity of Local Community Organization	Local Community Organization: Indonesian Water Partnership	Local Community Organization: Indonesian Environmental Organization
Economic/Financial Resource	Source of financial resource of organization is coming from partnership and it receives USD 4000 per year. This organization doesn't set aside financial resource for CC-Induced.	Source for financial organization are getting from membership fee and donation, it receive USD 30,000 per year. But there are only a few special budget for disaster purpose (advocating)

Adaptive Capacity of Local Community Organization

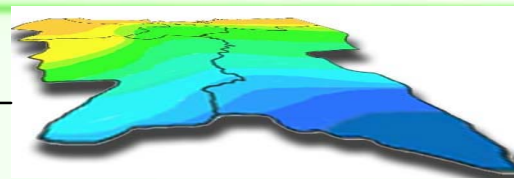
Indicator of Adaptive Capacity of Local Community Organization	Local Community Organization: Indonesian Water Partnership	Local Community Organization: Indonesian Environmental Organization
Knowledge, Skills	The highest level of education the leader are a post doctoral graduate degree. There are no one of members has knowledge and skills such as first aid, search and rescue, water rescue, and similar skill for CCA.	The highest level of education of the leader is master degree in political science. There are person in organization has specific knowledge for CCA such as firs aid, research and rescue, water rescue and etc.

Adaptive Capacity of Local Community Organization

Indicator of Adaptive Capacity of Local Community Organization	Local Community Organization: Indonesian Water Partnership	Local Community Organization: Indonesian Environmental Organization
Technology	The organization get the information about oncoming CC-event from broadcast and spread the information by email and seminar. Kind of transportation that organization have are vehicles and motor/bicycle.	The organization get the information about CC event from local government and Meteorological, Climatology, and Geophysical Agency.
Infrastructure	There are no evacuation organization which is provided.	There are no evacuation organization which is provided

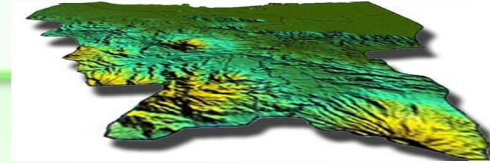
Overlaying Various Types of Map

Rainfall



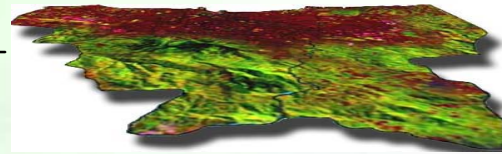
→ Variable

Topography



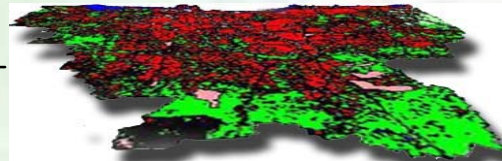
→ Constant

Vegetation



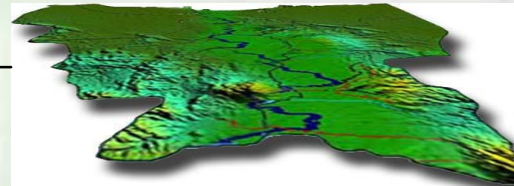
→ Variable

Land-use
Change



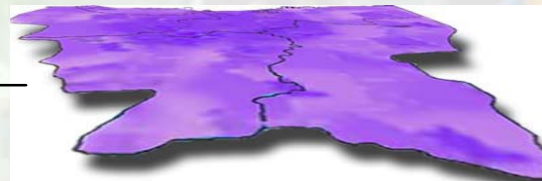
→ Variable

Hydrology



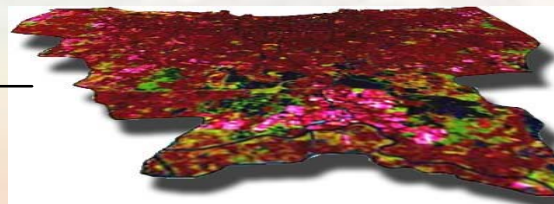
→ Constant

Technology
Capacity



→ Variable

Population
Distribution



→ Variable