Climate Adaptation and development pathway

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Green Jobs, Foundation Training for ILO Constituents and Partners.

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Outline

Introduction: Climate Change and Impact

Climate change impacts in Indonesia

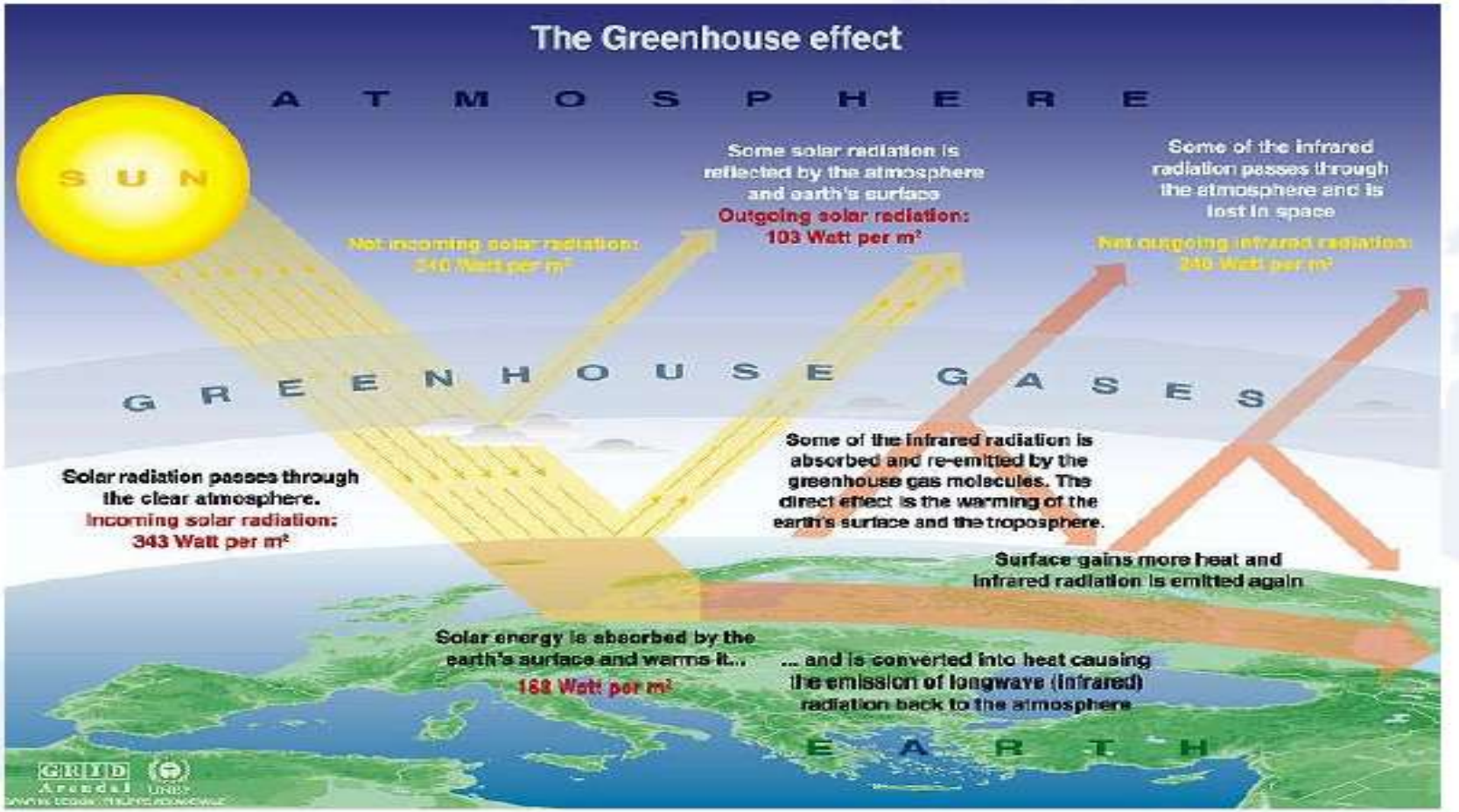
Climate Change Responce

Adaptation and Development Issue

Adaptive Capacity and Mainstreaming

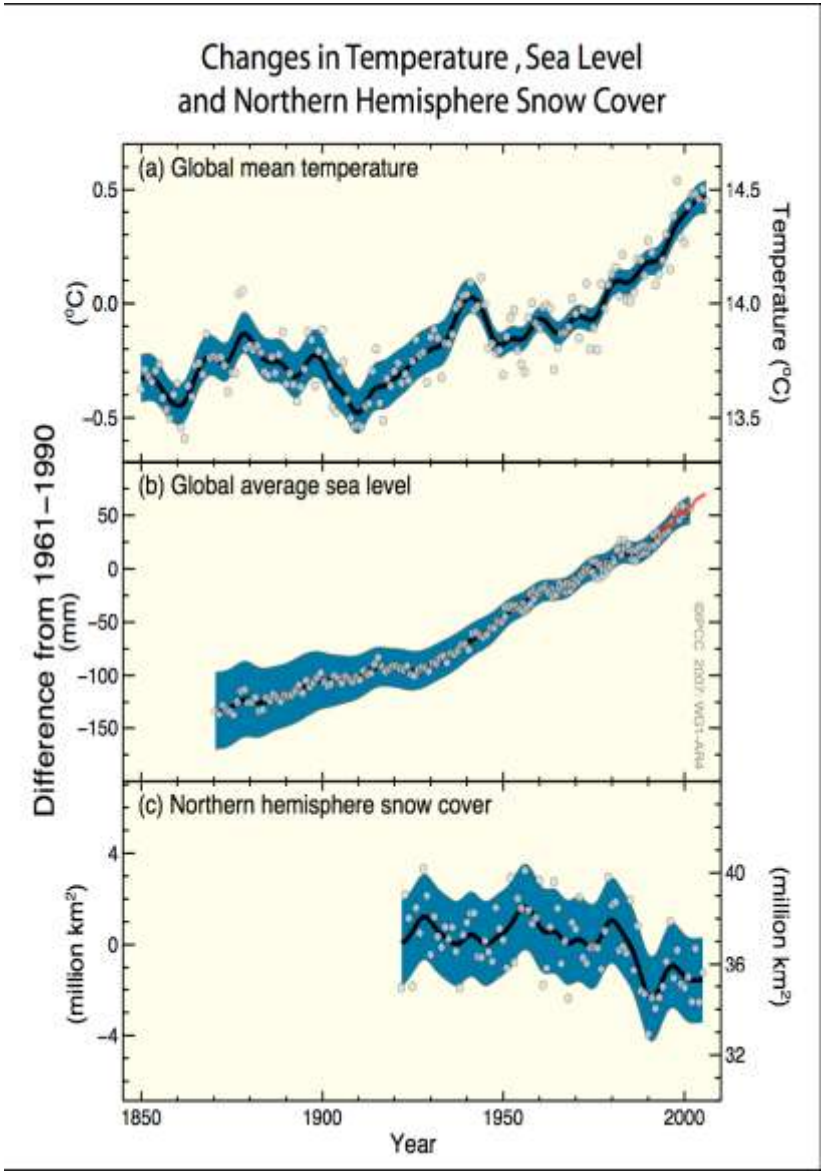
Concluding Remarks

Climate change

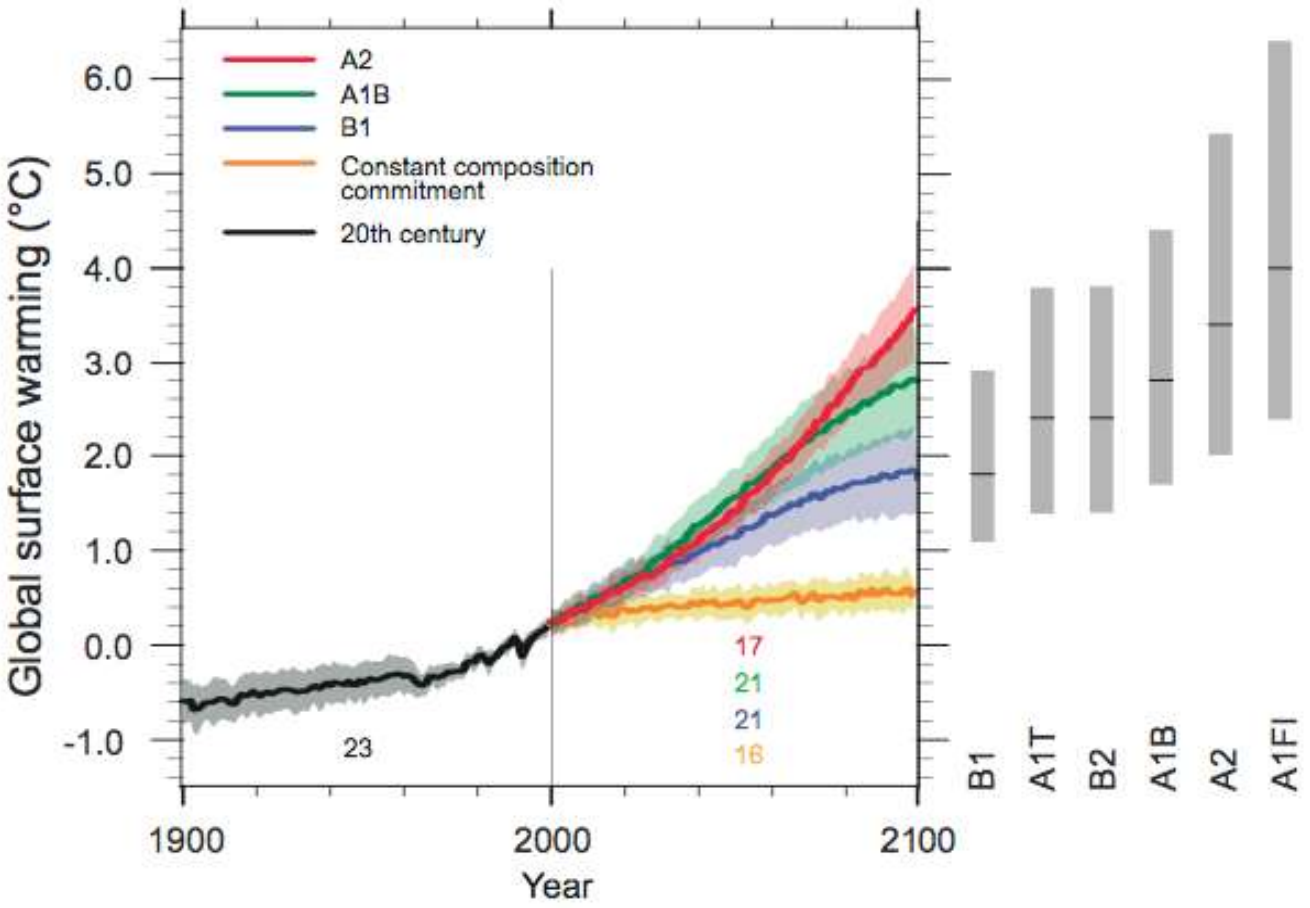


Climate change is caused by global warming as consequences from human activities consuming fossil fuel since the beginning of the industrial revolution and other exploitative activities especially that of *land use and land use change forestry* (LULUCF) is happening faster than the measures to mitigate.

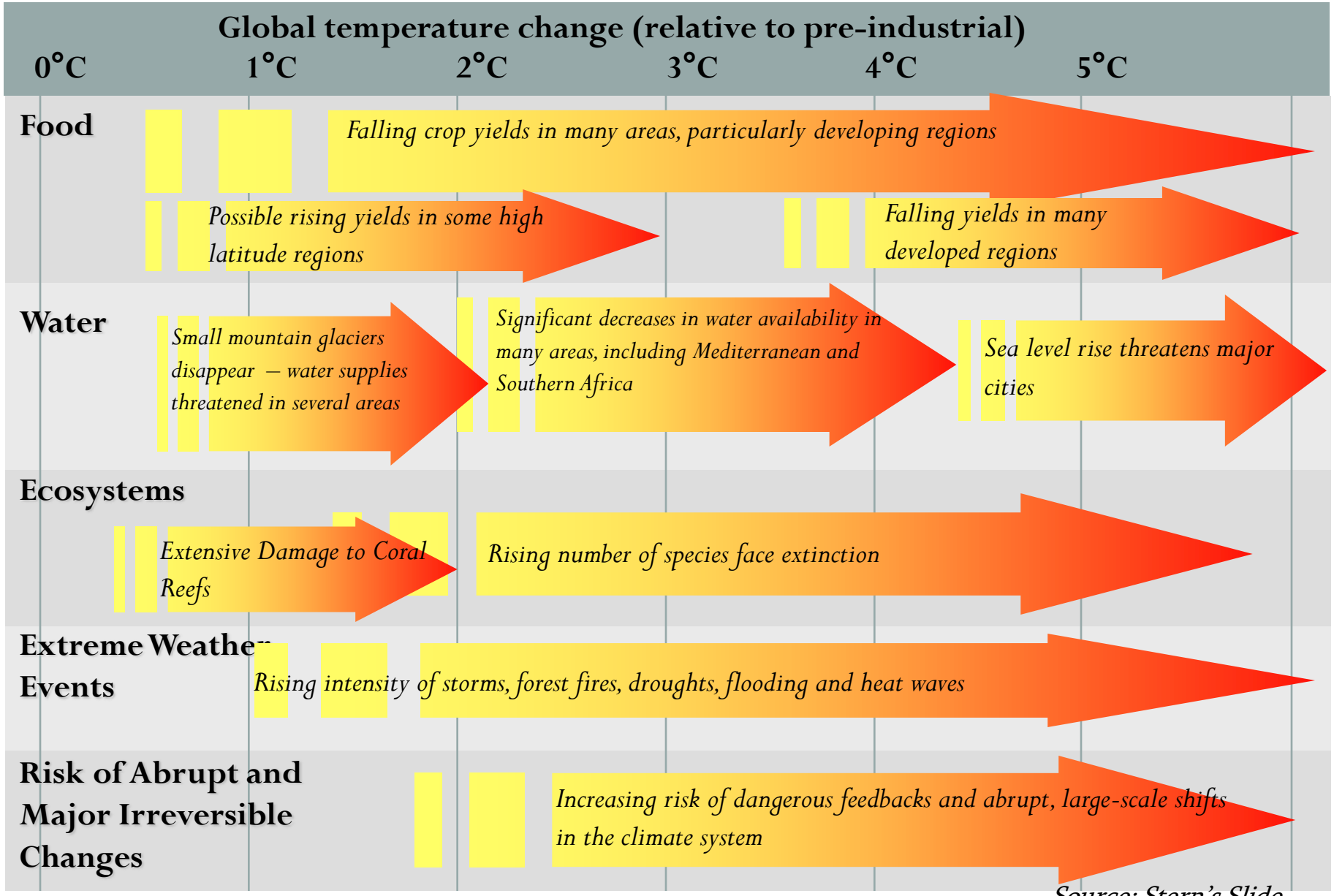
4th Assessment Report (IPCC)



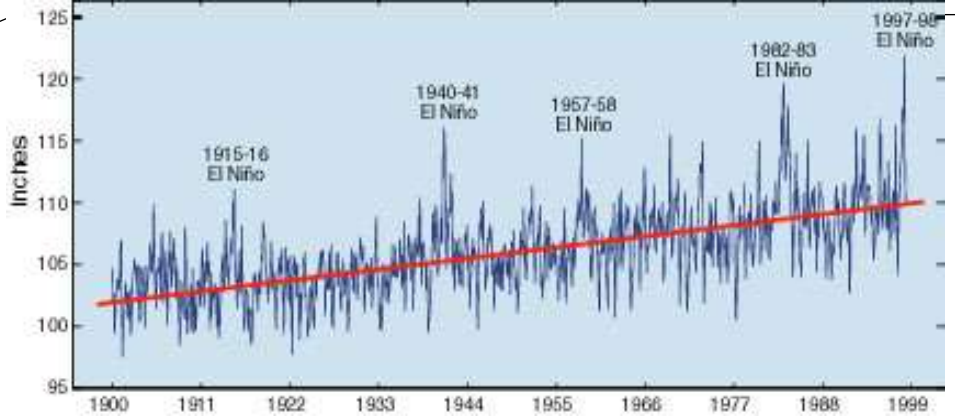
- In the recent time the temperature change impacted to many physical system and natural biological.
- In the and of 21 century estimated earth temperature will increase 1,8-4°, whereas the surface sea level rise will increase as high as 28-43 cm if there is no serious efforts to reduce GHG concentration.


A2
A1B
B1
Constant composition commitment
20th century
Global surface warming (°C)
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
1900
2000
2100
Year
23
17
21
21
16
B1
A1T
B2
A1B
A2
A1FI

Projected impacts of climate change



Source: Stern's Slide



75-80 persen of Natural Disaster were climate related, such as floods, 33 percent, followed by 23 percent were windstorms, drought (15,2%), disease (5,2%) and also landslide (4,5%). The total loss of economic was US$26 billion.

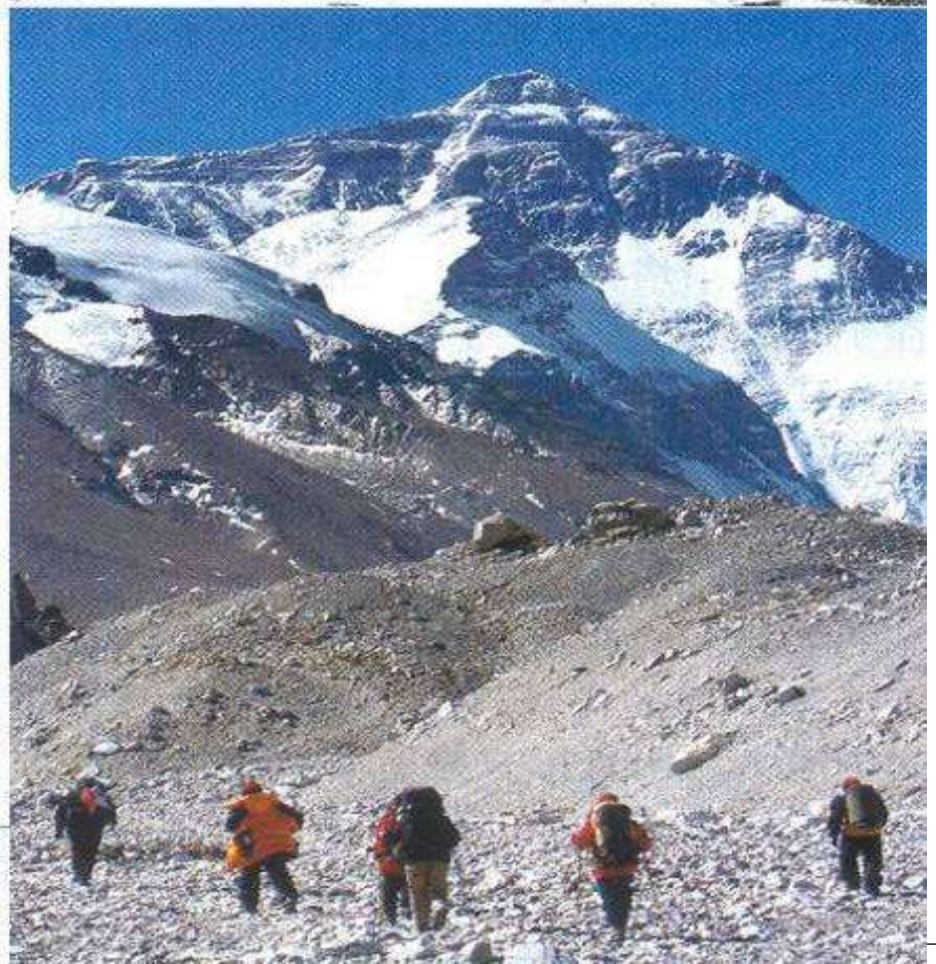
Source: OFDA/CRED *International Disaster Database* (2007)

- Loss of climate disaster in global level reaching to US$50-100 billion each year (increase of 14 times than 1950) amounth of death by climate disaster increase by 50% each decade. *(World Disaster Report* , 2001).
- In 2050 (in there is no planned adaptation from now) estimation economic loss reaching US$ 300 billion each year and amounth of death can reach until 100 thounsands peoples each year. (SEI, IUCN, dan IISD, 2001).

Adaptation efforts which do from beginning can reduce loss from disaster by significan. A few of research showed that each 1 US$ which spent for adaptation efforts can save around 7 US$ cost which spent for dignification impact to climate disaster. (Biemans et al., 2006).

Global economic loss by climate change will reach US$ 4,3 Trillion.
(World Bank, 2007)

When developed countries have commitment for supporting fund to developing and least developed countries in order to adaptation activities just can collected US$ 500 Billion.



The Tibetan Plateau "Water Tower"

Photographs of the glacier under Mount Everest

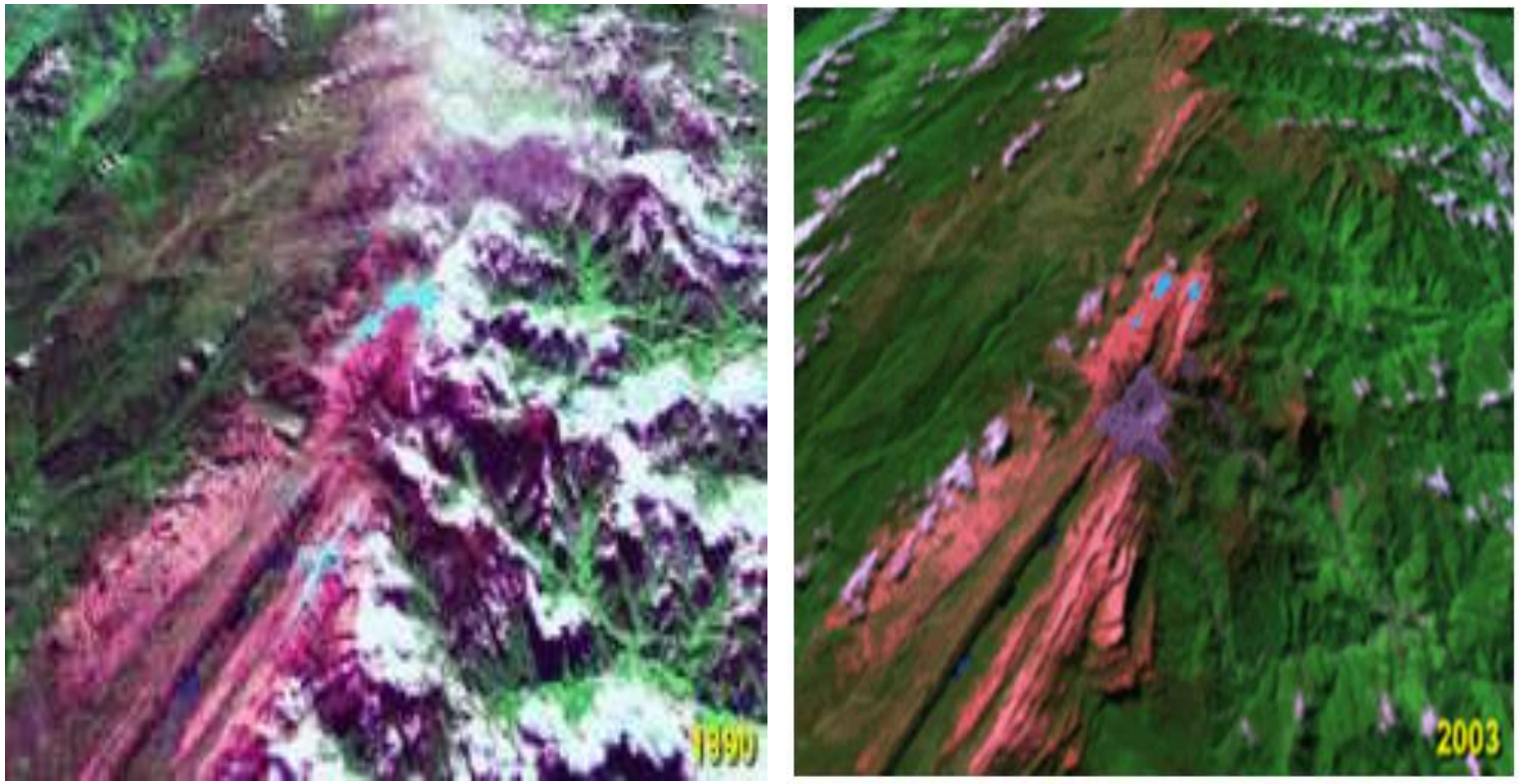
Upper: May 1960

Lower: May 2005

The ice on Mount Kilimanjaro has shrunk by roughly 82% percent since 1912. Scientists say the ice will be gone by 2020 if current melting rates continue.

A comparison of the terminus variations of the Halong Glacier

1981/6 vs 2005/9



Jaya Wijaya Mount, Indonesia

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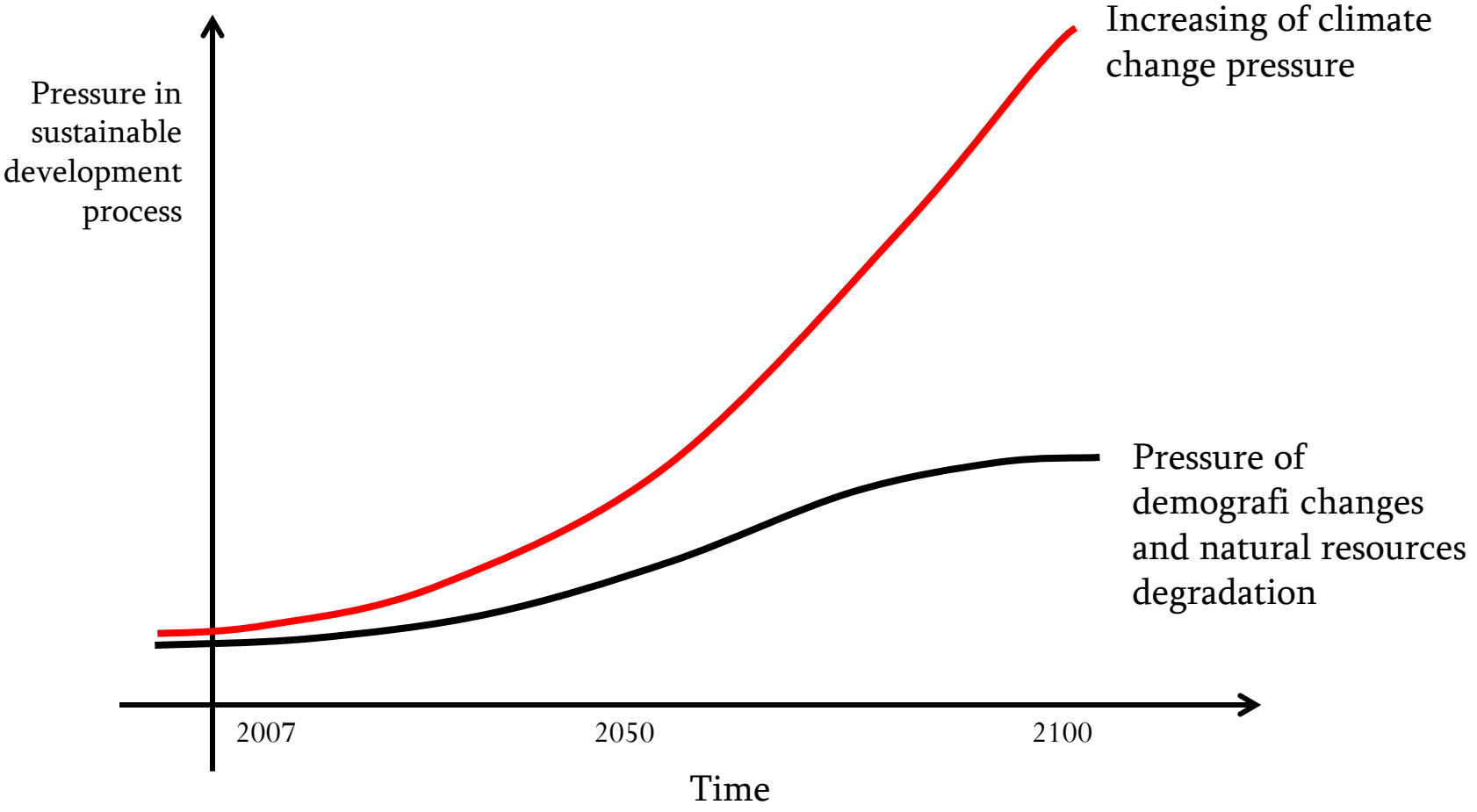
- Decline in rainfall in southern and increase in northern region.
- Observed changes in extreme events and severe climate anomalies include droughts normally associated with ENSO years in Indonesia.
- Fires in peatlands of Indonesia during the 1997-98-El Niño dry season affected over 2 million ha and emitted an estimated 0.81 to 2.57 Pg C to the atmosphere. The 1997/98 ENSO event in Indonesia triggered forest and brush fires in 9.7 million hectares, with serious domestic and trans-boundary pollution consequences.
- Projected severe flood risk with rising sea levels.
- Stability of wetlands, mangroves, and coral reefs around Asia is likely to be increasingly threatened (high confidence). Around 30% of Asia's coral reefs are likely to be lost in the next 30 years due to multiple stresses and climate change.
- The destructive effects of climate change compound the human-induced damages on the corals in this region. Substantial portion of the vast mangroves in South and Southeast Asian regions has also been reportedly lost during the last 50 years of the 20th century largely attributed to human activities.

From all of the disasters happening in Indonesia, 75-80% are induced by climatic change (The country report, Ministry of Public Works of Indonesia, 2007).

From January – September 2010, consist of 196 floods disaster, that number going across previous number which happened in Indonesia (140-150 floods disaster) (BNPB).

Climate Change and Sustainable Development



Climate change is not only environmental problem

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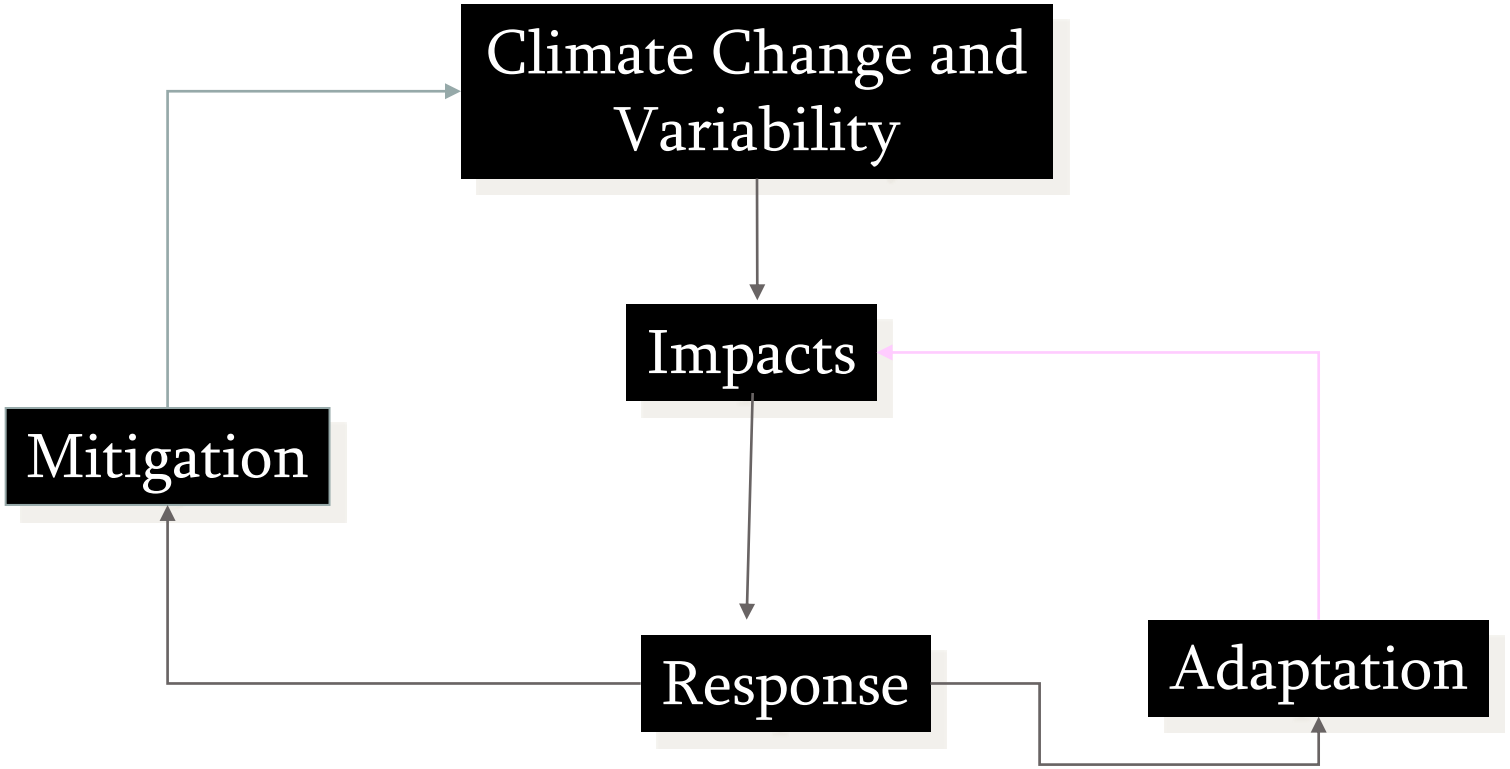
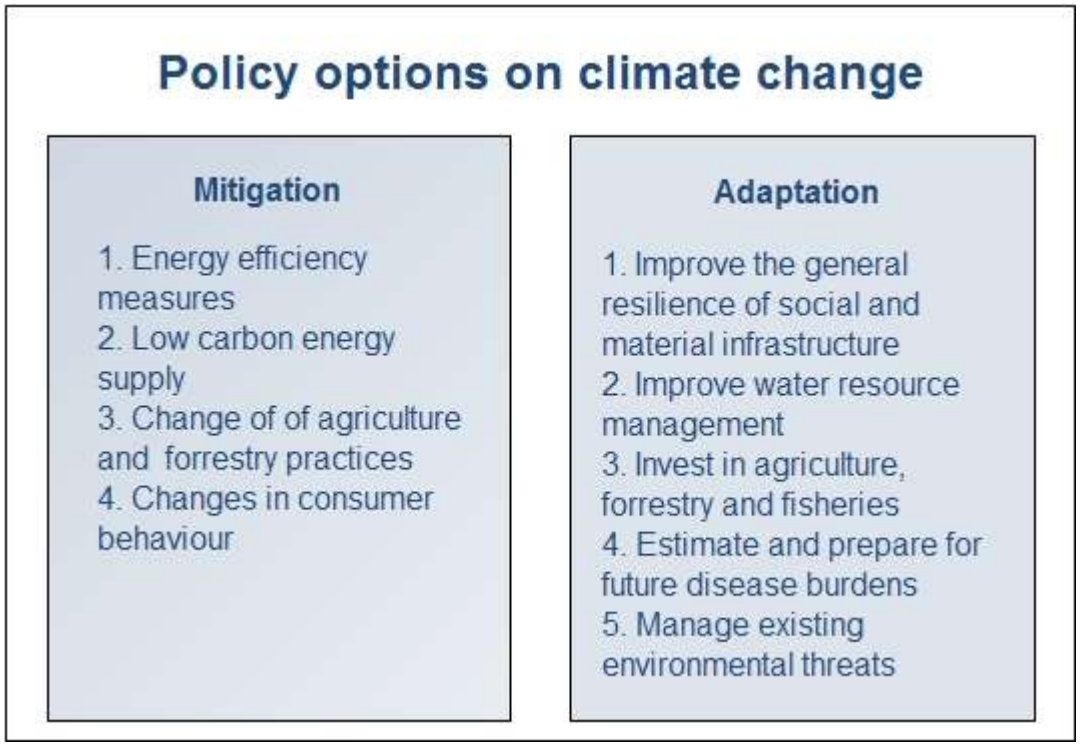
There are two responses to global climate change



Mitigation is defined as any anthropogenic interventions that can either reduce the sources of greenhouse gas (GHG) emissions (abatement) or enhance their sinks (sequestration).

Adaptation is Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.



Mitigation and adaption are integral components of combating climate change and should be given equal treatment

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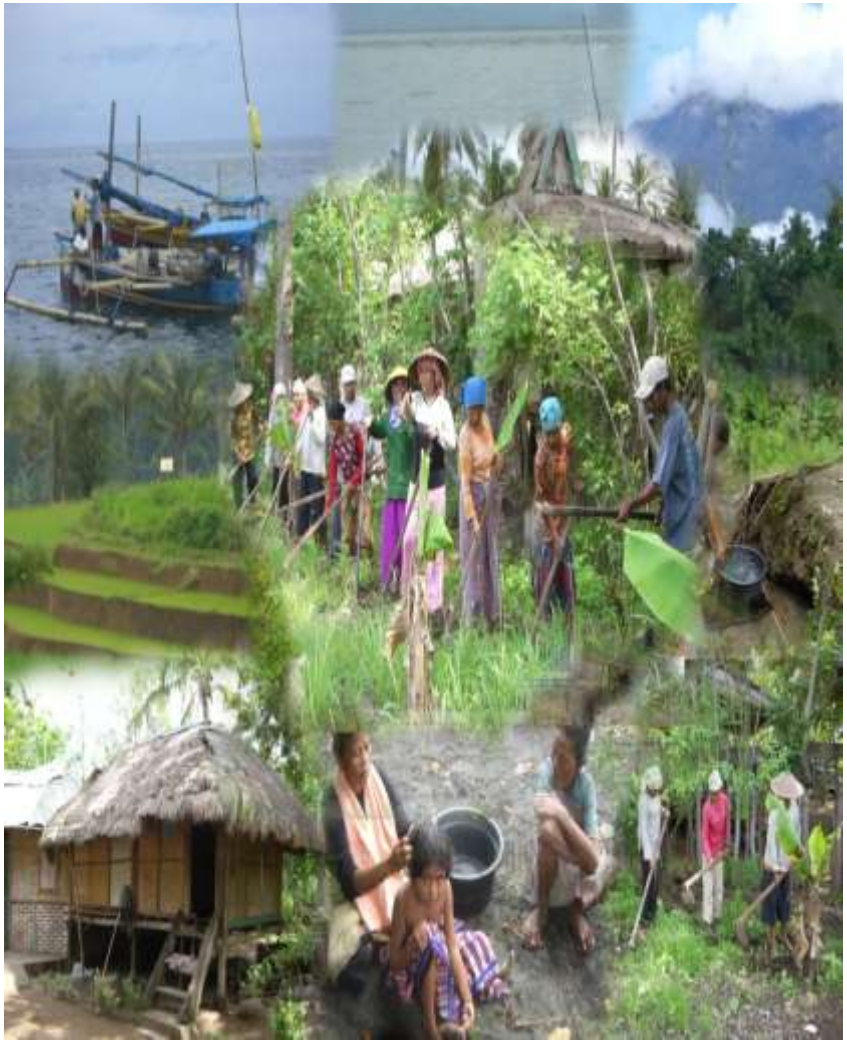
Those climatic hazards is putting developing and underdeveloped countries in a very vulnerable position overlooked by several factors (IPCC)→Those countries have very low adaptive capacity to cope the adverse effects.

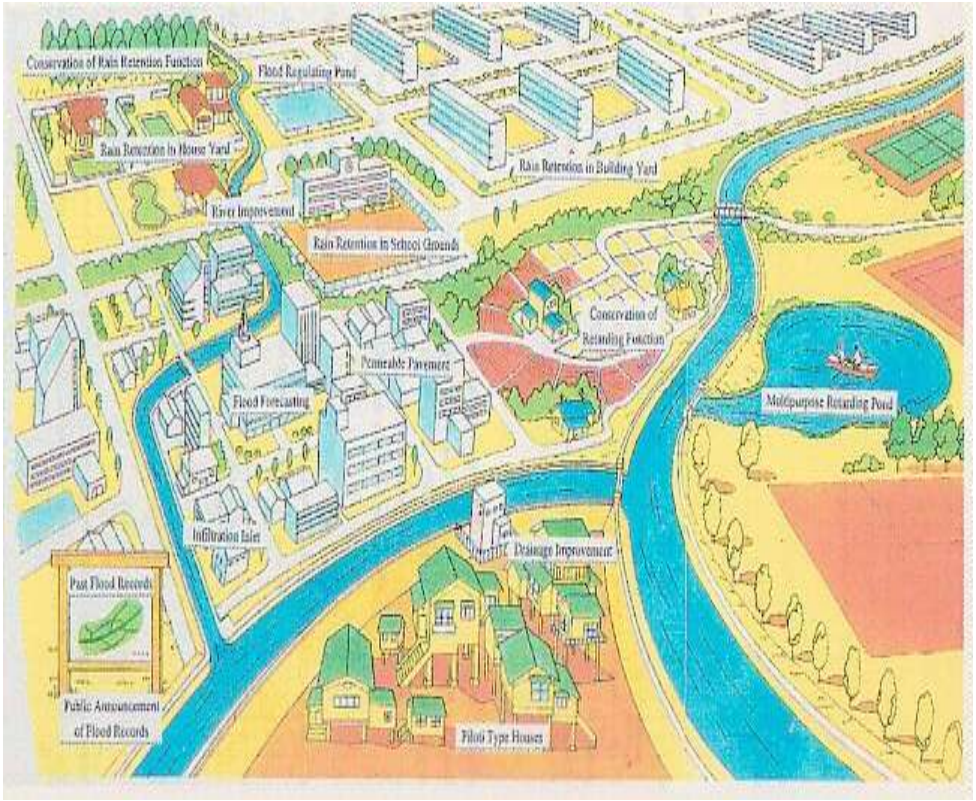
- In 1984 – 2003, persentage of loss national income happen three times bigger in low and middle income country (80% inhabitant world).
- For extreme case, one disaster can cause economy decrease signifacantly.

  Exp.: in Honduras, when the economy grow 4 – 5 % each year, then Mitch storms pull down the economy grow.



Adaptation should be an extension of sustainable development and as such it should focus on: the growth and diversification of the economy, improving education and health, and improving disaster preparedness.

Incorporate impacts of and adaptation to climate change into projects and programmes aimed at achieving the Millennium Development Goals.

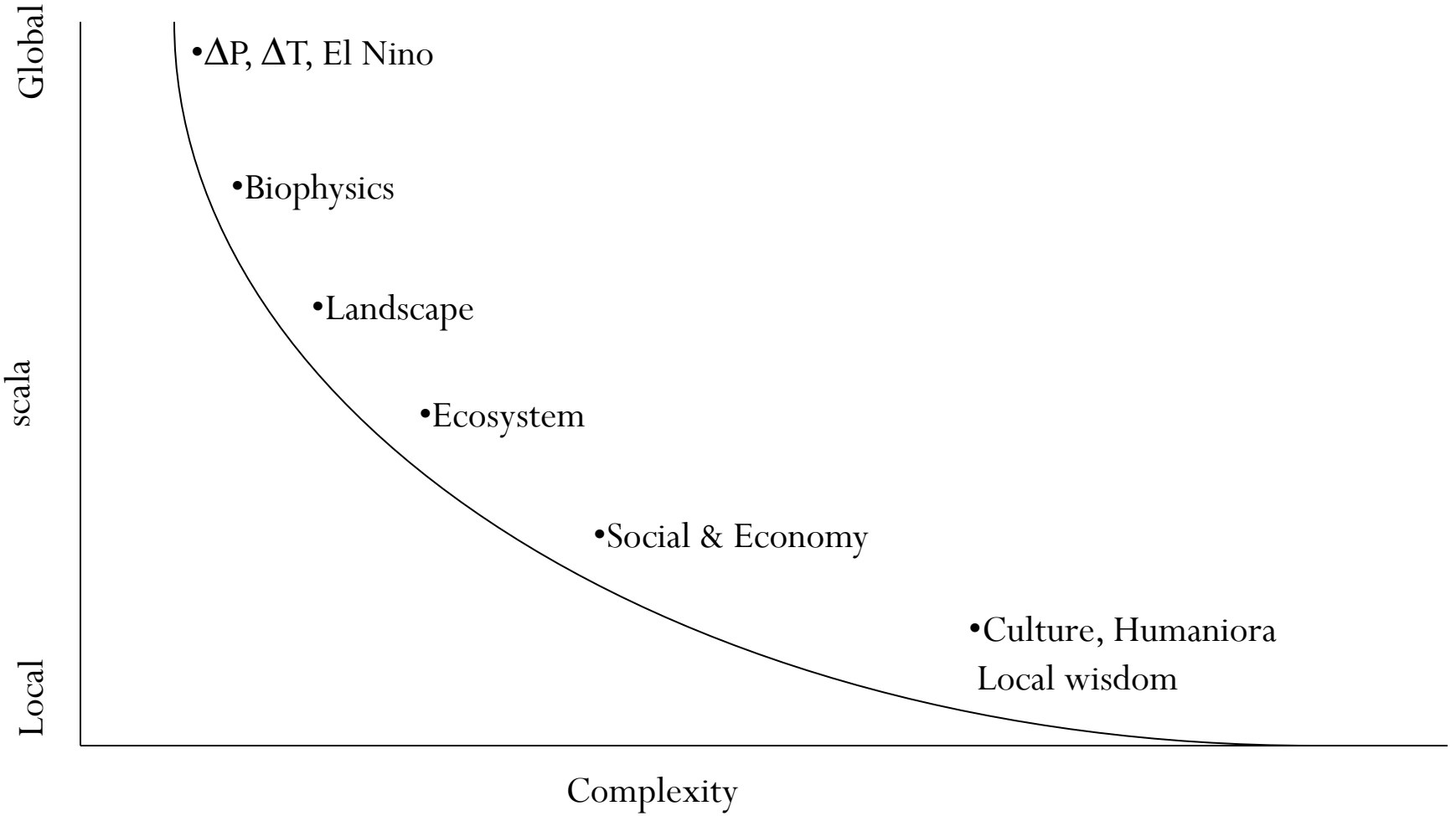


- Climate change is a multi-dimensional matter that covers main problems of environmental degradation, loss of biodiversity, disaster management, energy, macro economics and poverty reduction

Climate change has the potential to push developing countries back into the poverty trap and to undo many achievements that have been made to date with regard to the Millennium Development Goals (MDGs). (IPCC)

The value of adaptation measures to diminish the risk of damage from future climate change and from present climate variability

Level of Adaptation



Concept and Approach

1. **Vulnerability = f (Exposure, Sensitivity, Adaptive Capacity)**
   - Exposure is defined as degree of climate stress upon a particular unit analysis; it may be represented as either long-term change in climatic conditions, or by changes in climate variability, including the magnitude and frequency of extreme events.
   - Sensitivity is the degree to which a system will be affected by, or responsive to, climate stimuli.
   - Adaptive capacity refers to the potential or capability of a system to adjust to climate change, including climate variability and extremes, to moderate potential damages, to take advantage of opportunities, or to cope with consequences.
2. Linking to the Objective of National/Local Development.
3. Short and long-term timeframe :
   - Short-term : climate variability, climate extream → Disaster related to climate hazard.
   - Long-term (modelling projection): Climate change and variability trends → natural resources degradation. sumberdaya alam
4. "No-Regret Action / Investment"

(sources: Heru Santoso)

Various Types of Adaptation

Anticipatory adaptation	Adaptation that takes place before impact of climate change are observed. Also referred to as proactive adaptation
Autonomous adaptation	Adaptation that does not constitute a conscious response to climatic stimuli but is triggered by ecological change in natural system and by market or welfare change in human system. Also reffered to as spontaneous adaptation
Planned adaptation	Adaptation is that is the result of a deliberate policy decision, based on an awareness that conditions have changed or are about to change and that action is required to return to, maintain, or achieve a desired state
Private adaptation	Adaptation that is initiated and implemented by individual, household or private companies. Private adaptation is usually in the actor's rational self interest.
Public adaptation	Adaptation that is initiated and implemented by Governments at all levels. Public adaptation is. usually directed at collective needs
Reactive adaptation	Adaptation that takes place after impacts of climate change have been observed

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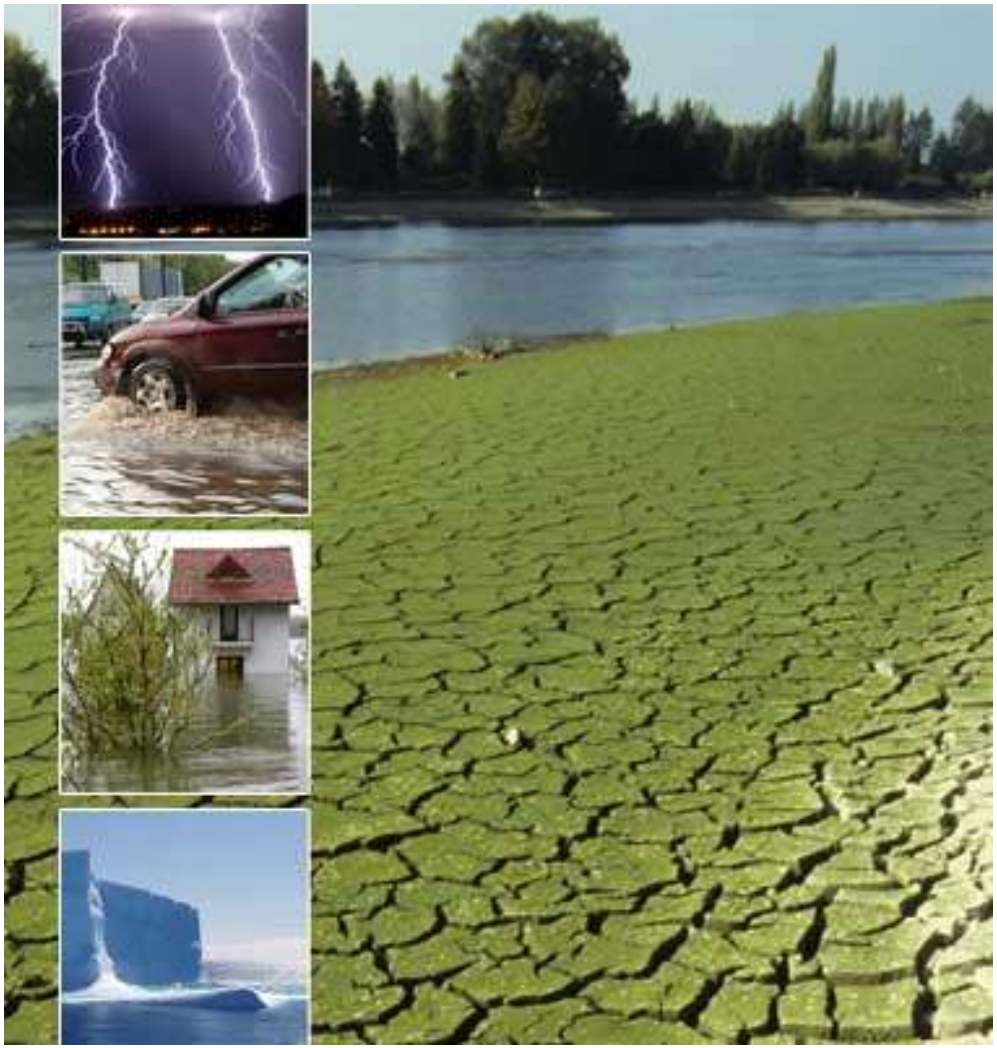
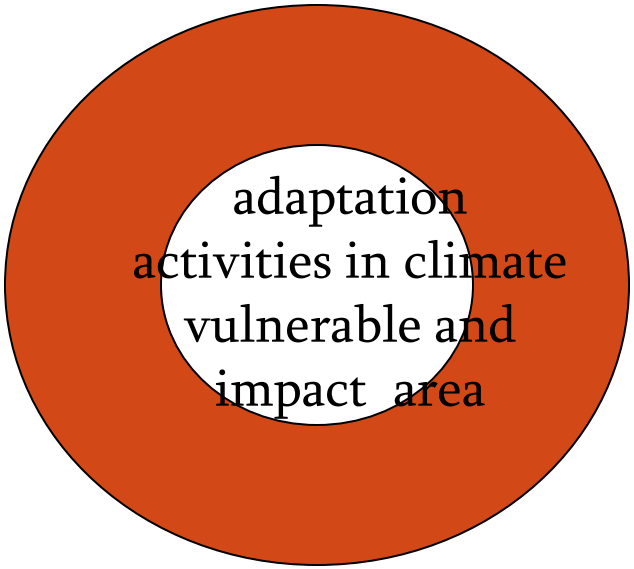


- *Adaptive capacity* is the ability of a system (including ecosystem, social economy and institutional) to adapt to the impact of climate change, reduce losses, and use opportunities and handle the consequences.
- Strong or weak adaptive capacity can be seen from external factors i.e. current ecosystem and environmental carrying capacity, and also from internal factors i.e. availability of regulations and institution, budgeting and human resources.

Climate change is a big restriction for sustainable poverty eradication in the whole dimension (Nicholas Stren)

Adaptation Policy Design

National Comprehensivenss
On Adaptation Policy
(Strengthening of Adaptive Capacity)



Climate Risk Assessment

All efforts to achieve the vision and mission of development would integrated consideration of risk and effects of climate change in the strategic framework in the short, mid, and long term **then translated to program planning and implementation.**

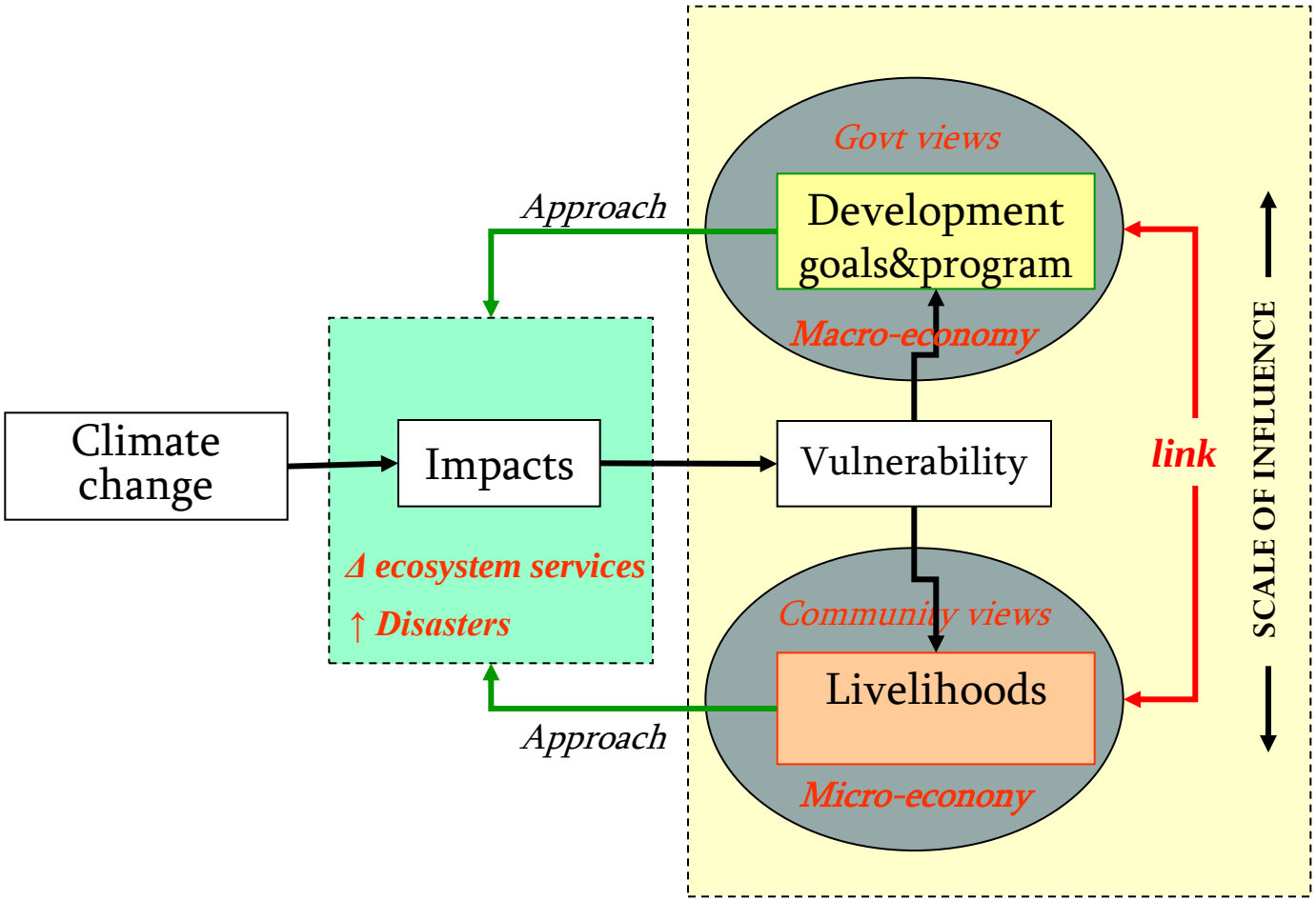
Source : Ari Muhammad

- The problems should be responded by having *adaptation plan for climate change,* where matters of climate change is mainstreamed to development plans with budget earmarked. Another respond is the *integration of inter-sector programs* where government sectors that have adaptation activities integrated their programs to have higher impacts.

- Although the indicator of prone countries or areas is still being debated in the SBSTA/*Subsidiary Body for Scientific and Technological Advice* meetings, Indonesia should not set aside policies on environmental and disaster management in social and economic development.
- Ignorance will push the society to be more vulnerable since they have low resilience capacity.

- Climate change will speed up and worsen all of the condition, therefore adaptive actions has to be seriously taken immediately to maintain development gains.

Mainstreaming adaptation into development agenda



Source: Heru Santoso

2005 2010 2015 2020 2025 2030

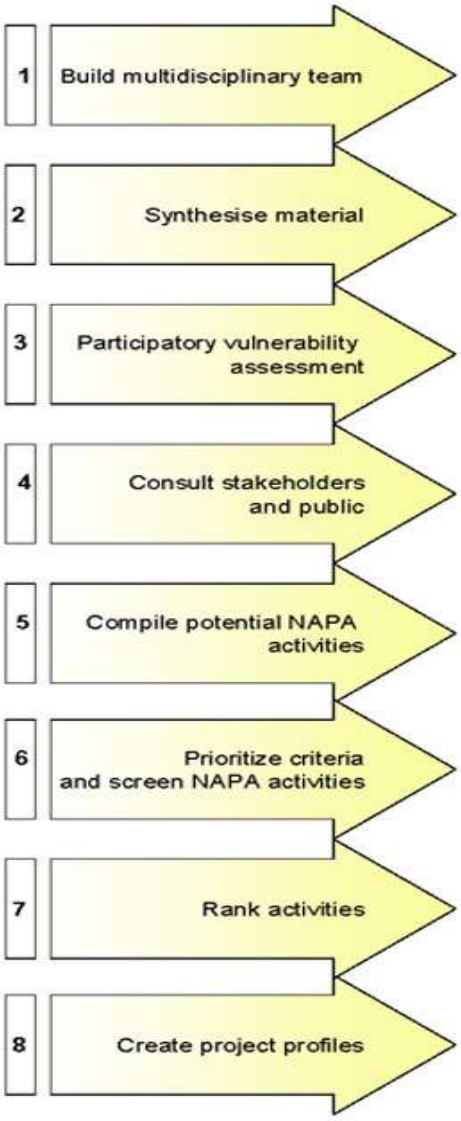
- Adaptation efforts: changing cropping time with the change of seasons
- Improving the irrigation system and promoting the efficient use of water
- Commodities and crops diversification

- Policy to halt the conversion of productive land
- Promoting insurance scheme for farmers
- Re-allocating agriculture land to less vulnerable areas
- Increasing the forest cover for water catchment areas
- Food diversification

- Constructing new irrigation infrastructure that adaptable to CC
- Promoting the interbasin program

Source: Rizaldi Boer

VULNERABILITY IN THE NAPA PROCESS



At the design stage, several issue relate specifically to vulnerability:

- Should the assessment focus on specific sectors, vulnerable regions and livelihoods?
- How should vulnerable populations be represented in the team?
- What analytical skills are required?

A livelihood matrix shows exposure to climatic hazards:

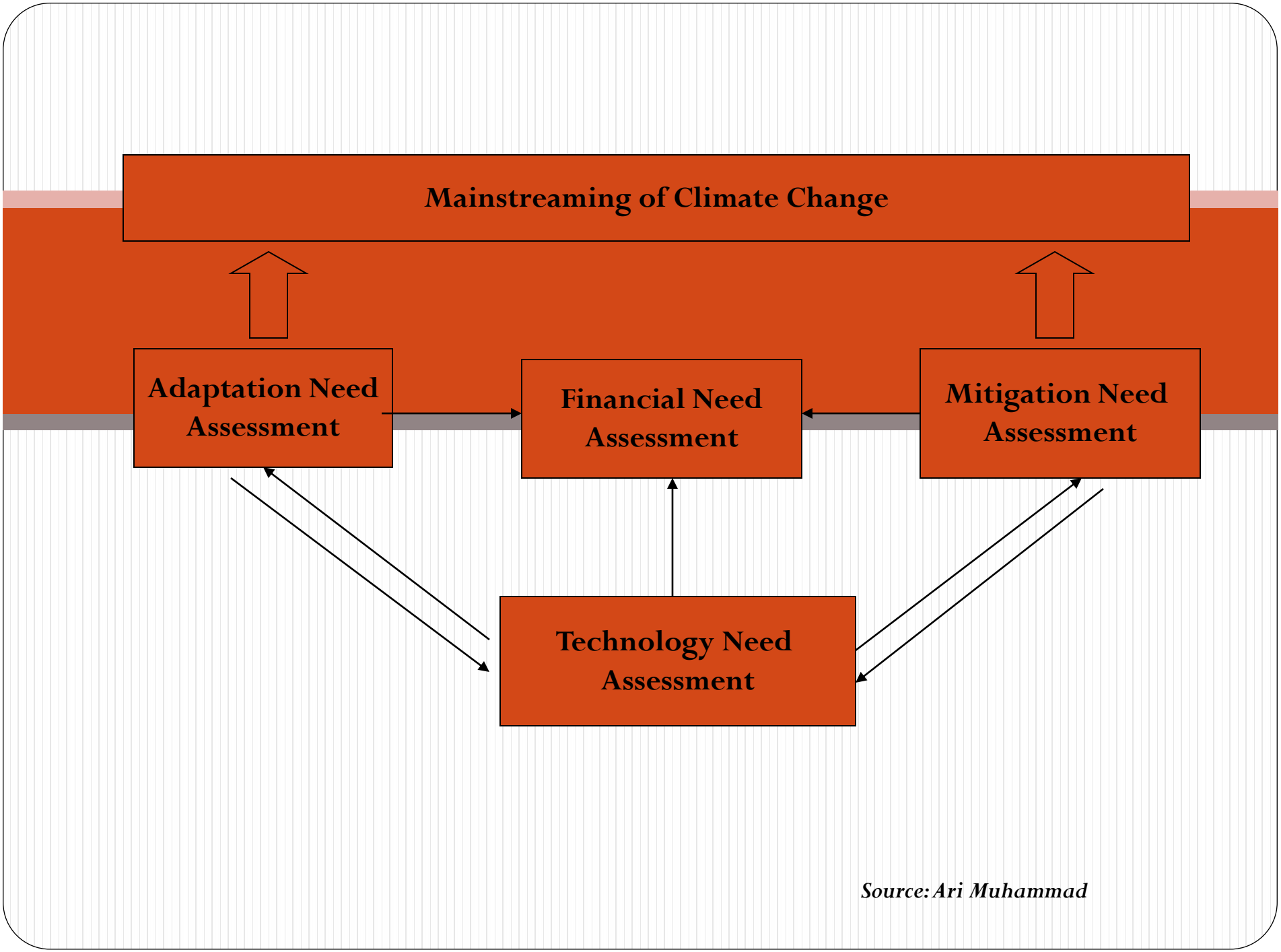
- Existing plans for development, environment and disasters provide background for experts and stakeholders to evaluate relative exposure to climatic impacts
- Cells represent relative sensitivity of ecosystem services, income activities and livelihoods to a range of climatic hazards and trends
- Aggregate indices of exposure and impacts can be calculate (convert the cells to rankings from 1 to 5, add up scores and normalise
- Rankings vary according to the outcome—impacts on assets and production, exposure to loss of life and health impacts, or social and economic stress
- Climate scenarios and socio-economic trends can be explicitly incorporated

	CLIMATIC HAZARDS					Exp. Index
	Drought	Dry spells	Floods	Warm spells	....	
ECOSYSTEM SERVICES						
Soil water	▲	■	▲	·		75
Water supply	▲	○	■	·		60
Wood fuel	□	·	○	·		35
Grazing/fodder	■	○	■	·		55
_others						
LIVELIHOOD ACTIVITIES						
Food crops	▲	■	□	·		65
Market crops	▲	□	○	·		55
Livestock	■	□	□	·		55
Charcoal	○	·	○	·		30
Casual labour	□	·	□	·		40
_others						
LIVELIHOODS						
Smallholders	▲	□	□	·		60
Emerging farmers	□	○	○	·		40
Traders	□	·	■	·		45
_others						
Impact Index	73	40	60	20		

The livelihood matrix links to evaluation of adaptation:

- Stakeholders can be listed related to specific livelihoods and climatic hazards, providing a clear focus in public consultation (step 4)
- Adaptation options focus on priority livelihoods at-risk; with clear benefits in reducing the burden of climatic risks (step 5)
- Criteria to screen adaptation activities could specifically relate to high-priority vulnerabilities (step 6)
- Indicators of vulnerability could be used in multi-criteria analysis (step 7)
- Project profiles refer back to livelihoods and synergies with development plans and priorities (step 8)

Prepared in support of the NAPA regional workshops, see www.unitar.org/ccp. For more information on vulnerability assessment contact Paul Desanker (desanker@psu.edu), Tom Downing (tom.downing@sei.se), Bubu Jallow (bubujallow@hotmail.com), or members of the LDC Expert Group. See also: www.VulnerabilityNet.org.



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- Climate Change is a serious problem that demands special attention because its adverse effect can damage long period development in split seconds with wide consequences and huge economical losses.
- Without serious adaptation, climate change is likely to push millions further into poverty and limit the opportunities for sustainable development and for people to escape from poverty.
- Stimulating development and reducing poverty will increase the adaptive capacity of people and is likely to make them less vulnerable to climate change.
- Capacity building related to climate change within developing countries should first and foremost focus on adaptation with particular attention to reducing vulnerability of the poor.

Thank You

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