

A community-based, people-centered assessment of loss and damage in nine vulnerable countries

Asian Pacific Network (APN) for Climate Change Research
Workshop on Adaptation, DRR and L&D

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Outline

- What is loss & damage? Our working def.
- Overview of case studies
- Methods
- Some findings (+ video?)
- Next steps: refining the methods



What is loss and damage?

- Our working definition: Adverse effects of climate variability and change that **people** have not been able to cope with or adapt to (Warner et al, 2012).
- Note: *working definition* for our community-based, people-centred research design.
- Loss & Damage also at other levels (regional, national) and other actors (companies, states).
- Extreme events and slow-onset changes
- Our focus: impact on food and livelihood security



Coping vs adaptation

- **Coping:** Short-term measures to deal with impacts of extreme weather events
- **Adaptation:** Longer-term measures in response to slow onset climatic changes





Economy
source dependency,
economic development

**Education, health, social
networks, population structure**

9 case studies

(National researchers → Capacity building)

Country	Research area	Climate threat
Micronesia	Kosrae	Coastal erosion
Bangladesh	Satkhira District	Salinity intrusion
Bhutan	Punakha District	Changing monsoon
Nepal	Udayapur District	Floods
Ethiopia	Gambella Region	Floods
Kenya	Budalanga Division	Floods
Burkina Faso	Sahel Region	Drought
The Gambia	North Bank Region	Drought
Mozambique	South & Central	Floods & Drought



Methods (1)

- Questionnaire survey
- Sample size 273 to 465 per case study, total N=3,269
- Focus group discussions
- Key informant interviews
- Open interviews → Short stories of L&D
- Secondary sources (climate data, agricultural production, population census, etc.)
- Site selection: purposive; household selection: random
- People's perspective of climate change impacts



Methods (2)

- Research areas: typically districts
- National researchers; in three cases assisted by international colleagues
- Time in field: one month
- Team size: approximately 10
- Sampling: method varies per area, based on optimal sample framework.
- Adjustable Questionnaire: We designed template questionnaire, national researchers adjusted to suit local situation



Questionnaire (1)

Four sections:

1. Demographic & Socio-economic info → Livelihood / vulnerability profiles
2. Extreme weather events, impact, coping, (residual) L&D
3. Slow-onset changes, impact, adaptation, (residual) L&D
4. Some open questions about vulnerability, gender and local ideas about what policy makers could / should do to address L&D



Questionnaire (2)

- Open questions to capture local perceptions; people's perspective
- Closed questions for more quantitative purposes



Qualitative methods

- Focus group discussions | Key informant interviews | Open interviews

Aim:

- Capture information that cannot easily be retrieved with questionnaire survey.
- Better insights in the more difficult, complex questions from the questionnaire
- Differences between male/female, occupational groups, etc



Use of secondary data

- Climate data, agricultural production, population census
- Important for site selection, and climate threat focus
- Complements study of regional 'climate science' literature
- Helps to address critics who **always** ask the attribution question.
- But does not solve attribution questions; very different research design needed for that (our methods are mostly rooted in social science)



Some findings: Micronesia

Simpson Abraham & Iris Monnereau

The limits of adaptation in Kosrae, Micronesia:
loss and damage associated with coastal erosion



Micronesia

Simpson Abraham,
Iris Monnereau

- **Climatic stressors:** Coastal erosion, caused partly by sea level rise and storm surges, but debatable how much (*attribution*)
- **Impacts:** Damage to houses and infrastructure; crops and trees affected; loss of beaches
- **Adaptation:** Building seawalls; elevating or reinforcing houses; planting trees along the coastline and moving from the coast to upland areas
- **Loss and damage**
 - Adaptation measures not enough and/or entail extra costs
 - 40% did not adopt any adaptation measures. Many lacked resources or just didn't know what to do → *Adaptation limits*



5 minute video on Micronesia case study



Some findings: Bangladesh

Golam Rabbani, BCAS

The limits of adaptation in Shyamnagar, Bangladesh:
loss and damage associated with salinity intrusion



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Bangladesh

Golam Rabbani, BCAS

- **Climatic stressor:** Salinity intrusion, cyclone Aila (2009)
- **Impacts:** Traditional rice varieties no longer grow well; Health implications of salty drinking water
- **Adaptation:** Saline tolerant rice varieties
 - Efforts to reduce salinity in fields
 - Increased reliance on non-farm income
- **Loss & Damage**
 - Adaptations effective for gradual salinity increase, but could not prevent a 100% rice crop failure after cyclone Aila in 2009.
 - Estimated loss to rice production in 4 study villages: \$1.9 Million



Bhutan

Norbu Wangdi & Koen Kusters

The costs of adaptation in Punakha District, Bhutan:
loss and damage associated with changing monsoon patterns



Bhutan

Norbu Wangdi &
Koen Kusters

- **Climatic stressors:** Changing monsoon patterns: Less rain and later onset
- **Impact on livelihoods:** Reduced water availability for rice cultivation: impact on food and income security
- **Adaptation:** Adjustments to irrigation practices and access to water, changes in crop mix, from two to one harvest a year, buying pumps
- **Loss and Damage:** For 87%, the measures are not enough and/or entail extra costs that could not be regained



- Existing coping/adaptation to biophysical impact is not enough to avoid loss and damage

Adaptation happens but is not enough

- Measures have costs (economic, social, cultural, health, etc.) that are not regained

Adaptation getting more costly

Loss and damage occurs when...

Getting by, but losing ground

- Despite short-term merits, measures have negative effects in the longer term (erosive coping)

Adaptation is not happening

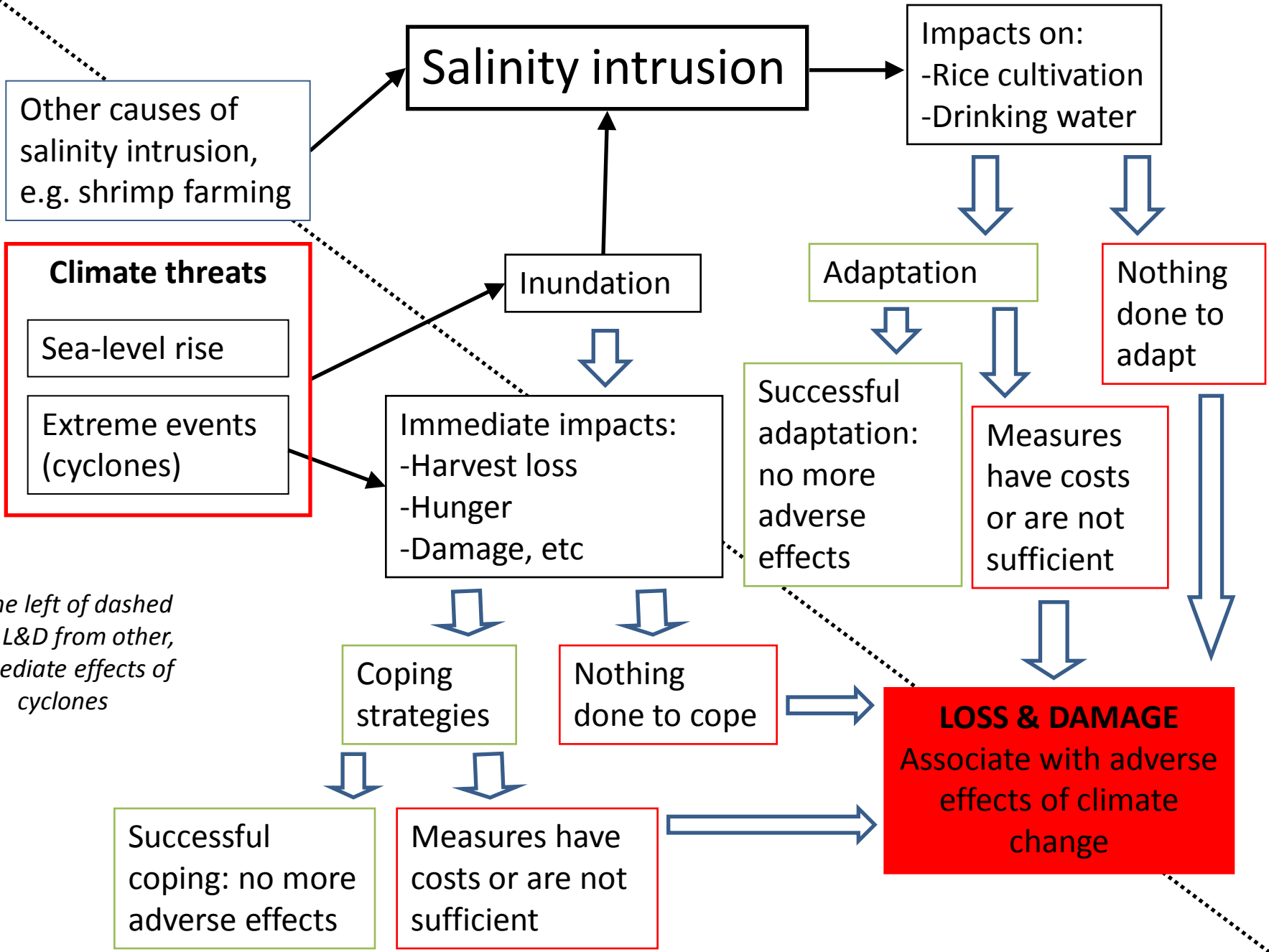
- No measures are adopted – or possible – at all

Reflection on methods used: Conceptual

- We assessed L&D from both sudden-onset events & slow-onset changes.
- Good, but too much studied *separately*. They interact. Examples of Bangladesh and Micronesia in next slides
- Need to add *preventive* measures ('normal' risk management) to the conceptual model of L&D.
- Different types of climate stressors, impacts and responses need cannot be captured in one questionnaire template.
- We want to develop a methods toolbox for assessment of L&D in vulnerable communities



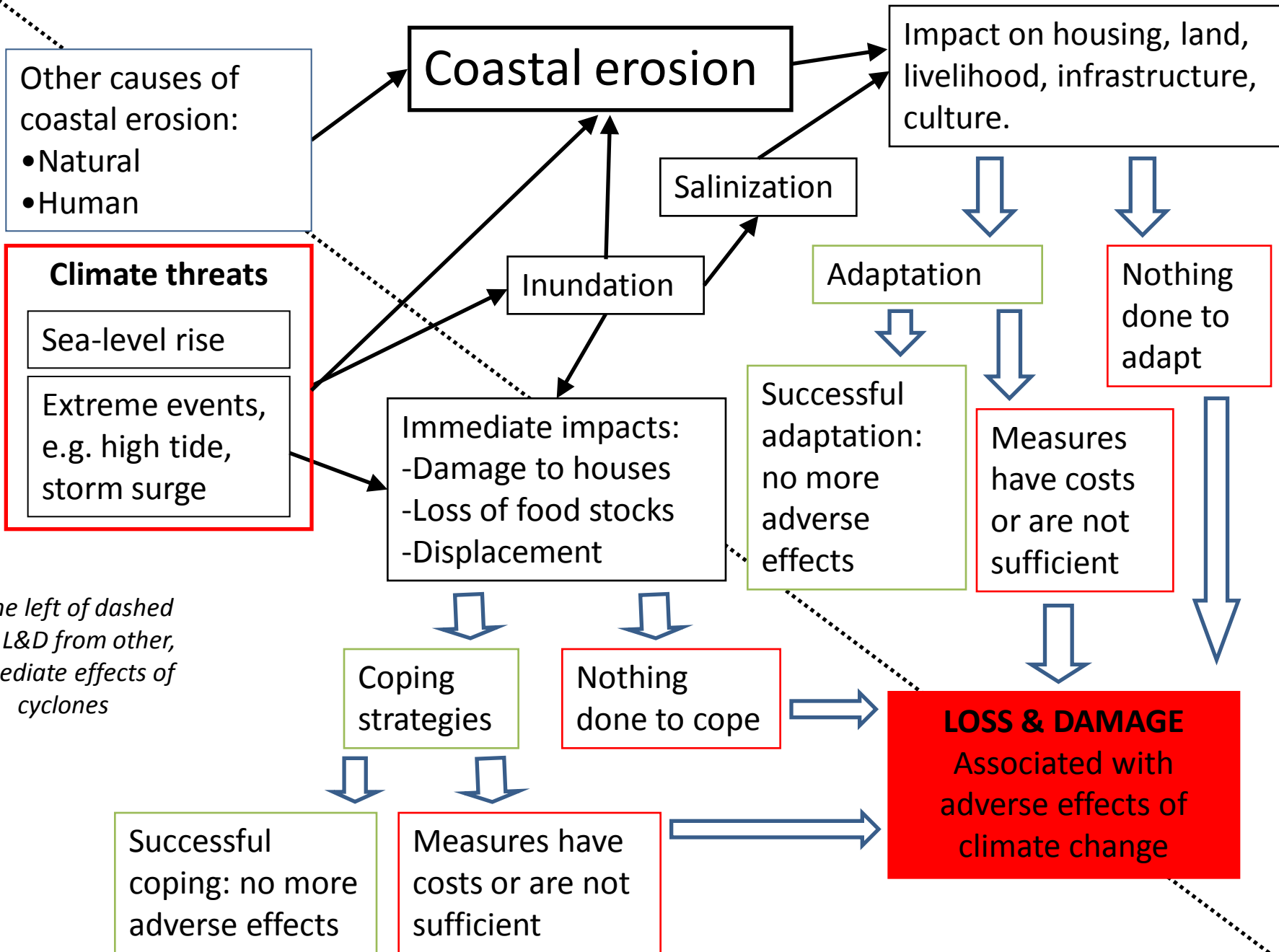
To the right of dashed line: L&D from salinity intrusion



To the left of dashed line: L&D from other, immediate effects of cyclones

LOSS & DAMAGE
Associate with adverse effects of climate change

To the right of dashed line: L&D from coastal erosion



To the left of dashed line: L&D from other, immediate effects of cyclones

LOSS & DAMAGE
Associated with adverse effects of climate change

1. Climate variability

- 'Normal' uncertainties
- 'Normal' risk of extreme weather events

3. Extreme weather events

- Floods
- Droughts
- Cyclones/storms

5. Climatic changes

- Changes in 'average' conditions
- Changes in risk of extreme weather events

2. Preventive measures

- Physical protection
 - Risk spreading
- Increase buffer capacity
 - Build Safety nets

4. Coping

- Rely on social networks
- Food aid and other relief
 - Alternative income
 - Selling assets

6. Adaptation

- Agricultural change
- Livelihood diversification
 - Migration
- Changes in 'normal' risk management (see box 2)



Reflection on methods used: More practical

- Instead of 1 one-month fieldwork, it would be good to work in 2 phases.
 - Start with qualitative research tools, end test questionnaire... are we asking the right questions
 - 2nd phase: Conduct the questionnaire
 - Optional 3rd phase: Group discussion on first results.



5 things to remember about loss & damage

- *What causes it?* Climate impacts interacting with social vulnerability
- *Its happening now:* Loss and damage is already a significant consequence of inadequate ability to adapt to cope with extreme weather events and climatic changes, particularly in vulnerable countries.
- Four pathways of loss and damage
- Not just economic losses... cultural losses, identity, etc.
- Mitigation and better adaptation can reduce it.



Thank you!

- Further reading: www.lossanddamage.net
- Nine case studies and other papers in special issue on L&D in the International Journal for Global Warming (late 2013)
- Video interviews with the researchers, illustrated with images from the field: www.youtube.com/LossAndDamage
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