Adaptation to climate change and social justice: challenges for flood and disaster management in Thailand

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Thai context

- monsoonal climate in which floods are normal part of the seasonal cycle
- beneficial to some ecosystems and livelihoods; bad news for others
- Impacts increase despite capabilities because higher values of infrastructure put at risk
- floods are most likely to become disasters when they are unusual in timing or severity
Domrey Tropical Storm
Sep 25, 2005
Design

- Assess current flood and disaster management institutions and practices (local justice perspective)
- Develop the notion of flood regime and distinguish basic flood forms
- Review understanding of how flood regimes are changing
- Review initiatives/positions on climate change and adaptation
- Explore implications of alternative “adaptation policy” scenarios under altered flood regimes
Flood regimes and disasters

• A flood regime is a historically experienced pattern of variability in onsets, durations, extents and frequencies

• Change for many reasons – rainfall trends, withdrawals for irrigation, river infrastructure, land-use…

• Altered flood regimes do not translate linearly into altered risks of flood and flood-related disasters.
A projected change in precipitation

Winter: SRES A1B scenario, 2095

Summer

Climate-change is very likely to effect rainfall patterns in Thailand, but exactly how still remains uncertain.
<table>
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<tr>
<th>Flood forms</th>
<th>Anticipated impact of climate change on flood regime</th>
<th>Other factors affecting flood regime</th>
<th>Affected and vulnerable groups</th>
<th>How adaptation could exacerbate social justice issues</th>
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<tbody>
<tr>
<td>Flash</td>
<td>Higher frequency of intense rainfall events in urban areas</td>
<td>Increased run-off from impervious surfaces</td>
<td>Informal settlements near canals and drains</td>
<td>Eviction, no support for settlement</td>
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<tr>
<td>Landslides &amp; floods</td>
<td>Higher frequency of intense rainfall events in mountain areas</td>
<td>Altered hazard risks from land-use changes</td>
<td>Upland farmers and people living in rural towns near river banks</td>
<td>Relocation or misplaced restrictions on farming for already vulnerable groups</td>
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<td>River bank overflow</td>
<td>More prolonged rainfall episodes from more intense cyclones-depressions</td>
<td>Land-cover changes (water use); Irrigation schemes, structural failures</td>
<td>Human settlements, industry, infrastructure and agriculture</td>
<td>Diversion schemes that protect cities by flooding farmers fields (without compensation as ‘acts’)</td>
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<tr>
<td>Coastal floods</td>
<td>Increased risk of coastal flooding from sea-level rise</td>
<td>Land subsidence from groundwater pumping</td>
<td>Coastal farming and fisher communities</td>
<td>Embankments to protect CBDs/resorts -&gt; erosion and flood risks in surrounds</td>
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<tr>
<td>Seasonal floodplain inundation</td>
<td>Reduced flood heights and duration from decreased inland rainfall</td>
<td>Diversions, withdrawals and flood plain protection measures</td>
<td>Lowland farming communities; Fishers and harvesters of products from wetland ecosystems</td>
<td>Draining and filling of wetlands as “flood-prone areas”</td>
</tr>
</tbody>
</table>

Challenges of adapting to climate change induced changes in flood regimes depends on flood form
Disaster management challenges

- Climate Change
- Flood Regimes
- Land & water-use

Mitigation

Reducing risks of exposure of vulnerable groups

Building and maintaining resilience

Preparedness

Strengthening links between knowledge & practice

Enhancing capacities to cope & respond

Emergency

Securing the affected and vulnerable

Rehabilitation
Reducing risks of exposure

- Flood protection measures to protect CBDs redistribute risks and burdens to others
- Department of Disaster Prevention and Mitigation does not mention climate change in 2006 report
- Low-lying areas of Bangkok face flood challenges from both upstream and seaward;
- Massive infrastructure projects have been proposed by others for CC but not scrutinized by public or compared with alternatives (wetland restoration)
Enhancing capacities to cope and respond

- Local capacities can be enhanced or eroded by regulations and practices of state agencies.
- People living in flood-prone areas often have diverse strategies for coping with adverse impacts of floods and adapting to new regimes;
- Effective disaster preparedness and early warning systems benefit from two-way communication and redundancy.
- Politicians increasingly view flood disasters as opportunities and have been instrumental in making the bureaucracy more responsive to public inputs – decentralization has helped disaster management.
Securing the affected

- the impacts of climate variability and extremes are distributed very unequally;
- Disaster policies, programs and practices have not secured the most highly affected and vulnerable groups
  - For example: complex procedures for compensation can multiply vulnerabilities in recovery / rehabilitation
  - Lessons from Indian Ocean Tsunami
- extreme events may help anticipate future flood regime changes
Building and maintaining resilience

• Costly infrastructure interventions need to be assessed with respect to future flood regimes not just short-term political opportunities.

• Alternatives (living with floods, making space for water) may be cheaper and more effective: expanding livelihood opportunities or restoring ecosystems.

• Especially if complemented with insurance or catastrophe bonds in forms which don’t produce adverse risk-taking behavior.
Official discourse

• Thailand’s “Initial Communication” (UNFCCC) makes few specific references to how it proposes to adapt to climate change impacts on floods

• Since the standard line remains;
  – “reforestation, afforestation, protection of conservation forests, land and water conservation also support the adaptation process”

• Indeed climate change has been simply incorporated into existing environmental debates and policy in which re-forestation is prescribed as a solution to all environmental ills (Forsyth)
Disaster management challenges

- Climate Change
- Flood Regimes
- Land & water-use

Mitigation

- Reducing risks of exposure of vulnerable groups
- Strengthening links between knowledge & practice
- Enhancing capacities to cope & respond

Building and maintaining resilience

- Securing the affected and vulnerable
- Emergency

Rehabilitation
Strengthening links between knowledge and practice

• It may not be easy to tell if flood regimes are changing because of climate change until after it has happened.
• Comprehensive evaluations of flood and disaster management are rare
• Overall capacities for assessing vulnerability and adaptation options in Thailand are fairly limited
• Misleading attributions of recent individual flood events or disasters to climate change may also prevent learning because they also become an argument for blaming others
3.40 m. flood started on area 1
When the water level at P.1 Nawarat Bridge rose to
3.65 m. flood started on area 2
3.80 m. flood started on area 3
3.95 m. flood started on area 4
4.02 m. flood started on area 5
4.10 m. flood started on area 6
4.27 m. flood started on area 7
The past tells us

• Floods are not bad for everyone; nor are changes to flood regimes
• State struggles to cater for the interests and needs of the poor and other disadvantaged groups under current flood regimes
• But are also (locally) some very capable knowledge-using bureaucrats within the system
• Floods are politically salient events and are recognized as such
• Flood control and “disaster-risk reduction” measures can have big side-effects
The future?

• The prospects of additional and altered risks from climate change underlines the value of long-term planning in flood and flood-related disaster management.

• But, interventions in the name of adaptation to climate change require scrutiny as they could easily reproduce and magnify existing vulnerabilities by shifting risks on disenfranchised groups.
  – Protecting the CBD (at whose expense?)
  – Relocations of flood-prone settlements (with compensation?)
  – Managing future risks (what about social vulnerabilities now?)
4 reasons for concern

• **risks of exposure** vary hugely across different social groups
• **capacities to influence** decision-making on behalf of, or by, vulnerable groups remains limited
• ethnic minorities, migrants, women and other second-class citizens continue to be at a disadvantage as a result of discriminatory policies and practices that limit access
• some vulnerable groups are **dependent** on seasonal floods and may be worse-off under some methods of “adapting” to changing flood regimes including those from climate change
Conclusions

• there are real limitations in how floods and changes to flood regimes are governed in Thailand today but also examples of good practices

• Challenges could easily be made worse by both inaction and misguided central adaptation policies

• More democratic approaches to flood and disaster management need to be institutionalized or the vulnerable will continue to be put way last;

• Actions that benefit disadvantaged and vulnerable groups now shouldn’t wait for climate change justifications

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