ADAPTATION TO CLIMATE CHANGE IN QUANG NAM

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About Research Site

- Hoi An
  - Now recognized as 3rd tier city
  - vulnerable to flooding
  - Dependent on seasonal tourism

- Cu Lao Cham islands
  - decline in capture fisheries
  - no land for agriculture
  - limited livelihood options
  - off-shore corals susceptible to bleaching event (warmer temperature)
  - vulnerable to invasion of thorn starfish

- Climate change
  - Temperature: increasing
  - Rainfall: decreasing during dry season & increasing during rainy season
  - Frequent hazards (typhoons)
Autonomous adaptation

- Climate hazards:
  - Build stronger houses and with sky floors (gac xep)
  - Higher first floor (nen cao)
  - Listen to weather forecasts
  - Evacuate out of unsafe areas
  - Build concrete river bank and sea dikes
  - Build boat keeping plot
  - Prepare sandy bags to put on roofs of houses
Autonomous adaptation

- **Short-term:**
  - move assets to higher places for safety
  - tie up the roof of their houses (Bai Huong) and put the sand bags on before flood and storms
  - restore livelihood portfolios by boosting up livelihood activities, e.g. right after flood, people tried to go fishing to have higher yield for recovering the lost from flood

- **Medium and long term:**
  - long term shifts to new livelihood strategies not yet being considered
  - local people in both sites do not have long-term plans for coping with extreme weather events.
Community collective action

- Easy and simple preparedness activities before climate events: exchanging information about weather forecast done by households
- Rescue activities often implemented by kin-based groups and neighbors
- Borrow interest-free loans for recovery from friends
- Complicated and costly activities such as fixing roads, dredging drainage and canals coordinated by mass organizations
- SFPT organization from central government to local level as community collective action
Planned adaptation

- Sand exploitation is forbidden to prevent coastal erosion
- Forest protection is very strict
- Infrastructure development:
  - cement pavement along the river bank and strengthening of the sea dike
  - building roads
  - building impoundments or drainage systems
  - safe evacuation for residents
- Conflict between different policies:
  - Conservation of old houses:
    ✷ no high rise buildings
    ✷ safety net applied to compensate house damage
## Adaptation options (PSD workshop)

<table>
<thead>
<tr>
<th>Climate change variables</th>
<th>Direct impacts</th>
<th>Indirect impacts</th>
<th>Current adaptation options</th>
<th>Future options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sea level rise</td>
<td>- Land loss</td>
<td>- Decrease in agriculture, forestry, and aqua-cultural yield</td>
<td>- Management regulations are being developed for Cu Lao Cham Biosphere Reserve</td>
<td>- Improve livelihood and quality of life</td>
</tr>
<tr>
<td></td>
<td>- Decrease in biodiversity</td>
<td>- Decrease in value and quality of tourist products</td>
<td>- Use solar energy</td>
<td>- Develop environmental protection projects</td>
</tr>
<tr>
<td></td>
<td>- Damage infrastructure</td>
<td>- Threaten people’s lives</td>
<td>- Reinforce dyke system</td>
<td></td>
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<tr>
<td>Typhoon</td>
<td>- Decrease in biodiversity</td>
<td>- Decrease in value and quality of products.</td>
<td>- Develop dyke &amp; transportation system</td>
<td>- Raise awareness of local people and communities about risks</td>
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<td></td>
<td>- Damage infrastructure</td>
<td>- Decrease in life quality</td>
<td>- Residential area planning</td>
<td>- Research for alternative energy</td>
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<td></td>
<td>- Threaten people’s lives</td>
<td>- Create un-stability for people</td>
<td></td>
<td>- Develop dyke &amp; transportation system.</td>
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</tbody>
</table>
## Prioritizing adaptation options

<table>
<thead>
<tr>
<th>Adaptation options</th>
<th>Pro-poor</th>
<th>Pre-condition</th>
<th>Trade-off</th>
<th>Synergies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Develop management regulations for Cu Lao Cham Biosphere Reserve</td>
<td>Yes</td>
<td>- Budget - Committed admin system in dealing with CC - Participation of local people</td>
<td>- In-shore fishing will be affected</td>
<td>2,3,4,5</td>
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<tr>
<td>2) Develop dyke, transportation system</td>
<td>Yes</td>
<td>- Long term and master planning - Budget - Technology</td>
<td>- Losing natural landscape</td>
<td>3</td>
</tr>
<tr>
<td>3) Residential area planning</td>
<td>Yes</td>
<td>- Long term and master planning - Budget</td>
<td>Changing traditional practices</td>
<td>2</td>
</tr>
<tr>
<td>4) Develop environmental protection programs</td>
<td>No</td>
<td>- Integration of CC to sectoral plans</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>5) Awareness raising for local</td>
<td>No</td>
<td>- Belief/ trust community</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
Conclusions (1)

- Most action is for coping, not long term adaptation
- Livelihood diversification is most needed to build resilience / adaptive capacity
- Hard vs. soft adaptation
  - planned options are often hard adaptation, e.g. building roads
  - households activities are often soft, behavioral e.g. adjust crop calendars
Conclusions (2)

- Community collective action measures includes informal coping system, e.g. rely on relatives to help them clean up afterwards, and to provide loans.

- Long term adaptation options are lacking, both at the household and government levels.
Conclusions (3)

In order to help communities increase their resilience

- geographically targeted, multi-sectoral interventions are needed
- Developing adaptation intervention through participatory and inclusive stakeholder process
- Social policy intervention need to be linked with CC
- Combine investment in hard and soft adaptation options.
THANK YOU