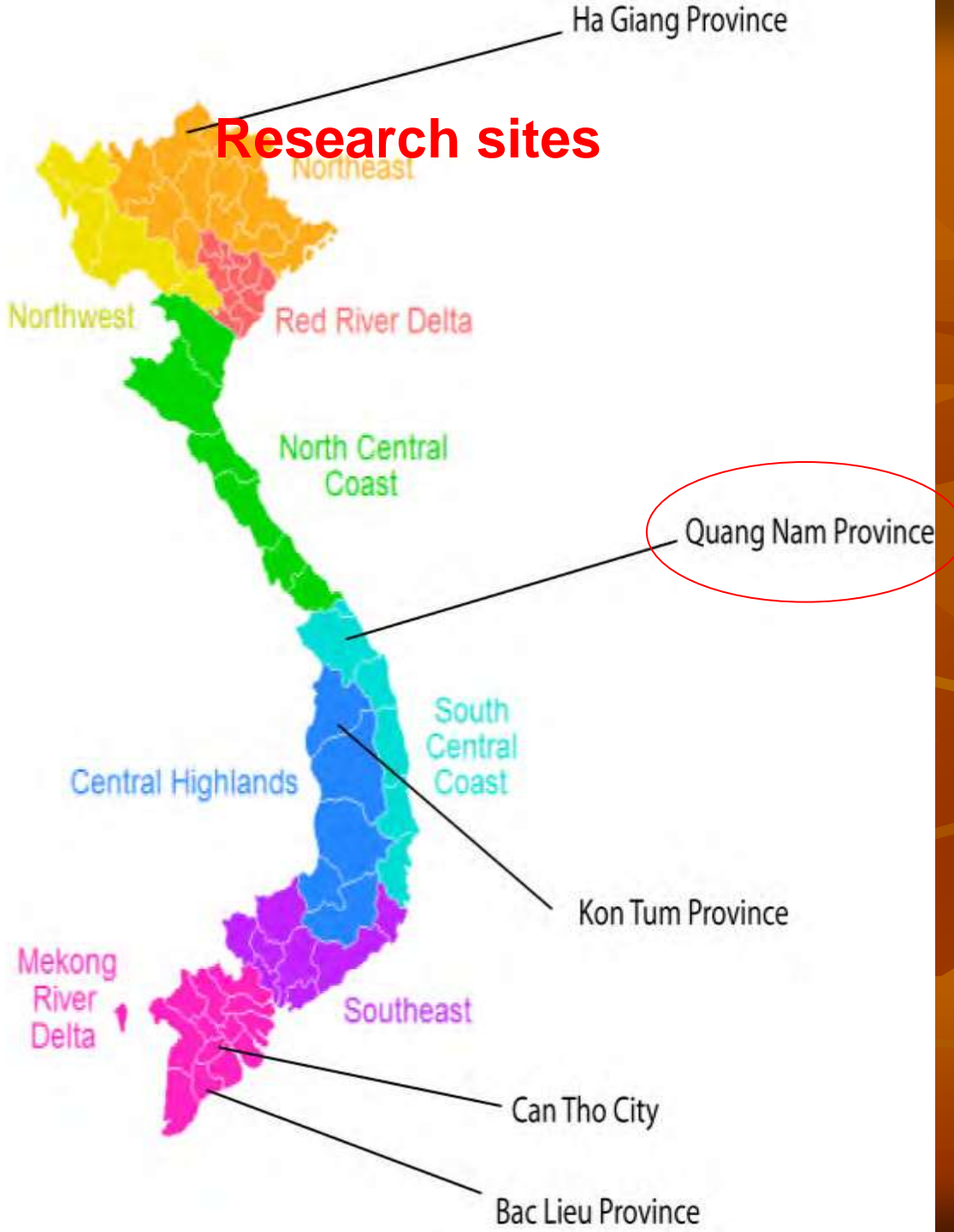




# **ADAPTATION TO CLIMATE CHANGE IN QUANG NAM**

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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)

| Climate change variables | Direct impacts  | Indirect impacts  | Current adaptation options  | Future options  |
|--------------------------|---|---|---|---|
| Sea level rise           | <ul style="list-style-type: none"> <li>- Land loss</li> <li>- Decrease in biodiversity</li> <li>- Damage infrastructure</li> <li>- Threaten people's lives</li> </ul> | <ul style="list-style-type: none"> <li>- Decrease in agriculture, forestry, and aqua-cultural yield</li> <li>- Decrease in value and quality of tourist products</li> </ul> | <ul style="list-style-type: none"> <li>- Management regulations are being developed for Cu Lao Cham Biosphere Reserve</li> <li>- Use solar energy</li> <li>- Reinforce dyke system</li> </ul> | <ul style="list-style-type: none"> <li>- Improve livelihood and quality of life</li> <li>- Develop environmental protection projects</li> </ul>   |
| Typhoon                  | <ul style="list-style-type: none"> <li>- Decrease in biodiversity</li> <li>- Damage infrastructure</li> <li>- Threaten people's lives</li> </ul>                      | <ul style="list-style-type: none"> <li>- Decrease in value and quality of products.</li> <li>- Decrease in life quality</li> <li>- Create unstability for people</li> </ul> | <ul style="list-style-type: none"> <li>- Develop dyke &amp; transportation system</li> <li>- Residential area planning</li> </ul>   | <ul style="list-style-type: none"> <li>- Raise awareness of local people and communities about risks</li> <li>- Research for alternative energy</li> <li>- Develop dyke &amp; transportation system.</li> </ul> |

# Prioritizing adaptation options

| Adaptation options  | Pro-poor | Pre-condition  | Trade-off                           | Synergies |
|---|----------|--|-------------------------------------|-----------|
| 1) Develop management regulations for Cu Lao Cham Biosphere Reserve | Yes      | <ul style="list-style-type: none"> <li>- Budget</li> <li>- Committed admin system in dealing with CC</li> <li>- Participation of local people</li> </ul> | - In-shore fishing will be affected | 2,3,4,5   |
| 2) Develop dyke, transportation system                              | Yes      | <ul style="list-style-type: none"> <li>- Long term and master planning</li> <li>- Budget</li> <li>- Technology</li> </ul>                                | - Losing natural landscape          | 3         |
| 3) Residential area planning  | Yes      | <ul style="list-style-type: none"> <li>- Long term and master planning</li> <li>- Budget</li> </ul>  | - Changing traditional practices    | 2         |
| 4) Develop environmental protection programs                        | No       | - Integration of CC to sectoral plans  |                                     | 5         |
| 5) Awareness  |          | - Belief/ trust  |                                     |           |

# 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