



**Building Resilience:  
adaptive strategies  
for coastal livelihoods most at risk to  
climate change impacts in Central Viet Nam**

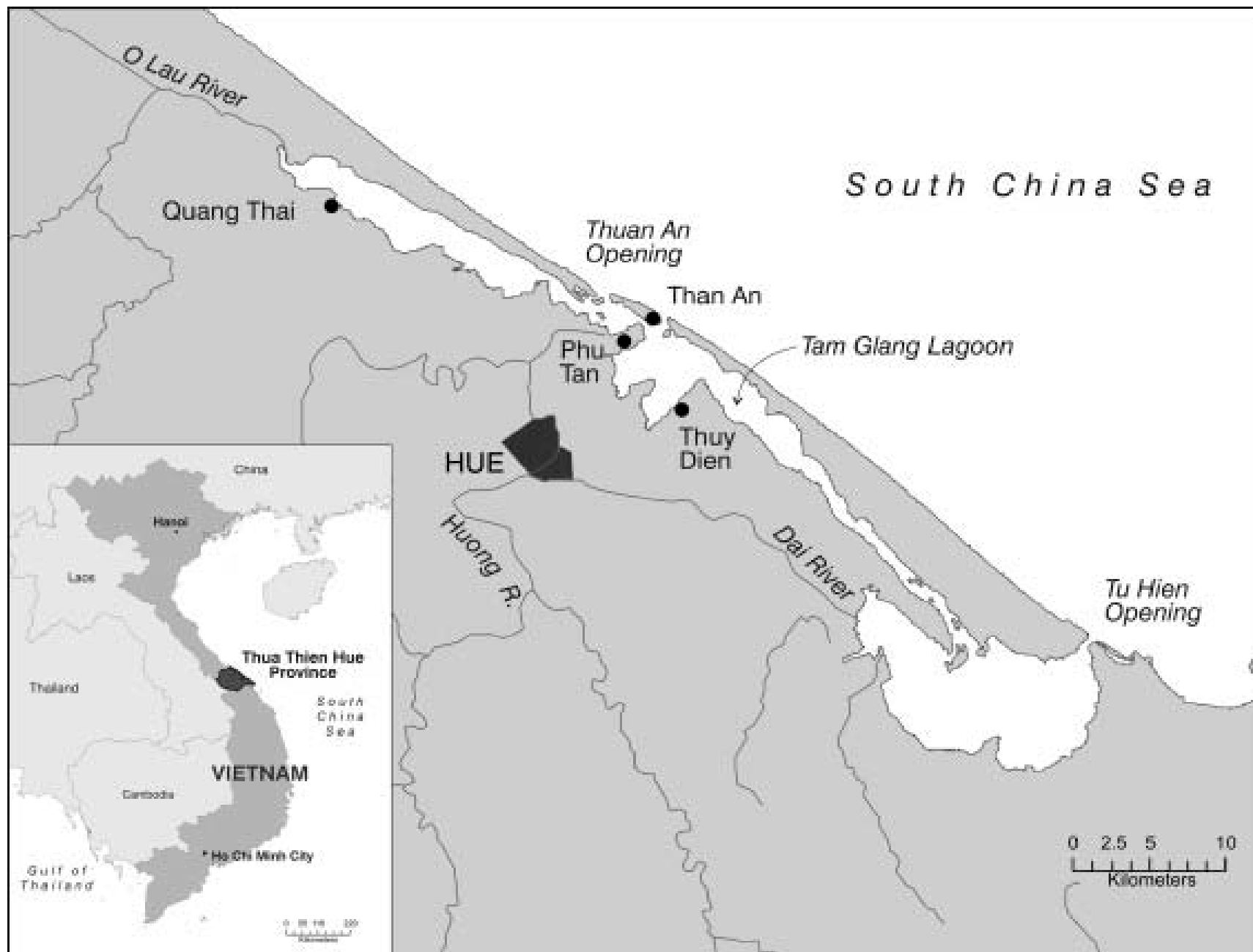
**Dr Michael Parsons**

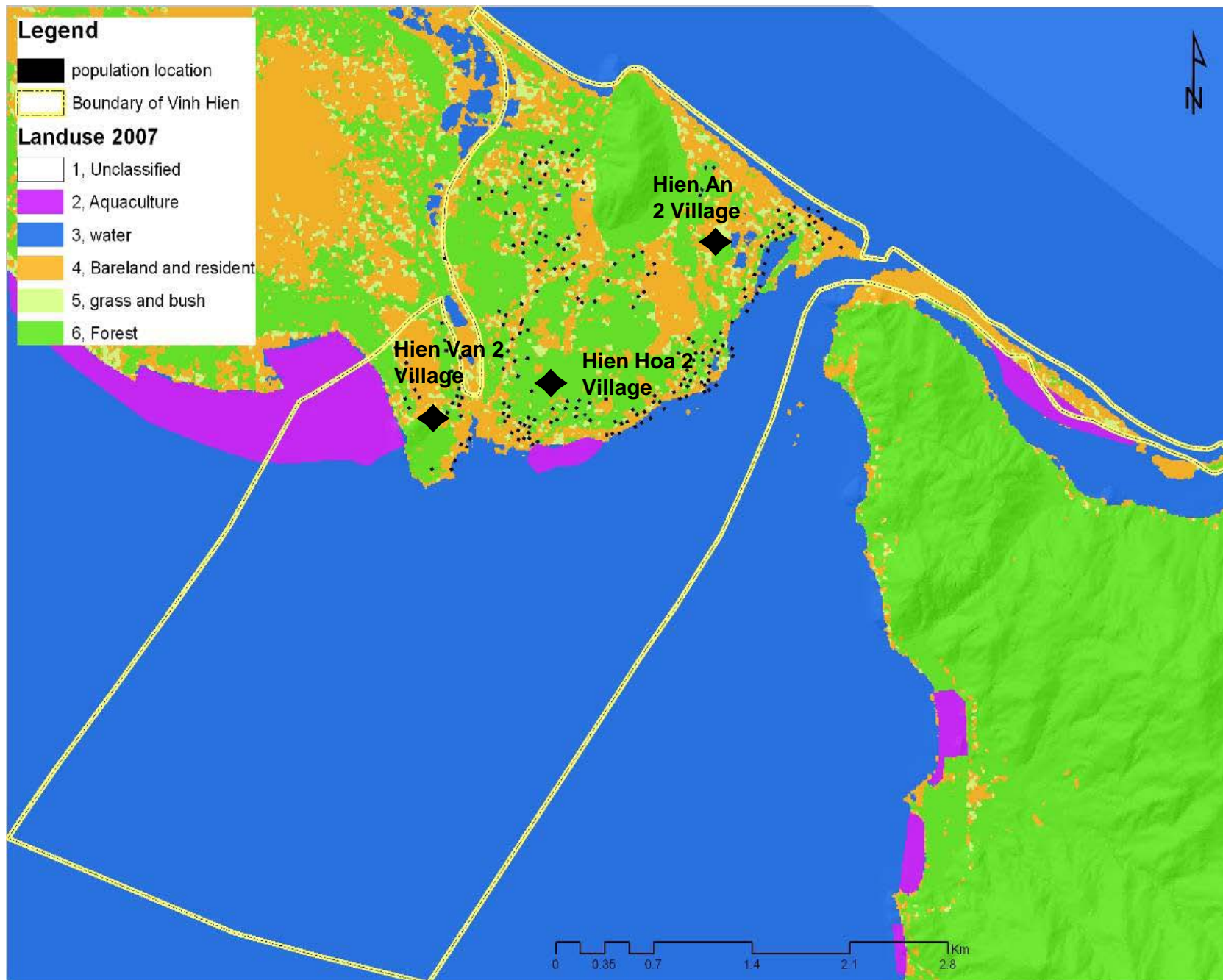
**Dr Tran Viet Nga**

**Dr Joanna White**

**UNDP/MONRE Poverty and Environment Project**

**Hanoi, September 01 2009**





# *Climate Change Effects*

- Shocks: Sudden-onset hazards eg typhoons, floods
- Stress: Slow-onset hazards eg drought, salinity; gradual trends such as Increasingly drier dry seasons, wetter wet seasons, higher temperatures. and sea-level rise
- Higher fluctuations (away from average, trends) and more extreme, erratic, unpredictable weather.

## **SALINE INTRUSION**

Over-topping during typhoons, storm surges; Salinization of ground water; Sea water upstream in-flows during dry seasons, droughts

Trend: salinity intruding further inland, increasing salinity of cultivable land

## **EROSION**

Coastline erosion; river bank, lagoon bank undercutting and collapse; hillside erosion and landslides

Trend: increasing loss of coastline, river and lagoon banks, hillside soils

## **FLOODING**

Flash floods, rainfall inundation floods, river inundation floods, storm surge over-topping;

Trend: rising sea-levels,; more frequent, intense, prolonged typhoons; heavier rainfall events; but with more extreme fluctuations

**Need for flexible, multiple adaptation strategies**

## **DROUGHT**

Trend: more prolonged droughts, but also extreme fluctuations

## **SEDIMENTATION**

Typhoons, storm surges blocking river and estuary mouths,; Higher river sedimentation loads widening flooding impacts

Trend: increasing, more prolonged river mouth closure events

## **FRESHENING**

Freshening from river flooding and rainfall inundation

Trend : higher level floods, prolonged inundations with more extreme fluctuations

# *No-regret adaptive measures and issues in adaptive management*

- Addressing gender issues in all the below
- Sector-specific measures (farming, fishing/aquaculture, combination)
- Livelihood support – including building adaptive strategies for temporary migrants
- Measures to minimise impacts of climate change on the livelihood resource-base
- Mainstreaming climate change planning into provincial and district planning processes and assist awareness-raising
- Foster more research to refine all of the above.

# *Adaptive measures for agriculture*

- Adjust adaptive strategies and extension services to 'feminisation' of the agricultural sector.
- Support existing local adaptation measures, for example adjustment of cropping calendars, cropping patterns, switching to climate-resilient cultivars, diversified farming; inter-cropping
- Reduce risk of crop failure by changes in management and farming techniques eg changes in fertilizer use and application, integrated pest management

# *Adaptive measures for fishing, aquaculture*

- Improved planning and management – eg enforcement of aquaculture waste-treatment regulations
- Research to monitor and predict the movement of key fresh and saltwater fish species
- Introduction of aquaculture species adapted to high temperatures and changed salinities and freshening. Assess potential impacts on indigenous varieties prior to their introduction
- Promote polyculture and fish-rice rotation in relevant areas
- Conduct research on salt water intrusion, fisheries and aquaculture to inform new measures
- Reduce river-borne pollution



# *Livelihood support*

- Ensure access to more diverse and better targeted credit, insurance and other financial services
- Broaden rural extension services mandate – marketing of climate-resilient crops
- Improve access of the most at-risk to information on climate risks, adaptation measures, and market information
- accessible, secure, safe storage and protection from climatic hazards
- Support temporary migration as household livelihood diversification strategy

## *Livelihood resource-base support*

- Combat seawater intrusion, storm surges and sea-level rise with sea walls and green walls.
- Improve water storage and management
- Protect elevated land for public purpose use
- Establish ‘Sister-Commune’ relationships to strengthen local adaptation practices for similar social ecologies in non-contiguous areas

# *Mainstreaming climate change into local planning processes*

- Inject a spatial dimension into local planning, through mainstreaming participatory hazard maps into SEA and SEDPs,
- Empower the most at risk by involving them in local-level hazard mapping and climate change planning (top-down and bottom-up).
- Adapt the disaster response system to shift from a seasonal alert to year-round emergency response.

# *Adaptive management issues*

- Tailoring adaptive strategies – no ‘one-size-fits-all’ approach
- Infrastructure versus living structures – how to build, how not to build (‘managed retreat’)
- Use the need for new infrastructure (dykes, resettlement) as a new local livelihood opportunity
- Take an integrated approach to reduce the risk of climate changes on health – plants, animals, people.
- Increase remittances through pre-migration job-targeted up-skilling and vocational training



Thank you for your attention