

Rainfall Variability, Food Security & Human Mobility

Where rain falls Vietnam case study

Dr. Cosmin Corendea, UNU-EHS Bonn Germany

3rd Asia Pacific Climate Change Adaptation ForumIntegrating Migration into Adaptation strategies and Planning: Focus on Asia Pacific

Panel 5.2 Barriers to adaptation in socially vulnerable and marginalized groups 20 March 2013, Seoul, South Korea







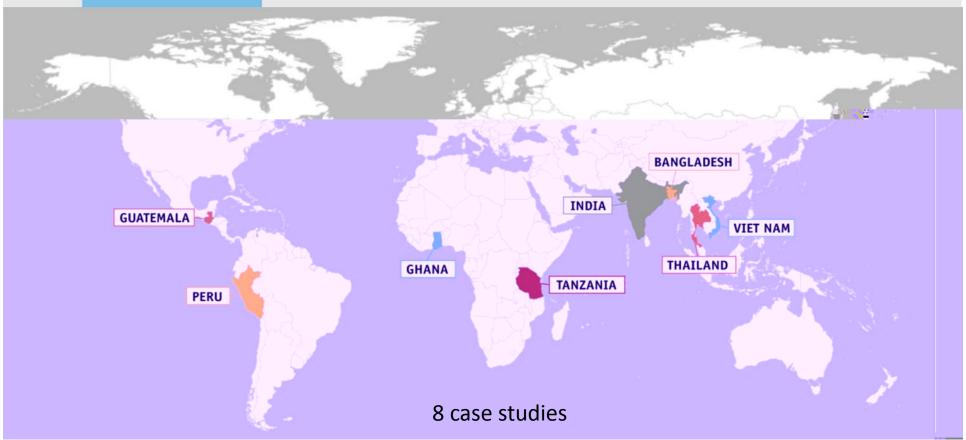








Background information



Partners:

- > CARE International
- ➤ Center for International Earth Science Information Network (CIESIN) at Columbia University, New York
- > Universities of Bonn & Amsterdam

Duration: 2011-2013

Fieldwork conducted in Fall 2011

and Spring 2012



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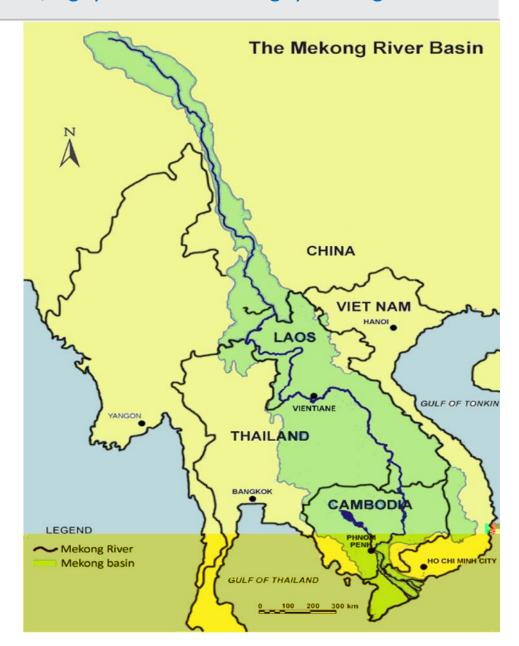
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Vietnam Case Study Kees van der Geest, Nguyen Viet Khoa & Nguyen Cong Thao

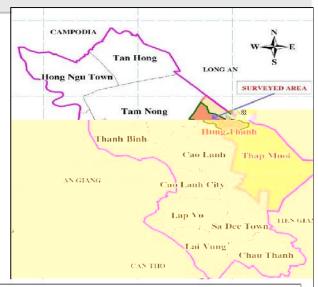
- Research setting: Mekong Delta
- > Research challenges
- > Findings:
 - Rainfall & flooding
 - Livelihoods, food security & poverty
 - Migration
 - Linkages
- Policy reflections

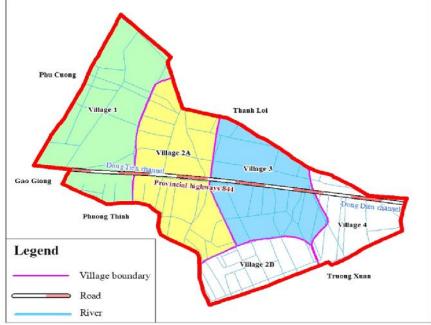




Research area: Dong Thap Province Thap Muoi District Hung Thanh Commune









WHERE ® RAIN FALLS

- Mekong Delta: major rice growing area
- Population Hung Thanh Commune: 9,086 inhabitants
- Three survey villages of similar sizes (two to three thousand inhabitants)
- Population density: 150 per km² = low compared to surrounding areas
- Annual floods (June November)
- Main source of livelihood: rice cultivation & fishing









Challenges

- Severe flooding in research area
 - Only households along main road accessible (app. 50% of all)
 - Security issues: team members not allowed to take boat
 - Solidarity issues: not disturb households coping with floods
 - Random sampling difficult





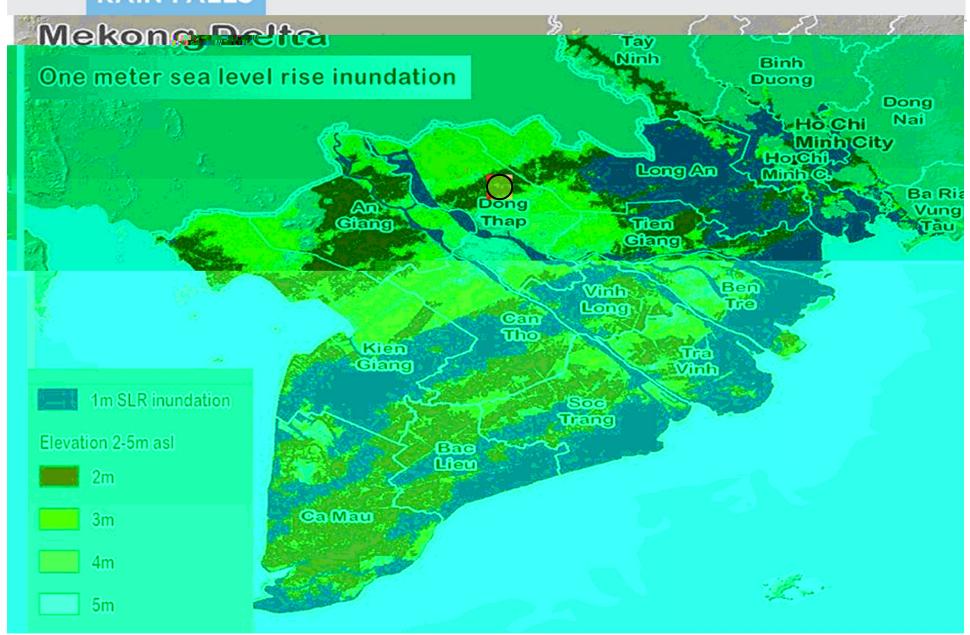


Limitation: site selection

- Mekong Delta is a hotspot in terms of impact of climate change, especially sealevel rise
- ➤ However, within the Mekong Delta, the

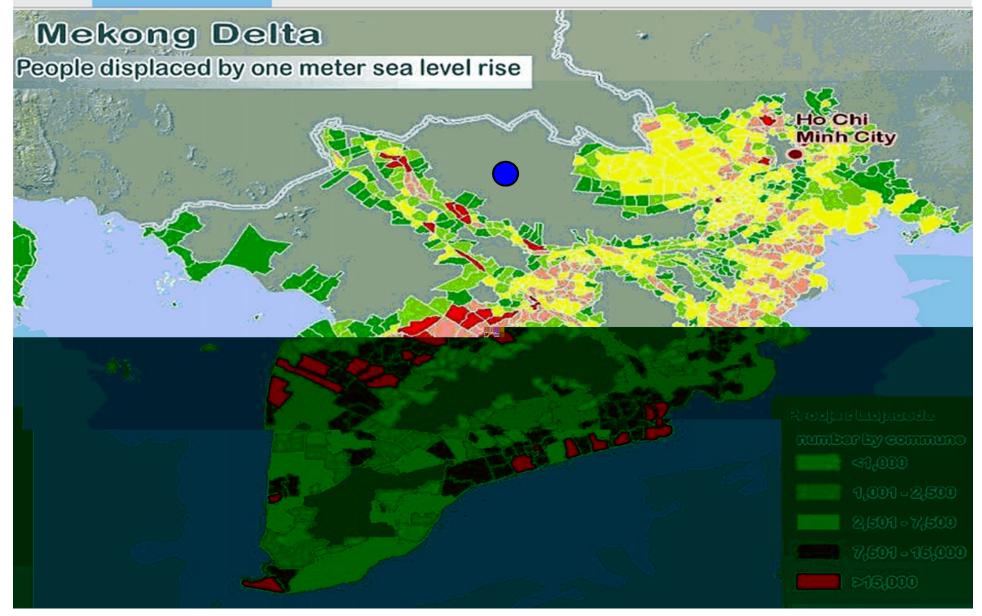


Source: www.challengestochange.org/climate





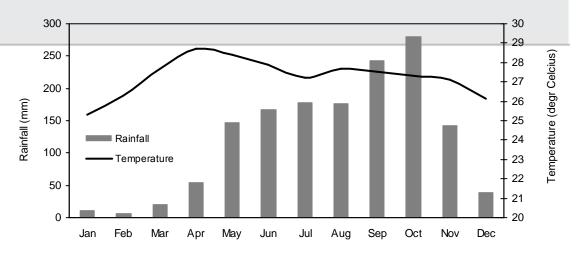
Source: <u>www.challengestochange.org/climate</u>



WHERE ® RAIN FALLS

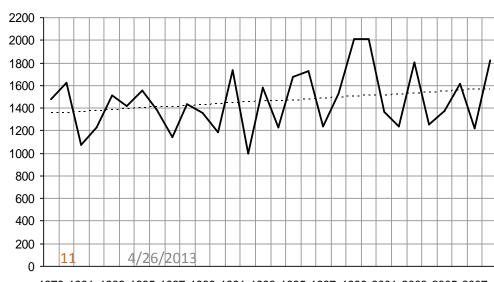
- Rainy season:May November
- Increasing trend
- Seasonal shift (earlier start of rainy season)
- > Increase in peak rain
- Inter-annual variability in monthly rainfall: no clear trend



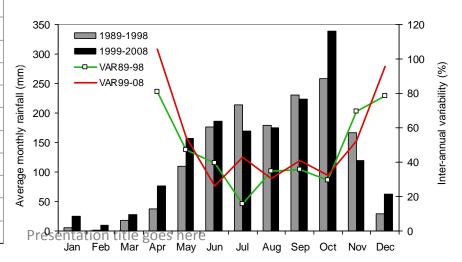


All rainfall data for Cao Lanh Meteoro-logical station, at 30 km from Hung Thanh

Inter-annual variability of monthly rainfall (1989-1998 & 1999-2008)









Rainfall: perception

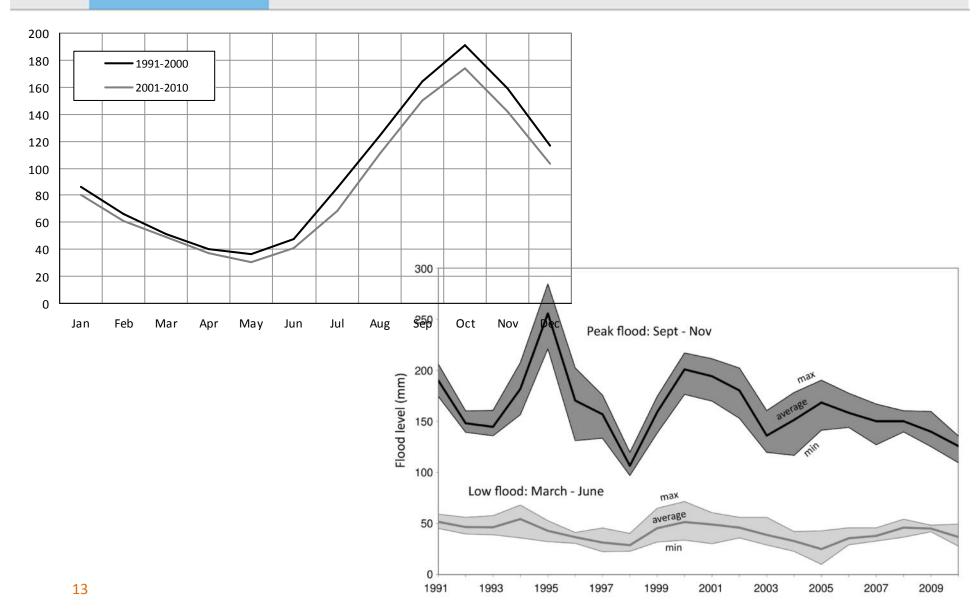
- 1. The rainy season comes earlier and lasts longer
- 2. Total rainfall has increased
- 3. There are more extreme weather events now
- 4. The climate has become less predictable.

(source: PRA and household survey)





Flood levels





Flood levels

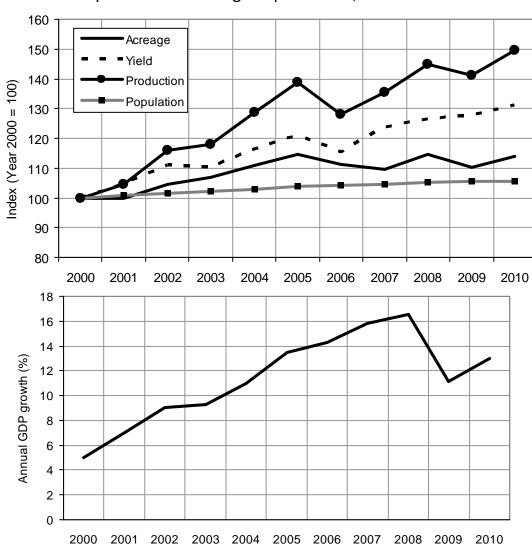
- Peak flood usually in October
- Decreasing trend (despite increasing rainfall locally!!!)
- Lower flood levels probably because of more dams upstream
- ➤ Exception: 2011 (not in graphs) → Heavy rain upstream and locally
- No evidence of increased variability of flood levels or more extremes (1991-2010)
- Perceived flood change (PRA):
- Floods start, peak and end later
- ➤ Household survey:
- ➤ 128 out of 142 answered that floods had increased in past 10-20 years (not confirmed by flood data → influence of 2011 high floods?)



Economic context

- Crop yields and production increases much faster than population
- > Fast economic growth
- Agriculture contribution to provincial GDP decreases:
 - 72 % in 1995
 - 49 % in 2010
- Industrial growth
- This is not an area in crisis
- However, despite development, severe pressures on local livelihoods, especially among landless people

Rice production in Dong Thap Province, 2000-2010



Livelihood



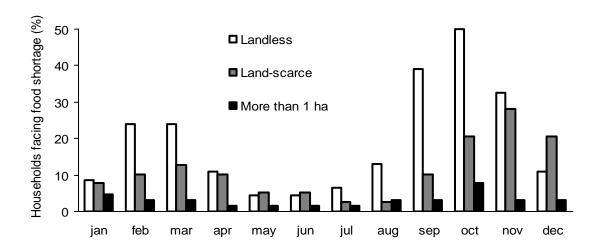
- Main source: monocrop rice cultivation
 - Own farm or as laborer
 - Yields: approximately 6000 kg/ha
 - Two or three harvest/year
 - Mainly manual labour but increasing mechanization
- Fishing
 - Almost every household fishes for home consumption
 - Source of income in flood season
- > Some livestock: mainly poultry
- > Trend (past ten years): diversification of income sources
 - Traditional sources of income (farming, fishing, livestock) are giving way to trade, remittances, renting out land, white collar salary work, aquaculture and factory labour
- Pressures: landlessness, reduced demand for farm labour (mechanization), higher input prices (indebtedness)



Food security

Contradicting findings

- Expert interviews: food security 'not an issue' (mainly govt workers)
- PRA: food security not severe ('adequate coping')



 Household survey: food security is a problem for landless and land-scarce households, especially in the flood season when there is less demand for farm labour. Still, coping strategies mostly 'non-erosive'

Food shortage in the	Landless (%) N = 46	Land-scarce (%) N = 39	Owning > 1 ha (%) N = 65	Total (%) N = 150
past 7 days (in October)	50.0	25.6	4.6	24.0
past year	80.4	51.3	10.9	43.0
past 5-10 years	89.1	82.9	30.4	66.1



Poverty

- > Indicators of wealth and poverty (PRA):
 - Land ownership, housing type, means of transport, household size, health
- ➤ Household survey:
 - 38% < 1US\$/cap/day
 - 69% < 2 US\$/cap/day
 - Female headed not poorer than others
 - Ownership of phone, TV and motorbike, and access to electricity and pipe water quite high (see table right)
 - Strong link with landlessness (see table below)

Asset ownership	Frequency (n=150)	%
Mobile phone	122	81,3
TV	134	89,3
Motorbike	122	81,3
Residential house	142	94,7
Electricity	149	99,3
Pipe water	117	78,0

	Poor <1 US\$/cap/day	Average 1-2 US\$/cap/day	Wealthy >2 US\$/cap/day	Total
Landless	33 (80.5%)	6 (14.6%)	2 (4.9%)	41 (100%)
Land-scarce	12 (36.4%)	13 (39.4%)	8 (24.2%)	33 (100%)
Owning > 1 ha	7 (11.1%)	23 (36.5%)	33 (52.4%)	63 (100%)
Total	52 (38.0%)	42 (30.7%)	43 (31.4%)	137 (100%)

Migration



HOUSEHOLD SURVEY:

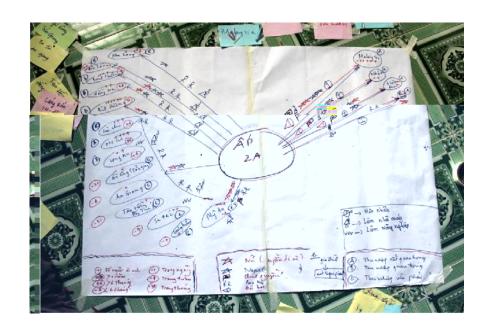
- Out-migration on the increase
- ➤ 168 persons with out-migration experience in 90 households; half of them 'current migrants'
- More men (106) than women (62)/ Singles aged 20-30 migrate most
- Migration mostly for work (118), but also for education (30)
- ➤ Poor, landless and land-scarce more prone to migrate (for economic reasons)/ Popular destinations: Ho Chi Minh, Binh Duoung, Cao Lanh, Long An Province
- International migration not common; some local women married Taiwanese men
- Not just out-migration, also in-migration (mostly farmers)





PRA and expert interviews:

- Recent trend: rural-urban migrants no longer need to go far away to find industrial work. Industrial zones established within province
- Out-migration will further increase in the future, especially among the landless, because of increasing pressure on local livelihoods, increasing demand for industrial labour and changing livelihood preferences of the youth





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- 1. Impact of climate variability on livelihood & food security (including short-term coping strategies)
- 2. Longer-term adaptation to climate change
- 3. Impact of climate variability on migration







Linkages (1): climate → livelihood & food security

- ➤ Climatic hazards: flooding and extreme weather events
- Livelihood impact: crops affected; damage to houses
- Impact of changing rainfall patterns on food production and household economy: Majority answered 'yes', but most in the category 'only a little' (HHS)
- ➤ However, for poor (<1US\$), landless and land-scarce households, the proportion experiencing a more severe impacts was much higher (40-50%)
- ➤ Impact mostly involves damage to crops yields
- Short-term coping with flooding and extreme weather events: borrowing from neighbors and relatives, physical adjustments to houses, change in food habits, <u>migration</u> and reliance on alternative income sources



Linkages (2): Adaptation to climate variability/change

Findings from survey: Livelihood diversification and increased migration, but no strong evidence that this is climate-induced

➤ Findings from PRA:

- Raising houses to protect against floods
- Migration during flood season (less demand for labour)
- •Handicrafts during flood season (same reason)
- •Saving schemes to insure against bad harvests (farmers) and to bridge periods with less work (labourers)
- Protection of local 'cajeput' forest, which protects against heavy wind and storms

➤ Expert interviews:

- More investment in education to become less dependent on climate
- •Swimming lessons for children to reduce flood casualties
- •Community based transport and emergency system in flood season
- There were no indications that climate change provides new opportunities for people in the research area



Linkages (3): climate → migration

- ➤ 'As usual', the causes of migration are mostly economic (not enough income, unemployment, not satisfied with livelihood, better opportunities in cities).
- ➤ Changing rainfall patters and flood regimes contribute to the economic pressures that urge people to migrate, but the question is: how important are these factors?
- ➤ Some indications of climate-induced migration:
 - •Poor, landless and land-scarce experience more climate impact and are more prone to migrate
 - Migration propensities are higher in flood season
 - •Migration is a coping strategy adopted by households when faced with climate-induced food shortages.
 - •Government-planned resettlement of household in response to flooding
- ➤ Some indications against climate-induced migration:
 - •Rainfall and flood changes in research area do not seem dramatic; crop yields are increasing; the research area is experiencing rapid development
 - •Increased population pressure on land, mechanization of agriculture (reduced labour demand), increased education levels, increased demand for industrial workers and changing livelihood preferences seem to be more important causes of out-migration.

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Policy reflections

- ➤ Flooding in Mekong Delta highly dependent on water retention (dams) upstream → Coordination between countries important to reduce extremes in flood regime
- ➤ To be prepared for an unsecure future, adaptive capacity of households in the Mekong Delta needs to be improved. Migration can be part of that.
- ➤ Viet Nam is a country in economic transition: migration from rural to urban areas; and from farm work to industrial jobs is part of this process.
- ➤ Not everyone profits from economic growth and development. The poor and landless are most vulnerable and need extra support.
- ➤ Objective should NOT be to stop migration
- ➤ Objective should be to enhance the contribution of migration to the livelihoods of migrants themselves and relatives at home
 - •Assist people to be prepared (education, skills) for non-farm livelihoods outside their home area
 - Protect their rights at destination



Thank you for your attention!

corendea@ehs.unu.edu
www.ehs.unu.edu
http://wheretherainfalls.org