



CANTHO
UNIVERSITY

Workshop

“Climate Change & Human Mobility in the Mekong Delta: Strategies & Policies for Adaptation ”

IOM & CTU; Cantho city, 4-5 June 2012

PERCEPTION & ADAPTIVE CAPACITY TO CLIMATE CHANGE OF COASTAL COMMUNITY IN THE MEKONG DELTA OF VIETNAM

Le Xuan Sinh

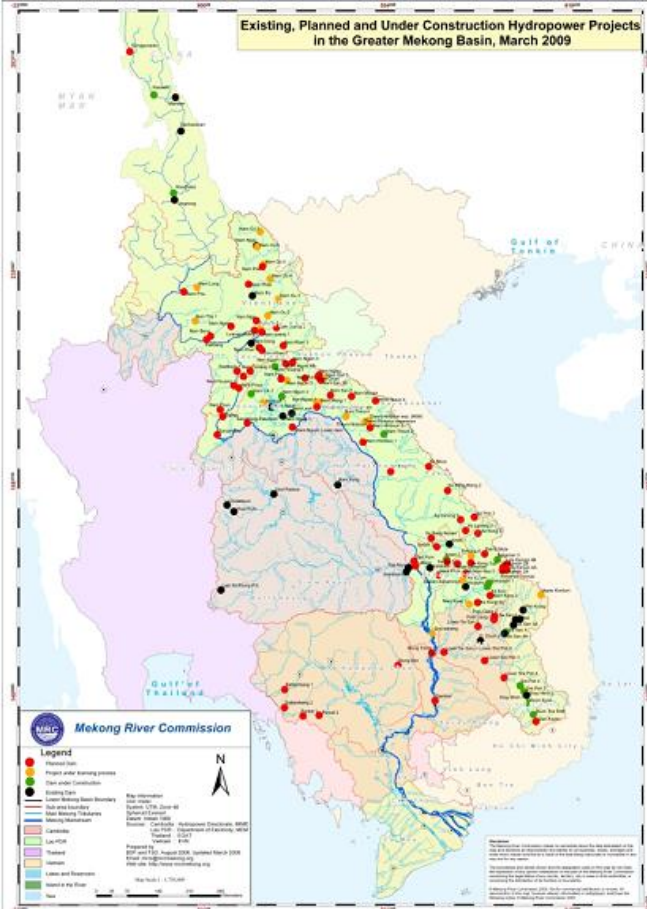
Cantho University

lsxinh@ctu.edu.vn

CONTENTS

1. Introduction
2. Methodology
3. Livelihoods & clean water
4. Perception on CC & impacts
5. Adaptive capacity to climate change
6. Conclusions

Existing, Planned and Under Construction Hydropower Projects in the Greater Mekong Basin, March 2009



Global average temperature in °centigrade



INTRODUCTION

1. **Global Issues** => Double-bad lucks (Sea level rise & Floods from upstream).
2. **Objectives** => Perception & adaptation of coastal community.



METHODOLOGY



Table 1: Prediction of area will be flooded by CC in 10 southern provinces of Vietnam - 2050

(Source: <http://www.btv.org.vn/chuyen-de/khoa-hoc-cong-nghe/tac-dong-bien-doi-khi-hau-o-cac-tinh-dbscl>)

Province	Total area (km ²)	Flooded area (km ²)	% flooded
Ben Tre (1)	2.257	1.131	50.1
Soc Trang (4)	3.259	1.425	43.7
Kien Giang (9)	6.224	1.757	28.2
Total MKD	29.827	11.474	38.5

1. Data collection (10/2010-04/2011):

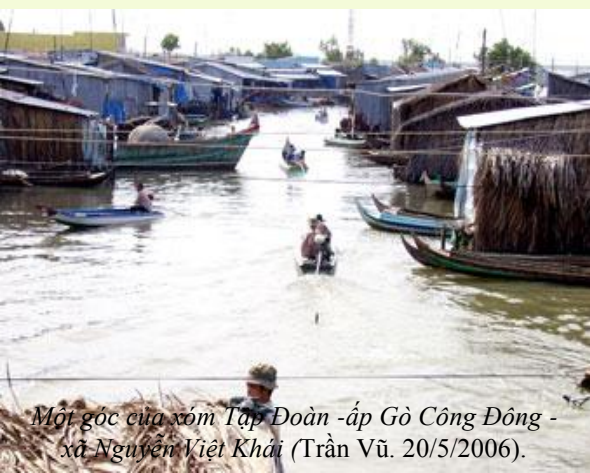
- Reviews of secondary data;
- Interviews of 220 households;
- Interviews of 68 local officers.

2. Data analysis: => Description



Three sub-regions by sea level rise

(Nguyen Ngoc Tran, 2009)



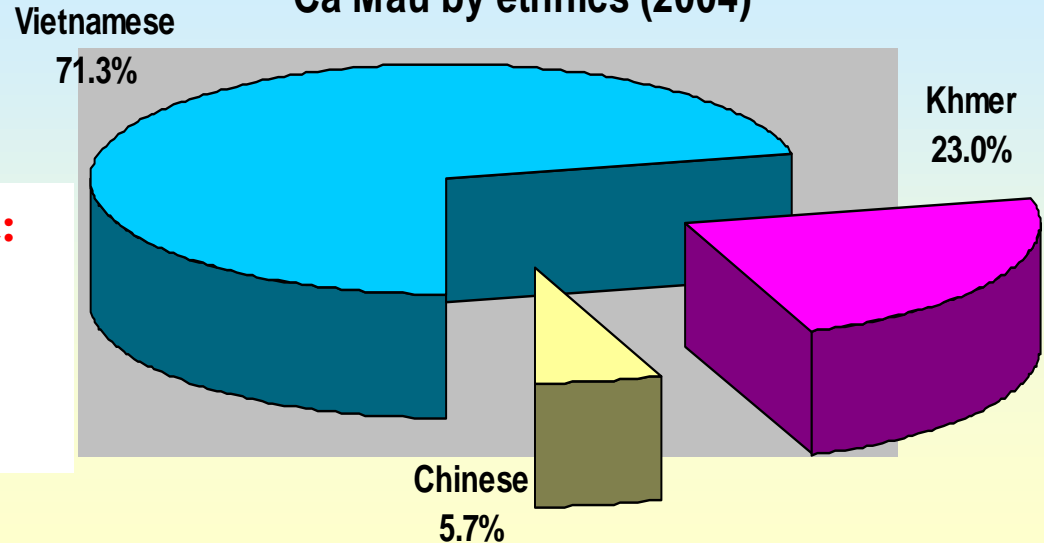
Một góc của xóm Tập Đoàn -ấp Gò Công Đông -
xã Nguyễn Huệ Khải (Trần Vũ. 20/5/2006).

MAIN RESULTS

Resources - Livelihoods – Environment:

- *More on positive issues*
- *Less on negative impacts*
- *Poverty rate: 25% (whole delta: 18%)*

Coastal population in Tra Vinh, Soc Trang, Bac Lieu & Ca Mau by ethnics (2004)



Occupation of the coastal households

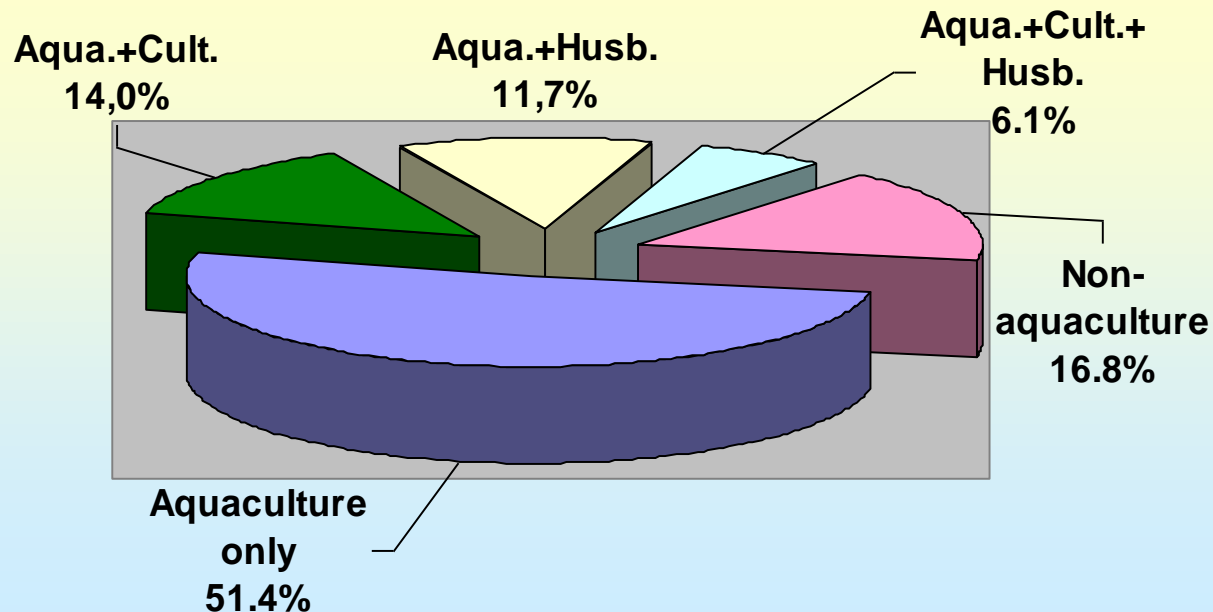
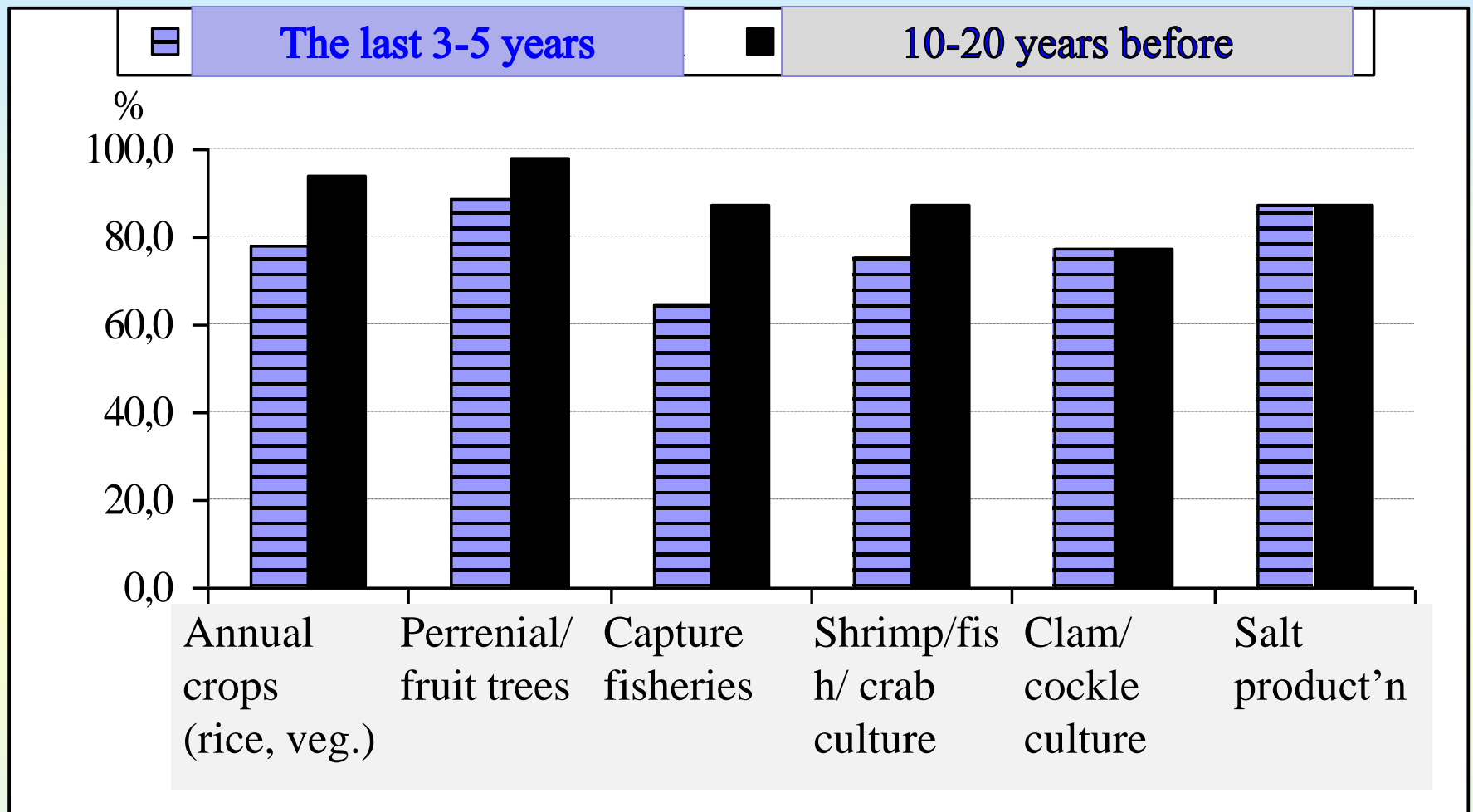


Table 2: Production cost, Gross income & Net income from economic activities of coastal households in Ben Tre

=> Aquaculture & Fisheries are important sources for income & jobs;
=> Non-farm/paid works are also good alternatives.

Activities	Cost	Gross-Income	Net Income
+ Mean	97.6	190.0	93.4
(Mil.VND/HH/year)	± 114.1	± 196.3	± 198.1
<i>Components (%)</i>	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>
1. Rice/cash crops	9.5	10.2	10.0
2. Cultured shrimp/fish/crab	33.9	24.3	14.6
3. Hard clam/blood cockle	23.0	25.3	25.1
4. Captured fisheries	21.5	18.0	13.7
5. Salt production	7.8	16.5	20.5
6. Other activities	4.3	5.7	16.0



Successful rate of occupations of coastal households

=> has been decreased overtime, except clam/blood cockle.

Table 3: Water for livings, Quality and monthly costs

=> Not good supply of clean water for livings (sources, time & cost).

Description	General (N=217)	Cooking (N=217)	Cleaning (N=217)
1. Rainy water (%)	30.7	51.9	16.4
2. Pipe water (%)	3.6	4.2	5.1
3. Well water (%)	39.0	39.0	68.0
4. Canal/River (%)	7.7	5.0	10.6
5. Rainy water + well water (%)	17.4	-	-
6. Rainy water + Pipe water (%)	1.6	-	-
Quality of water:			
+ <i>Bad</i> (%)	15.8	18.9	18.8
+ <i>Normal</i> (%)	41.6	43.7	45.6
+ <i>Good</i> (%)	42.6	37.4	35.6
B. No. of months to buy water (mo.)		6.8 ± 2.9	
C. Cost for water (mil.VND/month)		0.2 ± 0.3	

Table 4: Sources of information & Recognition on Climate change (%)

=> Mainly via mass media, especially visual/readable methods;

=> Most have recognized the CC & impacts.

Description	Residents (N=217)	Officers (N=68)
1. Tivi/radio	95.2	97.1
2. Books/Magazines/Newspapers	2.9	79.4
3. Meeting/Workshops	6.3	57.4
4. Trainings/Education	4.3	50.0
5. Internet	0.5	64.7
6. Others	17.3	5.9
No recognition on CC	12.9	1.5
Recognition of some signals of CC	81.6	94.0
Do not know	5.5	4.5

Table 5: Trend & Causes of Climate change

=> Weather & CC becomes worse;

=> Mainly caused by natural events & human's activities.

Description	Residents (N=217)	Officials (N=68)
1. Trend of past 10 -20 years to Now	1.4 ± 0.2	1.1 ± 0.4
+ Worse (%)	71.0	92.5
+ Normal (%)	13.1	3.0
+ Better (%)	15.9	4.5
2. Trend from Now to next 10 - 20 years	1.2 ± 0.6	1.1 ± 0.4
+ Worse (%)	85.6	94.0
+ Normal (%)	5.9	3.0
+ Worse (%)	8.5	3.0
3. Causes of CC (Multiple choices)		
+ Do not know	15.8	-
+ Nature	36.7	72.1
+ Human	58.1	85.3
+ Others (industrialization, ice,...)	1.0	1.5

Table 6: Concerns on the impacts of CC (%)

⇒ Most have concerns on CC;

⇒ Mainly on production, income, food, jobs, clean water & health;

⇒ Infrastructures is more considered by officers.

Description	Residents (N=217)	Officers (N=68)
A. No matter/ Do not concern	5.1	3.1
B. Care/ Concern	94.9	96.9
1. Irrigation & sea dykes	6.0	62.5
2. Transportation	6.5	29.7
3. Production/livelihoods (\$, food, jobs)	94.9	93.8
4. Clean water for livings	56.5	64.1
5. Health	78.2	73.4
6. Living/social activities	44.9	43.8
7. Non-farm activities & others	0.9	3.1

Table 7: Impacts of CC on the vulnerable groups

=> Poor, elderly persons and children are strongly affected.

=> Pregnant women are also highly considered.

Affected group	Residents			Officers		
	N	Mean	±	N	Mean	±
1. Poor	209	4.0	1.2	68	4.0	1.2
2. Women	205	2.5	1.2	67	3.0	1.2
3. Elderly/old pers.	206	3.2	1.6	67	3.7	1.2
4. Children	194	3.4	1.5	67	3.4	1.2
5. Disable persons	34	2.5	1.6	14	3.2	1.8

* Affected level: 1=very little/weak;; 5=very much/strong

Table 8: Impacts of CC on different aspects of community

=> Food, jobs, income & clean water are strongly considered;

=> Living activities depend on infrastructures.

Affected aspect	Residents			Officers		
	N	Tr.b	\pm	N	Tr.b	\pm
1. Income	214	3.4	1.7	67	3.8	1.6
2. Jobs	206	3.9	1.6	66	3.9	1.7
3. Food	210	4.1	1.9	66	4.1	1.7
4. Clean water	187	3.8	1.8	65	3.8	1.6
5. Health	189	3.1	1.6	65	3.2	1.4
6. Living activities	79	3.5	1.9	61	3.5	1.8

* Affected level: 1=very little/weak;; 5=very much/strong

Table 9: Impacts of CC on Occupations

=> Aquaculture & Rice are strongly affected (both groups);
=> Officers also believed that CC becomes bad for Fruit trees.

Occupation	Residents			Officers		
	N	Mean	±	N	Mean	±
1. Rice/cash crops	82	3.2	1.3	54	3.8	1.5
2. Fruit tress	17	2.3	1.3	46	3.3	1.4
3. Captured fisheries	28	3.1	1.7	39	3.2	1.3
4. Cultured shr./fish/crab	89	4.0	1.2	53	3.9	1.3
5. Hard clam/blood cockle	9	2.7	1.3	-	-	-
6. Salt production	15	3.5	1.5	21	3.2	1.5

* Affected level: 1=very little/weak;; 5=very much/strong

Table 10: Priority given to occupations for adaptation to CC

=> Aquaculture, Rice & Fisheries are the first prioritized livelihoods;

=> Some non-farm activities = Good alternatives;

=> Some differences between residents & officers.

Occupation	Residents			Officers		
	N	Mean	±	N	Mean	±
1. Rice/ Cash crops	96	4.3	1.3	51	3.8	1.4
2. Fruit tress	19	3.0	1.3	45	2.8	1.6
3. Capture fisheries	106	4.5	1.0	51	3.8	1.4
4. Shrimp/Fish/Crab	109	4.4	1.0	60	4.5	1.2
5. Clam/ blood cockle	32	4.1	1.6	42	2.9	1.5
6. Salt production	18	3.7	1.8	24	2.4	1.5
7. Other livelihoods	29	3.9	1.4	9	2.7	1.5

* Level of priority: 0=not at all; 1=very little; ...; 5=very much

Table 11: Possibility to change of occupations to adapt to CC

=> Some differences between residents & officers;

=> Aquaculture & Fisheries can be considerably changed at medium level;

=> Rice & Salt production become more difficult to be changed by the farmers.

Occupation	Residents			Officers		
	N	Mean	\pm	N	Mean	\pm
1. Rice/ Cash crops	83	1.0	0.9	37	2.0	0.9
2. Fruit tress	5	1.8	0.5	31	1.7	1.0
3. Capture fisheries	8	1.7	0.8	46	2.2	0.9
4. Shrimp/Fish/Crab	10	1.5	0.7	-	-	-
5. Clam/ blood cockle	22	1.6	0.8	34	1.7	0.8
6. Salt production	15	1.1	0.6	22	1.6	1.0

* Possibility to change: 0=Can not change; 1=Difficult to change;
 2=Can change at medium level; 3=Easy to change.

ADVANTAGES FOR ADAPTATION TO CC:

(in % of farmers and officers)

- 1- Experience is good for 43.8% of famers and 23.4% of officers.
- 2- Availability of labors (29.4% & 19.2%).
- 3- Better education => knowledge & planning (36.2% of officers).
- 4- Supports from government (75.4% & 45.7%) (capital, technology).
- 5- Improved infrastructures (3.0% & 32.6%). **Farmers aren't satisfied.**
- 6- Natural conditions and rich aquatic resources (3.4% & 17.4%).

Depletion of aquatic resources.

DISADVANTAGES FOR ADAPTATION TO CC:

(in % of farmers and officers)

- 1- Lack of capital, trained labors & information (69.7% and 76.1%).
- 2- Lack of techniques those are appropriate & efficient for production at local community (8.7% & 21.2%).
- 3- Increasing production costs lead to higher risk in production (100.0%).
- 4- Local people is passive & wait for government in reaction to CC.
- 5- Abnormal weather causes more/new/serious diseases (35.9% & 23.7%).
- 6- Supportive policies are not good/suitable enough (25.2% & 10.5%).

Major suggestions in production for better adaptation to CC

in the case of increasing costs & risks

(in % of farmers and % of officers)

- 1- Appropriate planning with CC issues (60.9% & 20.9%);
 - 2- Better/improved perception of community (6.3% & 65.2%);
 - 3- Gov't => Infrastructures, capital & technology (57.8% & 30.2%);
 - 4- Trainings/skills for responsible local officers (32.6% of officers);
 - 5- Study/provision of new/appropriate species (20.9% of officers);
 - 6- Environmental protection + Mangroves (14.1% & 37.0%).
- => Conduct the economic evaluation of impacts;**
- => Analyze the Benefit:Cost of adaptation (sub-sector & location) using value chain approach.**



Thank you very much for your attention & comments!

