



Gembloux Agro-Bio Tech
Université de Liège



Wallonie - Bruxelles
International.be

International Conference 2019

“Vietnam’s Economy – 50 years of integration and development”

***Sustainable and innovative agriculture in Vietnam:
past, present and future.***

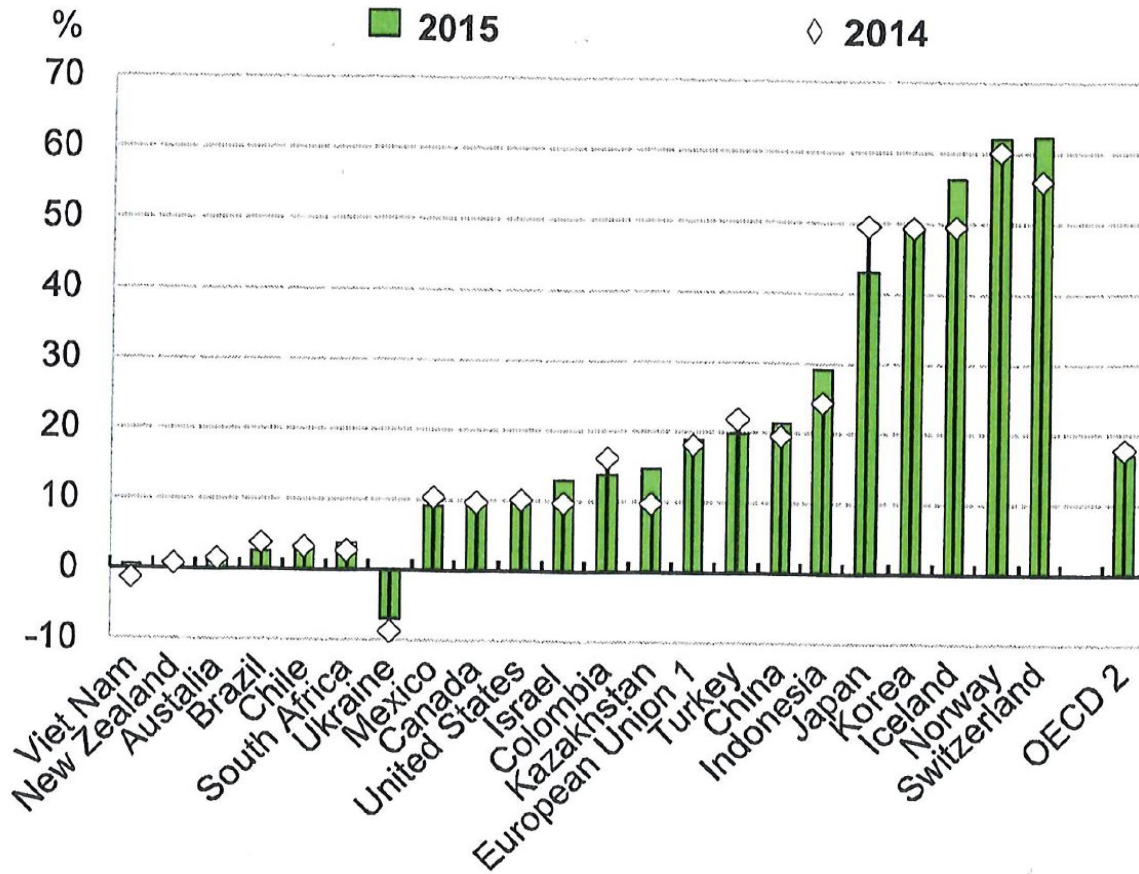
Philippe LEBAILLY (GxABT-ULg)

Hué, 12th April 2019



Is the vietnamese Government support the agriculture sector?

Producer Support Estimate by country, 2014 and 2015 percentage of gross farm receipts



« For OECD countries as a whole, support has roughly halved over the past 30 years and now amounts to 17% of gross farm receipts. At the same time, average support levels in the emerging economies have increased from very low levels to approach the OECD average ».

« For the 50 countries covered, on average 68 % of support to farmers was provided in the form of market price support. These measures distort production decisions and can significantly distort markets and trade ».



Are the vietnamese farmers
innovative?

Introduction of the VAC system in Vietnam

Brief Background

Centrally planned
& Subsidized System

All Production materials
(land) have been belonging
to collective ownership

“Doi moi”
Reform
Policy

1986

Market oriented
System

Vietnamese economy

Allocation of land
to peasants

Overuse chemical fertilizers
Waste agricultural by-products

Introduction of the VAC system

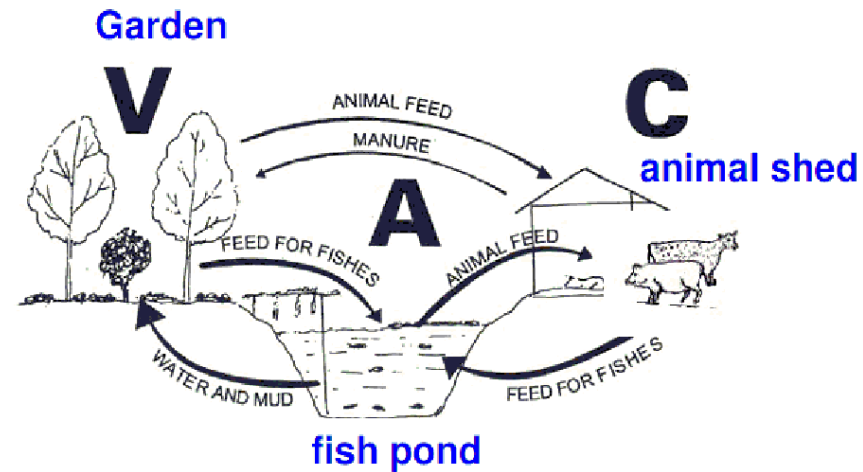
❖ What is VAC?

VAC is acronym for med from three Vietnamese words:

“**Vuon**” : garden or orchard ,

“**Ao**” : fish pond,

“**Chuong**” : animal shed (stable pigsty, poultry shed)



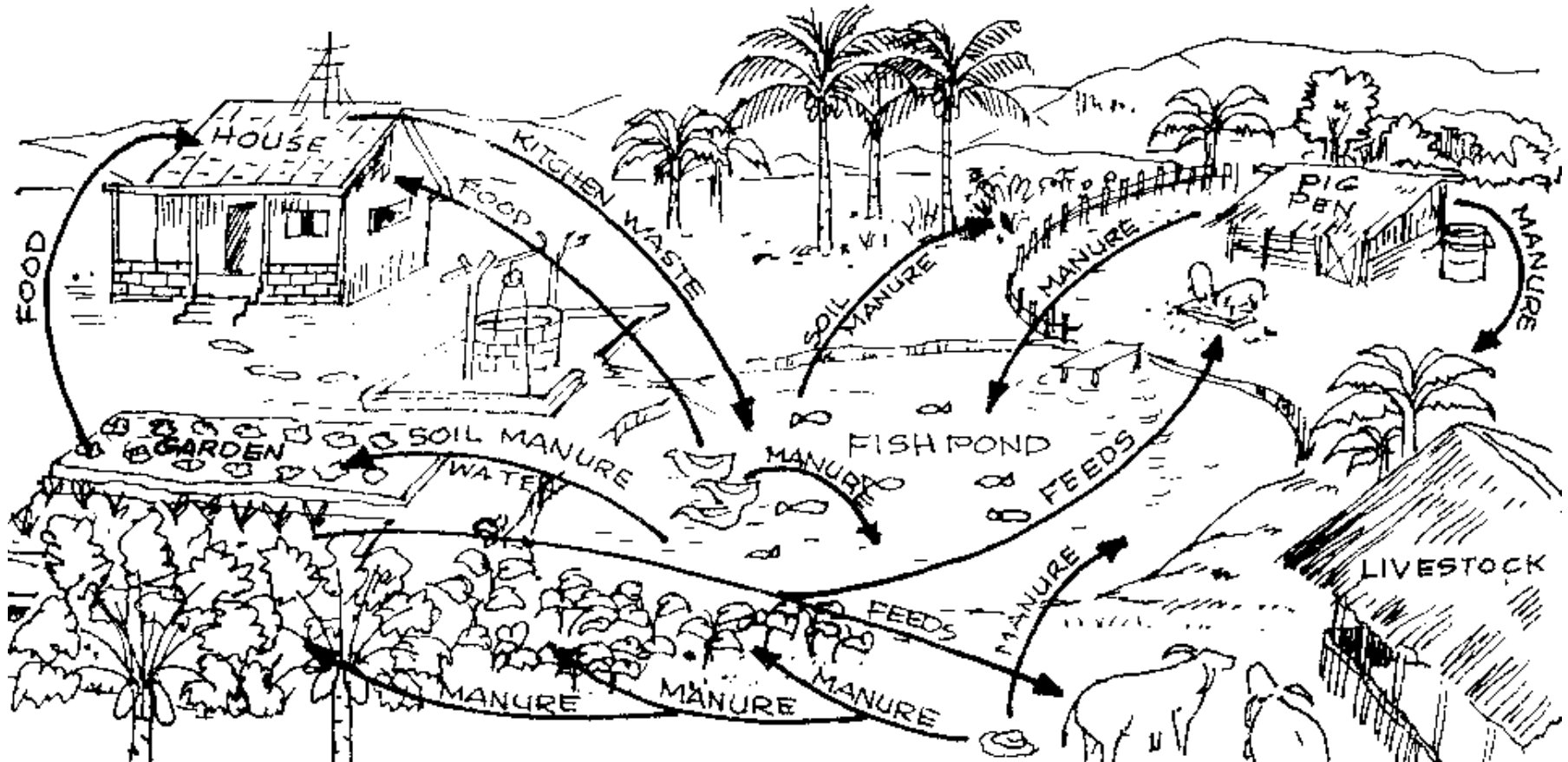
VAC refers to a form of small-scale bio-intensive farming

Where: Gardening (**V**), Fish rearing (**A**) & Animal husbandry (**C**) **are closely integrated**

Introduction of the VAC system

The interactional relationship in VAC System:

- Some products from the garden (V) is used to feed the fish (A)
- Fish pond (A) provides water, mud and slime to irrigate and fertilizer the garden (V)
- Some the fish (A) generally the cast of fishes, can be used as nutritious animal feed (C)
- Animal manure (C) is used for plant (V) and fish food (A)

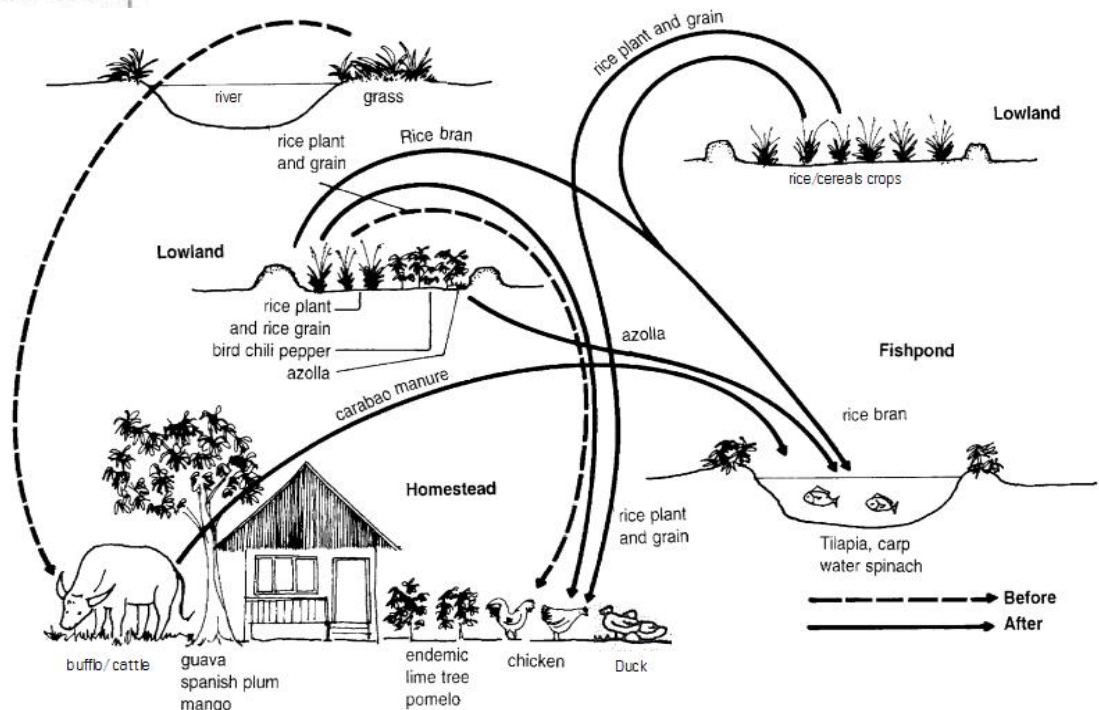
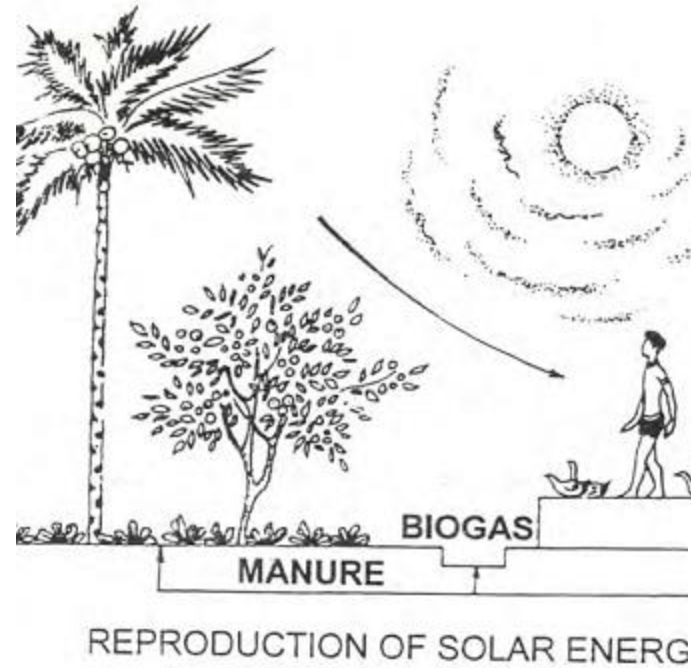


Introduction of the VAC system in HaiDuong (cont.,)

❖ People role in the VAC system

VAC system makes optimal use of land, water & solar energy to **achieve high economic efficiency with low capital investment/inputs.**

And people make **interactional effects to VAC system:** They consume VAC products; Add outside factors (fertilizer for plantation, food for breeding, ...) to this system and control the process of water treatment of VAC simultaneity



Evolution of the VAC system

Timeline:

- Although almost forgotten, these techniques have been brought back in the 80s through the collaboration of a local NGO (VACVINA) and Australian permaculturist (Rosemary Morrow) as a solution to issues that was plaguing Vietnamese people throughout the country at that time.
- In the 90s, local governments started to pay attention to the permaculture ethics and principles that were attached to the redeployment of VAC practices. The Vietnamese government was also promoting VAC and permaculture in schools.
- In 2000s, many provinces has targeted to develop VAC farming as the “Blue Revolution” for food security and rural development.

Evolution of the VAC system (cont.,)

Changes in the VAC system over time:

- In the VAC system, the livestock, fruit orchard and the pond are usually co-located. The homestead constituting of livestock, fruit crops, vegetables and other trees. Over the time, the VAC's scale and location have changed:

- **Scale: From small to large**
- **Location: From the residence to rice field area.**

New VAC





Article

Efficiency of Different Integrated Agriculture Aquaculture Systems in the Red River Delta of Vietnam

Nguyen Van Huong ^{1,2,*}, Tran Huu Cuong ¹, Tran Thi Nang Thu ³ and Philippe Lebailly ²

¹ Faculty of Accounting and Business Management, Vietnam National University of Agriculture, Hanoi, Vietnam; trancuong@vnua.edu.vn

² Economics & Rural Development, Gembloux Agro-Bio Tech, University of Liège, Gembloux 5030, Belgium; philippe.lebailly@uliege.be

³ Faculty of Fisheries, Vietnam National University of Agriculture, Hanoi, Vietnam; trannangthu@vnua.edu.vn

* Correspondence: nghuonghd76@gmail.com

Total sources of on-farm income at fish farms yearly in Hai Duong province. Unit: 1000 VND¹

	FS System		AF System		New VAC System		Traditional VAC System	
	(N = 51)	%	(N = 65)	%	(N = 35)	%	(N = 16)	%
<i>Rice crop</i>	5265.4	64	8171.3	62	6818.2	46	13,729.1	76
<i>Vegetable crop</i>	-	-	1380.4	11	1053.3	7	2189.6	12
<i>Fruit crops</i>	2901.8	36	3544.0	27	6958.0	47	2238.3	12
Total crops	8167.1	11	13,095.8	13	14,829.5	26	18,157.1	31
<i>Livestock husbandry</i>	4904.6	7	34,162.4	34	8077.9	14	29,243.0	50
<i>Fish production</i>	58,922.8	82	53,594.1	53	35,024.8	60	10,997.6	19
Total	71,994.5	100.0	100,852.3	100.0	57,932.1	100.0	58,397.7	100.0

Source: survey, 2015–2016.

¹ Exchange rate: 1 USD = 22.500 VND. ² The cost is excluded the family labour. ³ The fixed cost is calculated based on depreciation over 10 years. Source: survey, 2015–2016.



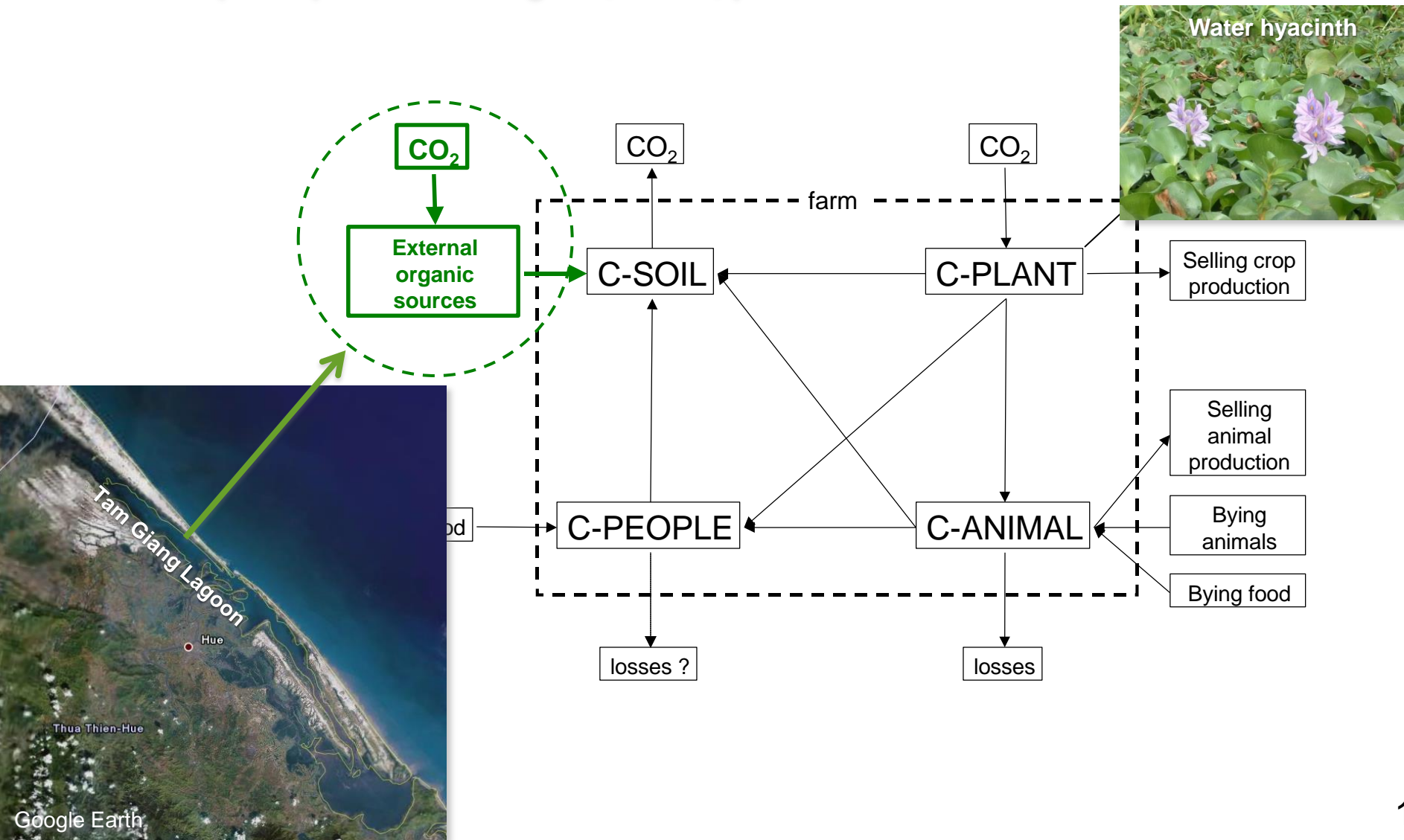
Hue University of Agriculture and Forestry
 National Institute for Soils and Fertilizers (VAAS)
 UCLouvainLN – Gembloux ABT



Improvement of living standards of rural households in the coastal sandy area of Central Vietnam through an integrated approach of farming systems

Importing exogeneous organic matter

Aquatic plants from lagoon, rivers, ponds





harvest and transport of aquatic plants



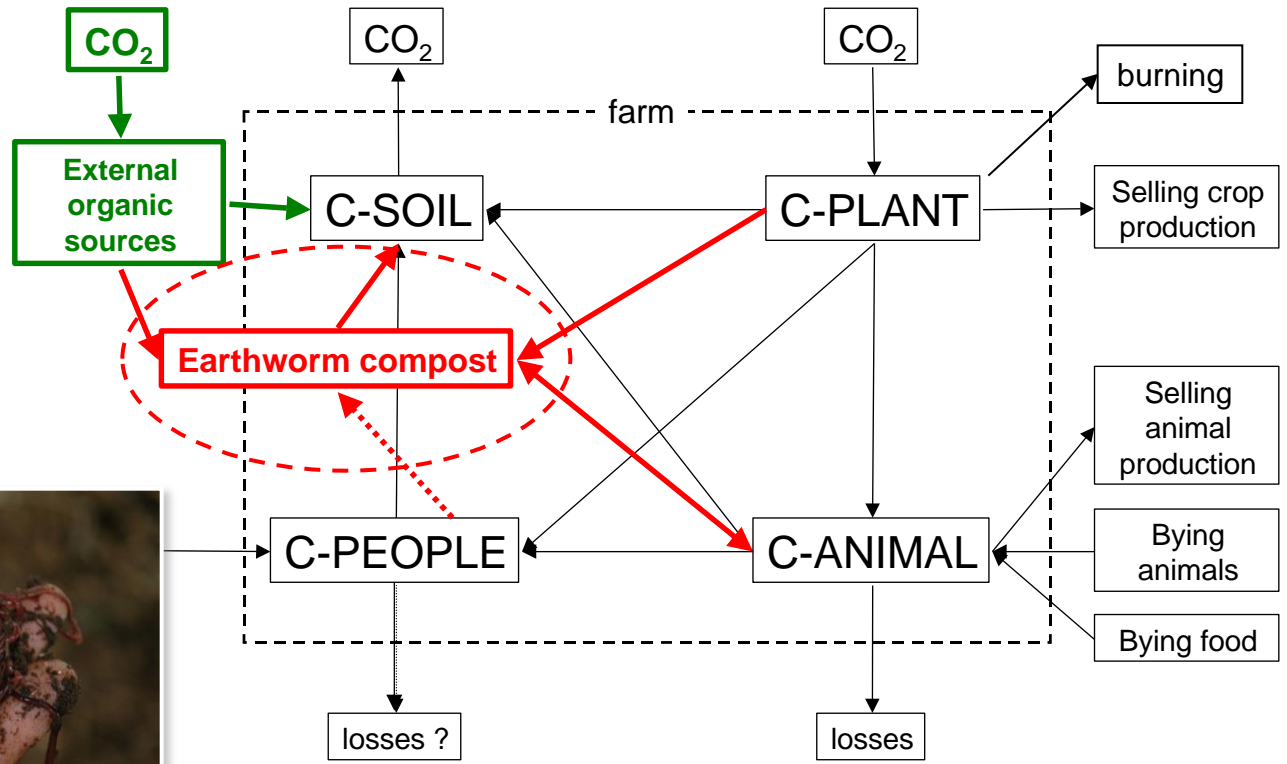
Amending the soils

Improving the quality of organic amendments

Composting

Vermicomposting → compost

→ earthworms



Testing vermicompost substrates
e.g. pig manure + water hyacinth



with students and farmers

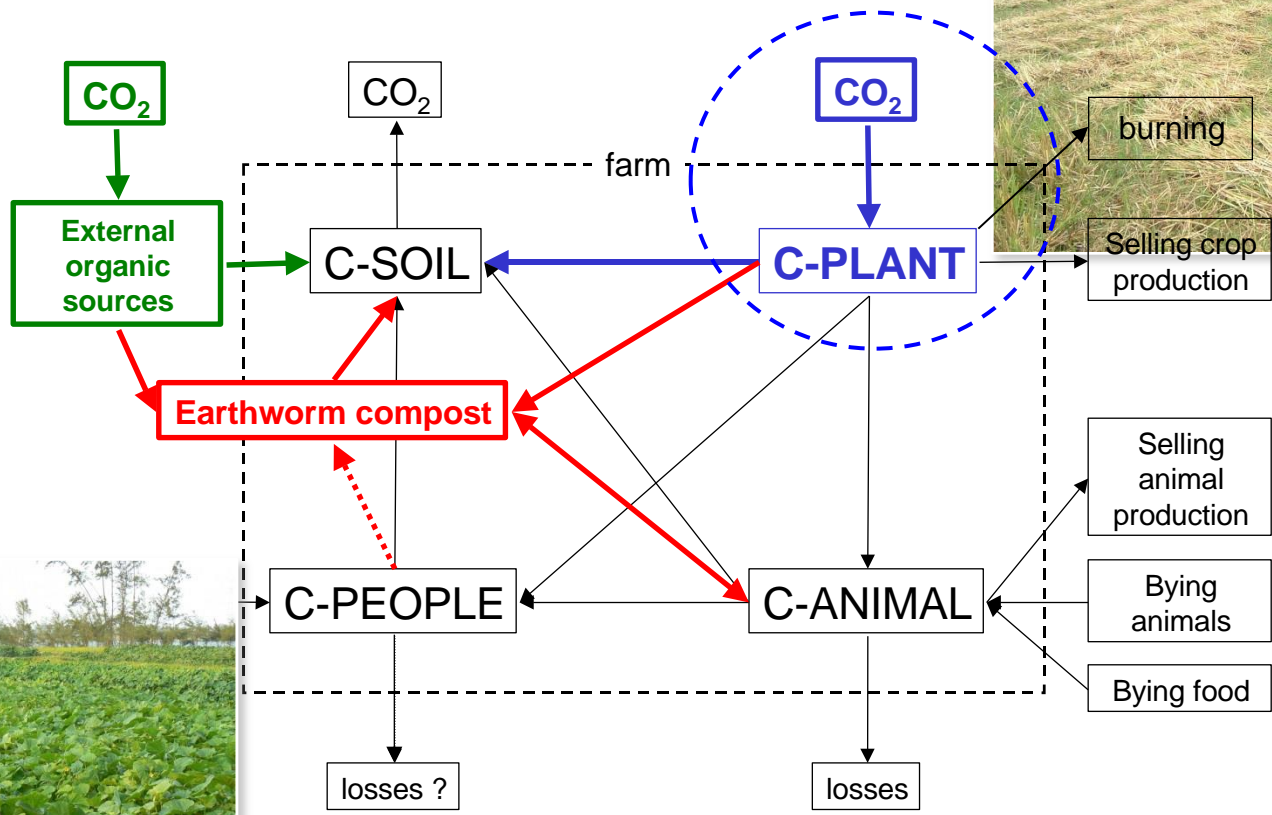
at the farm
in the lab

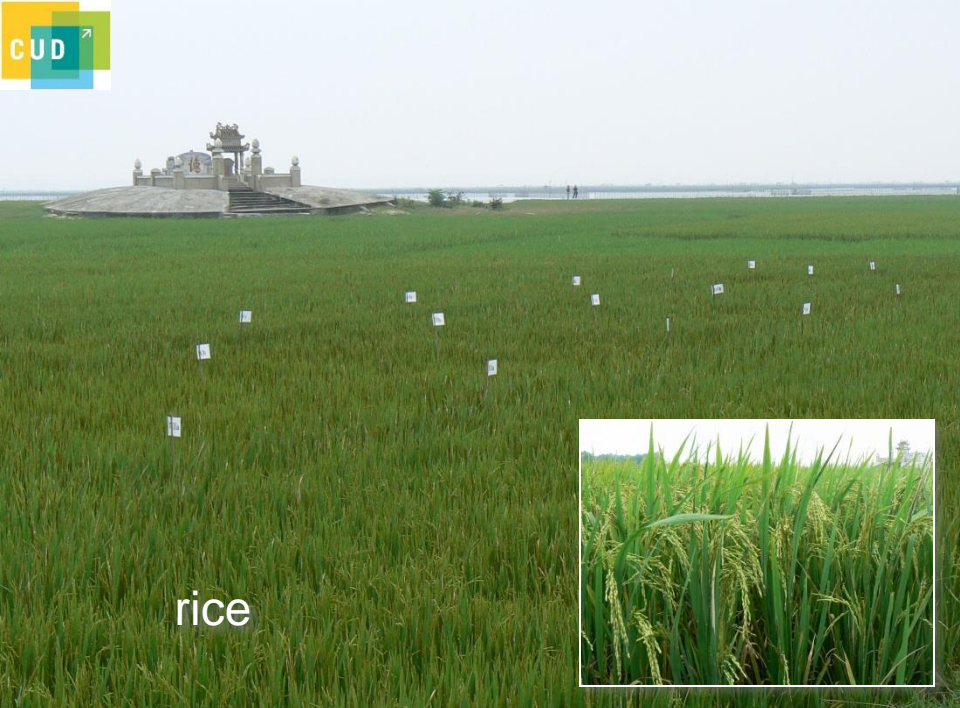




Feeding fish and poultry with earthworms

Optimizing cropping systems & management of crop residues





Coopération universitaire au développement
VIETNAM - BELGIQUE
Aidé par le PROJET - PIC



Market gardening with shading roof

Typical farm



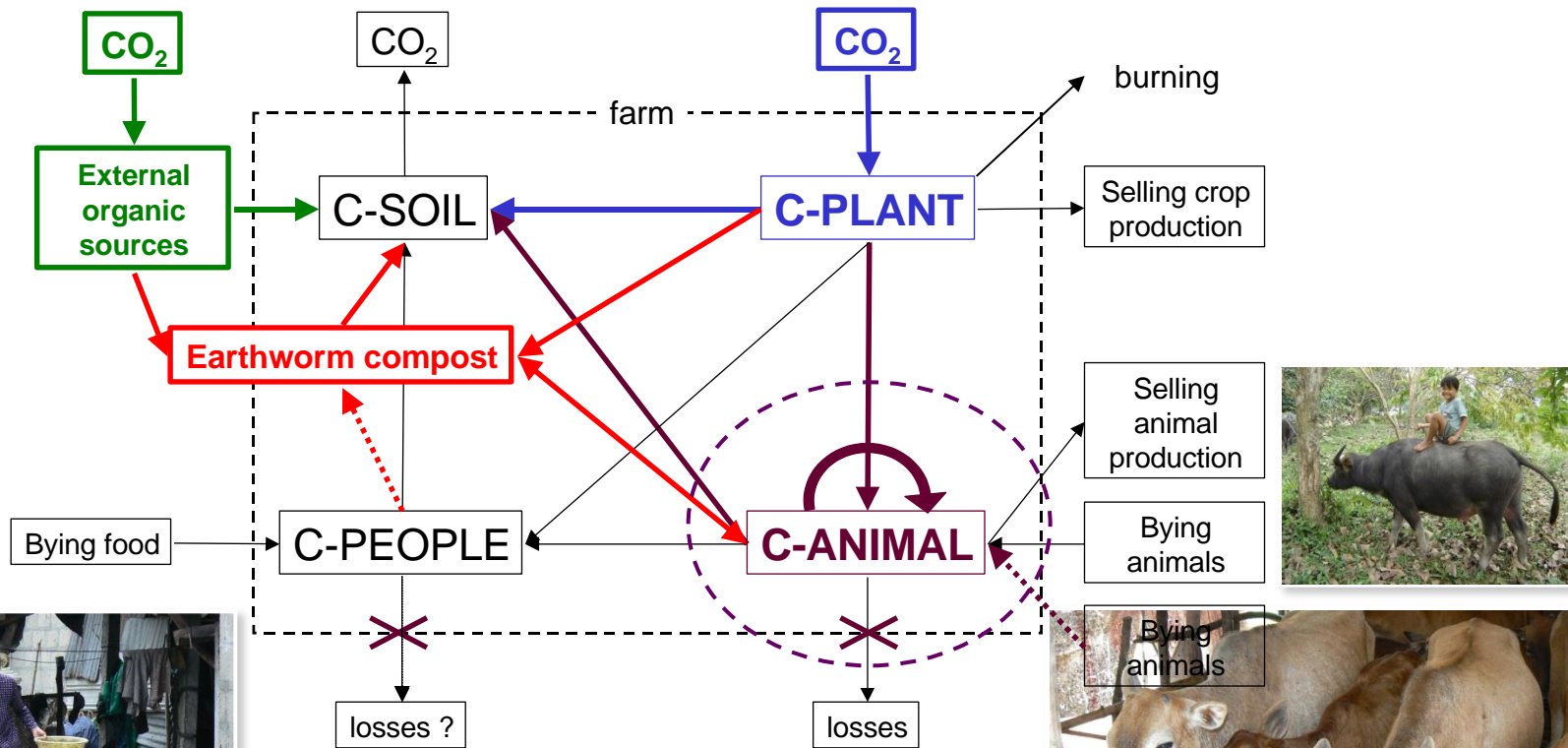
Home gardens

Agroforestry



Optimizing animal breeding

Food sources and quality, crossbreeding, animal health, excrement processing and use...



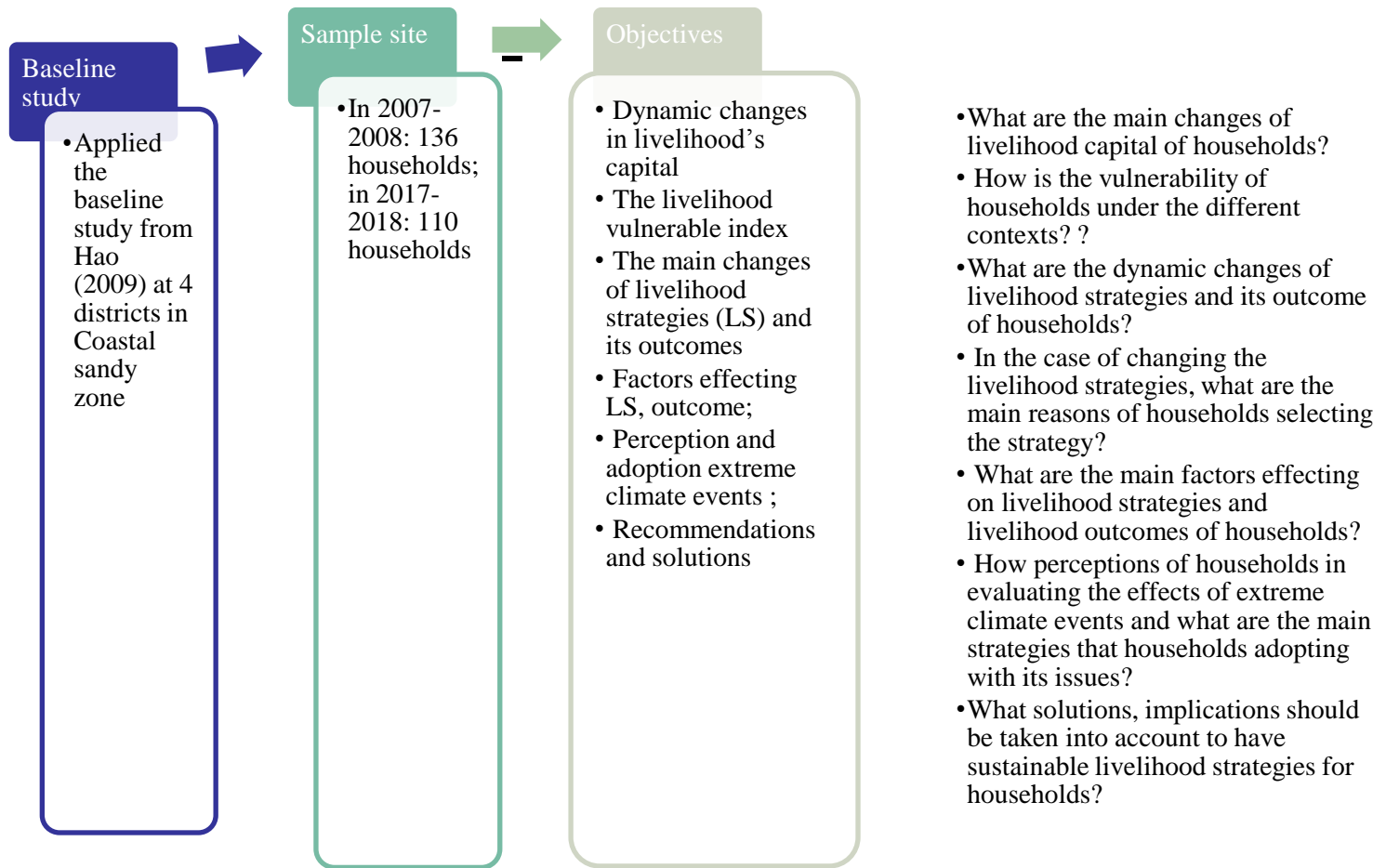
THE CHANGES OF LIVELIHOOD IN COASTAL
SANDY ZONE IN THUA THIEN HUE PROVINCE,
VIETNAM

PHD STUDENT: Minh DAO DUY

PROMOTER: Prof. Philippe LEBAILLY

CO-PROMOTER: Assoc. Prof. Hao NGUYEN
DANG

1. Background of the study



The evolution of LVI and LVI-IPCC

Table.4. Vulnerability index of 5 type capitals

	2007-2008	2017-2018
Human capital	0.365	0.313
Natural capital	0.194	0.225
Social capital	0.081	0.075
Physical capital	0.139	0.048
Financial capital	0.405	0.273
LVI	0.244	0.214

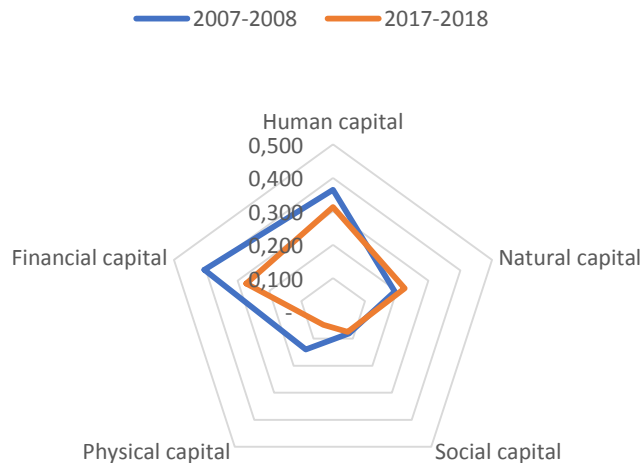


Figure 2. Comparative of five 5 sources of capitals

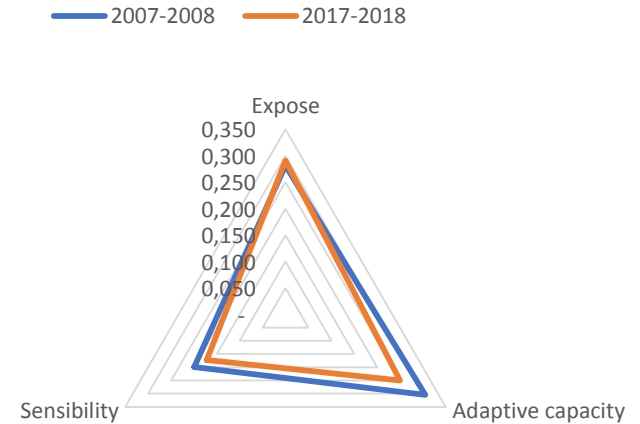


Figure 3. Vulnerable triangle of LVI – IPCC factors

Conclusions

1. Research finds show the less vulnerability of the household from 0.244 to 0.214
2. The livelihood outcome shown sing the approach of the positive increase in 10 year;
3. The income from remittance contributed the important role in the total income of the household;
4. The findings shown the fluctuated of income contribution into the income from crop and animal income sources;
5. It shown the new trend of livelihood strategy by combing to work in the industrial zone at the hometown and work in agricultural sector.
6. Some young labor chosen to work industrial zone at home time than migrate to other province because the stable salary (around 4 million/month) and cheaper cost of living than develop cities.
7. The value of crop contribution tend to increase with a stable trend while the contribution of animal and shown a complicated dimension. This result caused by the risk of market and disease.
8. The transform of raising aquaculture with mono model with only shrimp into the mixed model with shrimp-fish - crab can reduce the risk from water polluted but it reduced the contribution of total income.



College of Economics, Hue University





Xin Cam On
Thank you
Merci



Gembloux Agro-Bio Tech
Université de Liège