

# Exploring and identifying transformative learning for sustainability to climate adaption in Can Tho in Mekong Delta of Vietnam

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The Mekong Delta is critically important to Vietnam's national agricultural production and dominates the largest agriculture and aquaculture production in Vietnam and facing big challenges of climate change and sustainable development. With rising sea levels near low-lying land/area at the mouth of the delta and the (current) increase in rainfall, average temperatures, number of extreme weather events, and saltwater intrusion, the Mekong Delta is considered as one of the world's three most vulnerable deltas (together with the Nile Delta in Egypt and the Ganges Delta in Bangladesh) affected by sea level. Moreover, excessive use of chemical pesticides and fertilizers as well as the waste of too much water in production has led an agriculture in the Mekong Delta to an unsustainable development. In this context, local people have great concerns on agricultural transformation to sustainability to climate adaptation and really want to have opportunities to approach different forms of social learning to understand the climate-water-food-energy and social justice nexus and to develop their competence in adapting and overcoming big challenges of climate change and sustainable development. *The need for transformative learning and knowledge sharing for agricultural sustainability amongst various stakeholders is increasingly recognized in the Mekong Delta and transformative social learning for sustainability (T-learning) seems to become a one of the most important dynamics of transformation to sustainability in Mekong Delta.*



Fig.1: Challenges of climate change  
In the Mekong Delta, Vietnam



Fig 2: Learning interaction of farmer for applying  
sustainable livelihood models in Can Tho, Vietnam

## 1. Selection of study site

To explore and identify the role and potentials of T-learning for sustainability to climate adaptation in the Mekong Delta, since 2016 Can Tho city has been chosen as a case study site of T-learning for in Me Kong Delta, because in this site the nexus of climate change – water – food – energy - social justice is clearly presented, insights into opportunities and challenges of T-learning for sustainability can be provided and basic kinds of T- learning (instrumental learning, communicative learning and emancipatory learning) can be observed. In this study, My Khanh commune has been selected as main location for researching T-learning because of three main reasons. Firstly, as a typical rural community of the suburban district in Can Tho city, My Khanh is in the process of transforming agricultural mechanics

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Open, in-depth interviews (n=9) were used with 9 respondents (n=9) divided three categories including T-learner (n=3), T-stakeholder (n=3) and T-teacher (n=3). The aim of these interview is to explore various topic related to the VACB model, climate-related agricultural production, climate risks and their impacts, farmers capacities to deal with environmental changes (climate, market, policies) and planned adaptation measures in VACB model.

Focus workshop discussion was organized to explore the concerns and perceptions of learners, stakeholders, and teachers on the difficulties and challenges of implementing and developing sustainable livelihood models (VACB) in response to climate change. Moreover, the workshop also discussed to understand the sharing and reflection of different stakeholders on the role and impact of community learning on the implementation and sustainable development of adaptive livelihood models to climate change in My Khanh commune.

Each face-to-face interview took between 45 minutes to an 1 hour. After collecting and classifying information and data from the in-depth interviews, a focus workshop discussion and a semi-structure interview questionnaire was designed and implemented. The majority of questions was closed however, we included a few open-questions to allow interviewees to explain in greater detail. The important criteria was used to select the interview respondent, that has had the VACB model and they had at least 5 years of experience in crop or livestock production. Each interview took between 30 minutes and 45 minutes. The interview captured the following four topics: characterization of the household, interactions between climate change and sustainable livelihood, sustainable livelihood models, and the roles of community learning.

Data from the interviews were collected, synthesized, and analyzed by using SPSS 22. Descriptive statistics were used to present farmer's perceptions of changes in climate risks, adaptation practices, and sources of information, frames of reference, indicators of critical reflection, and indicators of transformative learning. This analysis was helpful in understanding a sense of typology and outcomes of transformative learning as well as the germ cells supporting emerging transformative learning in the My Khanh commune.

### **3. New findings on T-learning for sustainability in My Khanh commune in Can Tho**

#### **3.1. Local people's critical reflection on climate change, environmental issues in community and the VACB**

100% of respondents said that they had got information about climate change via television channels. Meanwhile, 76.1% (n=35) indicated that discussing with neighbors and friends, informal talking and sharing had increased their interests in media coverage of climate change and significantly changed their knowledge and awareness of climate change that had impacted their farm production. Mr. Man, 57-year-old farmer said: "Climate change has happened, I can feel. Last ten years ago, our community did not have salinity in the river, but over the last two years, the salinity often comes in the summer season. This has created several difficulties for watering my orchards. In addition, I have grown the orchards for a long time, however in recent year, the temperature and humidity are changing and result in more serious diseases". Another farmer added: " I think that climate change has seriously impacted on our farm production. We have suffered severe summers and several climate extreme events in long time scale which makes us difficultly have real efficiency adaptation measures. Therefore, we

really need to be provided or guided more on suitable adaptation strategies for now and the future (a VACB farmer, Nhon Thanh village).

Local farmer also expressed their real concerns on the environmental issues in community. Some attendees agreed that environmental degradation had become an emerging danger threatening their life and source of water supply – mostly this came from the waterways crossing their village. Mrs. Minh said: “In the past, we could drink water directly from rivers or pools while working in the rice fields. But recently, as you see, the rivers are so dirty and heavily contaminated that we have to stop using, even for irrigation,” Mr. Hai, the commune official being responsible for agricultural affairs, added that the main sources of pollution basically come from industrial and agricultural activities. “While local authorities are trying to stop those emitters, local farmers are now exploiting the ground water for household use and irrigation.”

All most of respondents (91.3%, n=42), who adopted the VACB model, considered the VACB as the best way to adapt to the context of climate change. By answering a question on benefits of the VACB model a woman said: “Diversifying income sources is critical strategy to ensure the sustainable livelihood for my family. That is why I have applied the VACB model. This model was encouraged from Can Tho university and local authority”. Another farmer, Mr. Binh answered that “in the past, only one kind of fruit was grown in my garden, orange for example. As market conditions are now fluctuating and climate has been very uncertainty, more than five kinds of fruit are growing. The disease and insect have increased due to the changes in temperature and humidity, therefore I must have some adjustments in my garden. I have learnt these strategies from Mr. Hai Thanh”

### **3.2. The most popular and interested forms and way of T-learning in the VACB model**

Our study explored that there were three main types of learning: self-learning and self-thinking, community learning, and training. Every local farmer has learnt via self-learning such as self-reading books, newspapers or technical handbooks, self-watching television, self-listening to radio, self-enrolling in training courses, and self-reflecting through personal experience. Several farmers have learnt via community learning such as their own daily activities, neighbours, community meetings, extension club meetings, successful pilot demonstrations, and mass media (commune loudspeakers). Whereas some have learnt via training from university and institutes such as training courses, visiting tours, and support from extension workers or researchers. These learning ways/channels play an important role in enhancing local farmers' capacity to respond to climate change impacts and fluctuating market conditions. Informal or self-learning is a significant way in which farmers work towards solutions to their concerns. Formal learning (courses from university and institutes) has provided the basic and science knowledge for key farmers who are the most important actors for expanding learning in the communities.

Several farmers indicated that they learned benefits only after the adaptation practice in the question adopted. Results from group workshop discussion showed that they often learned economic benefits of the practice leading to their adoption initially. During applying VACB model and transformative learning process, 78.3% (n=36) of respondents knew and

understood that environmental benefits are critical for ensuring the economic benefits in a long term. However, currently, environmental benefits were not usually the only factor driving the change. Economic benefits (87.0%, n=40) and market price (82.6%, n=38) were considered the primary reasons for the change in practices, while the environmental benefits were secondary.

Notably, experiential learning is considered one of the best way for approaching and applying the VACB model. Mostly, respondents (69.8%, n=33) reported that participating in traditional training courses had only a modest effect on their views of the changes in effective applying effectively adaptation practices. Great changes were noted through self-learning or sharing experiences and knowledge among learners (called scientist farmers) than among teachers or stakeholders and especially through their experiential learning in which “knowledge (technical, communicative and emancipatory) is created through the transformation of experience” (Kolb, 1984, p. 38). To accept, maintain and develop the VACB as a sustainable livelihood instrument, local famers in My Khanh have to carry out an experiential learning cycle with the four-stages such as Experiencing-Critically Reflecting the VACB- Choosing to apply an appreciated the VACB model-Actively implement the VACB (Figure 4).

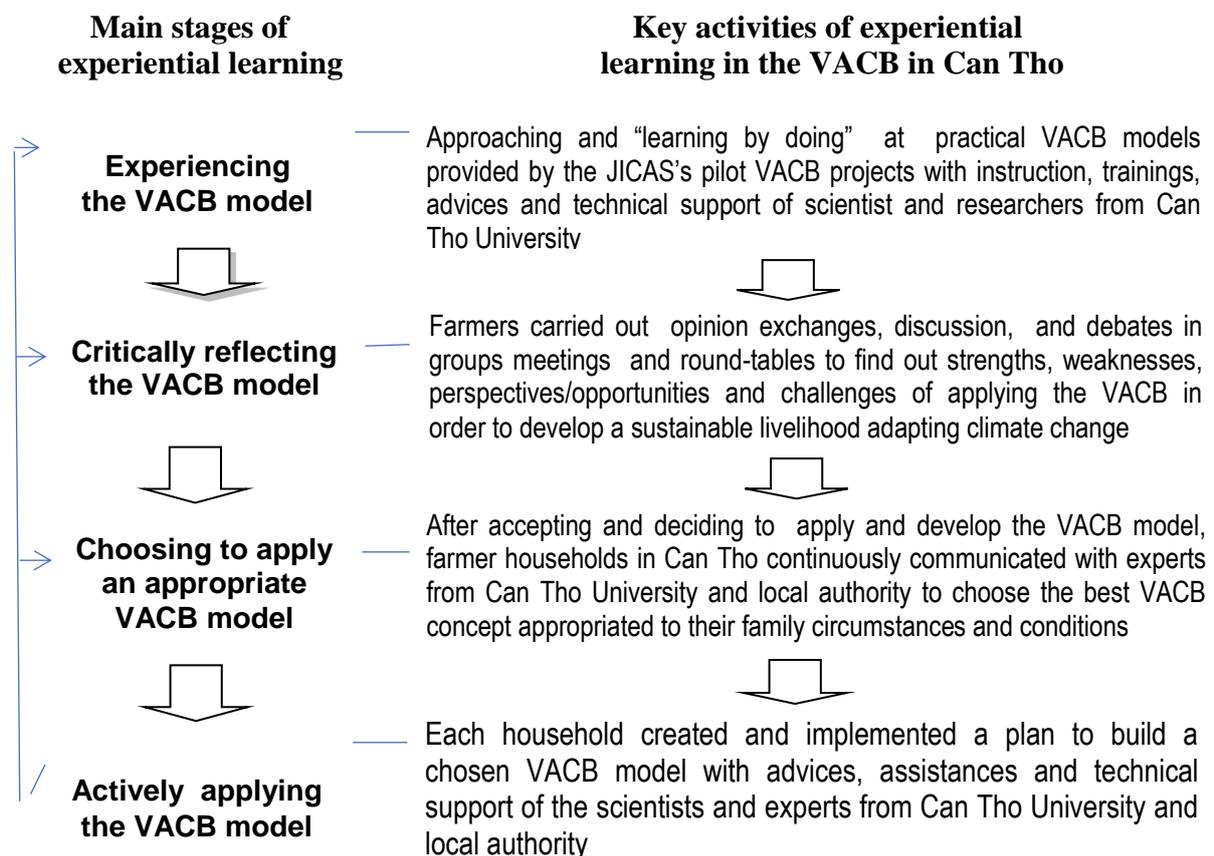


Figure 4: Experiential learning cycle to approach and apply the VACB in Can Tho

### 3.3. The emergence and convergence of processes and types of T- learning in the VACB model in Can Tho

After a long-time observation and investigation of adopting and accessing the VACB model of farmers in My Khanh, we explored that main processes and types of T- learning such as

instrumental learning, communicative learning and emancipatory learning have been emerged and converged in the VACB model in Can Tho.

Instrumental learning can be observed by looking into the shifts in the ways of thinking, doing, and re-organizing the production activities of farmers in the community as well as into their changes of knowledge and understanding of climate change that effect on farmer's awareness of urgency about climate change and adaptation. Instrumental learning outcomes of VACB farmers in the community involved obtaining local farmers' change in knowledge and awareness of climate change. The majority of VACB farmers (82.6%, n=38) said that their involvement in the extension clubs, the focus group discussions in the training courses or visiting good VACB practices had positive impact on their knowledge and awareness of climate change impacts on their production activities. The local extension workers and teachers (from Can Tho University) raised questions and we gained a better understanding and knowledge about how temperatures and other things are expected to change. It definitely raised my knowledge level (a VACB farmer, Truong Thuan village).

Commune communicative learning has been taken place simultaneously with instrumental learning in My Khanh commune. 76.1% respondents (n=35) said that discussing with neighbors and friends, informal talking and sharing had increased their interests in media coverage of climate change and significantly changed their knowledge and awareness of climate change that had impacted their farm production. Particularly, 69.8% (n=33) said community learning via group discussions, sharing, informal talking, and individual farm visits predominantly dealt with specific benefits associated with the adaptation practice identified. By emphasizing significance and values of communicative learning, VACB farmers in My Khanh said *"All of us together watch and share what we do. People keep track of what one do and observe what is working. We are also visiting demonstrations to a certain extent looking for better ways to do things. If any person in the community has something (new), every person in the community will watch, and discuss together wherever we can such as on the road, in coffee shops, wedding parties, local markets, etc., (a VACB farmer, Truong Thuan A village). Most of my knowledge would gain from a couple of neighbors, and I follow their experiences when they have a successful demonstration. (A VABC farmer, Truong Tho 2 village).*

Notably, emancipatory learning in the My Khanh community was implemented through creating networks and learning interactions. There were several rounds to set up the emancipatory learning among individuals in the community. The first round of emancipatory learning has been created for creating networks and learning interactions among different stakeholders (the scientists of Can Tho University, the researchers of the CDM project and JIRCAS project and local authority and the key informants in the community and the VACB farmers) in order to understand and explore the research contexts and matters of concern in the region. The second round emerged is formed during the first round of learning interactions. In the second round the networks of teachers and stakeholders, including key farmers in My Khanh community (so-called "scientist farmers") who were trained and self-studied to be the trainer of VACB model for other farmers has been formed to facilitate VACB farmers to understand and to find the appropriate solutions to climate change adaptation. The third round of emancipatory learning has been created through the interactions among "scientist farmers" and agriculturalists (teachers) and is critical to improve

and increase new knowledge as well as build trust together. The solutions were co-developed including stabilizing the market, training how to use the finance efficiently, supporting climate change adaptation policies through adaptation strategies and finance, learning community via cooperative and collaborative production (inputs and outputs – market issues). *“I think that emancipatory learning should emphasize dialogues among “scientist farmers”, agricultural extension workers, and facilitators (from universities) for transforming knowledge, techniques, and experience in VACB model and how to enable social learning for farmers and other stakeholders”*(An agricultural extension workers, My Khanh commune).

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