

Capacity building and services to assist local farmers to improve aquaculture management in Vietnam

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Abstract

Since 2000, we can observe important changes in traditional production systems of coastal communes in North Vietnam. Faced with relatively low incomes, rice farms converted the surfaces available to them in aquaculture ponds. These are difficult to reverse conversions were carried out by farmers seeking to improve family income in areas of relatively low rice productivity. These changes have had a significant impact on the revenues generated in coastal villages with changes in work organization and the upstream business opportunities for feed plants. This type of family aquaculture has grown rapidly to meet domestic demand but also to export markets.

Faced with these voluntary initiatives, the Vietnamese authorities have had difficulties to coach and support these new producers in sustainable development schemes for fresh water or brackish water aquaculture. In addition, climate change could significantly affect these areas particularly exposed to rising sea waters.

Moreover, aquaculture producers respond to logic relatively isolated individual entrepreneurs. They deliver their products to many collectors who engage strong competition. This is particularly true at the sub-sectors supplying the domestic market.

The Vietnamese marketing system for aquaculture products is generally considered competitive and efficient. It involves different stakeholders (collectors, dealers, wholesalers and processors) that develop often difficult short-term strategies to understand and which do not permit a good traceability of production.

At producer level, understanding of market mechanisms is very limited which makes it difficult to decision support for investments and marketing. Meanwhile, producers are exposed to high price volatility. Small producers oriented towards the local market are particularly exposed and vulnerable to this issue and it is important to understand the strategies that can be implemented to ensure against this form of risk.

In this context, this paper describes two initiatives conducted in the Northern area of Vietnam to strengthen the sustainability of clam's farms and supported by researchers from Vietnam National University of Agriculture.

Keywords: cost monitoring, risk analysis, aquaculture economics

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Context

Vietnam since 2009 is part of the group of middle income countries (Middle Income Countries abbreviated MIC) producing an annual gross national income (GNI) per capita of 1,020 US dollars in 2009 and 1,960 US dollars in 2013. If the crisis global economic, national economic restructuring and macroeconomic stabilization measures have slowed GDP growth to 5% in 2012, Vietnam remains one of the most dynamic economies in the world.

While Vietnam has managed to maintain GDP growth during the economic downturn, the impact of the crisis on the livelihoods and well-being of many people was not less severe especially for agricultural sector and rural areas. A decline in employment in export-oriented sectors and in craft villages has forced many migrant workers to return home. Unstable jobs and low incomes have impacted many households, especially as the prices for food and other basic needs remained high.

In Vietnam, agriculture still plays a very important role and this sector still accounts for 20% of gross domestic product (GDP) and about 70% of the population work in agriculture. The development of agricultural production to ensure national food security is a key factor in stabilizing the socio-economic situation in rural areas and to respond to a strong demand for a growing urban population.

Rural development and poverty reduction are of strategic importance for the Government of Vietnam and occupy a prominent place in the development of Plan Socioeconomic 2015-2020 (ESDP). This plan is based on the idea that only an approach that supports improving agricultural and non-agricultural income and overall productivity areas rural country may slow down rural-urban migration. A reduction in the poverty rate by 2% a year is defined as objective.

The improvement of human resources is considered an pre requisite for further economic development; thus over 50% of the population active should be formed by 2020. The environmental protection and the improvement of conditions are now part of life priorities. Reducing vulnerability to natural hazards is one the central themes of the ESDP.

In terms of agricultural production, the most important crop is rice, practiced in flooded or dry rice, 75% of cultivated land. Beside this, the breeding plays a role increasingly important. In Vietnam, the structure of animal production in agricultural GDP is about 30% and has seen its importance to increase in recent years. The objective of the Vietnamese government is to increase the value of livestock at 38% in 2015 and 42% in 2020. In animal production, aquaculture has grown considerably in recent years with an average growth rate estimated at over 17% since 2000. Aquaculture has produced over 3.1 million tons of products in 2012 more than the catches by fishing (2.6 million tons). There are now about 500,000 Vietnam aquaculture operations with more than one million hectares for breeding a doubling compared to 2000. The Vietnamese aquaculture sector generated a value of estimated production in 2011 to US \$ 3 billion and employs more than 1.6 million of labor units including a majority of women. An important part of aquaculture production is exported and thus helps to rebalance the trade balance deficit.

Climate change and natural disasters are one of the most important challenges for sustained growth and development in Vietnam over the next decades. The Vietnam is one of countries most vulnerable to climate change globally.

It is the sixth country in the world in terms of the proportion of the population living in exposed coastal areas. In municipalities vulnerable to rising waters, hundreds of thousands of people depend wholly or partly of aquaculture resources. In addition, these areas include poor communities. Fishing and aquaculture are the sectors essential to absorb the pockets of poverty in these densely populated coastal towns in the North and Central and South Vietnam.

Finally, aquaculture is essential to meet future demand for aquaculture products in both the domestic market and for export. The potential linked to the capture of fisheries resources is limited today due to widespread overfishing for several years in the country.

Problems to solve

The traditional production systems of rice monopoly in coastal municipalities in Vietnam have been significantly changed since the 2000s. Faced with relatively low incomes, many rice farms and salt farms have converted the surfaces to aquaculture production. This type of family aquaculture has grown rapidly to meet the domestic demand but also to export markets. Faced with these voluntary initiatives, the Vietnamese authorities have supervised and supported these new producers in sustainable patterns of development both for aquaculture in freshwater, brackish, and salt water.

Problems linked to poor distribution of the value generated in the sector, to the benefit of producers and volatility remain critical issues in terms of agricultural policy, but over which the developing researcher has little control. The central themes for support for family aquaculture in coastal areas to reduce poverty are linked in our priority to better control production costs and an appropriate environmental management.

This new form of aquaculture is affected by pollution related to the use of agro-chemicals, the water quality, floods, pollution from areas of habitat and climate change. These threats particularly affect the poorest farmers who depend exclusively on aquaculture production for survival. It is therefore important for targeted follow-up to properly analyze the situation from a statement of relevant technical and economic data.

Another crucial point is to consider risks. Risks are often more embedded in agricultural production and business sector because those largely depend on external factors. Agricultural risks are basically categorized into five types, such as: production risk, marketing risk, financial risk, legal risk and human one (N.Musser & F.Partrick, 2002). Risks occurred in agriculture can sometimes cause large losses for farmers and traders. However, it is often that driven by commercialization purpose, many farmers are trying to spend more investment for their farms, without adequate agricultural risk mitigation strategies. As consequences, many rural households have been suffered more costly and risky agricultural production (Minot & Hill, 2007).

Ability to bear and survive from aquatic production risk varies among different farms. It is usually that farmers have various options in managing agricultural risks that they apply in different contexts with specific risks occurred. It could be that household's risk management strategies have certain impacts on minimizing their vulnerability as well as improving their resilience towards risks (Carola R. Engle, 2010).

The comparative approach will be here at the start of a privileged group analysis which should allow less efficient producers to improve their position on the basis of what is practiced by the most efficient group. So far, aquaculture mainly family farmers have expanded their activities from their own experience, a form of empiricism drawn from the example of neighboring and information gleaned over the contact. In fact, aquaculture producers respond to logic relatively isolated individual entrepreneurs. Aquaculture remains a relatively new field in Vietnam for which the lessons of experience are to be organized in a more rigorous scientific framework to better manage exploitations. On particularly ensure that women are largely involved in activities related to aquaculture are not excluded in trade and actions to build capacity so far as generally observed in government policies (too) male-oriented.

The intervention strategy is defined in order to meet the needs of aquaculture family farms located in coastal areas in Vietnam by a field project likely to improve their living conditions. Several prior visits and the experience gained in previous projects both by Belgian participants that by our Vietnamese partners led to diagnose that producers are relatively delivered to themselves and very demanding for a targeted framework that allows both reduce production costs and improve the environmental management of their operations. The objective of this project is to increase the sustainability of aquaculture family systems of the coastal zone in order to improve the economic situation of local farming families. Special care should remove constraints that limit women's access to inputs, training and market access. The ambition is to involve producers themselves including women key players in the industry in finding solutions adapted to local physical conditions and socio-economic context of Vietnam. This project will increase the capacity of extension services in Vietnam in the field of farm management for and by the producers themselves. This represents a long-term guarantee of sustainability for increased performance because the beneficiaries are involved and proactive in analyzing production costs.

Research action oriented to clam's farms

Hard clam *Meratrix lyrata* is a species of high value mollusk kept and harvested in “culture based catching beds” in coastal Vietnam. It distributes mostly along southern coastal lines and recently migrated to coastal areas in northern and central Vietnam.

Considered one of the most important wild resources from the East Sea of Vietnam with distribution areas of 10.000 – 11.500 ha, mollusk production in Vietnam is estimated at 300,000-350,000 tons a year, including 50,000-60,000 tons of hard clams.

Similar to aquaculture farming, clam farming in the coastal provinces of Vietnam has notably developed since the last decade. It generated high income, improve socio-economic development for many local communities (WA and CA, 2009). However, many clam raising farms were facing difficulties of farm management, disease control, markets and systems of quality control (AD, 2011; Tuan, 2005).

In addition, climate change is likely to affect significantly these areas, particularly exposed to sea-level rise. Thus, we decide to focus on this specific farms and we study about the real situation of cost monitoring in the clam raising farms in the Northern area of Vietnam and suggest some recommendation to promote the benefits for farmers.

First study group experience

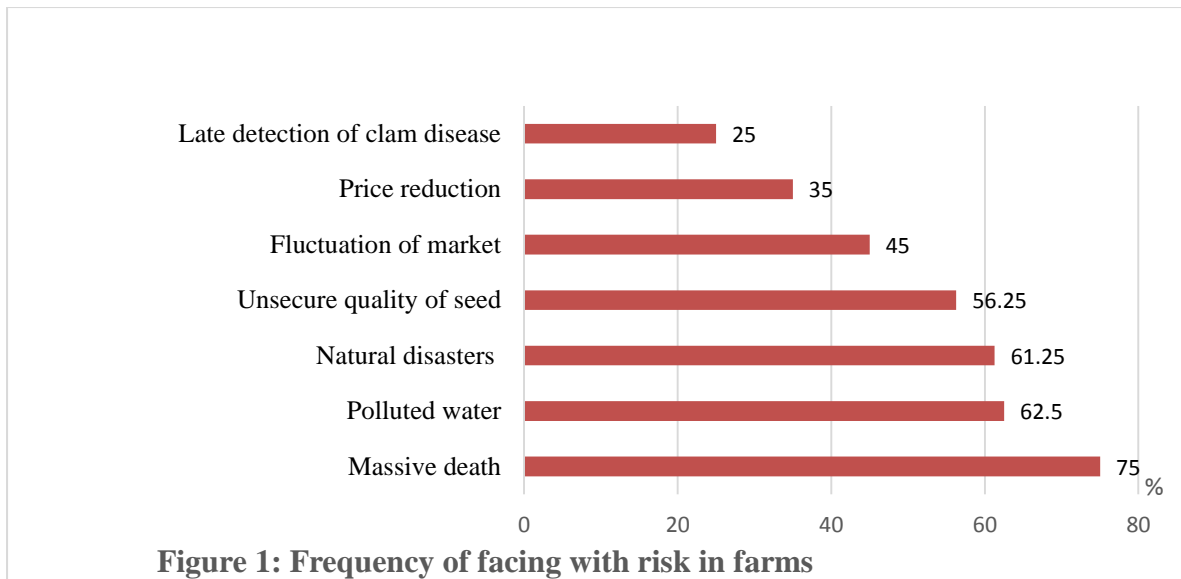
Firstly, we select Nam Dinh and Thai Binh as study sites because:

- (i) these two coastal provinces are located in the Northern area and have the highest productivity and quantity of clam raising farms in Vietnam;
- (ii) farmers in these two provinces have a longer time experience in clam raising compared to other provinces in Vietnam; (iii) clam raising is the key economic activities in these two provinces.

The primary data came from a survey of 125 clam raising farms which accounted for 5% numbers of clam raisers in the study sites in the first half of 2014 based on semi-structure, standard questionnaires and PRA method. However, only 112 questionnaires can be used for analysis, 13 questionnaires did not have adequate information.

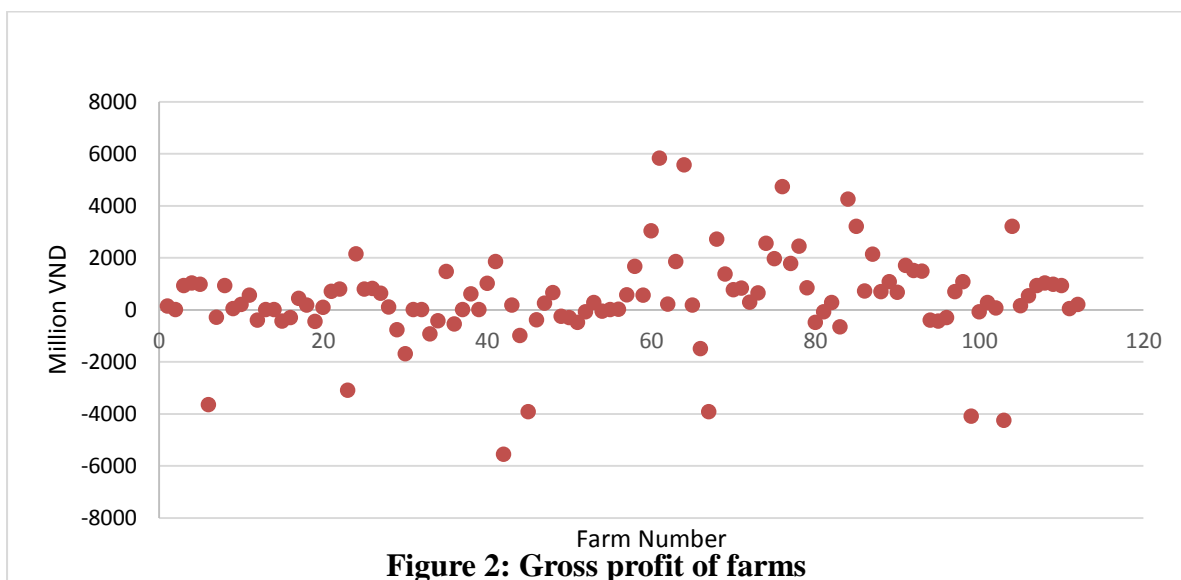
According to the survey results, the performance of the clam raising last year was quite low, but they had a chance of getting high revenue. The average productivity of clam production was around 43.2 tons per hectare (ha) at the price of 11.4 thousand Vietnam Dong (1 USD is around 21 750 VND; official exchange rate on May 2015) per kg; the farmers got a revenue of nearly 500 million VND per ha of production. However, on average, after 21 months of raising, the clam farmers received only 12.48 million VND (583 USD) due to high operating cost. In which, the farmers had to pay for quite a high amount of intermediate cost at 190 million VND (nearly 9000 USD) for this production process. Besides, the labor and financial cost also contributed a large amount to the operating cost of farms. It seems that, the added value for the clam farmers accounted for a high proportion (61.4% of revenue) but in fact, gross profit received by farmers was very low, accounted for only 2.5%. If the farmers can control better their operating cost, they will have a much higher gross profit.

The survey results also showed that, clam raising was one of the very risky activity (Figure 1). Farmers had to face with many risks during the production process: unsecure quality of seed such as low growth rate, high death rate; late detection of disease; uncontrolled water source; natural disasters such as flood, storms, drought, sea level rise; etc. The most concern was the high death rate. This situation also reported in previous studies (Thuyet BD and Dzung TV, 2013; AD, 2011).



There was 75% number of farms faced with the situation of massive death. In which, there were some farms that had been in massive death by 9 and 10 times during their production. Due to the high risk, the performance results of clam raising farms last year was quite negative as there were more than one third farms that got lost, around one third tried to get the break-even and only one third left got profit.

Regarding the performance situation of clam raising farms defined by gross profit (figure 2), we can easily constitute three group of farmers: head group with a gross profit more than 2 billion of VND; average group with a gross profit between -1 billion and + 2 billions and queue group with gross loses higher than 1 billion.



Although the farmers complained that the cost of production was quite high but most clam raising farmers did not pay attention to monitor their cost. Most of them thought about cost and how to reduce the cost of production.

In order to manage the farms and their production cost, they have to base on the record of actual cost. However, the clam farmers did not have a habit of monitoring their cost based on the recording. They managed their farms and cost based on their experience and memories.

There were 56% surveyed farmers said that they had at least one time recording their input-output, but most of them based on traditional recording such as noted down on the roof of their house, in the door, into their books but not reconsider, re-read and not used for decision making. None of them use computer or any scientific sample of recording to manage their cost. There were 28% surveyed farmers usually record their transactions; 18% farmers often recorded their transaction, 5% sometime record, and the left almost did not record. In which, only 11% farmers recorded detail their transaction; 43% farmers just record main information or transaction; the left did not record.

There was 39% transaction recorded by the time of remember, none of them have the habit or routine of recording daily or weekly. Most of the clam farmers were concerned on the amount they gained after a period of production, than farmers interested on how much they invested in their project. However, there were 53% surveyed farmers that recorded the cost transaction while there were only 28% of them that recorded the revenue. This implies that farmers did not know how to monitor their production process. The farmers calculated their profit in their mind by subtracting their operating cost from total revenue they achieved after a period of time. However, they normally remembered only the main cost or recording main actual cost. They argued that they could estimate their production situation and profit with their memory and experience. Without recording, many of their transactions and cost had been omitted, thus they could not calculate exactly their profit. Besides, there were many farmers who thought that cost management was not important and not necessary to manage.

Second study group experience

In Thai Binh province, we had to consider the abnormal trend in total output clam production. Just in the period of six year from 2008 to 2013, there are two times (in 2009 and in 2012) which seriously decline in total yield volume while the total production area still increase year by year.

Along with increasing trend of Vietnam aquaculture productions, the clam production expand its area year by year, but the total drop harshly when uncertainty event occurred. The reduce happened in 2009 was caused by disease and the one in 2012 was because of the suddenly stop of Chinese traders.

Moreover, the report of Thai Binh Department of Agriculture & Rural Development in August 2014 show that nearly one third of clam area had died, which cause the loss of more than 7,000 tons for farmers. The clam farmers even have to say that “Investment in clam production is like a gambling”. According to the research about status of Hard Clam Farming in Some Coastal Provinces of North and Northern Central Vietnam, about 84 % surveyed farmers reported that their farms had at least one time of massive death of cultured clam and only 16% surveyed farms did not suffer with massive hard clam death (Thuyết & Dũng, 2013).

As the consequence of those hazards, thousands of farmers become jobless, and their hurts are exaggerated by bank debts. According to the statistic of Government Bank – Thai Binh Branch, after the market shock happened in 2012 , loans provided to 1,752 farmers and

enterprises for clam production and services were VND 457.6 billion which has been difficult to retaken by the Bank. In Nam Thinh commune only (TienHai district), un-marketed clam was up to VND 160 billion. In addition, un-harvested clam farms accounted for 70% of total farms (Tú, 2013), which then caused a heavy environmental pollution.

However, in fact there are some farmers still overcome the shocks or resilience very well after that, such as the ones who are counted for the figure of 15.9% as in research of Mr Thuyet (Thuyét & Dũng, 2013) though they have to survive in same risky context. Some of them even be called “King of Clam” of “Clam Billionaire”.

This all above situation raised the necessity about a research to discover the hidden reasons which help some farmers to manage well the aquaculture risk as well as to early resilience from vulnerability situation. The research result would be the experience lessons for other farmers, and also a reference documents for the organizations of policy makers in designing the intervention to support farmers, in appropriate manner.

What are linkages between farmer’s risk mitigation strategies and their aquatic production return and factors influencing on these linkages is major research question of this second study still in progress.

Conclusion

Clam farming in the coastal provinces of Vietnam has notably developed and provides farmers a chance of getting high income parallel with high risk of massive death and low performance results. Capacity of farm cost control; farmers’ experience, skill, technique and ability of risk control; unstable market and unsuitable market channel; and the area and location of clam raising were the four major factors affecting the performance of clam raising farms.

Despite these difficulties, many surveyed farms still want to expand or will continue their production. In order to promote the value added for clam raising farmers, major problems should be taken into consideration.

The first and most is that the capacity of cost control of the farmers should be improved. Skill and technique for cost monitoring of the farmers had better to be enhanced through training and self-training activities. Step by step, it contributes to change their behavior and habit of cost recording. This will help them to improve their production performance situation and enhance their profit and benefit.

The second thing should be done is to improve the ability of the farmers to manage their farms. If the management capacity of farmers improves, they could be able to cope with the risk situation in their clam production practices and their livelihood situation.

Finally, it is necessary for the government and local authorities to support, create and, maintain a stable market for clam raising farmers. If the market is stable and expanded, farmers could sell their products with reasonable gain. In turn, they can stimulate production, create employment opportunities for rural labor, improve community income, and improve their livelihood situations.

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