NGUYEN VAN Huong. *Economic analysis of small scale freshwater aquaculture production and its product marketing channels in agro-aquaculture system in Hai Duong province, Vietnam*

**Summary:**

VAC stands for the first three letters of three words: Garden (V), pond (A), cage (C), referring to a small-intensive farming ecosystem model to solve the shortages of food and develop rural economy in Vietnam. It has been shaped and developed for nearly four decades since Vietnam finished the wartimes and reunification in 1975. At first, the VAC economy may seem to be small, and just a "informal economy". However, it has been soon become an important role for the strategy of self-sufficient food and economic development to overcome difficulties and hardships of transition period in the past. Since Vietnam approved the autonomous role of household economy after the revolution of “Doi Moi”, the VAC model has been widespread promoted and exploited by many local provincial authorities and farmers in over the country. Hai Duong province is one of the provinces, which has encouraged farm households to develop the VAC model since begin of the 1980s when it first was introduced in the Red River Delta in Vietnam. As impacted VAC ecosystem model, many types of fish farming have been practiced in Hai Duong where emerges to many zones of concentrated aquaculture production converted from rice fields. With the introduction of fish in the existing agricultural systems, farmers have diversified the farming practices in the optimal manner of land use to improve the nutritional food status, increase household income, and create more employment. This leads to the fish production becoming very diverse, complex and dynamic in Hai Duong province. The study has designed to understand the diversifications of the integrated small scale aquaculture (SSA) production models in the Red River Delta. The study results show that four models have been found such as single commercially-intensive fish production system (FS), Animal Fish system (AF), New VAC system and traditional VAC system with different characteristics. Despite these SSA models are differed from one another, they are all in favoured of producing food for farmers’ home consumption or/ and commercial products for cash income in parallel reduction the seasonal situation of unemployment in rural areas. Particularly, the economic efficiency of the SSA models has made a great contribution to improve the farm households’ economic condition in the rural in Hai Duong province, Vietnam. These freshwater SSA models are considerably dynamic and diversified by household strategies. In general, they have good efficiency in terms of job creation, food production, and economic benefits. The study also shows that the AF model has the highest economic return while the FS model obtains the lowest. The new VAC and traditional VAC models are significantly diversified to generate different sources of onfarm income. Whereas the new VAC model with a focus on high market value species has higher economic efficiency than the traditional VAC model. This reflects VAC can be developed to in a manner that can generate more cash income for the rural farm households in Hai Duong. Besides, the SSA models have been more intensified and developed the different species of marketable fish to supply to increasingly market demand, fish farmers have been being still faced to many challenges and difficulties of marketing their fish products such as lacks of outlets and marketing channels available at local markets, shortages of storing facilities, means of transportation, and market volatility. These problems require to more governmental interventions on both production and marketing to assist small scale aquaculture production to maintain as a strategic tool to develop the local economy as well as provide farm households a sustainable livelihoods. The supports might be focus on enhancing the production management skills, and market organized in both wholesale and retail markets that would be the most appropriate measures to facilitate the SSA models more developing in Hai Duong province.