

The development of Bang B village – one of the major areas of aquatic vegetable production in Peri-urban Hanoi.

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Hoang Liet commune is located about 10 km south of Hanoi centre and is composed of 5 villages: Bang A, Bang B, Tu Ky, Phap Van and Linh Dam. It is well-known for producing aquatic vegetables, especially in Bang B village which readily maintains a supply to urban markets. Bang B village is bordered to the south by the Kim Nguu and To Lich rivers, two of Ha Noi's major waste water channels, the latter of which is a very convenient source of nutrient rich wastewater which is used by the village to produce aquatic foods.

Before 1970 the majority of people in the commune worked in agriculture growing rice which at that time provided a relatively low living standard in the commune, with only a few households producing floating water morning glory and then water mimosa on the surface of the To Lich river. At first aquatic plants cultivation did not have to use any chemicals or sprays and as result



there was minimal pollution in the local rivers and water courses. After 1970, when electricity became available, the life of people in Bang B changed considerably with the construction of a new wastewater pumping station, canal and main road in the village. Since 1992, with urbanization of Hanoi city increasing rapidly associated wastes, discharges and the growth of aquatic plants began to affect the flow and water quality of the To Lich river and also those people who were growing floating aquatic plants in it. By 1995 aquatic vegetables were no longer produced in the river. Ms. Nguyen Thi Nhuan, one of a group of people in the village started to trial and think that they could produce water morning glory and water mimosa in the villages traditional land vegetable fields if they dug the land deeper and constructed enclosed "ponds" into which they supplied wastewater though the pumping service provided by the local Agriculture-Co-operative. Ms. Nhuan said to us that her house was built in 1990 primarily with money she earned from producing water morning glory and water mimosa in such a system. Subsequently households and the farmers learned from each other and gradually discovered the optimum techniques of growing aquatic vegetables in such a system themselves. Since 2000 when aquatic producers in Bang B village realized that the demand and prices of two other types of edible aquatic plants: water dropwort and water cress was

increasing in the city markets, they then started to find new seed species and undertake trials. At present about 50% of households in the village produce aquatic vegetables with the main systems and species being water mimosa in summer and water dropwort and water cress in winter, thus using rotation of crops on the same land. However water morning glory is also still produced year round. If you visit Bang B village in the very early morning you will feel and see busy crowds with producers (farmers), middleman or wholesalers who are involved in marketing. From our primary analysis of the Baseline survey in 2004 we found that aquatic vegetable production plays an important role and is a major contributor to the main incomes of these households. In Bang B village from our survey the highest recorded income from aquatic production is Ms. Chung's household who get 40 million VND/year (2,547.70 USD: 1 USD = 15,700 VND) by growing water mimosa and water dropwort in rotation in the same land area, this contributing 90% to her total income. The lowest recorded income for a household which cultivates aquatic plants contributing 100% to its household income is for Ms. Minh Hanh who gets 21 million VND/year (1,337.5 USD) from growing water morning glory in Bang B.

The development and success of aquatic vegetable production in Bang B village is well-known and has spread to other neighbouring villages such as Bang A village where 14 ha of rice fields have already been converted in 2004 to produce water cress and water dropwort using the same model of reusing wastewater from the To Lich river. Bang B village now contributes a major part of aquatic plants production (water mimosa, water dropwort, water morning glory and water cress) to supply Ha Noi's markets. However farmers in Bang B are increasingly facing problems with a seasonal lack of wastewater for production, increasing aquatic plant diseases, high price of inputs eg mainly chemicals and lack of access to markets. Most farmers think that their land available for aquatic production will decrease in next 5 years due to the ever increasing surrounding construction and creeping urbanisation and thus they are now starting to look for alternative suitable new jobs such as making household fittings and furniture from inox steel (small scale metal plating and metalwork workshops) and other services.



Figure 2 Waste water pumping station Bang B village



Figure 3 Increasing use of chemicals in aquatic plants cultivation Bang B village



Figure 4 Washing and preparing morning glory prior to transportation to market Bang B village