

Appendix 3.6. Refined key informant interview checklist and outcomes for Ho Chi Minh City

IMPORTANT FACTORS FOR AQUATIC PRODUCTION SYSTEMS IN HOCHIMINH CITY

(Report for PAPUSSA Project Training Workshop)

Key factors	Sewage Systems				
	Seed production	Fish culture	Fish-animal integrated	Fish-aquatic plants combination	Rice-fish culture
Location	Tan Kien, Phong Phu (Binh Chanh) and District 8	Binh Hung, Phong Phu.	Tan Kien, Tan Nhut (Binh Chanh)	Phong Phu (Binh Chanh)	Phong Phu – Binh Chanh
Age of the system	10 – 15 years for Binh Chanh District and longer for District 8	A wide range of starting time which is about 3 to 30 years. Almost all farmers changed from rice culture due to low income of rice culture.	3 – 10 years experienced farmers are common of this type of systems.	Long and traditional experienced system with the age of about 10 years. This type of farmers are also converted from rice farmers with the same reason for changing.	Many farmers are newly established rice-fish household. 3 – 5 years experienced in rice-fish culture is common farmers.
Relevant to the poor	Most of the seed producers are not really the poor	Most of farmers are the poor	Farmers are not really the poor.	They are really the poor with main occupations are fish and aquatic plants (Water mimosa & Lotus) culture.	They are now poor farmers with low income from rice. They mostly have secondary occupations
Dependence on the waste – types of waste	They are completely dependent on the waste	They have no other choices for water source and being affected by water	Less dependent level on the outside wastewater. Mainly use the waste reuse within	They are highly dependent on wastewater. They have to use the waste in any	Lower level of waste is used in this type of system due to the nature of water sources.

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		pollution	system.	situation and they have to avoid industrial waste coming to their culture systems.	
Area extensive	The area is now declining due to water pollution, water shortage and urbanization projects.	Household pond area ranges from less than 1,000 m ² to one hectare. Total area was not determined yet.	Average water area is in the range of 2,000 – 8,000 m ² .	Household area is in the range of 1,000 – 5,000 m ² . Some have bigger farm but they are not typical for this system.	Average water area for individual household is in the range of 0.5 to 1.0 hectare
Dispersed or concentrated units	Concentrated units if regarding to the same location (Binh Chanh District or District 8) receiving same sources of wastewater.	Dispersed culture units which related and connected to water system. But in the same location, they are concentrated units.	Highly dispersed units.	Very concentrated units locating mainly in Phong Phu commune where they have advantages in road access and water sources for aquatic plants cultivation and marketing.	Very dispersed units which are distributed in a large and separated place of Phong Phu commune.
Level of production	1 tone fingerlings/ha/year	Production is in the range of 2 – 8 tones fish/ha/year	Level of production is varied from 3 tones to 10 tones/ha/year	Fish: 2 – 4 tones/ha/year Lotus: 180kg/ha/2days Water mimosa: 80 bunches/ha/week	Production is in the range of 1 – 3 tones fish/ha/year. And very small amount of rice.
Value of production	10,000 VND/kg ~ \$US 0.67/kg	15,000VND/kg ~ \$US 1/kg	Fish: 15,000	Fish: 15,000VND/kg Lotus: 3,500VND/kg Water mimosa: 2,500VND/bunch	15,000VND/kg

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Specialized occupation or part-time	Highly specialized occupation	Farmers may have more than 1 occupation rather than only fish culture but fish culture is still the main household income source.	Most of fish-animal integrated farmers have their part-time occupation but fish still the main activity and the main income source.	Due to time intensity of the activity, most of farmers are involved in only on-farm activities.	Very specialized occupation for farmers involved.
Significant to the household income	Very significant to the household income because of specialization.	The value from fish culture constitutes significantly to household income.	Not very clear about the significance of fish culture contribution to the household income but value from fish culture is still very high compare to that from other on-farm activities.	Their income comes mainly from aquatic products.	Much higher income of household is from fish culture.
Ethnic component	There is no ethnic differences among the producers	There is no ethnic differences among the producers	There is no ethnic differences among the producers	There is no ethnic differences among the producers	There is no ethnic differences among the producers
Land ownership	All farmers have their authority to use the land. Some have to rent more land for their activities	Very few farmers have to rent more land for fish culture.	Farmers have authority to use their cultivation land.	Farmers have their authority to use land but some want to rent more land for more production.	Farmers have authority to use their land. Some have already sold their land but still able to use it for rice-fish culture.
Ways for the marketing product	Middle man being one of the producers is important for the marketing channel	Middle men play important roles in marketing products.	Middle men are the main actor in marketing product	All products are sold to middle man.	Products are always sold to middle men. Farmers have no idea about marketing

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	of their products.				channel.
Trend in production and factors affecting production	Due to urbanization, water pollution, water shortage, the production is now declining and being threatened to be disappeared.	Farmers have intention to continue culturing fish until they cannot do it anymore when land is used for other purposes. Urbanization and water pollution are two main factors affecting this production system.	Tend to decline or disappear due to water shortage and water pollution from industrial wastewater	Farmers are trying to overcome their difficulties and keep working on this activity because this is their best job. However they are suffering from urbanization plans.	Land would be sold and therefore the area for this type of systems would be declined in near future.

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	Fish culture	Water morning culture	Fish-water spinach integration	Fish-animal integrated	Fish-nursing
Location		Tam Phu (Thu Duc district)	Tam Phu (Thu Duc district)	Long Thanh My & Tang Nhon Phu (Thu Duc district)	Not a typical aquatic production system in HCM City
Age of the system		Farmers started growing water morning about 10 years ago when rice became low income activity.	They are water morning farmers who just started culturing fish about 3-5 years ago to use water morning by-product when they recognized the benefit of fish culture	Farmers having about 4 – 10 years experience are typical in this type of systems.	
Relevant to the poor		Low investment and simple technique make this type of systems become relevant to the poor. But low income and instable production is one of farmers' difficulties.	They are at the same situation as the water morning farmers but they have fish product to improve their income. Therefore it has higher level of relevance to the poor.	They are small-scale farmers but they are not very poor. They can effort their life and have no economic troubles. This system may be one of intensive systems with more than one products and high production	

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	Fish culture	Water morning culture	Fish-water spinach integration	Fish-animal integrated	Fish-nursing
Dependence on the waste – types of waste		They are not dependent on the wastewater but they are impacted by polluted water which killed partially their product. They have to avoid wastewater the from water supply.		Non-sewage system. They don't use wastewater at all.	
Area extensive		Huge area for this type of aquatic systems. The total area involved in this is not known yet.	A part of water morning culture system constituting to the large area of that system.	Small-scale in terms of area. The pond sizes vary from 500m ² up to maximum of 3000m ²	
Dispersed or concentrated unit	Highly dispersed culture units.	Very concentrated units in a large area of Thu Duc district.	Concentrated with smaller area than water morning system.	Fairly dispersed culture units receiving river water and traditional technical information.	
Level of production		Water morning production is about 170 bunches/ha/day	- Fish production is in the range of 3-6 tones/ha/year. - Water spinach production is the same as that of the water spinach only system.	3 – 10 tones fish/ha/year	
Value of production		900VND/bunch	15,000-18,000VND/kg	19,000VND/kg	

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Specialized occupation or part-time		Very specialized occupation. Farmers have to spend almost all their time for this activity.	Specialized occupation. Most of farmers' time is for water morning which is time consuming activity.	Fish-animal integration is the main activities. However, most of the farmers have their part-time job for more income generation.	
Significant to the household income		Main and only income source of farmers.	Main and only income source of farmers.	Still the main income source of involved farmers.	
Ethnic component	Only one ethnic group is involved in this type of aquatic production system.	Only one ethnic group is involved in this type of aquatic production system.	Only one ethnic group is involved in this type of aquatic production system.	Only one ethnic group is involved in this type of aquatic production system.	
Land ownership		Farmers have authority to use land. They use on their own land.	Farmers have authority to use land. They use on their own land.	All farmers have authority to use land.	
Ways for marketing the product		Middle men	Middle men	Middle men are products collectors.	
Trend in production and factors affecting production		Continue working in this type of aquaculture activities. May be over due to urbanization plans and higher land price.	Same situation as water morning system.	Keep working in this type of systems is farmers' aspiration. There is no problems and trends for this type of systems.	