Appendix 3.4. Refined key informant interview checklist and outcomes for Hanoi

CURRENT STATUS AQUATIC PRODUCTION SYSTEMS IN HANOI

Key factors	**Fish seed**	**Pond-based fish on-growing**	**Swamp/lake fish on-growing**	**Swamp/lake fish on-growing with wastewater**	**Rice-fish culture**	**Shrimp culture**	**Cage–based cultured**
Location	Thanh Tri concentrate in Tu Hiep (4 households and Tam Hiep (2 households); Gia Lam (9 households but very dispersed at 5 communes; Dong Anh; (about 3 households) and Soc Son have some.	Concerntrate at Thanh Tri. Gia Lam, Dong Anh, Soc Son are not very concentrate	Thanh Tri, Gia Lam, Dong Anh, Tu Liem, Soc Son	Ha Thuy company, Ho Tay investment and exploit company, Thanh Tri, Gia Lam , Tu Liem,	Dong Anh, Thanh Tri, Gia Lam, Soc Son	Thanh Tri, Gia Lam, Dong Anh, Soc Son, Tu Liem	According to data from Statistical Department, In 2002 Hanoi have cage cultured in Gia Lam but this year people stop cage culture.
Total area	21.8 ha	1465 ha	237 ha	1680 ha	930 ha	52 ha	7 cages (in 2002)
Defining characteristics	-Low Seed quality due to quality of parents reduced. -Lack of Techniques	- Lack of good quality seed. -Lack of Techniques -Water quality in Thanh Tri, and Gia Lam in some places are not very good. - Water source not completely enough	-Difficult in Security Guard -Fish Seed not high quality -Feeding with limited investment	-Polution from wastewater quality and effect to aquaculture - Difficult in Security Guard because of large area -Difficult manage in stocking density, species structure... -Low Seed quality	-Lack of technique (they do not have canal design techniques, not completely suitable fish species structure, supplementary feeding - Difficult in Security Guard	-Difficult in Fund problem because fund invest for feed and seed very big. -Limited in Techniques: management, disease, feeding, environment -Difficult Water source for urgen problems	-Disease -Flood -Security Guard
Age of the system	-In Thanh Tri, since 1930 farmers went to Red removed	Wide Range: since 1930 to this year 2003	Since 1960	Since 1960	In Thanh Tri since 1960 and the other since 1970	In Thanh Tri since 1990 and the other since 2000	Since 1988 but this year no cage can be found

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	fish seed to pond for nursing. -Gia Lam, Dong Anh, Soc Son since 1950						
Previous activities of the system	Fish on-growing: extensive	Fish on-growing: extensive	Fish on-growing:extensive	fish on-growing: extensive	Low land rice field area	Fish culture with traditional species	Non
Production systems concentrated or dispersed? In how many sites around city?	Very Dispersed and not develop. Mainly people nursing fish to supply for their households and for neighbours> No hosehold special with nursing	Concentrated at Thanh Tri and dispersed at the rest districts	Dispersed at the rice field and near boder of villages. In Thanh Tri with concerntrated	Concentrated at urban lakes in Hanoi and Thanh Tri. Some of them dispersed at Gia Lam and the Tu Liem seem close this system because of the urbanization	Dispersed	- Concerntrated at Thanh Tri (44.39 ha in 2002) and dispersed at the rest (4 districts) (1)	Concentrated
Water source	Mainly from rivers: To Lich, Hong, Duong for Thanh Tri, Gia Lam through pump stations. Water sources for the rest districts from Irrigation systems.	Mainly from rivers: To Lich, Hong, Duong, for Thanh Tri, Gia Lam through pump stations. Water sources for the rest districts from Irrigation systems for rice field.	From natural water sources, and from Irrigation systems for rice field.	Depend on conditions at different local. In general, sewage water source from Kim Nguu, To Lich, Set, Lu rivers for Thanh Tri and waste water from human in urban lakes.	By pump stations, water from rivers through Irrigation systems go to rice field.	Mainly from rivers: Hong, Duong, for Thanh Tri, Gia Lam through pump stations. Water sources for the rest districts from Irrigation systems for rice field.	Duong River
Nutrient sources? Solid/liquid waste inputs?	Nutrition for fish mainly zooplankton in	Fertilise, rice bran, waste when produce beer, corn. Only 2-	Mainly Nutrition from water source (zooplankton).	Nutrition mainly in wastewater sourse	Mainly Rice from the field. Suplemmentry	Commercial feeding completely	Grass, cassava and others

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Feed? Other?	the water. Suplemmentary are corn, rice bran, soy bean. Some household use Commercial feeding and depend on household economical conditions.	3% household using commercial feed	Some householes using supplementary feeding and depend on household economical conditions		includes corn, rice bran, soy bean and depend on household economical conditions.		
Main products? (fish/plants/molluscs/amphibians etc.)	Fish Seed: Common carp, tilapia, mud carp, silver carp. Depend on household.	-Fish at market sizes: Mono sex tilapia, common carp, grass carp, mud carp, big head carp, silver carp, colossoma, -Fresh water crab, snail, shrimp.	-All traditional fish species. -Fresh water crab, snail, shrimp.	-All traditional fish species. But small size market harvest. -Fresh water shrimp, crab, snail.	- Common carp, mud carp, tilapia. -Fresh water shrimp, crab, snail.	*Macrobrachium rosenbergii*	-Grass carp
Production per unit area?	200 million seed/year	2.2 tons/ha	1.3 tons/ha	3.5 tons/ha	1 ton/ha	1-2 ton/ha	800 kg/cage (20 m^3)
Trend in production? Productivity? Total area? Species? Value?	-Need to produce and develop the high quality fish species -New species:Tilapia mono sex, hybrid common carp, colossoma are model.	-Develop trend with semi-intensive and intensive -Model species: Mono-sex tilapia intensive with 20 ton/ha. Colossoma with 15 ton/ha. Catfish with 20 ton/ha expect by the year 2010	- Polyculture - Develop semi-intensive and reduce extensive -Try more model species: Mono-sex tilapia, Colossoma	-Trend will not develop, just keep balance environment for city, store water... -Markets at Hanoi do not accept products from wastewater because of the small size and not very good taste.	-Encourage to develop, good future; -Increase area from rice field to rice/fish very quickly every year. Seem they want intensive fish only.	-Encourage to develop. But high risk if disease happen or not very good in management.	
Marketing arrangements? Problems?	High deman of fish seed but do not enough high quality seed to suplly for	Not enough fish productions supply to Hanoi markets.	Not enough fish productions supply to Hanoi markets	-Do not accept by the Hanoi consumers so that products from wastewater system have to remove to	Not enough fish productions supply to Hanoi markets	-Restaurants are the main consumer of this product. -Normal consumers do not buy this	Not enough fish productions supply to markets

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	farmers. But the nomal and low quality seed so many.			mountain areas.		product because of expensive.	
Full time or part-time involvement? Farmers? Labourers? Others?	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job	Most of them working past-time and have more than 2 job
What about the gender, age & ethnicity of those involved? Farmers? Labourers?	Man and Woman, age from 20-55	Man and Woman, age from 20-55	Man and Woman, age from 20-55	Man and Woman, age from 20-55	Man and Woman, age from 20-55	Man and Woman, age from 20-55	Man and Woman, age from 20-55
What benefits are there from the production system? Farmers? Labourer? Community?	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security	-Increase income -Improve standards of living -Reduce poverty -More job -Improve Society security
Does any particular group, based on age, gender, ethnicity or other benefit?	Role of woman in feeding, taking care ponds	Role of woman in feeding, cuting grass, taking care ponds	Role of woman in feeding, cuting grass. Role of man in kepping security and some other hevy activities.	Role of woman in feeding, cuting grass. Role of man in kepping security and some other hevy activities.	Role of woman in feeding, cuting grass, sell fish	Role of woman in feeding, taking care ponds	Role of woman in feeding, cuting grass, sell fish
Who controls access to the production system? Owner? Leaseholder? Community?	Most of the farm leaseholder from 3-5-10 years and depend on different local	Most of the farm leaseholder from 3-5-10 years and depend on different local	Most of the farm leaseholder 3- 5-10 years, or working in group	Leaseholder 3-5-10 years and Community, or working in group	Most of the farm leaseholder from 3-5-10 years and depend on different local	Most of the farm leaseholder from 3-5-10 years and depend on different local	Owner

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What range of uses is water from the systems used for? Agri? Aqua? HH? Municipal?	Aquaculture	Agriculture, Aquaculture, Poutry	Agriculture, Aquaculture, Poutry	Agriculture, Aquaculture, Tourist and Store water when flood season	Agriculture, Aquaculture	Agriculture, Aquaculture, Poutry	Aquaculture
Are there any animal, environmental or human health problems associated with use?	Non	Non	Non	Small problem with skin, hair of person who work with water sources from factories	Non	Non	Non
Expected changes facing the production system?	Active supply high quality fish seed, and enough in quantity	Intensive and high production	Higher production	To solve Water quality and pollution problems	Change to intensive fish only	-Open more marketing -Expect more funds - Active supply high quality shrimp lavar, and enough quantity and can be supplied in time culture season	No disease, Try another fish species;