

Production in Aquatic Peri-Urban Systems in Southeast Asia

INCO : International Scientific Cooperation Projects (1998-2002)

Contract number : ICA4-CT-2002-10020

Institutional Analyses in Hanoi, Vietnam

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Keywords: Institutions, peri-urban, aquatic food, Southeast Asia, Hanoi, Vietnam

Project homepage: <http://www.ruaf.org/papussa>

Contract number : ICA4-CT-2002-10020

TITLE : PRODUCTION IN AQUATIC PERI-URBAN SYSTEMS IN SOUTHEAST ASIA

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Acronyms and terms

ASC	Agriculture Services Co-operative
CPC	Commune People's Committee
DARD	Department for Agriculture and Rural Development
DEPARDH	Department of Economic Planning & Agriculture Rural Development Hanoi
HAEC	Hanoi Agriculture Extension Center
HHs	Households
HFSC	Hanoi Fish Seed Center
HPC	Hanoi People's Committee
HTC	Ha Thuy Company
HTIEC	Ho Tay Investment and Exploitation Company
NFEC	National Fisheries Extension Center
NGO's	Non-government organizations
PUAFPS	Peri Urban Aquatic Food Production Systems
RIA 1	Research Institute for Aquaculture No 1
VAC	Acronym from Vietnam Vuon - Ao – Chuong or Garden - Pond – livestock
WP	Work Package
VND	Vietnamese dong

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Abstract

The Institutional Analyses in Hanoi was carried out by the RIA 1 team from April to August 2003. This involved interviewing key informants/individuals, institutions and organizations from national, city, district, commune right down to household level within the Hanoi peri-urban area. The resulting report describes the roles and inter-relationships between the wide range of these organisations relating to the management, administration, planning and policies involved in Peri-urban Aquatic Food Production Systems (PUAFPS). It also examines the future planning process and identifies certain future trends within PUAFPS and the communities involved with them. Overall Peri-urban Aquatic Food Production Systems in Hanoi are regulated and affected by combination of government and scientific research institutions. Government institutions play the main role in formulating and implementing policies and plans and science institutions play a supporting role in carrying out research and provision of advice. Aquatic plant cultivation within peri-urban Hanoi is not well represented at any influential or management level within the institutions involved in comparison to fish farming.

Analyses of the future plans for the city and peri-urban districts show that land usages for aquatic production systems will be restricted in areas near Hanoi city centre and will be encouraged and enlarged within the peri-urban areas far from the city centre.

The report aims to better understand institutions involved in PUAFPS within Hanoi, whilst also being a reference for decision/policy makers and those concerned with the present and future agriculture and aquaculture development of not just Hanoi but other developing urban conurbations in SE Asia.

1. Introduction

Institutional analysis is one of the 3 important parts of Work Package1 (WP1) in the first year of the PAPUSSA project (Production in Aquatic Peri-urban systems in Southeast Asia). An Institutional Survey and subsequent Analysis was carried out in each of 4 cities: Hanoi, Ho Chi Minh City, Bangkok and Phnom Penh in order to assess the relationships, motivations and legal framework between the wide range of organizations and institutions affecting current Peri-urban aquatic Food production Systems (PUAFPS) as well as the communities and people who participate, rely on, or who have linkages with them.

In Hanoi Institutional Analysis was carried out with a wide range of organizations, from government institutions, government ministries and non-government organizations (NGO's) to regional and local institutions, local government and commune level, market groups, and lower level farmer groups in Thanh Tri, Dong Anh, Tu Liem and Gia Lam districts. Our analysis formulated an overall view of all the organizations and their linkages which directly or indirectly relate to the current and past management, administration, planning, government policies, regulations and history of PUAFPS in Hanoi. Within the project objectives and guidelines this was done in order to better understand the roles of these institutions, their decision making processes and their inter-relationships from national to local levels. It also will provide a background and springboard for subsequent Work Packages, especially WP4 and WP7 (in years 2 and 3 respectively) which will build on this initial background of the Institutions involved, and then be looking to identify opportunities for enhanced strategies and beneficial interventions within the regulation and management of PUAFPS as well as in the future safeguarding access to PUAFPS for poorer households.

2. Description of methods

The Institutional Analysis survey was carried out by Nguyen Thi Dieu Phuong, Pham Bau and Pham Van Trang of RIA 1 (Research Institute of Aquaculture No. 1, Hanoi) from April to July 2003 in collaboration with a wide range of institutions/organizations within the Hanoi peri-urban area.

Criteria for choosing organizations and people interviewed was according to:

1. Status and levels of institution: from national to local government including marketing and farmers groups.
2. Government and non government organizations (NGO's)
3. Organizations related to urban planning and policy, agriculture, aquaculture, sanitation, waste disposal, engineering and irrigation.

Initially those organizations and institutions which were already known to RIA 1 as being related to PUAFPS in Hanoi were contacted and visited. From interviews and enquiries with persons at these institutions a wider, more comprehensive list of PUAFPS related organizations was drawn up, each of which was then contacted and subsequently visited. This list of organizations was further supplemented by researching the internet, local press and media and other documentary evidence from library searches.

Individuals from the following institutions from national to local levels were visited and interviewed

- **National Level:** Department of Transportation and Irrigation, Ministry of Construction, Fisheries Economic Institute

- **City Level:** Department of Economic Planning of Agriculture & Rural Development of Hanoi (DEPARDH), Hanoi Extension Center, Hanoi Fish Seed Center, Ho Tay Investment & Exploitation Company, Ha Thuy Company.

- **Local Level:** District Economic Planning Departments of Agriculture & Rural Development (EPDARD), Agriculture extension stations of districts: Thanh Tri, Dong Anh, Tu Liem and Gia Lam, Commune People's Committee, Managers of fish and aquatic plants markets, aquatic plant and fish producers groups and organisations, etc.

The majority of organizations/people were initially contacted by telephone then appointments were made for a suitable day, time, and venue to meet .

From each of these interviews the following activities were carried out:

- a. Research and collation of the relevant statistics and information concerning the organization which was being investigated.
- b. Preparation of issues which WP1 identified as being relevant. Example: roles and relationships of institutions, socio-economic status of individual districts, their development plans up to the year of 2020, and how other development projects related to peri-urban and food production systems in Hanoi,
- c. Collection of other data and documents; policies, plans, maps, etc. of Hanoi city which have relation to Aquatic systems in the peri-urban area.
- d. Facilitate and identify different peoples perceptions, who work within these related organizations, and the developmental and decision making processes which affect them.

All steps in the method are illustrated below in Figure 1.

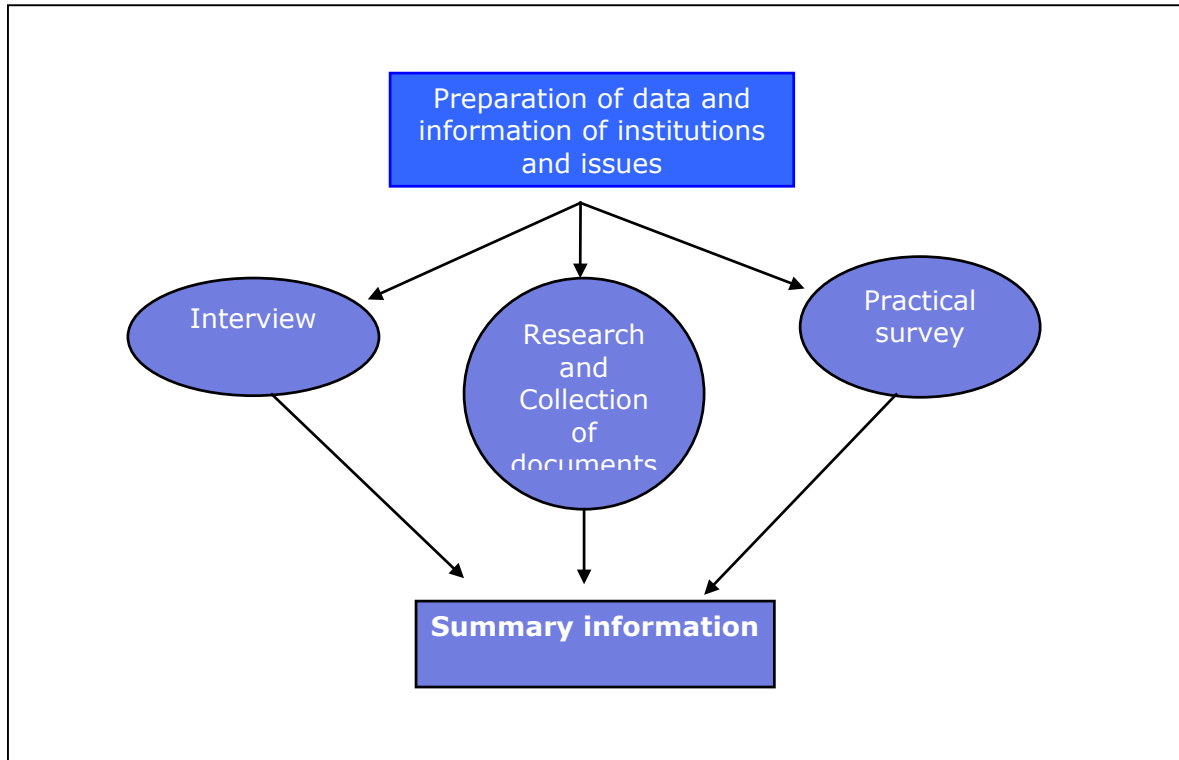


Figure 1: Summary of information collection method

3. Results and Discussion

3.1 The role of institutions at Hanoi city level

3.1.1 The Hanoi People's Committee (HPC)

The HPC is responsible for overseeing the overall regulation, monitoring and administration of institutions relating to PUAFPS in the Hanoi peri-urban area. This involves decision making, formulation and implementation of urban development plans, including annual, 5 and 10 year plans [9, 10]. Under the Hanoi People's Committee there are several Departments which are listed below:

- Agriculture and Rural Development Department
- Scientific, Technology and Environment Department
- Planning and Investment Department
- Finance Service
- Land Office
- Hanoi Bank

3.1.2 The Department for Agriculture and Rural Development (DARD)

DARD has responsibility in providing specialist support to the Hanoi People's Committee in the areas of agriculture, forestry and aquaculture development and planning. This department draws up and implements plans, whilst also disseminating and promoting research findings and new techniques to all districts throughout the Hanoi area [4, 5, 6].

The Department is further divided up into the following functional offices:

- Technical Unit
- Planning and Investment Unit
- Policy Unit
- Scientific Management and Production Quality Management Unit
- Basic Construction Unit
- Inspection Unit

The Technical Unit plays an important role in agriculture and aquaculture production including planning, as well as all of the technical aspects. This unit is particularly useful whenever information or clarification on production or technical issues in agriculture, and aquaculture is required. Based on the results and data from previous agricultural production, the Technology Unit makes projections for the agricultural production and development of Hanoi City up to the year 2010 [4, 5, 6].

The Unit also has responsibility to conduct research programs in agriculture, forestry and aquaculture. In the area of aquaculture, the unit manages 4 sub- centers:

1. Hanoi Agriculture Extension Center
2. Hanoi Seed Fish Center
3. Ha Thuy Company
4. Ho Tay Investment and Exploitation Company

3.1.3 Hanoi Agriculture Extension Center (HAEC)

HAEC has responsibility to provide specialist support, technical advice and help to peri-urban districts (Gia Lam, Dong Anh, Tu Liem, Soc Son, Thanh Tri) in implementing agricultural and aquaculture production plans [1]. It also co-operates with the Planning for Economic and Rural Development Unit and District Agriculture Extension Unit to help on a local level the Commune People's Committee manage and develop all its activities associated with agriculture and aquaculture. Hanoi Agriculture Extension Center has been exchanging information and techniques in aquaculture with Hanoi Seed Fish Center and Fish State Enterprises as well as trouble -shooting any problems relating to aquaculture within peri-urban Hanoi.

3.1.4 Hanoi Fish Seed Center (HFSC)

HFSC also has responsibilities to produce and supply fish seed (fry and fingerlings) to farmers in and around the Hanoi area. Moreover Hanoi Seed Fish Center has been organizing and promoting aquaculture extension activities to a wide range of Hanoi's fish farmers. HFSC and HAEC are both also directly receiving aquaculture advice and new techniques are promoted by the National Fisheries Extension Center (NFEC) and RIA 1 (Research Institute for Aquaculture No. 1).

3.1.5 Ha Thuy Company and Ho Tay Investment and Exploitation Company

Ha Thuy Company and Ho Tay Investment and Exploitation Company are two state fish enterprises, which both have the role and responsibilities for the management and conservation of Hanoi's inner city lakes as well as the development of aquaculture. There are 10 lakes (originally natural) within the inner city, with some of the lakes being developed to become urban parks [13, 18]. The purposes of these lakes are:

1. Storing rain water to control flooding during the rainy season.
2. Maintaining the inner city lakes to promote a clean and green environment for Hanoi residents.
3. Improving the capacity to exploit the water surface by promoting relaxation and leisure activities.
4. Fish culture.

Presently, fish culture and production is ranked by Ha Thuy Company (HTC) and Ho Tay Investment and Exploitation Company (HTIEC) as the least important resource development of these inner lakes because domestic wastewater and other contamination makes them too polluted for aquatic species such as common carp, tilapia and even snails to survive. All institutions and their relation are shown in Figure 2 and Figure 3.

3.2 The role of institutions at district level and below

3.2.1 The District People's Committee

The District People's Committee is the most powerful organization at district level. In peri-urban Hanoi there are 4 peri-urban districts: Thanh Tri, Dong Anh, Gia Lam, Tu Liem and Soc Son and each district has one People's Committee. Those District People's Committee is under the control and management of the Hanoi People's Committee [10, 11].

These District Committees have responsibilities in the control, general administration, management, and provision of advice at the commune level [7, 15, 17]. In the field of agriculture and aquaculture, the District People's Committee has approved plans which are designed by the Planning for Economic and Rural Development Unit and Extension Stations (at district level). The District People's Committee and Hanoi Agriculture Extension Center are both directly involved in the development and progress of peri-urban aquaculture [1]. The District People's Committee carries out the Agriculture Development plans of the city by overseeing activities and development at Commune level. The production plan includes agriculture and aquaculture production plans of communes which also draw on information collected from individual household's plans. That means based on the requirement of each Household for developing agriculture and aquaculture production. The Planning for Economic and Rural Development Unit (district level) analyses the statistic data which is collected by communes from individual households involved in aquacultural/agricultural production.

3.2.2 The Planning for Economic and Rural Development Unit (PERDU)

PERDU has responsibilities in economic development at district level which includes agriculture, forestry, aquaculture and irrigation. It also has responsibilities in the collection and dissemination of a wide range of statistics concerning urban land areas and land use, agricultural production, investment for subsidized land, price of seed and some of agriculture inputs for the farmers. This unit combines with District Extension Stations in the control, management, and provision of advice at commune level for the implementation of agriculture and aquaculture development plans.

3.2.3 The Communes People's Committee

The Communes People's Committee is the highest, most powerful organization at commune level with a role as a leader for villages as well as farmers in commune area to develop peaceful and prosperous livelihoods. Each Commune People's Committee has to regularly report each week to the Districts People's Committee. Within the area of agriculture at commune level it also has an Economic Unit. The Deputy Chairman of the Commune is in charge of this Unit with responsibilities in agriculture and aquaculture development.

3.2.4 The Commune Extension worker

The Commune Extension worker is a person working for Commune People's Committee who directly offers advice to farmers in agriculture as well as aquaculture. This person is under the control and supervision of the District Extension Unit in all of their work and activities in agriculture at the commune level. There is also help from a government net (from government down to commune) in each commune to help farmers in economic, culture and societal development. These Volunteer organizations include Farmer Unions, Women Unions, Youth Unions, War Veteran Unions and Agriculture Co-operate Services.

These organizations play an intermediate but important role to farmers in helping to organize and transfer new technology, as well as buying and selling agricultural products, finding funds for agriculture and aquaculture investment, etc. They initiate campaigns and programs which promote competition and encourage increased production amongst farmers, examples being "Farmer emulation in production", "City women help each other in reducing poverty", "The youth help each other in economic development", "How to become a rich man from farming", etc.

All institutions and their relation are shown below in Figure 2 :

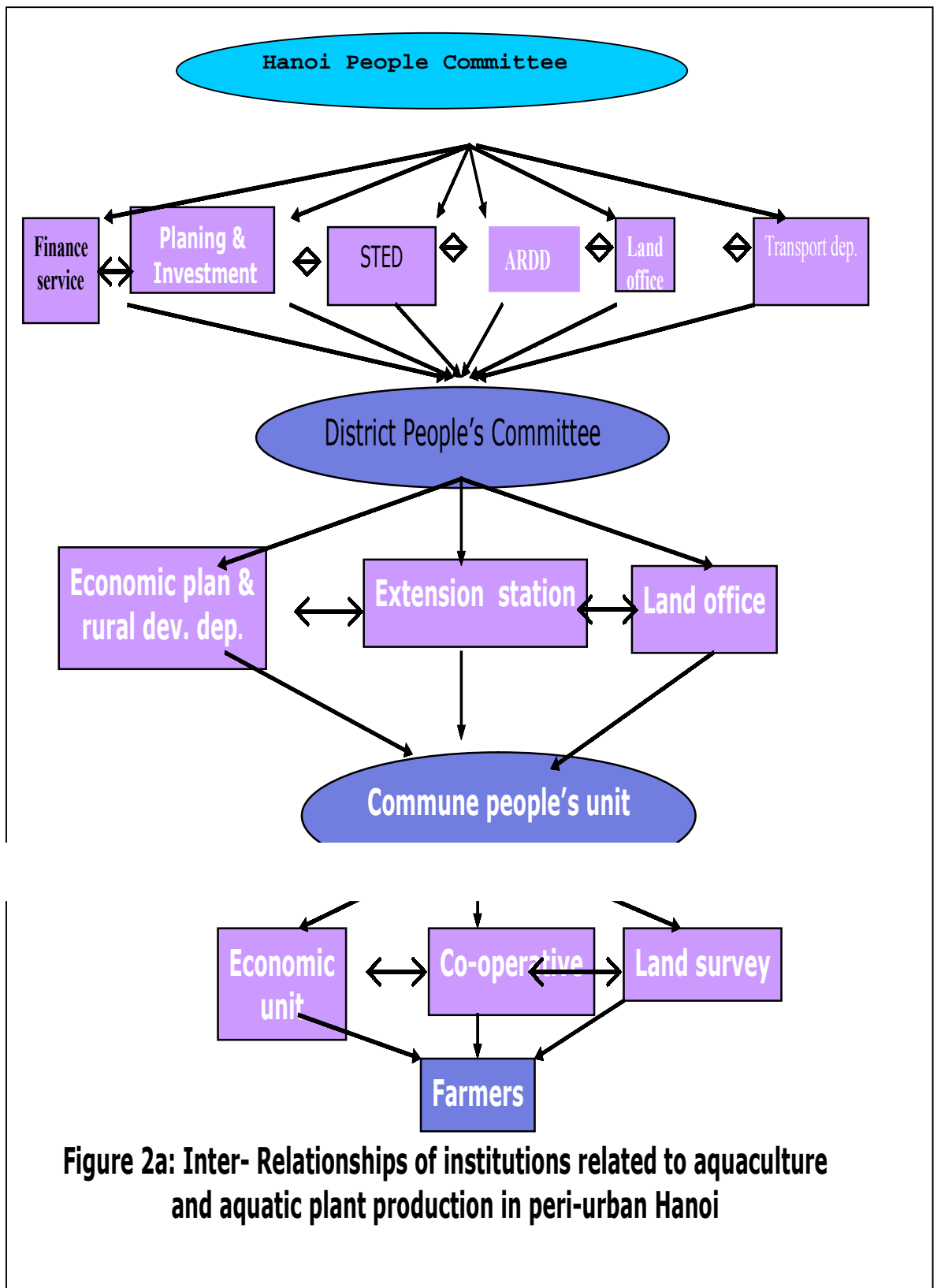


Figure 2a: Inter- Relationships of institutions related to aquaculture and aquatic plant production in peri-urban Hanoi

3.3 The role of institutions related to aquatic systems development in Hanoi

3.3.1 The Ministry of Fisheries

The Ministry of Fisheries is the highest level organization within the Vietnamese government with responsibility to develop aquaculture and fisheries. The Ministry of Fisheries manages, oversees, provides guidance, advice and plans to related departments, organizations and institutes within the Ministry of Fisheries [8, 12], examples being. The National Fisheries Extension Center and the Research Institute for Aquaculture No. 1 which are both involved in aquaculture development within and around Hanoi.

3.3.2 Research Institute for Aquaculture No. 1 (RIA 1)

RIA 1 has the overall responsibility in the design and implementation of research to develop aquaculture in the North of Vietnam. Its main areas of research are improvement of high quality fish seed, broodstock genetics, development of production techniques, aquatic animal health management, and water quality and environmental impacts .

Extension is the second responsibility of RIA1, through transfer of new technology in aquaculture down to local levels by extension training courses for staff from large provinces, districts, other institutions. Example: RIA1 regularly run training courses for staff of Hanoi Fish Seed Center and Hanoi Extension Center as well as for individual farmers.

RIA1 has the third responsibility and reputation for graduate and postgraduate training in aquaculture for the whole country through support from outside funding from AIT - The Asian Institute of Technology and NORAD project - Building Advanced Research,

Education and Extension of RIA 1 project. Related with aquaculture development in Hanoi City, RIA1 also has also been providing consultancy services in designing new projects related to aquaculture.

3.3.3 National Fisheries Extension Center (NFEC)

The NFEC is the leading body running Extension Services throughout Vietnam and is one of the more important organizations in the Ministry of Fisheries which has responsibility in developing aquaculture in Vietnam through provision of extension services in all cities and provinces throughout the country. NFEC has been organizing aquaculture, building aquaculture models, providing technical advice to provinces, expanding and developing extension programs, and regularly publishing and summarizing the annual extension activities, results from aquaculture models as well as also disseminating new international techniques to wider audiences which it publishes in “Vietnam Extension Information”.

Directly related to aquaculture in Hanoi, NFEC directly manages and overseas the Hanoi Agriculture Extension Centre. Presently the National Fisheries Extension Center provides funding for development of aquaculture production models such as intensive mono-sex tilapia, *Macrobrachium*, etc. for the provinces as well as in peri-urban Hanoi.

These relationships are illustrated below in Figure 3

3.3.4 Hanoi Agriculture Extension Center (HAEC)

HAEC is under the administration and management of the NFEC within the Department of Agriculture and Rural Development of Hanoi (DARDH). The main responsibilities of the Hanoi Agriculture Extension Center are to transfer new technologies to the farmers through demonstrations and training. The HAEC has developed extension services to all districts and communes within peri-urban Hanoi.

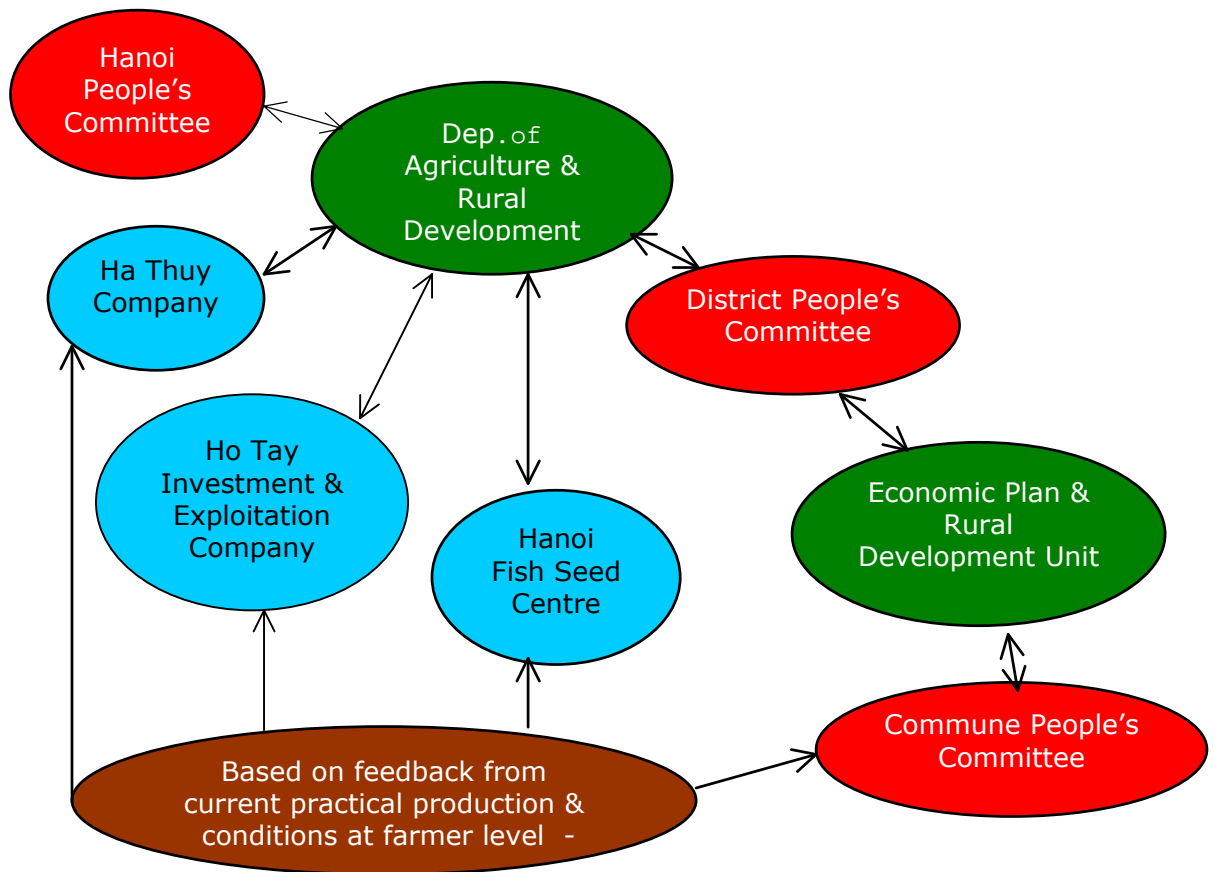


Figure 3: Relationship of Hanoi's institutions in implementing and developing aquaculture

3.3.5 Hanoi Fish Seed Center (HFSC)

Hanoi Fish Seed Center produces fish seed for farmers in the peri-urban and surrounding areas of Hanoi; it is involved in maintaining original and purebred brood stock and producing fry and fingerlings of a number of commonly cultured species of fish, whilst also applying and transferring aquaculture technology to the farmers through training.

On the other hand, HFSC is also involved in the new role of training farmers in order to conserve and develop the resources of aquaculture within Hanoi in order to prevent the over-exploitation of the environment, an example being its ban and regulation of the use of explosives, and potentially poisonous chemicals used to harvest aquatic animals. Related to

this HFSC has been implementing the dissemination of conservation resource law to the leaders at districts and commune level and farmers by specialist aquatic resources training classes. HFSC is also responsible for aquaculture quarantine in relation to potentially harmful fish diseases.

The relationship between Hanoi Agriculture Extension Center and Hanoi Fish Seed Center is mutually cooperative in aquaculture development programs and fish seed production.

3.3.6 District level

The District Extension Unit has responsibility in the transfer of new techniques to farmers and promoting development and competition in aquaculture amongst communes. The relationship between the District Extension Unit and the other units within the district is one of overall coordination.

3.3.7 Commune level

The Commune People's Committee has responsibilities in administration and management of economic development. It has an Economic Section which oversees the economic development within the commune.

There is also an Agriculture Services Co-operative (ASC) which is working at Commune level and has responsibilities in plant and fish seed production, irrigation and technical advice which is required from the farmers. This ASC also responsible for helping farmers with aquatic plants production.

3.3.8 Households

Households are directly related to the Commune People's Committee (CPC) and also the District Extension Station through their training programs in aquaculture.

Households have relations with RIA 1 through participation in extension programs which are jointly coordinated between District Extension Stations and RIA1. Farmers can also go directly to RIA1 to buy fingerlings and fry, and also ask for technical advice. These relationship for aquatic production systems are shown below in Figure 4.

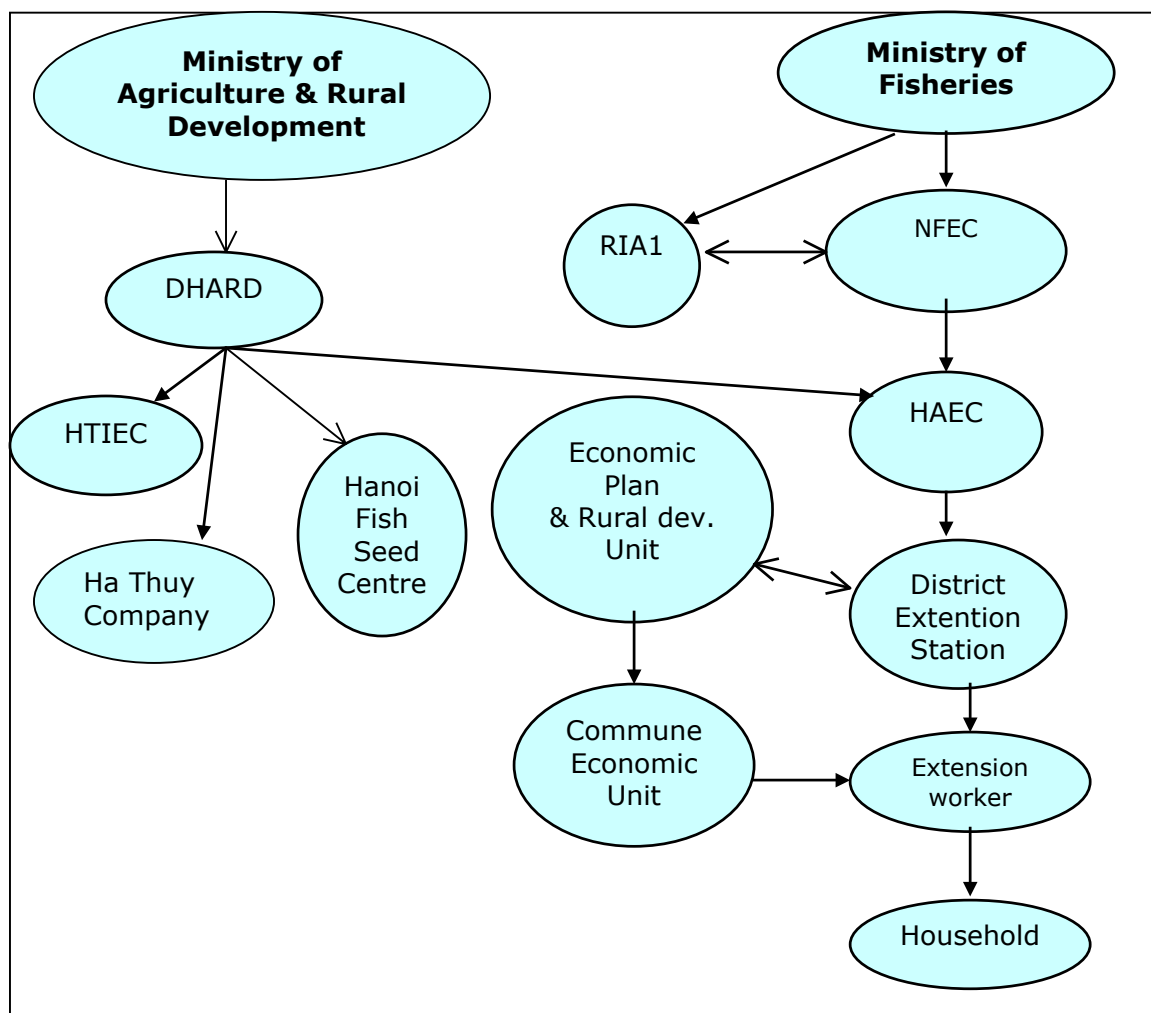


Figure 4: Relationship of institution related to aquatic production of Hanoi

3.4 Planning, budgets and funding

3.4.1 Overall Planning and Funding for agriculture production at city level

In Hanoi city, planning and funding for agriculture production is mainly carried out by the Department of Agriculture and Rural Development, based on reports, statistics and plans which emanate from the district level.

* There are two sources of funds for peri-urban agriculture development and regulation within Hanoi from: a) The City budget

b) The Fund for Production.

The City budget

To qualify and receive funds from the city budget the investor (the person, organization or department who are proposing the plan for agricultural development or land use in the Hanoi area) has to submit a project to DARD which will then consult with the Hanoi People's Committee. An Appraisal Committee is then set up composing of managers or deputies responsible for agriculture from the Departments of Investment and Planning, Finance, Science, Technology and Environment Department, and RIA 1. The project will only be funded and implemented after overall agreement from this Appraisal Committee.

The Production Fund

The District Production Fund can help support households and farmers in developing their economic situation. In order to receive funds from this source, the farmer must be working as a fish farmer or involved in aquaculture activities. Farmers are required to submit their plans with a supporting letter to the commune then Economic and Planning Unit of their district which will then assess the application and decide whether or not to approve and fund their plan.

Funding and Approval of Research project

Research proposals for aquaculture development projects are formulated and written by departments such as Hanoi Fish Seed Centre, Ha Thuy Company, Ho Tay Investment and Exploit Company, etc. which are then submitted to the Departments of Agriculture and Rural Development and Science, Technology and Environment for approval. If the application is

successful budgets will be allocated for the implementation of activities and starting the project.

3.4 2 The relationship between institutions in the implementation of policies or programs

Hanoi People's Committee and the Ministry of Fisheries are overseeing and managing a number of different branches and levels in agriculture and aquaculture from national to local levels.

The Department for Agriculture and Rural Development presides over the implementation of plans and policies at lower levels. They co-ordinate with the Department for Planning and Investment, the Districts People's Committee and other organizations in developing and formulating plans which compliment the existing and future investment in agriculture projects up to the year 2010.

The Department of Finance co-operate with the Departments for Agriculture and Rural Development, Planning and Investment and the other related Departments and branches. Based on the policies defined, they then synthesize and balance budgets then report back to the Hanoi People's Committee to check and make decisions related to the annual planning process.

Planning and Investment, Finance, Agriculture and Rural Development and the other departments provide guidance documents through Unions or organisations for farm managers on investment issues relating to government regulations, sources of funds for annual agriculture development.

The Land Office, Agriculture and Rural Development Department and the other Services and Branches are responsible for the regulation and implementation of Land Policies and Land Law relating to organizations, households and individuals.

The Director of the Department for Agriculture and Rural Development has responsibilities in bringing together and collating information and statistics on land use from all branches and levels within the ministry. Whenever any difficulties in the regulation and implementation process appear, it is reported back to City People's Committee to examine and solve on time.

3.5 Policies to encourage agriculture development

Based on the policies of the Government, the Hanoi People's Committee decide to implement policies in order to encourage agriculture development in all areas of Hanoi City.

3.5.1 Organizations involved

Businesses, Agriculture Services Co-operatives, Farm managers, households and individuals who are involved in fish and aquatic plant production in peri-urban Hanoi.

3.5.2 Specific Areas Target in Agricultural Policies:

The following activities within peri-urban agriculture have been promoted within government policy.

1. Planting flowers, food safety issues of vegetables, and fruit - tree production
2. Raising pigs, milk production – dairy cows
3. Aquaculture
4. General agriculture production and food processing

And peri-urban aquatic plant culture is not mentioned.

3.5.3 Some policies to encourage agriculture development:

** Policies to help in investment, construction and infrastructure*

Hanoi Bank plans to invest about 80% of the total City authority's agriculture fund for infrastructure construction related to peri-urban agriculture: examples being to promote

irrigation systems for developing agriculture and aquaculture in specific areas of peri-urban Hanoi; to improve electricity and fresh water supply systems, for business and agricultural development, to improve transport systems, road network and supplies and availability of packing materials, manures and agriculture products.

** Price subsidies in materials, technologies and plant & animal seeds*

The city budget will:

- Subsidize price for some of the main agricultural inputs, plant seeds, fish, and animal seed and some aquaculture species for which the farmers get high economic benefit.
- Import specific Flower species, bio-fertilizer, pesticides used for vegetables, provision of safety labels for vegetables.
- Providing agricultural netting for crop and vegetable protection in order to improve quality and yields.
- Improve food safety by regulation of vegetable production by regular and statutory monitoring, of food storage and agricultural transport methods.
- The law for subsidy in price is not greater than 50% of total cost of material during the first 3 years.

** Policies to subsidise agricultural production*

- If any natural calamity such as flood or drought occurs in agriculture and aquaculture areas within Hanoi, the City budget will allocate funds for alleviating the effects of natural calamities and also protecting agricultural products from spoilage.
- To subsidise for damage to vegetables for food safety standards in the production and agriculture process. If the damage is below 50% of the price of the product then the City budget will help to reimburse part of the damage for the producers.

** Policies to borrow and encourage investment*

- Investors in agriculture development can get credit from concessionary credit sources and the Agriculture Extension Fund. In order to encourage lending, the loans given for agricultural projects are charged at lower interest rates.

** Policies in land usage*

- Based on its scheme/plan relating to peri-urban land-usage the District People's Committee makes decisions for the conversion of land use for invested projects which it has approved in order to convert rice field areas into cultivated crops, livestock and development of aquaculture.

- Once given specific funding under this plan individual agriculture development investors have authority to change or modify land usage as laid out in the specific production investment project. This also allows them to construct temporary houses and storage facilities on this land. They also have to submit to land tax as the law defines, whilst also utilizing the land for the specific purpose as stated in the relevant Land Law.

The District People's Committee after receiving the decisions from Hanoi Peoples' Committee [11] publicly announce these policies to support development of agriculture [16] then disseminate out this information to businesses, organizations, farm managers, households and individuals who have the capacity and background in agriculture production to arrange and implement. The preference for development of particular areas of the city and policy implementation depend on fund resources and the specific conditions of each district.

Below is an example quoted from Thanh Tri district of a policy which was implemented to help agriculture development.

In the year 2003, Thanh Tri People's Committee planned to spend 2.8 billion VND to help people who were involved in agriculture production/development in the district areas.

+ 1.1 billion VND was to spent in order to convert 50 hectares of low lying land with 2 uncertain annual rice crops into an alternative 1 crop rice-1 crop fish system or also converting this land to become an area specializing solely in fish cultivation. About 30% of the total cost incurred by the households for converting this land from rice-fields into ponds for fish culture will be met by this fund. Initially, Thanh Tri district converted about 2000 m² - 3000 m²; Support 50% of the total cost which households had spent to construct fish ponds.

+ Support to households in the culture of particular aquaculture species such as first time culture of *Macrobrachium rosenbergii* – the Giant Freshwater Prawn by subsidizing the cost of seed/juvenile prawns by up to 50% of the price; Culture of Taiwan tilapia will be supported with 75.000 VND/sao (1sao=360 m²), and about 30 ha; *Pangassius catfish* culture trials will be supported by up to 10 million VND.

+ Training about new techniques and visiting model production sites.

3.6 Trends in Hanoi development by 2020

According to Urbnet-Vietnam (2001) and Hanoi Authority for Planning and Investment, by 2020 the total area of Hanoi will increase about 10,000 ha and Hanoi will mainly expand along the left bank of The Red River, and building a chain of cities such as Xuan Mai – Hoa Lac – Son Tay will be developed. Construction and public services will be improved: transport,

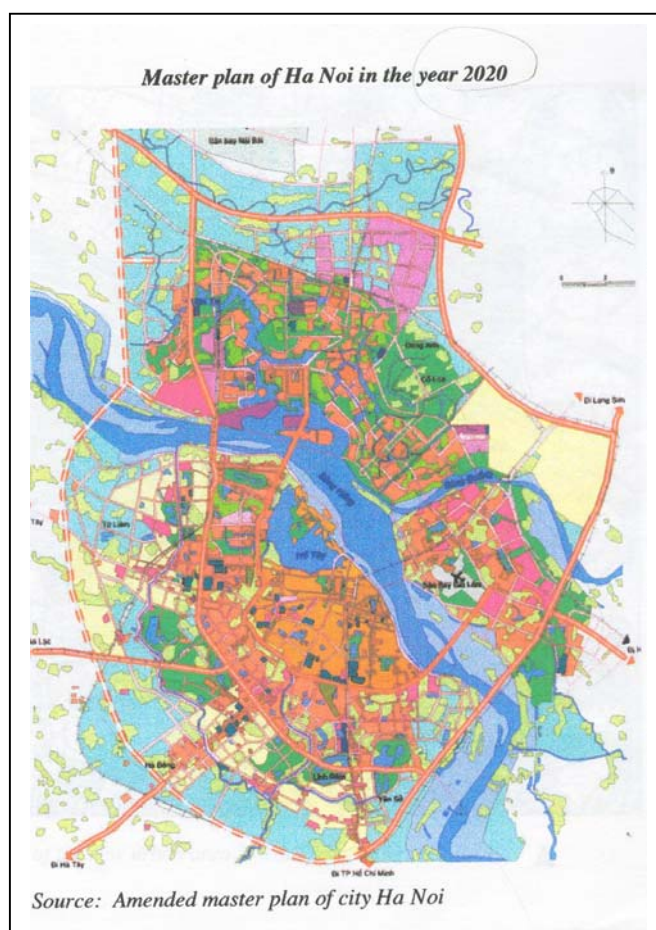


Figure 5: Hanoi Master plan 2020

telecommunications, fresh water sources and supply, withdrawn wastewater and managed solid waste disposal will also be improved. This is illustrated in Figure 5.

From now up to 2020, there are plans to build more universities, colleges, technical schools, primary and secondary schools, clubs, restaurants, hotels and parks within new area of Hanoi. And more high buildings will be built in Linh Dam, Dinh Cong, Giap Bat, and Thanh Cong areas. This will involve widening and improving national roads such as: road N^o 1, 2, 3, 5, 6, 18, 32 and Lang – Hoa Lac highway. Four new bridges will be built in Thanh Tri, Vinh Tuy, Nhat Tan and Tu Lien.

Certain Peri-urban area will be designated green belts and specialize in the supply and provision of fresh vegetables, fruit and protein for the growing urban population of Hanoi city.

3.6.1 Future trends in Hanoi Aquaculture development up to 2010

According to the Department for Agriculture and Rural Development of Hanoi (2000) aquaculture within Hanoi will be developed in the following directions:

- To utilize more and exploit suitable areas of peri-urban land for culture of aquatic plants and fish, thus increasing production of goods with high economic value, proven food safety for consumption and quality for the consumer.
- Progressive application of new technology to develop aquaculture in conjunction and alongside urban industrialization and modernization.
- Development of sustainable aquaculture systems and protection of the ecological environment, also protect aquaculture resources, and embellishment of the urban landscape and environment for the increasing value and income from tourism for the people of Hanoi.
- General research about the potential areas available for aquaculture, suitable systems and species for production taking into account ecological and environmental factors in order to

formulate and develop aquaculture plans. By 2010, total area for aquaculture is estimated to be 4000 ha with annual production in the peri-urban area of 15,000 tonnes, with productivity at 3.75 tonnes/ha. Total investment will be required of 209.5 billions VND for improving the fish seed/hatchery production systems, technical, extension, fish feed nutrition and aquaculture resource protection.

- Building aquaculture projects: Status assessment and recommendations for Hanoi aquaculture development, improving seed fish systems, continuing conversion of low land into fish + rice + fruit and development of new species for aquaculture.

- Implement: Improved management methods from national to local levels and develop aquaculture extension.

- Some examples of future proposals:

- + To develop and concentrate aquaculture in the wastewater region at Thanh Tri developing more intensive high productivity culture systems using commercial feeds.

- + Converting 1000 ha of low land rice field into rice-fish or fish pond or VAC systems.

- + Develop VAC system in ponds or more intensive fish culture.

- + To stock and culture certain fish species in Hanoi's large urban lakes which will improve and enhance the water quality and local environment whilst simultaneously helping to develop the environment for tourism in the city.

- + Continue fish culture in lakes within the city to protect environment, landscape and develop fish culture in suburban lakes to develop ecological tourism

- To strengthen the fish seed/hatchery production systems of the city based on improvements in facilities and infrastructure and intensify the management of government concerning the quality of seeds. Supplying enough fish seed both in quantity and quality: production of 120

million VND of fish seed and 16 million VND of shrimp larvae. The seed production system will be integrated between the central Hanoi Fish Seed Center, right down to the district and producer level.

- To develop new and available feeding sources for fish such as waste from agriculture and industry, food processing, human wastewater/sewage, using livestock wastes as in the VAC systems, etc. Moreover, progressively to develop and use commercial feed for farming fish and establish feed mills to produce commercial fish feeds at up to 15,000 tonnes/year.
- Research and application of new techniques in production and marketing and intensify co-operation between national and international institutions in aquaculture science and research.
- Publication of technical books and manuals to guide all involved in peri-urban aquaculture in not just production technology but also the importance of sustainability and maintaining an ecological balance with the urban environment.
- Mobilizing various sources of funding: Funds from government encourage self financing from farmers for agriculture production.

3.6.2 Aquaculture development plan in Thanh Tri district by 2010

According to Thanh Tri District Peoples Committee (2001), there will be an increase in intensive fish culture within the District with new fish species. The plan/idea will be to change to high quality seed and apply some new fish species for aquaculture. Fish production areas will be developed in Vinh Quynh, Yen So and Dai Ang communes. By 2010, Thanh Tri district will have converted about 1000 - 1500 ha of low-land-rice-fields into fish + rice + fruit + livestock + tourism and other services so that it is estimated each year Thanh Tri district will be convert 150-200 ha of lowland-ricefield into these new systems with the major land conversions being concentrated within communes such as Ta Thanh Oai, Vinh Quynh, Dai Ang, Huu Hoa, Lien Ninh, Ngoc Hoi and Dong My.

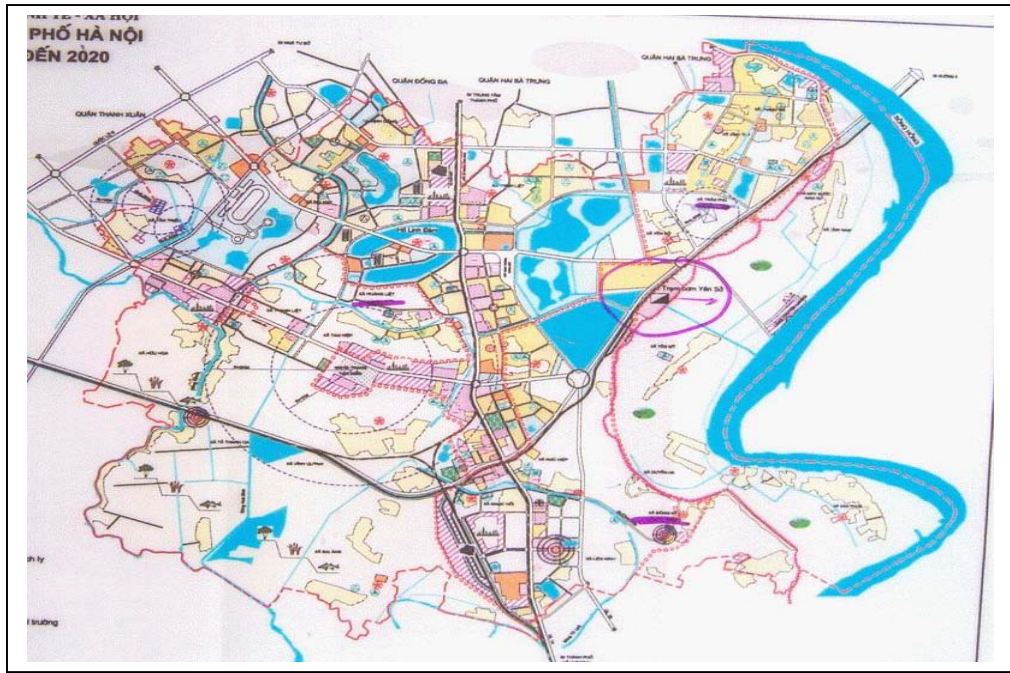


Figure 6: General scheme in socio-economic development of Thanh Tri district by 2020

3.6.3 Aquaculture development plan in Dong Anh district by 2010

The General scheme/plan of socio-economic development of Dong Anh district (2001 – 2010) was made with the co-operation of the University of National Economy. This point is important in that a university is involved in drawing up development plans for this district. It is another type of institution/organization which is involved in the Institutional framework.

Dong Anh will continue as a model for converting lowland-ricefield into fish pond and VAC systems. In the year 2000, Dong Anh district used 510 ha for aquaculture, and it is estimated that for every 5 years in the future the district will increase this land usage for aquaculture by 260 ha up to a total of 1,270 ha by 2010 [17]. From the same source above, it is stated that Dong Anh district will need more support and funding of between 30-40% of the costs for change of land usage in order to implement this general scheme. The low-land-rice-field areas in the Duc Tu, Van Ha, Lien Ha and Co Loa communes are suitable for conversion to promote aquaculture.

3.6.4 Aquaculture development plan in Gia Lam district by 2010

In the general scheme for socio-economic development of Gia Lam district for 2001 – 2010, land area for agriculture and aquaculture will be restricted due to projected urbanization and industrial development. Moreover, by the end of 2003 some communes of Gia Lam district such as Viet Hung, Long Bien, etc. are establishing a new urban-district infrastructure as laid out in the Master Plan of Hanoi city resulting in more land which has and could be used for aquaculture being lost and reducing evermore rapidly.

4. Conclusions

1. The roles and inter-relationships of institutions involved in agriculture and aquaculture in peri-urban Hanoi is fairly well defined with the lead from national, city, district, commune lead to household level. However this is qualified by saying that there was a distinct lack of information or responsibility on the institutions involved with aquatic plant production.
2. Local government and local institutions play the main role in deciding actions and leading aquatic production systems but scientific institutions have specialised roles in giving

advice such as Research Institute for Aquaculture No. 1 in its provision of specialised advise within Hanoi in the field of aquaculture.

3. The aquatic food production systems in Hanoi is involved and combined by two sides: government institutions and agriculture and aquaculture sciences institutions.

4. The aquatic food production systems in Hanoi areas are mainly directly managed by local institutions: Planning for Economy, Agriculture Extension Units at districts, Fish Enterprises and Hanoi Agriculture Extension Centre with the lead from Hanoi People's Committee following Hanoi's City Plan.

5. Aquatic plant cultivation and management is not well represented at any level within the institutions involved in urban development compared to fish farming.

6. This report found a distinct lack of information concerning organizations relating to dissemination or reporting of information concerning these aquatic production systems and how they relate to urban development.

7. There are a number of other academic institutions in Hanoi which are involved in or researching on developmental planning for urban Hanoi.

5. Recommendations

1. There is a need to do more in depth research on previous Hanoi city and urban development plans relating to aquatic production systems in order that a meaningful judgment can be made as to their relative success or failure in protecting or promoting aquaculture /aquatic plant cultivation in and around the city.

2. The current plans for development of Hanoi agriculture are realistic and achievable but there is a gap with aquatic vegetable cultivation which requires more monitoring and inclusion in the urban planning process.

3. There is a need for more in depth research into how government monitors its own plans.

4. There is a need for strengthening staff numbers in aquaculture at district level as well as aquatic vegetable management and monitoring.

5. There is a need to obtain more detailed information about potential role, linkages and benefits within the media to the above government institutions.

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