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Agricultural restructuring towards raising added values and sustainable development in Hanoi city, Vietnam

D M Le

Faculty of Geography, Hanoi National University of Education, Hanoi, Vietnam

Email : dungle128@yahoo.com.vn

Abstract. Hanoi both is the capital, the leading political, economic, commercial, tourist, cultural, educational, training and scientific-technical center of the country with the population of approximate 7.5 million. Therefore, agriculture plays an important role in satisfying the increasing demand of the people on agricultural products, especially organic products. However, limitations remain in the sector. To bring the capital's agriculture into advanced and sustainable development, restructure is a breakthrough solution. By the study of the author, the article provides specific analysis on the current situation and direction of agricultural restructuring in the Hanoi by the year 2020.

1. Introduction

Hanoi both is the capital, the leading political, economic, commercial, tourist, cultural, educational, training and scientific-technical center of the country. Regarding to population, the City has approximated 7,463 thousand people (by 12/31/2015), ranked second in 63 provinces and cities, just after Ho Chi Minh City [2]. In the Hanoi economic structure, agriculture (in large meaning including aquaculture and forestry), despite its covering a relatively small ratio and its tendency to decline, plays an important role in satisfying the increasing demand of the people on agricultural products, especially organic products; contributing to promotion of economic development toward industrialization and modernization.

However, the capital's agriculture has yet satisfied such demand. In general, the productions come from most of the smallholder farmers with fuzzy role of the co-operatives in making connection and link for application of advanced technologies, cost reduction, quality control of the products; with ineffective chain of production – processing – consumption of agricultural products; and limitations of works on commercial promotion, advertisement and introduction of agricultural products...

With the target on bringing agriculture into advanced and sustainable development, Hanoi needs to have strong and sound solutions. One of the issues considered breakthrough – according to the study of the author – is agricultural restructuring.

To address the issue, it is necessary to answer the following questions: 1/What is the agricultural restructuring?; 2/Why must the agricultural restructuring?; 3/How is/are direction(s) of Hanoi's agricultural restructuring implemented?; 4/What is the specific option of solution for effective of the Capital's agricultural restructuring? In this article, the author presents specific study results in answering the above questions. However, for the third question, the author focuses on changes of structure of the sectors in general and each sector's internals in particular; and as for the fourth question to deeply enter into one of the specific solutions for the agriculture of the City.



2. Data and research methodology

To serve the research and give the results of the study, data was collected in two forms, primary data and secondary data. Primary data was collected through a survey, the investigation, the actual interview in Hanoi, including the Department of Agriculture and Rural Development of city, Agriculture Department of districts, some households and farms. Secondary data was collected from the documents that were published by the experts, scientists and authorities (see reference section).

To carry out research, the author has used a combination of research methods, which is the method of collecting, processing documents; methods of analysis, comparison, synthetic; expert interviews methods, forecasting methods.

3. Result and Discussions

3.1. Concept on agricultural restructuring

On 02/19/2013, the Prime Minister promulgates Decision No. 339/2013/QĐ-TTg approving the overall scheme on “Restructuring economy in association with transfer of growth model towards to increase quality, effectiveness and competition capacity during 2013 - 2020”. Based on this, the concept of “Restructuring economy ” is understood as restructure of the system (such as: re-arrangement, shifting of operation models, re-identification of targets, strategies, visions, and etc. of a sector, organization or enterprise) or process of implementation of transfer and/or change of the old structure of the economy by a more proper and new one [6].

And then on 06/13/2013, the Prime Minister continued to promulgate Decision No. 899/2013/QĐ-TTg approving the project on “Agricultural restructuring towards raising added values and sustainable development” with general and specific targets in rural and agriculture [5]. According to this project, it is understood that “Agricultural restructuring” is “The process for continuing development of agriculture in attachment with allocation and rearrangement of production sectors in principle of making maximum comparative advantages and optimal use of input resources to create higher and more sustainable economic efficiency and competitive capabilities for the whole sector, is development process in attachment with change of production models of specialized sectors to produce high quality and valuable agricultural products in complying with the market’s demand, using effectively local resources, improving the farmers’ income and ensuring the sustainability” [6].

3.2. Necessity for agricultural restructuring in Hanoi

3.2.1. *Important role of the agriculture in Hanoi*

In the City’s economic structure, ratios of sector III (services) and sector II (industry - construction) cover dominant parts, with 53.7% and 41.6% respectively of gross regional domestic products (GRDP) in 2014. Sector I (agriculture - forestry - fishery) holds a humble position and is declining, only 4.7%. The problem lies in more than half of population in Hanoi (50.8%) living and working in rural areas and suburban districts and agriculture remains one of the main production activities in those areas (covering up to 93.0% of the Capital’s agricultural labors) [2]. Despite covering a relatively small ratio, agriculture in the suburban areas and peri-urban does not only supply fresh foods and foodstuffs to the urban with approximate 7.5 million people but also supply raw materials to the industry and handicraft industry creating employments and being places where services and production activities take place with high density of population.

Development of the Capital’s agriculture is under impact of rapid occurrence of industrialization and urbanization process along with sharp declination of agricultural area thanks to the transfer of land use purposes. Requirements placed on the agriculture of Hanoi city is how to be developed so as to implement its obligations in contribution into the Capital’s general economic growth; as well as to produce quality agricultural products serving the urban and tourism; to contribute ensuring the food security, nutrition, and food safety and hygiene; and to conserve the values of culture and ecological

environment. Development of the agriculture of Hanoi is surely not completely like that in the provinces nationwide, even that of Ho Chi Minh City (whereas HCMC and Hanoi are two special cities) as well as that of other cities directly under the central government (Hai Phong, Da Nang and Can Tho).

From the above analysis, it is possible to affirm that agriculture of the City plays a special important role.

3.2.2. Challenges of the Hanoi's agriculture in the tendency of integration

The agriculture of the City, in one hand, has to satisfy production and living demands, on the other, needs to grab its opportunities upon global integration. However, limitations of the sector lie in rapid increasing decline of agricultural area, small production scale (area) of each farmer household; incomplete accumulation of land fields; ineffective linkage between the households; lack of sound policies to attract investments into the agriculture, especially hi-tech application agriculture and processing groups; low quality agricultural products, and etc.

Upon global integration, the agriculture of Hanoi city is to face challenges. With low quality products and no comparative advantages right in the City with large amount of imported products, the sector is likely to take pressures that would lead to narrowing of its production. Producers/manufacturers in the City, due to their certain limitations (ie. capital, technology, management skills, business strategies, and etc.), are in risk of being governed by foreign corporations. Market shares of traditional retail channels, due to low comparability of quality and price of the agricultural products, is significantly declined.

3.2.3. Current situation of development of the Hanoi's agriculture

In Sector I, gross output (GO) of all sectors is increased. Structure and scale of agricultural, forestry and fishery production have been shifted positively yet slowly.

Table 1. Gross output and structure gross output of the agriculture, forestry and fishery of Hanoi in the period 2005 - 2014 (current price)^a

	2008		2010		2012		2014	
	Bil. VND	%	Bil. VND	%	Bil. VND	%	Bil. VND	%
Total	20,140	100	26,978	100	42,158	100	44,237	100
Agriculture	19,304	95.8	25,244	93.6	38,982	92.4	40,447	91.4
Forestry	59	0.3	55	0.2	64	0.2	84	0.2
Fishery	777	3.9	1,679	6.2	3,112	7.4	3,706	8.4

^a Calculation from [2].

In the GO structure of the sector I, prominence is agriculture (always covers more than 90%), increasing activities in fishery with gradual annual growth of its proportion, and forestry alone with low GO covering insignificant proportion.

Table 1 shows the slow structural transformation in the Sector I (during 2008 - 2014 periods, agriculture declines only 4.4%). In comparison to cities directly under the central government, proportion of agriculture in GO structure of Sector I in Hanoi covers up to 91.4% (2014), highest in 5 cities (while that of Ho Chi Minh city is 73.4%; Can Tho 71.1%; Hai Phong 66.2%; Da Nang 32.5%) [1]; and higher than average level nationwide and that of Red River Delta.

GO structure of agriculture in minor meaning has also a positive movement among cultivation, livestock and agricultural services yet slow.

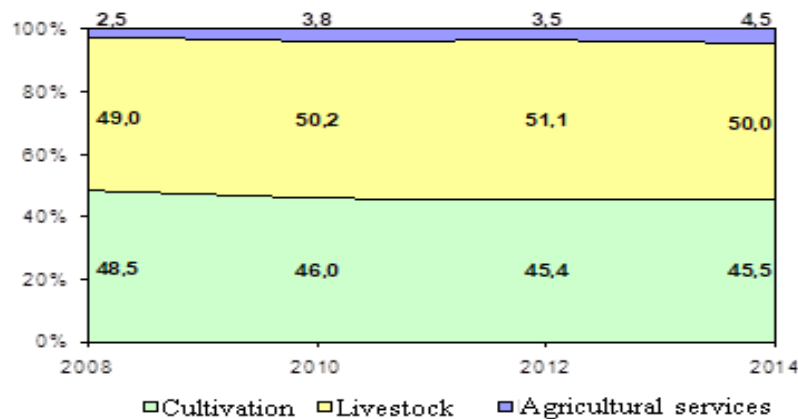


Figure 1. Gross output structure of the agriculture of Hanoi in the period 2008 - 2014 [2]

In Figure 1, ratio of cultivation can be seen with declining tendency, yet unstable (a decline in the period of 2008 - 2014 of 3%, however ratio of 2012 is lower than that of 2014). Livestock runs ahead of cultivation and covers more than 50% of the whole agriculture's GO. Agricultural services covers low ratio and is increasing slowly and unstably.

Tendency of transfer occurs even in the cultivation internals. In the same above mentioned period, annual plants take prominent advantages and only decrease 1%, while respective ratio of perennial plants is 1%.

In structure of cultivation, cereals are main crops and play leading role (49.7% in 2014), though its ratio is likely be decreased (period of 2008 - 2014 with a 13% decline). On contrary, flowers and bonsai plants; vegetables and beans have increasing ratios in GO structure of cultivation (7.8% and 3.0% respectively) [2]. This reflects the right direction of tendency in structural transformation of plantation toward diversification in attachment with value added of products and goods, land use efficiency, satisfaction of market demand, and etc.

Through some leading figures on the macro (whole sector I) as well as micro (each crop in cultivation) levels, the agriculture's structural transformation of Hanoi is taking place yet slow nor does it satisfy demand of the growth.

3.3. Directions of agricultural restructuring in Hanoi

Based on view for development of the agriculture toward eco-urban agriculture in attachment with services, tourism and mass production of goods with high productivity, quality and efficiency, compatibility, friendliness and sustainability with the environment, Hanoi city issues its Master plan for development of agriculture to 2020, vision in 2030. According to this plan, with specific target is by 2020, ratio of added value of the sector will account for about 3 - 4% of the city's total GRDP; shifting agriculture's structure towards reducing the proportion of cultivation, increasing the proportion of livestock and fishery, the structure of cultivation - livestock - fishery will be 34.5% - 54.0% - 11.5% respectively [4].

Based on evaluation and assessment of actual development, the author proposes direction of agricultural restructuring of a number of key sectors/sub-sectors of the Capital's agriculture and limit in shifting the structure by sectors and territories.

3.3.1. Agriculture

- Cultivation

Due to rapid urbanization, agriculture area of Hanoi is being narrowed. It is expected that, by 2020, area for agriculture is only 129.6 thousand ha in the whole city. Therefore, it is necessary to improve productivity and quality of agricultural products and production efficiency per area unit, to up-scale

hi-tech agricultural models in combination with formation of specialized areas for large-scale goods production.

Among structure of Cereal crops in the city, paddy is prominent. Due to decreasing area of agriculture during the industrialization and urbanization, planted areas of paddy are declining, only 146 thousand ha in 2020 and 106 thousand ha in 2030. Paddy plantation is mainly toward high quality one, especially in the area with concentration condition and active irrigation system. It is expected that annual yield of paddy in the period 2020 - 2030 attains more than 6 tons/ha.

The City continues to invest in intensive cultivation of rice, using high quality seedlings in complying with ecological conditions of each sub-regions, improving quality of irrigation, well implementing pests prevent and fighting, synchronically applying intensive cultivation techniques and measures from sowing, growing, fertilizer balancing to harvesting.

Table 2. Forecast on development of paddy in Hanoi by 2030^a

Types of plants	Current situation	Forecast	
	2014	2020	2030
Annual paddy crop (thousand ha)	202.8	145.9	105.5
Yield (hundred of kg/ha)	58.0	60.3	61.2
Production (thousand tons)	1,175.6	879.8	645.7
- Spring paddy (thousand ha)	101.6	73.3	55.2
Yield (hundred of kg/ha)	61.1	62.2	63.1
Production (thousand tons)	620.7	455.9	348.3
- Winter paddy (thousand ha)	101.2	72.6	50.3
Yield (hundred of kg/ha)	54.8	58.4	59.1
Production (thousand tons)	554.9	423.9	297.4

^a Calculation from [2].

Area for production of high quality paddy with the scale of 40 thousand ha of cultivation (75 - 76 thousand ha of planted area) is mainly focused in key paddy districts of Chuong My, Thuong Tin, Thanh Oai, Phu Xuyen, Ung Hoa, My Duc, Soc Son and Ba Vi.

Food crops will grow in rapid speed, large volume and high quality as they are integral products in the people's daily meals.

By 2020, Hanoi sustains and expands area for cultivation of vegetables of 13.0 - 13.5 thousand ha (planted area is 34.5 thousand ha) that produce an production of 700 thousand tons of vegetables, satisfying of 70% of the people's demand. By 2030, respectively continue growth of 14.5 thousand ha for cultivation (corresponding to planted area of 38.5 thousand ha), 830 thousand tons and about 3/4 of the demand.

Regarding to structure of food crops, close attention is also paid to inter-lay development in combination with areas of annual and seasonal plants, diversity of products including leafy vegetables (spinach, black-choy, cabbage, water dropwort, and etc.); food plants (radish, kohlrabi, carrot, squards, pumpkin, melons, cucumber, eggplant, all types of beans, and etc.) and herbs. Besides traditional vegetables, it is advisable to strongly develop high-classed and special vegetables (such as mushrooms, cauliflower, radish, bell peppers, red cabbage, etc.) to satisfy variety demands in the City, to bring into play competitive advantages and to improve economic efficiency. High-raking and safe vegetables areas are focused on the banks of the Red River, Duong, Day and Tich Rivers, in which it is advisable to select a number of large scale areas in the districts of Dong Anh, Me Linh, Gia Lam, Chuong My, Dan Phuong, Phuc Tho, and Ba Vi for close-loop investment creating key vegetable areas.

Fruit crops, by 2020 will reach 17 thousand ha and 2030 of 18 - 19 thousand ha. Priority is given to development of a number of fruit crops with high advantages and economic value including grapefruit

(440 ha, in 2020), Canh orange (110 ha), late-harvested longan (210 ha), banana using tissue culture seedlings (700 ha), creating production area of goods with high quality, food safety and hygiene, and improving income for the producers. Income value from the fruit crops, in average, is from VND 150 - 180 million/ha, in which high economic value plants provides VND 250 - 300 million/ha.

Planted area of fruit crops increased from shifting areas which are used for plantation of casava and other ineffective crops in the districts on the hills or by the banks of Day and Red Rivers and part of forestry land. Based on which, development of areas specialized for special fruits (Dien grapefruits, late-harvested longan, tissue culture banana, Canh orange and etc.).

Flowers and bonsai crops is a special advantage of the Capital's agriculture. With the average speed of expansion for flower and bonsai crops planted area of 60 - 80 ha/year, by 2020, area for this group reaches 3.1 thousand ha of cultivation (corresponding to 7.2 thousand ha of plantation) and 2030 reaches 3.8 - 3.9 thousand ha of cultivation (7.6 - 7.8 thousand ha of plantation). Regarding to value of income, it is expected to touch VND 400 - 450 million/ha by 2020 and more than VND 500 million/ha by 2030. Mass production areas focus in Bac Tu Liem district and a number of villages in the districts of Dong Anh, Gia Lam, Dan Phuong, Hoai Duc, Thuong Tin, Phu Xuyen, Ba Vi, Chuong My, Soc Son, and Me Linh.

- Livestock

Livestock plays an increasing important role in production and life firstly serving the demand of the City. Based on forecast on situation of development (refer to table 3), restructure of livestock is implemented in accordance with following key directions:

Formation of livestock areas toward industrial farm, focused in the non-residential areas; development of livestock in close-loop model from production to processing and product consumption. Control and restraint epidemic disease, gradually reduction and step by step limitation of small-scale household livestock and development toward sustainable direction.

Application of advanced technology to improve productivity, quality and value of livestock products; step by step re-organization of livestock toward linkage direction and management of close-loop product chain from the farm to consuming market.

Construction of concentration facilities for processing and slaughtering cattles and poultries, minimization of environment pollution from livestock, slaughtering, transportation and trade of cattles and poultry, and etc.

Table 3. Forecast on development of cattle and poultry herbs in Hanoi by 2030^a

No	Types of cattles and poultries	Current situation	Forecast	
		2014	2020	2030
1	Pigs (million heads)	1.4	1.4	1.4
	Living weight (thousand tons)	300.0	400.0	450.0
2	Poultries (million heads)	25.4	27.5	30.5
	Living weight (thousand tons)	80.6	91.7	95.5
3	Cows (thousand heads)	140.5	155.0	170.0
	Living weight (thousand tons)	9.1	12.0	15.0
4	Buffaloes (Thousand heads)	24.4	20.0	19.0
	Living weight (Thousand tons)	1.5	1.8	1.7
5	Dairy cows (thousand heads)	14.1	15.0	17.0
	Milk output (thousand tons)	31.2	40.0	50.0
6	Total living weight (thousand tons)	391.2	505.5	562.2

^a Calculation from [2].

3.3.2. Fishery

By 2020, the fishery of Hanoi is to be sharply shifted to intensive and semi-intensive farming based on largely application of science achievements on breeding stocks, farming technique, foods, disease prevention and elimination. Basically, aquaculture lakes and ponds are focused in non-residential areas

and invested in intensive, semi-intensive or VAC (garden-pond-farm) models. Key non-fish products (traditional and alien) need to be promoted to large-scale farming of special sea-products (such as: blue shrimp, tortoise, frog, eels, and etc.). It is expected that, by 2020, area of aquaculture in Hanoi reaches 24.5 thousand ha with production of 98 thousand tons (in which aquaculture of 92.8 thousand tons and catch of 5.2 thousand tons) and by 2030 of 25.7 thousand ha with 115.0 thousand tons (107.5 thousand tons and 7.5 thousand tons) respectively (refer to table 4).

Structure of the fishery inclines totally to aquaculture and development of concentration aquaculture area with scale of more than 3.1 thousand ha, focusing in a number of strongly sound districts of Ba Vi, Chuong My, Ung Hoa, Phu Xuyen, My Duc, Thanh Tri, Thanh Oai, and Thuong Tin.

Table 4. Forecast on development of fishery in Hanoi by 2030^a

	Current situation	Forecast	
	2014	2020	2030
Total area for aquaculture (ha)	23,137	24,500	25,700
Production of fishery (thousand tons)	86.5	98.0	115.0
- Aquaculture (thousand tons)	82.4	92.8	107.5
- Catch (thousand tons)	4.1	5.2	7.5
Processing production (tons)	4,820	5,100	5,700
Gross output (VND billion)	2,584	3,072	3,557

^a Calculation from [2].

3.3.3. Forestry

Forestry is least meaningful to the economic development of Hanoi, however, it plays a great role in creating sustainable ecological environment, becomes green lung for the Capital, conserves rare genetic sources, bio-diversity and beautiful sceneries serving science studies, eco-tourism, and etc. By 2020, the City is to focus on key contents on protection and development of production forest, protected forest, and specialized forest (refer to table 5).

Table 5. Forecast on development of forestry in Hanoi by 2030^a

Types of forests	Current situation	Forecast	
	2014	2020	2030
Forestry land covered by trees (thousand ha)	24.3	26.8	32.0
- Protection forest (thousand ha)	5.5	9.0	12.5
- Specialized forest (thousand ha)	10.6	13.6	15.0
- Production forest (thousand ha)	8.2	4.2	4.5

^a Calculation from [2].

3.4. Suggestions and proposals of specific solutions

Agricultural restructuring is a complicated issue. To effectively implement, it requires a series of synchronized solutions such as transfer agriculture's structure by sectors and territories (as presented above), effective land use and planning, application of science and technology in mass production; exploitation and expansion of market and commercial promotion; formation and development of agri-products production - processing - consumption chain; and development of production along with protection of the environment.

In this article, the author goes deeply into a leading important solution that is formation and development of agri-products production – processing - consumption chain.

Main target of the solution is to expand the link among production (Agriculture, forestry and fishing) - processing (industry) - business - consumption of end-products to create a close-loop

production circle that brings about high economic efficiency and improvement of quality of the products to satisfy the market's demand.

Main content of the solution includes:

+ Development of production segments: It is necessary to build advanced industrial production models in attachment with the belts of agriculture, urban agriculture and concentration goods production areas in complying with the production - processing - consumption chain.

+ Closely linkage with processing industry: To effectively implement such link, it is necessary for the City to scientifically plan the agricultural belts to ensure sufficiency and quality of the raw materials for the processing industry. Processing enterprises invest their capital in supplying seedlings/breeding stocks and materials to raw material production households and make connection with the banks to create capital for agriculture and commercial organizations to sell the processed products. Therefore, identification of scale and location for allocating industrial processing facilities is important in creating attachments in terms of benefits between production and processing sections.

+ Closely linkage with sales section: the next section of the chain in establishing relationship between processing and sales of end-products through commercial activities is very important one, because, without smooth operation of this section would lead to stagnant of the production. By building and development of agri-products sales network in different forms (such as market network, hub market, supermarket, and etc.), the bond among production - processing - consumption of agri-products becomes increasingly binding, because its stakeholders are beneficial and the chain attains high socio-economic and environmental efficiency.

- Implementation Organizations, Department of Agriculture and Rural Development plays the role of a central hub connecting Departments of Industry and Trade and Departments of Planning and Investment for deploying such chain along with districts, towns where the enterprises for production, processing and consumption of agricultural products base.

4. Conclusion

To meet the target in development of the agriculture by 2030 of Hanoi which is "focusing on development of the agriculture toward mass production of goods with high productivity, quality, efficiency and compatibility being friendly and sustainably with the environment..." [4], agricultural restructuring of the of the City is essential. One of the key challenges is the conflict between increasingly narrowing of cultivation area (due to urbanization and industrialization) and rapid increasing demand for agri-products in great volume and high quality. Agricultural restructuring is the only way to ensure rapid development and sustainability of the sector. This is considered as a breakthrough solution deciding the development of the City's agriculture.

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