

Diverse perceptions of the future of agriculture on the Hanoi periphery

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Abstract

The objective of the paper is to appraise how peri-urban agriculture and its future are perceived by a variety of residents of Hanoi, including city planners, farmers and non-farmers. It is based on surveys conducted in 2009 involving 47 agricultural households, 14 heads of cooperatives, 83 non-agricultural households, and 13 public officials in charge of agriculture in districts and communes. The questions related to the relationship between farmers and non-farmers and their perceptions regarding the advantages and disadvantages of agriculture, preferences for different urban landscapes based on pictures showed to them (parks, vegetable gardens, buildings), the perceived future of agriculture and perceived processes of urban planning. The main results show that farmers and agricultural department officials are more optimistic about the future of urban agriculture than non-farm residents. A majority of respondents - farmers as well as non farmers - feel that agriculture is good and should be maintained for reasons of food supply and employment. Residents do not really want to be involved in decisions on urban planning. Hence, the likely extinction of peri-urban agriculture may not elicit any reaction from Hanoi residents. But it is likely that most of them will miss it after it is too late to maintain it.

The survey has confirmed that proximity of supply is important in gaining consumer trust in the safety of vegetables. This factor should be better taken into account by farmers in the production and promotion of safe vegetables.

Introduction

As in many countries of the world, agriculture around Hanoi is threatened by unplanned urban development (Van den Berg *et al.*, 2003, Mai Thi Phuong Anh *et al.*, 2004). This jeopardizes the major roles of agriculture of Hanoi province in terms of food supply (Moustier *et al.*, 2004). Yet, some studies show that the trend to reduce peri-urban agriculture due to pressure on land use may be counterbalanced by the commitment of the residents and policy makers to maintain urban agriculture because of its social, food source and green space roles. The effort to maintain agriculture on the Saclay Plateau came in response to pressure exerted by residents to limit the sprawl of built-up surfaces (Donadieu and Fleury, 1997; Bouraoui, 2005). However, interest on the part of the urban residents and

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policy makers in maintaining agriculture have rarely been given much attention in developing countries, with the exception of Tunisia (Bouraoui, 2005) and Senegal (Ba and Moustier, 2010). The study in Tunisia shows a divergence between the desire of residents to maintain peri-urban agriculture and planners whose perception of agriculture is rather negative. The study of how Dakar residents perceive peri-urban agriculture shows that they all view it positively, but in the light of different functions. Its food function is generally highlighted by farmers and consumers, while planners place more value on its environmental and landscape functions.

The major objective of the study conducted in Hanoi is to better appraise the perception of agriculture around Hanoi and its future in the eyes of various urban residents, including city planners, farmers, and non-farmers.

Method

Interpreting public attitudes towards agriculture means not only identifying knowledge and experience (agricultural background, social connections with farmers, sources of information), but also the values (functions of agriculture) and the level of trust (degree of influence perceived about the future of agriculture; persons with the ability to make reliable decisions affecting the future of agriculture) (Parbery *et al.*, 2006). To assess the demand for landscape, it is recommended to use the contingent valuation method. It involves measuring how willing individuals are to pay for something with no real market by creating a hypothetical market using a survey or questionnaire in order to find out the maximum value that people put on the item (Kah, 2003).

In 2009, we conducted interviews of decision makers and residents from a range of agricultural zones, mostly located in the rural districts of Hanoi and Ha Tay province, that can be considered as Hanoi periphery (3 to 10 kilometers from Hanoi center) – see the maps in Dao The Anh and al., *infra* and in the Atlas of Hanoi, forthcoming, IRD):

- Dong Anh district, Van Noi commune, in Hanoi province, a safe vegetable production area, with eight safe vegetable production cooperatives ;
- Thanh Tri district (Yen My, Tu Hiep communes), in Hanoi province, where the reputation for vegetable safety is jeopardized due to many sources of pollution , but where the commune has developed programmes on vegetable safety ;
- Hoai Duc district (An Khanh, Tu Hiep, Son Phuong communes), in Ha Tay province, also with some programmes on vegetable safety.

We also considered an intra-urban district to assess if there are differences of perceptions: Thanh Xuan district (Ha Dinh commune), which is an intra-urban area where water morning glory is produced. Two households that produce water morning glory had been surveyed in these districts by a preliminary research in 2008, showing a gradual regression of their crop and diversification of incomes, along with uncertainty about the preservation of these zones as green spaces (To Thi Thu Ha, 2008).

Interviews were held with the following stakeholders (see Table 1):

- three officials from the Hanoi Department of Agriculture and Rural Development (DARD) ;
- officials in charge of agriculture at the district and commune levels ;
- chairmen of cooperatives ;
- 18 to 25 non-farmer households per district ;
- 6 to 19 farmer households per district.

The residents chosen were diverse in terms of age and occupation.

The interviews covered the following main points for non-farmers: their idea of advantages and disadvantages of having agricultural zones in the neighborhood; perception of changes in and the future of proximity agriculture; what future was preferred; source of produce purchased; preferences for different uses of land: keeping agriculture as it stands rather than putting in buildings, public parks or private parks on the land, with a photo display to choose from ; ability to pay taxes for the preferred land use to be promoted.

To evaluate the amount that residents were prepared to pay in taxes for their preferred landscape, we used an auction technique (Davis, 1963). A start-up value is proposed by the interviewer and the person accepts or refuses to pay this amount to get the object. According to the response, the bid is increased or decreased until the person has reached the absolute limit of what he or she is willing to pay. This method is fraught with bias due to the challenges faced by the persons surveyed to imagine their behavior in a fictitious situation.

The future of peri-urban agriculture as perceived by the authorities

According to DARD officials, despite urbanization and industrialization in Hanoi, it is important to strike a balance with agricultural development. In the long term, the city's agriculture will develop along the lines of agro-ecological agriculture, which requires maintaining between 40-50% of natural land for agriculture. Development of urban areas and industrial complexes should avoid dense clustering and pay great attention to environmental protection, allow for concentrated agricultural land, and facilitate agricultural production through modernization. Infrastructure, including irrigation, will be upgraded. The basic criterion to evaluate the results and effectiveness of agricultural production is the value of agricultural production on 1 ha of agricultural land.

In Thanh Xuan, an urban district, the plan for 2020 calls for a residual place to be left for agriculture, occupying only 5% of the natural land (compared to 20% in 2008), mostly of which is used for aquaculture and water vegetable growing in ponds. For the periphery of Hanoi, agriculture protection in urban planning is inconsistent. In An Khanh commune, Hoai Duc district, most agricultural land, comprised mainly of paddy fields, is to be converted for housing, infrastructure and industrial zone purposes (a 65 % decrease between 2005 and 2010). Training programs are planned for farmers to help them find employment in the locality. On the other hand, in the same district, safe vegetable production will be protected and promoted in Son Phuong and Tu Hien communes, as well as fruit production, so that the decrease in agricultural areas will be limited (-35% in Tu

Hien, -21% in Son Phuong). In Van Noi commune, Dong Anh district, despite the importance of its safe vegetable production, which supplies most supermarkets, shops and canteens in Hanoi, the commune authorities have transferred the use of most agricultural land to what they call ecotourism projects (mostly four-star hotels), as well as roads and housing. Only 19 hectares of land would remain in 2020 out of a total of 389 hectares in 2010. The commune authorities consider this as a positive trend for farmers because of the compensation they are paid (83 MVND, or around 400 USD per ha, which, if invested in a bank, would yield the equivalent of the annual agricultural income). In Yen My and Tien Yen communes of Thanh Tri district, the trend to decrease agricultural land has so far been limited because of few options for alternative employment, but a gradual decrease is planned to promote housing and infrastructure development, with the strengthening of aquaculture, fruit production and ecotourism.

The future of peri-urban agriculture as perceived by farmers

Basic characteristics

The interviewed farmers have small landholdings (between 500 and 3300 m²) and they mostly grow vegetables (for 60% of them) and rice (30% of answers). Since beginning their activity, most of them did not experience a change of farm location. Yet, for 30% of those interviewed (15/47) in Thanh Xuan and Hoai Duc districts, land area has decreased because of government expropriation. Half of the respondents had no other source of income than agriculture in 2008 as well as in 2000, while the rest had other sources. These sources include trade, services and salaried employment. On average, agriculture represents 72% of their income, slightly less than in 2000 (83%).

Advantages and drawbacks of farming near the city

According to the interviewed farmers, there are various advantages to farming near the city, mostly in terms of marketing (33 out of 39 answers). In all areas, quite a high percentage of farmers (40%) have direct links with consumers in the sense that consumers come and buy vegetables from them at the field. Half of the consumers want to know how the vegetables are produced.

A large number of farmers consider that their communes have advantages in terms of clean water and fertile soil (22 answers, including 7 in Hoai Duc, 1 in Thanh Tri, 14 in Dong Anh). The main difficulties of farming in the location relate to the small size of the landholding (8 out of 41 answers), unstable marketing (6 answers), troubles caused by constructions (6 answers) . Compared with the number of those who responded on difficulties, few farmers (27) had recommendations on how to deal with the difficulties they face; their main recommendations relate to marketing aspects (17 answers) rather than to land issues (6 answers).

Anticipated future of farming

A majority of farmers (70%) anticipate that they will still be able to farm in five years' time. The most pessimistic ones who consider that they will no longer be able to farm in five years' time are in Dong Anh and Hoai Duc. Among the farmers who think that they will be displaced in the next five years, 10 farmers (in Thanh Xuan) think that they will get some compensation, while eight (located in Hoai Duc) don't know. This compensation would range between 46 and 93 MVND, which corresponds to 3 to 8 times the amount of their annual income. The compensation money would be invested in work (36% of answers), inside or outside agriculture, or for housing (30%).

The roles of peri-urban agriculture highlighted by farmers relate to food supply (34% of answers) and income generation (28%). Around half of the farmers consider that these roles will be still fulfilled in the next ten years.

Most farmers (70%) consider that decisions related to land use changes are made by the city, district or commune people's committee. They feel absent from them, but they do not express that it is a problem for them.

The future of urban agriculture as perceived by non-farmers

Basic characteristics

The non-farmers have many different occupations—traders, students, executives, etc. Most of them work in the commune and the source of their employment varies greatly (see Table 2).

Perception of agriculture

Most non-farm residents (84%) are familiar with some farms in the commune. These are mostly vegetable farms. They come across agricultural fields when they go out for a walk, go to visit farmers (in Thanh Xuan and Hoai Duc) or to observe farmer vegetable production (mostly in Dong Anh). A majority engage in outdoor activities (30%), including walks and picnicking (30%), which provide opportunities to see farms. A majority of non-farmers (71%) have contacts with farmers in the commune, either daily (63%) or few times a week (37%).

Most residents (75%) buy vegetables at a local market, the rest (13%) go to a large market outside the village or to their own garden (6%), to a neighbor's garden (3%) or to supermarkets or shops (3%). 70% of respondents consider that knowing the origin of vegetables is important, because it reassures them with regard to vegetable safety.

A majority prefer to buy vegetables in the commune. This is the case for all those interviewed except in Thanh Xuan district. The further from the supply area, the greater the doubts about vegetable safety. The less preferred areas are those in other districts, provinces or countries. The distrust for Chinese products is stronger among high-income residents and students (Table 3).

Most residents consider that the advantage of urban agriculture is, by order of frequency of answers, that it supplies fresh produce (58% of answers), is a source of employment (27%)

and offers a good environment in terms of green spaces (14%). The negative points relate to the use of chemicals by farmers (14% of answers). On the whole, the majority of respondents feel that agriculture has more advantages than disadvantages.

Preference for landscape

Among all the respondents, the picture showing a vegetable field is the preferred use of land for the highest percentage of answers (40%), followed by the one of a public park (30%), then buildings (30%) and lastly private park (7%). This is mostly because agriculture is considered to provide the most desirable landscape, in addition to its role as a source of produce. Where people expressed a preference for buildings, it is because they are a symbol of modernity. This is also true of private parks. The percentage of people preferring the agricultural landscape is higher for high-income residents and students. A higher percentage of low-income respondents prefer buildings (associated with modernity) and public parks than for the other categories. In Thanh Tri, buildings are preferred because citizens long for improved housing and to be able to invest in a house.

Out of 43 respondents, 42 would be prepared to pay for agriculture to be maintained, the most frequent amount being in the range of 20,000 to 100,000 VND (1 to 5 USD) per year, the maximum amount 600,000 VND (37 USD). Medium- to high-income residents are more willing to pay more.

As regards the 10 respondents willing to pay for transforming fields into private parks, eight would be prepared to pay between 20,000 and 50,000 VND (1 to 3 USD), and two between 50,000 and 150,000 VND (3 to 8 USD).

Perceived future of agriculture in the commune

A majority of non-farmers are pessimistic about the future of agriculture in the commune, except for Thanh Tri district. Most residents (38%) think that agricultural land will not be available in 10 years' time or that it will be maintained with difficulty (19%). By contrast, people in Thanh Tri are optimistic: 95% think there will be agriculture in ten years. This is because the policy of the district is to develop agriculture up to 2020 with an emphasis on commercial, safe, and ecological production. In all districts, the more pessimistic respondents belong to the high-income and student category.

Loss of agriculture was viewed negatively by 29 respondents out of 47 (60%). A majority of respondents (83%) think that it is necessary to maintain urban agriculture in the future, mostly for reasons of employment opportunities (60%), followed by food supply (32%). There are more respondents in Hoai Duc (94%) and Thanh Tri (100%) that favor maintaining agriculture than in Dong Anh (80%) and Thanh Xuan (64%); and less among the students (50%) than in the other categories (90%).

Most respondents (60%) state that decisions on land use are made by the city, district or commune authorities. They generally have no comments on the way decisions related to urban planning are made (71% of answers), although some respondents (20%) commented on the ill effects they may have in terms of job loss and felt that compensation should be higher. A majority of respondents (57%) had no idea about how to improve the situation.

Some respondents would like information on land use planning (34%) and on production techniques (15%).

Conclusion

In conclusion, farmers and officials of agricultural departments seem more optimistic about the future of peri-urban agriculture than non-farm residents. A majority of respondents - farmers as well as non-farmers - feel that agriculture is good and should be maintained as a food supply source and for employment opportunities. The role of peri-urban agriculture in the greening of residential areas was also put to the fore by planners and non-farmer residents, but not by farmers who seem unaware of the contribution they are making to the landscape. It seems that residents do not really want to be involved in decisions on urban planning and that they are quite fatalistic about urban development pushing out agriculture in favor of housing and industries. Hence, the likely extinction of peri-urban agriculture will not lead to any reaction from Hanoi residents. But it is likely that most of them will miss it after it will be too late to maintain it.

The survey has confirmed that proximity of supply is important in the trust consumers have in the safety of vegetables. This should be better taken into account by farmers in the production and promotion of safe vegetables.

Finally, the survey showed that there are few differences among interviewees located inside or at the periphery of Hanoi. This is due to the high density of population in both locations. The major differences in the answers are rather a function of the planning role played by commune and district authorities, who are more or less timidly in favor of agriculture, with consequences on the more or less positive perception of the future of peri-urban agriculture by farmers and non farmers.

References

- Ba A., Moustier P., 2010. La perception de l'agriculture de proximité par les résidents de Dakar. *Revue d'économie régionale et urbaine* 5, 913-937.
- Bouroaoui M., 2005. Agri-urban development from a land-use planning perspective: the Saclay Plateau (France) and the Sijoumi Plain (Tunisia), In L. Mougeot (ed.). *Agropolis. The social, political and environmental dimensions of urban agriculture*. Earthscan.
- Davis R. K., 1963. "Recreation Planning as an Economic Problem," *Natural Resources Journal*, No. 3, pp. 239-249.
- Donadieu P., Fleury A., 1997. "L'agriculture, une nature pour la ville," *Annales de la recherche urbaine*, n°74, 31-39
- Kah, E., 2003. La méthode d'évaluation contingente appliquée aux déchets urbains, *L'Espace géographique*, No. 1, pp. 47-59.
- Mai Thi Phuong Anh, 2002. Développement de l'agriculture péri-urbaine de Hanoi: résultats, difficultés et orientations pour 2010, In Quertamp F., Hubert de Bon H., et N. Baudouin (*dir.*), *Le développement périurbain à Hanoi: nouveaux enjeux*. France-Vietnam Cooperation Handbooks, Hanoi, Embassy of France, 138 p.
- Mai Thi Phuong Anh, Ali M., Hoang Lan Anh and To Thi Thu Ha, 2004. Urban and peri-urban agriculture in Hanoi: opportunities and constraints for safe and sustainable food production. AVRDC/CIRAD Technical bulletin n°32.
- Moustier P., Vagneron I., Bui T., 2004. Organisation et efficience des marchés de légumes approvisionnant Hanoi (Vietnam). *Agricultures, Cahiers d'études et de recherches francophones* 3, 142-148.
- Parbery P., Wilkinson R. and Klugman M., 2005. *Urban-rural: not such a divide? Producers, consumers and agriculture*. Victoria Department of Primary Industries, Melbourne.
- Rossi G., Pham Van Cu, 2002. *Atlas infographique de la province de Hanoi*. Bordeaux, UMR Regards, 379 p.
- To Thi Thu Ha, 2008. Sustainability of peri-urban agriculture in Hanoi: the case of vegetable production, Ph.D. thesis, AgroParisTech, Paris.
- Van den Berg L., Van Wijk S., and V.H. Pham, 2003. The transformations of agriculture and rural life downstream of Hanoi. *Environment & Urbanization* 15, 35-52.

Table 1 – Number of interviewees

	Thanh Xuan	Hoai Duc	Thanh Tri	Dong Anh
Leader/specialized officer of <i>districts</i>	2	2	2	
Leader/specialized officer of <i>communes</i>	1	6	4	2
Chairmen of cooperatives	1	3	2	8
Number of non- agricultural households	25	18	20	20
Number of agricultural households	6	12	10	19
Total	35	41	38	49

Table 2- Information on non-farm residents in the study area

I. Occupation	Number	Percent (%)
Handicraftsman	6	7.2
Low-level executive	13	15.7
Construction worker	1	1.2
Trader	20	24.1
Manager	9	10.8
Student	12	14.5
Industrial worker	4	4.8
Hired worker	2	2.4
Housekeeper	2	2.4
Retired	6	7.2
Accounting officer	6	7.2
Engineer	2	2.4
Total number of respondents	83	100
Workplace	Number	Percent (%)
In the commune	61	73.5
In other commune in the district	17	20.5

In other district	4	4.8
City	1	1.2
Total number of respondents	83	100

Table 3 - Purchase of vegetables

Preferred place of purchase of vegetables by district

		Thanh Xuan	Hoai Duc	Thanh Tri	Dong Anh	Total
In the commune	Number of responses	12	18	10	20	60
	Percent (%)	48.0	100.0	100.0	100.0	82.2
Supermarket	Number of responses	6	0	0	0	6
	Percent (%)	24.0	0	0	0	8.2
Safe vegetable production area	Number of responses	6	0	0	0	6
	Percent (%)	24.0	0	0	0	8.2
Don't care	Number of responses	1	0	0	0	1
	Percent (%)	4.0	0	0	0	1.4
Total number of respondents		25	18	10	20	73

Preferred place of purchase of vegetables by job category

		Low income	High income	Student	Total
In the commune	Number of responses	20	31	9	60
	Percent (%)	90.9	79.5	75.0	82.2
Supermarket	Number of responses	2	4	0	6
	Percent (%)	9.1	10.3	0	8.2
Safe vegetable production area	Number of responses	0	3	3	6
	Percent (%)	0	7.7	25.0	8.2
Don't care	Number of responses	0	1	0	1
	Percent (%)	.0	2.6	.0	1.4
Total number of respondents		22	39	12	73

Less preferred place of vegetable purchase by district

		Thanh Xuan	Hoai Duc	Thanh Tri	Dong Anh	Total
Other commune	Number of responses	2	0	0	0	2
	Percent (%)	8.0	0	0	0	2.7
Street vendor	Number of responses	0	3	0	0	3
	Percent (%)	0	16.7	0	0	4.1
Other district	Number of responses	3	14	6	0	23
	Percent (%)	12.0	77.8	60.0	0	31.5
Supermarket	Number of responses	0	1	0	0	1
	Percent (%)	0	5.6	0	0	1.4
Unsafe vegetable production area	Number of responses	17	0	4	8	29
	Percent (%)	68.0	0	40.0	40.0	39.7

Don't care	Number of responses	3	0	0	0	3
	Percent (%)	12.0	0	0	0	4.1
China	Number of responses	0	0	0	8	8
	Percent (%)	0	0	0	40.0	11.0
Bac Ninh	Number of responses	0	0	0	1	1
	Percent (%)	0	0	0	5.0	1.4
Vinh Phuc	Number of responses	0	0	0	3	3
	Percent (%)	0	0	0	15.0	4.1
Total number of respondents		25	18	19	20	73

Less preferred place of purchase of vegetables by job category

		Low income	High income	Student	Total
Other commune	Number of responses	2	0	0	2
	Percent (%)	9.1	0	0	2.7
Street vendor	Number of responses	1	2	0	3
	Percent (%)	4.5	5.1	0	4.1
Other district	Number of responses	14	7	2	23
	Percent (%)	63.6	17.9	16.7	31.5
Supermarket	Number of responses	0	1	0	1
	Percent (%)	0	2.6	0	1.4
Unsafe vegetable production area	Number of responses	5	17	7	29
	Percent (%)	22.7	43.6	58.3	39.7
Don't care	Number of responses	0	3	0	3
	Percent (%)	0	7.7	0	4.1

China	Number of responses	0	5	3	8
	Percent (%)	0	12.8	25.0	11.0
Bac Ninh	Number of responses	0	1	0	1
	Percent (%)	0	2.6	0	1.4
Vinh Phuc	Number of responses	0	3	0	3
	Percent (%)	0	7.7	0	4.1
Total number of respondents		22	39	12	73