

Original Scientific Paper

DOI: 10.7251/AGRENG1601086N

UDC 338.432:351.778.2(597)

**AGRICULTURAL PRODUCTION IN THE CONTEXT OF
INDUSTRIALIZATION AND FOOD SECURITY IN VIETNAM**

Thi Minh Khue NGUYEN*, Thi Dien NGUYEN, Philippe LEBAILLY

Hanoi University of Agriculture, Vietnam

*Corresponding author: minhkhuehere@gmail.com

ABSTRACT

Since 1990s the bloom of industrialization and urbanization brings the changes of social and economic issue of Vietnam rural areas. During this process, rural households have reduced agricultural land for cultivating. From the status of food producers now they become food consumers. Through surveying 215 households in Bac Ninh province, the study shows that that industrialization and land conversion process affected household food security in several aspects: the lost of agricultural land and surplus agricultural production decrease; unguaranteed decent work for peasants and high living cost; the decline of living quality and food safety. Food consumption of the family has shifted from self-reliance to the way that more depend on market which increases food expense propotion on household budget. However, spending more on food does not mean satisfied since the suspiciousness of food quality. Household food security becomes more vulnerable, especially for households that have limited access to land and incapability of finding stable jobs. One of the strategies of rural households is diversify their livelihoods, accepted multi-spacial household model. And when income from non-farm jobs could relatively supply enough their need of cash, they would rather consume high quality food than grow and sell high yielding variable. Rural households move back to the local traditional agricultural activities to ensure their own food quality.

Keywords: *industrialization, land conversion, food security, agricultural activities, rural development.*

INTRODUCTION

Since the introduction of Doimoi (The Innovation Reform) in the mid-1980s, Vietnam has experienced the fundamental changes in social-economic development. Vietnam economy has maintained an annual economic growth rate of 6-8 percent per year since the early 1990. In line with the process of economic development, resources have shifted from agriculture to other sectors. Agricultural land has been converted toward more market and industrial orientation to gain faster economic development. According to the recent National Survey on Land, in a decade from 2000 to 2010, the non-agricultural land increased 89000 hectares while the land for rice production decreased more than 34000 hectares annually

(Bui Minh, 2012). These modernize policies have clearly influenced on agricultural production and rural households' food security (FAO, 2009). Household livelihood approach (Bebbington, 1999, Ellis, 2000)) has emphasized the role of land in ensuring the sustainability of the livelihoods of households where food security is an output. Therefore, the article focused on understanding the relationship between industrialization process leading to the deterioration of agricultural land and food security issues in Bac Ninh province, which is located in Red River Delta, about 30km far north from the capital Ha Noi. Having an area of 823 km² in total and with around 1.038 million populations, it is the smallest province of the Delta. However, the province has been considered as prominent in term of industrial development in Vietnam. It has been ranked fifth amongst provinces that have the highest investment in the whole country. At the time of its formation in 1997, Bacninh was an agricultural province, with only several handicraft villages and no industrial zone or industrial cluster. Since 1998 the provincial government started acquiring agricultural land for industrial purposes, after which the first industrial zone has been built. To date, BacNinh has 15 industrial zones and more than 35 industrial clusters with more than 9400 migration and agriculture ha agricultural land acquired¹⁰. This context makes Bacninh a suitable place for research agricultural production in the context of industrialization and food security in Vietnam.

MATERIALS AND METHODS

To understand agricultural production adaptation for the industrialization and food security, 215 households in BacNinh were selected within and outside industrialized area, based on the land conversion status.

The surveyed households are classified into 2 groups:

- Group 1: Households in the communes which have not got industrialized zones, including 104 households
- Group 2: Households in the communes which have got the industrialized zones and experienced the land conversion, including 111 households.

Beside household survey, the group discussions and in-depth interviews are carried in selected communities. A combination of qualitative and quantitative methods is used to analyze the data and information about the ways peasants' households secure their food safety under the context of industrialization in Vietnam.

RESULTS AND DISCUSSION

Industrialization and food security

The industrialization process started in BacNinh province since 2001 with the large agricultural land acquisition to build up the industrial parks such as Que Vo and Tien Son. The decline of agricultural land associated with the growing

¹⁰ The data has been collected at the official website of Bacninh Industrial Zone (<http://www.izabacninh.gov.vn/?page=home&portal=kcnbn> accessed on 16 of Feb, 2014) and Decision 396/Q -UBND, issued on 31, October 2013 on the approval of the cluster planning in Bacninh province to 2020, vision 2030)

opportunities to find a job outside agriculture lead to the mass labor migration. Table 1 describes the main characteristics of surveyed households in which the changing agricultural landholdings and demographic features of households are focused. The common trend in group 2 of the declining agricultural landholdings of surveyed households from 1993 to 2014 has a root from large land conversion for industrialization. In the opposite group 1 has increased their agricultural landholdings. Without lower migrating members, this group concentrates on agricultural production; therefore they rent more land of the village or commune since the agricultural land market is not well developed in Vietnam in general and in BacNinh in particular.

Table 1. The socio-economic characteristics of surveyed households

Indicators	Group 1	Group 2	Total (N =215)
Family size (mean, pers.)	5.7	5.1	5.4
Labor size (mean, pers.)	3.8	3.2	3.5
Migration size (mean, pers.)	2.1	2.5	2.3
Agricultural land (1993, m ²)	2745.68	3406.29	3075.99
Agricultural land (2014, m ²)	4548.17	1820.42	3194.29
Land converted for IDZs (m ²)	0	1217.40	1217.40
	104	111	

*Source: Household survey, 2015

Table 1 shows that in average, the labor size of household is 3.5 labors in which migration labor size is 2.3 labors. The group 2 has lower labor size but it has higher migrant members of this group because the agricultural land reduction. The migration patterns in the research sites are diverse and the circular migration is a prominent feature of households in the research site. The circular migration or daily shift migration in which people are moving repeatedly in a close enough distance to be able to go back and forth in a day is the most favor migration pattern of surveyed households. Usually this form of migration does not consider the distance, only a change in the administrative boundaries as commune, district or province so that migrants can come back home daily.

The results from household surveys and interviews reveal that before industrialization, agricultural production of households in the villages was highly subsistence under the form of household economy. On average, each household had about 3000 m² agricultural land. They produced two rice crops per year and one winter crop for soybean, potato, sweet potatoes, corn, and carrot which most are supply for subsistence usage. They applied also new techniques in agricultural

production and the rice productivity from 200 – 230kg/sao/crop (from 10 to 12 tons/ha/year). Households did also some animal production such as pig, poultry and cattle in their home settlements. The home garden is also an important source to provide vegetable and materials for households. The size of the home gardens range from 100 m² to 300 m², is relatively small. Still, it provides various daily necessities for the households such as fruit, vegetables, spices, firewood, and even fish and shrimp in home garden pond year-around, making a steady contribution to the household food consumption all around the year and ensures stable life for peasants. The non – farm activities such as running small shops, retailing, artisan and food processing also contributed to the household's income. From the household view, the model of household economy during 1990s had ensured the food security for households and had allowed for some savings of households, especially in some hard – working households. Since 1998, the households had started conversion of their land to industrial enterprises. The companies compensated for households in cash with the amount of money based on the type and location of their land. Households used this money in different ways such as buying home facilities, building houses, saving in banks, finding jobs or investing in their own business. Table 2 shows that that after group 2 who had lost land for industrialization zones have higher dependence on rice market than the group 1. Group 2 has nearly 70 percent do not produce enough food, especially rice to eat. Among that, 45 percent households becomes rice net buyer from food producers. As the price of food increases year by year, the life of farming households who have lost their land become more challenging.

Table 2. Rice buyer and producer in surveyed households

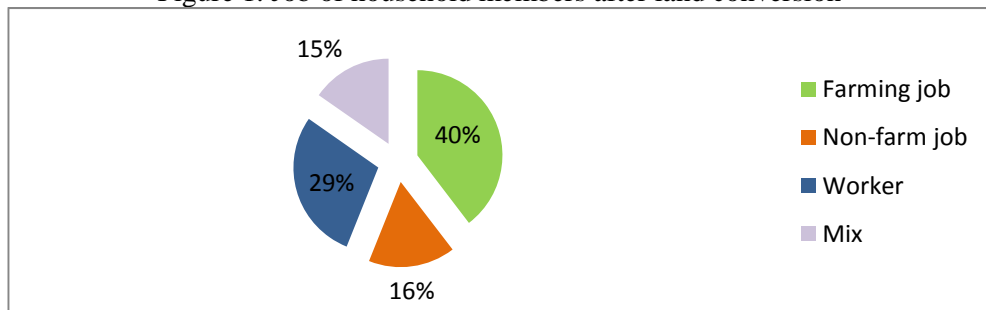
Indicator	Group 1		Group 2		Total	
	HH	%	HH	%	HH	%
Rice net buyer	14	13.4	51	45.9	65	20.2
Rice partly producer	31	29.8	28	25.2	59	27.4
Rice producer	59	56.7	32	28.8	96	42.3
Total	104		111			

**Source: Household surveys, 2015*

The way food enters the household through the production limited as land holding of household for food has decreased. The other way to have food through exchange depends upon the jobs and income from of household members. However, the industrial companies built on the converted land could not ensure jobs for all landless farmers in BacNinh. Besides, as for the lacking of necessary skills, education level, or over age requirement, many farmers could not find jobs in the enterprises. The results from key informant interviews also show that those farmers who do get jobs cannot adapt to the strictly working regulations of industrial enterprises. Some farmers had to stop working for enterprises because of low salary and long working hours to take other choice such as migrating out or continuing with farming activities. Figure 1 shows that 40% of household members

stay with their farming activities and only 29% household members follow the job in the industrialized zone while others pursuit non-farm job (freelancer) or keep mixed situation. However, given the jobs most farmers involve are informal, and their land was remarkably reduced, the food security is become more vulnerable.

Figure 1. Job of household members after land conversion



*Source: Household survey, 2015

Table 3 shows that within household budgets, food remains reasonable at 24.1% of expense among group 1 who can mostly supply their own food and nearly double with 37.3% of expense among group 2 who only partly cover their meals. Even though the group 2 households' income is higher than the group 1, the main part of their earnings is used firstly in buying food for their daily consumption. Household members, especially the middle aged and elders, who had experienced food shortages during the wars and the cooperative period, recognized profoundly how food is important in their lives. The way that household had to buy rice and no more rice storage is the unstable life according to the view of many old farmers.

Table 3. Food share in household's expense

Commune	Food expense (millionVND/HH/year)	Food share in HH expense (%)
Group 1	28.38287037	24.1
Group 2	49.89607843	37.3

*Source: Household survey, 2015

In all surveyed households, even though rice production remains enough for 42.3% household consumption (table 2), the other foods they produced were no longer enough. Some landless households and non-farm households in group 2 do not practice agricultural activities any more which means they totally depend on unstable market in Vietnam. From their status as owners of the land, farmers have now become wage laborers and from food producers, farmers in the industrial areas have now become net food buyers. They have been losing their self reliance on food and instead now totally depend on the food market. And with the rice prices

increased 50-60 per cent (with the price of husked rice increasing a similar amount) in 2008 (Oxfam and AAV, 2008), the farmers constraint increasing risks. Even in term of net rice producers and sellers, in theory, this group should benefits from increased rice prices. However, input prices for fertilizers, insecticide, labour costs and agriculture services were rising faster than prices of agricultural production, the profit of these households also limited.

Everyday practice: food safety and agricultural production

Even though the large-scale commercial agriculture is supported by the Government as the way of boosting food security. However, data shows this research area does not follow the trend of many other Northern villages in Vietnam where number of households increase diversifying their agricultural activities¹¹ beyond the previously predominant rice production. Rather, the *peasant keeps rice production*¹² as the fundamental agricultural activities, combining with some subsistence agricultural activities such as backyard cultivation and poultry raising rather than commercial agricultural production. From peasants' perspective, the reason is *not* because they lack of inputs to invest in other agricultural, but they consider on one hand animal raising or cash-crop is *time and labour consuming* than rice production; on the other hand its profit is lower than migration or other non-farm business. Therefore, by far the best combination strategy of households in BacNinh is practicing rice production while releasing some of their family members for off-village and off-farm business like a household model presented in figure 1.

¹¹ The popular trend in Vietnamese rural in agricultural diversification is raise large stocks of pigs and/or large flocks of poultry for sale, with intensive use of industrial animal feed

¹²In Vietnam traditionally the same term is used to designate both "Rice" and "Agriculture" LEBAILLY, P. 2015. Transformations récents et persistance de l'importance de l'économie rizicole dans l'économie paysanne: Leçons des expériences menées au Vietnam dans le cadre de la coopération universitaire. In: LEBAILLY PH., PEEMANS J.PH. & VU, D. T. (eds.) *Rural development and small farmers in South East Asia. Lessons of experiences in Vietnam and Cambodia.*: GRAESE: Groupe de Recherches Asie de l'Est et du Sud-Est..

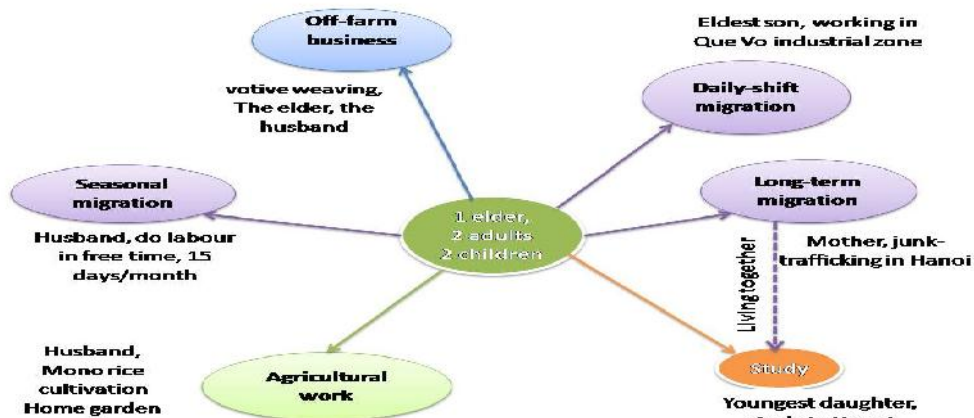


Figure 2. A model of labor division in a typical BacNinh's household

Household membership is usually defined as “under the same roof”, however, under the context of industrialization, it is gradually changing this concept into multi-spatial household. The strong commitments and obligations between rural-based and urban-based individuals and units show that this model of households are well-functioned with mutual support is divided across space. For example, remittances from urban could be an important income source for rural family members, who in turn may do agriculture and supply for migrants with high-quality food and other kinds. These linkages are popular and crucial in the livelihood strategies of the rural households, but usually not taken into account of policy making.

Food security in Red River Delta is not only concern with quantity but also with the quality of food. Considering the satisfaction of quality in rural family meals, it is interesting that despite the amount of money spent to buy food have increased remarkably, but it does not come with the satisfaction level of the meal home families. It is explained by uncertain source of food supplied for rural areas. Table 4 shows that group 1 has higher satisfaction on food quality in comparison with the group 1 mainly because they could control their own food source. From peasant's perspective, it is much better if they consume foods that they or his neighbors grow and raise with their own insurance

Table 4. Satisfaction on food quality in surveyed households

Indicator	Group 1		Group 2	
	HH	%	HH	%
Very satisfied	11	10.6	21	18.9
Satisfied	54	51.9	38	34.2
Unsatisfied	29	27.9	35	31.5
Very unsatisfied	10	9.6	27	24.3

*Source: Household surveys, 2015

Traditional trend of agriculture presents on the local variables and subsistence usage preference. In term of rice, from peasant's perspective traditional local variables are much more preferred than few high- yielding variety of rice has been grown for few years ago. According to the peasants interviewed, there were traditionally more types of rice, which had low yields, but were much more resistant to pests than the currently predominating varieties. It was reported that the high yielding rice has remarkably changed the quantity of output but at the cost of increases in the inputs such as fertilizers, insecticides and pesticides. Besides, these high yielding rice variables have not given the peasants the chance to sell the rice surplus in the market as before because of its low quality and consumer preferences. It is also noteworthy that unlike before when 100 percent of sampled households were found to sell surplus rice in the market at a mean of around 48 percent of their output, recently households in group 1 rather keeps their rice for their daily consumption up until the next planting season or *selling/sharing it to relationships who cannot cultivation*. These commercial agricultural productions are only used for sale.

CONCLUSION

This paper focused on the industry – agriculture interface in which the impacts of land conversion policies to household food security. Based on sustainable livelihood approach, this research contributes a holistic perspective on analyzing household food security. The important change of household food security caused by industrialization is not only in quantitative aspects but also in qualitative aspects. Further it is also the changes in the socio-economical status of peasant households. Before industrialization, farmer households are net food producers. Since their land was transferred to industrial companies, they have become smallholders or agricultural laborers; this has resulted in them becoming net purchasers of food as they do not own sufficient land to produce enough food for their families. The higher food prices make food expense always one of the main parts in the household budgets. However, spending more on food does not mean satisfied since the suspiciousness of food quality. Besides, not all the landless farmers have chance to find a decent work to cover their living cost. One of the strategies of rural households is diversify their livelihoods, accepted multi-spacial household model. And when income from non-farm jobs could relatively supply enough their need of cash, they would rather consume high quality food than grow and sell high yielding variable. In other words, they would like to sustain the traditional agriculture rather than moving to agro-industrialization. It implied the small holder peasants' role in food safeties. If the peasant can produce good food for them, they can participate in the production of healthy food (with low agrochemical products, which is major, concern of modern consumers) and, doing so, even improve their livelihoods.

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