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Urbanization and rural development in Vietnam's Mekong Delta

Livelihood transformations in three fruit-growing settlements

by

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Abstract

In recent years, the poverty rate among fruit farmers in the rural Mekong Delta has declined more rapidly than among all rural households in the region and in Vietnam. This is despite huge fluctuations in export markets for fruit in the last decade. The findings from this case study in three rural settlements in Tien Giang and Vinh Long provinces suggest that the main driver of rural development is a positive reciprocal relationship between urban centres and farming and a strong role for small towns in local economic growth and poverty reduction. The main factors are: first, the growth of urban incomes throughout Vietnam, resulting in higher standards of living, better diets and growing demand for fresh fruit; and second, the increase in employment opportunities in non-farm sectors, which allows farmers to diversify their income sources and invest in fruit production. In addition, locally-based traders play a key role in linking small-scale farmers to markets and in directly and indirectly stimulating non-farm employment in large villages and small market towns, which reduces the vulnerability of poor households unable to migrate.

But while, overall, urbanization has so far benefited the case study settlements, it also presents new challenges. At the present time, the three settlements are largely success stories, especially when compared to other rural settlements in the Mekong Delta region. However, whether they will be able to continue on this path will depend not only on the entrepreneurial spirit of their residents but also on wider socio-economic transformations. The differences between the three settlements also suggest that they may evolve following different trajectories, which in turn will present different risks and opportunities.

Whether the experiences of the three settlements can embody a way to rural development with long-term prospects for poverty reduction and equitable and sustainable economic growth, is likely to depend on the capacity of provincial and commune governments to formulate and implement appropriate policies, and on the support given to these by national development strategies.

1. Introduction

1.1. Objectives

Over twenty years after the introduction of *doi moi* (innovation) reforms in the mid-1980s, Vietnam's agricultural sector has undergone substantial changes. Growing integration in international markets, rapid economic growth and urbanization have had a significant impact on demand, especially for high-value food products such as fresh fruit and vegetables. This study explores the impacts of urbanization on three fruit-growing settlements in selected provinces of the predominantly agricultural Mekong Delta region. The aims are to:

- Document changes in the livelihoods of the residents of settlements in the fruit production area, especially the 'urbanizing' villages and villages in the periphery of urban centres undergoing physical expansion;
- Explore how fruit farmers' access to different markets (export markets, urban markets and local markets) affects production systems and producers' livelihoods;
- Examine the factors that affect the growth of local small towns and large villages;
- Encourage and contribute to policy dialogues on balanced regional economic development and poverty reduction at the local, national and international levels.

1.2. Methodology

The study uses a combination of tools and methods, including secondary data analysis, questionnaire surveys and qualitative tools. Fieldwork was conducted in February-March 2006.

Selection of the case study settlements

Fresh fruit and vegetable production in the Mekong Delta is restricted by land characteristics. In the coastal provinces, soil salinity is a negative factor, as is flooding in the mainly rice-producing western inland provinces. Fresh fruit and vegetables have traditionally been grown by farmers in the provinces of Long An, Tien Giang, Vinh Long and Can Tho. The provinces of Vinh Long and Tien Giang, because of their location and fruit farming tradition, are more likely to be involved in the three types of markets (export, urban and local markets), and have been selected for the case study. A detailed description of the selected settlements is given in section 2.3.

Secondary data

Relevant national and regional data include the Vietnam Living Standard Surveys, which provide aggregated (regional) data on household income and expenditure and trends over the past decade. Provincial and district/commune level data include statistical yearbooks, annual reports and plans, workshop documents, documents/decisions by local governments. These provide more detailed information on migration, urbanisation patterns and urban growth, land use changes and landlessness, poverty and vulnerability patterns.

Questionnaire survey

A small questionnaire survey was conducted with a random sample of 100 respondents in each of the three selected settlements, for a total of 300 completed questionnaires.

Qualitative tools

Interviews with key informants, focus group discussions with farmers and in-depth interviews (case histories) with a small number of poor and non-poor households, households with

migrant members, and actors in the market chain were conducted to collect information on the village and commune contexts and on specific issues. Participatory tools were used in both group discussions and in-depth interviews. The main tools used were:

- For group discussions with key informants (commune and village heads): household wealth ranking, village history, village map, transects walks, labour mobility diagram and commodity diagram.
- For group discussions with farmers (women and men separately): livelihood matrix, round diagram for labour migration and in- and out-flows of fruit, priority ranking to find out difficulties in fruit production and organizational analysis.

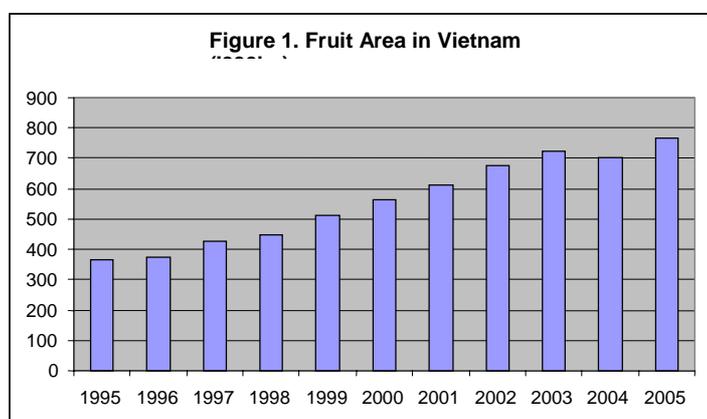
This study was conducted in close collaboration with the Southern Fruit Research Institute (SOFRI). The Institute provided five field interviewers to conduct the questionnaire survey, helped the team with logistics and arrangements in the locality and provided comments on the report. The authors gratefully acknowledge the assistance of SOFRI staff.

2. Background

2.1. An overview of the fruit sector in Vietnam

Production

The area under fruit tree cultivation in Vietnam has doubled in the past 10 years, from around 360,000 ha in 1995 to more than 750,000 ha in 2005, with an average annual growth of 8.5%. Total fruit harvest has also doubled within the same period, from 3 million tons in 1995 to more than 6 million tons in 2005 (see Figure 1). Changes in land use, from low value-added paddy to intensive gardening and commercial production of high-value fruit, have contributed substantially to the expansion of the fruit area in the country.



Source: Statistical Yearbook 2004 and Vietnam Economic Time magazine, special volume 12/2005

The five most important fruits produced in Vietnam are: (1) banana (1.4 million tons per year), (2) citrus - orange, lime, tangerine and pomelo (800,000 tons per year), (3) longan, litchi and rambutan, (4) pineapple and (5) mango. In 2005, the growing area of these 5 fruit types accounted for more than half of the total fruit growing area in the country¹.

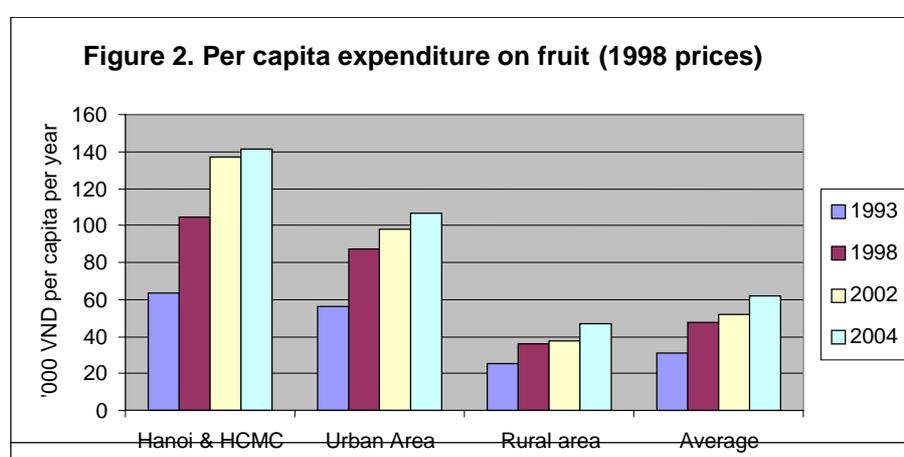
The Mekong Delta is the main growing region. It accounts for 35% of the total national fruit tree area, and provides more than half of the total fruit production of the country, including

¹Source: Fruit Industry Report, Ministry of Agriculture and Rural Development (MARD), Hanoi, December 2005.

around two-thirds of citrus fruit and mango². The Mekong Delta is also the homeland of many speciality tropical fruit varieties such as Hoa Loc mango, Lo Ren milk fruit, Nam Roi pomelo, and Chin Hoa durian.

Growing domestic demand

Vietnam's fruit production is mainly for domestic consumption, and only 10-15% is exported. As a consequence of the general improvement in living standards, domestic demand for fresh fruit has increased, especially in the large cities. At equivalent 1998 prices, the average annual per capita expenditure for fruit in Vietnam has more or less doubled during the last 10 years in all rural and urban areas and in the large cities. According to VLSS/VHLSS data, in 2004 average per capita expenditure on fruit was 79,000 dong³ (in current prices); this figure is 58,000 dong in rural areas, 137,000 dong in urban areas, and 183,000 dong in Hanoi and HCMC. The increased consumption of fruit in *all areas* is thus the key driver for the rapid growth of the fruit sector in Vietnam.



Source: Analysis of VLSS/VHLSS 1993-2004 data by Trung, Nguyen Dang 2006

Looking at specific types of fruits, per capita consumption of banana – the most popular and cheapest fruit - has not increased much in the last 10 years. In contrast, consumption of higher value fruits such as citrus (orange, lime, tangerine and pomelo) and mango has increased by 3-4 times or more in all areas.

Table 1. Consumption by type of fruit (kg per capita per year)

	Hanoi and HCMC				Rural areas				Urban areas				Average			
	93	98	02	04	93	98	02	04	93	98	02	04	93	98	02	04
Banana	7.4	9.7	9.6	8.5	6.0	8.0	6.8	7.3	8.2	8.2	8.2	8.1	6.5	8.1	7.1	7.5
Citrus fruits	1.2	3.6	3.9	4.1	0.45	0.9	1	1.3	1.3	3.2	3.1	3.5	0.6	1.5	1.5	1.8
Mango	0.4	2.0	2.2	2.5	0.6	0.7	0.9	1.5	0.8	1.6	1.9	2.4	0.7	0.9	1.2	1.8

Source: Analysis of VLSS/VHLSS 1993-2004 data by Trung, Nguyen Dang 2006

With the improvement in the living standards of Vietnamese households, staple food expenditure as a share of total household expenditure has decreased in all regions. The relative share of expenditure for foodstuff including fruit, meat, fish and vegetables has also decreased significantly in urban areas, but slightly increased in rural areas.

²Source: Vietnam Economic Time magazine, special volume 12/2005.

³ In 2008, the value of the Vietnamese dong was about VND 15,800 = 1 US\$ (similar to that in 2003, when VND 15,500 = 1 US\$)

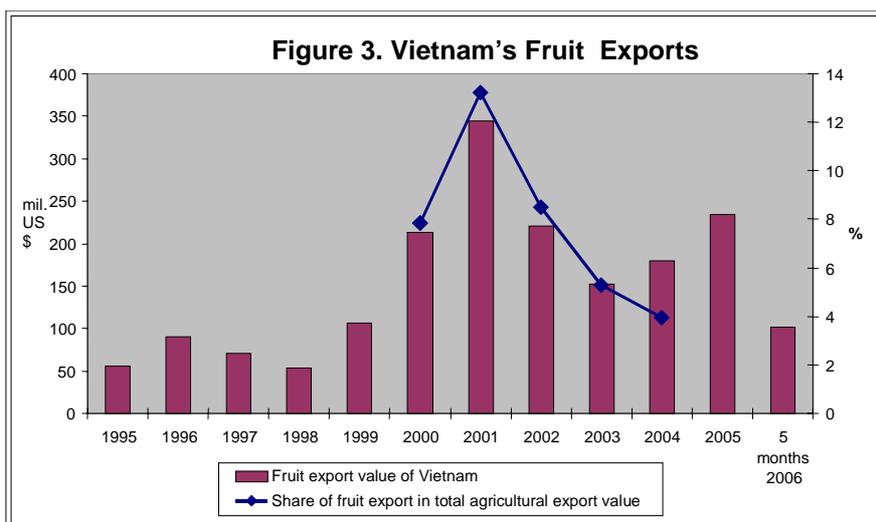
	Hanoi and HCMC				Rural				Urban				Average			
	93	98	02	04	93	98	02	04	93	98	02	04	93	98	02	04
1. Food (staple cereals)	15.2	10.1	7.0	5.3	34.5	26.8	20.1	17.5	17.8	12.5	9.3	7.4	31.2	23.4	17.5	14.8
2. Foodstuff (meat, fish, vegetables, fruit, etc)	22.9	17.8	16.5	14.2	21.4	22.0	22.3	22.1	22.3	19.5	18.7	16.7	21.6	21.4	21.5	20.7
of which:																
- Fruits	1.9	1.96	1.65	1.4	1.43	1.62	1.48	1.58	1.96	1.89	1.59	1.44	1.54	1.68	1.5	1.55
3. Others	61.9	72.1	76.5	80.5	44.1	51.2	57.6	60.4	59.9	68.0	72.0	75.9	47.2	55.2	61.0	64.5
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Annual household expenditure ('000 dong, fixed prices 1998)	17529	25969	36244	44197	8012	10886	11327	13165	15003	21264	26266	31879	9411	13381	14944	18125

Source: Analysis of VLSS/VHLSS 1993-2004 data by Trung, Nguyen Dang 2006

Fluctuations in export markets

Exports of Vietnam's fruit have suffered huge fluctuations over the past few years. After a stagnant period in the late 1980s and early 1990s due to the collapse of East European markets and the economic embargo imposed by the US, the export value of fruit recovered in 1995-1996, slowed down in 1997-1998, then grew quickly to a peak of 344 million USD in 2001. It decreased again in 2002 and 2003, before a gradual recovery in 2004 and 2005. From a peak of 13% in 2001, the share of fruit in total agricultural export value had fallen to just 4% in 2004.

The key cause of this fluctuation is the uncertainty of China's market – the main importer of Vietnam's fresh fruits. Most fresh fruit is imported to China through small cross-border trade involving several Vietnamese private traders. In the peak year of 2001, China was the destination for around 80% of the export value of Vietnam's fruits. After China joined the WTO in 2001, tighter regulations on labelling and quarantine of fresh fruit imports and more favourable import tariffs for Thailand's fruit negatively affected Vietnamese small exporters. In 2005, China accounted for only 40-50% of Vietnam's fruit export value. The remaining key export markets are Taiwan, Japan, Korea, the European Union and the US, mainly for frozen and canned fruits.



Source: Statistical Yearbook 2004 and Vietnam Economic Time magazine, special issue 12/ 2005

Increases in fruit imports

Vietnam is also an increasingly large market for fruit imports, mainly from China, the US (for temperate climate fruit like apple, grape, pear and peach) and Thailand (for tropical fruit like mango, mangosteen, durian and langsat). Imported fresh fruit with attractive appearance, consistent quality and good shelf life, and not in all cases higher prices, has gained the preference of domestic buyers especially in urban areas. In recent years, illegal imports of fruit at competitive prices (i.e. without paying import taxes) from China and Thailand have reached almost all rural areas of the country.

There are no available statistics of fruit imports to Vietnam, mainly because they are imported through informal cross-border trade in the case of China and Thailand (across Cambodia in the latter's case), or through small private orders by air from other countries. The FAO estimated that in 1998 the fruit import value was around 20 million USD⁴; surely this figure has increased much since then.

Box 1: Are Vietnam's fruits defeated on home ground?

Visiting the fresh fruit supermarkets at 450 Nguyen Thi Minh Khai (District 3) and 141 An Duong Vuong (District 5), in HCMC, we can see a paradox: foreign fruits are put on nice and luxurious show cases, while domestic fruits are sitting in a corner with just around 30% of market share. Even in Can Tho, the central city of the Mekong Delta – the fruit barn of the country - private traders claim that foreign fruits, even with higher prices (e.g. Indian tangerine at 18,000 dong/kg, US apple at 28,500 dong/kg, Thai rambutan at nearly 10,000 dong/kg) are much preferred by consumers.

In the specialised fruit shops in Nguyen Tri Phuong, Nguyen Thi Minh Khai, Thu Khoa Huan streets (in HCMC) the imported fruits are abundant. One shop owner sells 100-120 kg of durian per day, of which 80-90% is from Thailand. One buyer states "I prefer to buy mango and durian from Thailand, because they are good in taste, have uniform size and long shelf life..."

Dr. Vo Mai, Chairman of the Vietnam Fruit Association, remarks that a majority of imported fruits come from China due to easy import, easy selling and competitive prices. Ms. Nguyen Thanh Ha – vice Director of Thu Duc wholesale market (which supplies more than 50% of fresh fruit to the HCMC market) says that the market handles 500 tons of incoming fruit everyday, of which 300 tons are imported - 90% from China. According to one officer of the Market Management Board in HCMC,

⁴ Source: from official website of MARD <http://www.mard.gov.vn> (article: "Why Vietnam fruit finds it difficult to enter China?", 14 April 2005).

Chinese fruits are penetrating the city market with market shares of 25 - 50 percent, depending on location.

The loss of export and domestic markets is the main reason for the falling prices of fruits from the Mekong Delta. In 2001, the export value of Vietnam fruit to China reached 140 million USD; in 2004 it decreased to 80 million USD; and for the first 5 months of 2005 it was estimated as just 20 million USD.

Many economic experts comment that Vietnam fruits are losing in the adjacent vast Chinese market to Thai fruits. More than that, Chinese fruits are going "upstream" to compete with Vietnam fruits on home ground. Under the pressure of imported fruits, selling prices of domestic fruits have fallen dreadfully, down by 30-50 percent (according to varieties) compared with just last month.

Source: Vietnam Economic Time, 6/2005

Key constraints in the fruit sector

1. *Production capacity.* Fruit is overwhelmingly produced in individual, small and scattered farms with extremely varying techniques. Despite the fast expansion of growing areas in the past years, the average yield of Vietnam fruit trees is still quite low compared with other countries in the region. For example, the average yield of pineapple in Vietnam is 13 tons per ha, half of Thailand's. Production of speciality fruit varieties that can fetch higher prices on both domestic and export markets is limited and cannot meet the increasing domestic demand, let alone serve regular large orders from foreign importers.

The need for more concentration in the production of high quality fruits has been mentioned many times, but action is slow, without feasible and adequately funded projects and programs. All market risks are placed on individual fruit growers who, in an effort to follow short-term price signals, have cut down trees when prices have fallen, and replaced them with different varieties, thus making their investment less effective.

2. *Fruit quality.* Vietnam has a wide range of fruit varieties, but the truly high quality ones are still few. The vast majority of existing trees have degraded over time, affecting both yield and quality of fruits. The limited gardening techniques available to individual farmers make most Vietnam fruits inconsistent in terms of size, shape, colour and ripening degree. The 'safe fruit' products that comply with permitted levels of pesticide residuals are still rare.

3. *Prices and costs.* Variations in the quality of products and small production volumes of speciality varieties make the prices of exportable fruits relatively high compared with similar tropical fruits from other countries. This is the case even for banana, the most popular fruit in Vietnam. The price of exportable banana from the Mekong Delta is often as high as 115-120 USD per ton excluding packaging and other costs, while the F.O.B. price of Philippine banana is just 110-115 USD per ton. Moreover, the increased costs of fertilizers and chemicals (due to high oil prices) have reduced profits for fruit farmers.

4. *Post harvest losses.* Vietnam's preservation techniques and processing capacity for fruits are still very limited. The post harvest loss ratio is high at 20-25%⁵, due to improper techniques at all stages of harvesting, preservation, packaging and transportation. The lack of safe preservation of fresh fruits for longer periods, especially the lack of refrigerated storage and vehicles, makes the exports of fresh fruits difficult.

⁵ Source: Report on Fruit Industry, MARD, December 2005.

The total capacity of industrial fruit processing factories is just 290,000 tons of processed products per year; most are too under-equipped to reach the international standards of processing technologies. Moreover, many such factories often run at 20-30% of capacity due to seasonal fruit production fluctuations and the lack of adequate facilities for preservation like refrigerated storage systems. The costs of processing are still high; for example, the costs of metal cans (for export and domestic supermarkets) for processed pineapple account for 40% of total production costs. In addition, thousands of home-based small processing units use rudimentary techniques to produce dried fruit (e.g. dried longan, litchi) mostly for small-scale cross-border trade with China and for domestic markets.

The packaging of fruits is still a simple and monotonous task, but the labelling is lacking or inadequate to meet the requirements of foreign markets including the Chinese one. Brand building for Vietnam's fresh and processed fruits has gained the attention of local authorities and fruit producers in recent years, but it is still at an embryonic stage.

5. *Weak linkages in commodity chains.* The distribution network of Vietnam's fruits has been developing and diversifying in parallel with the improvement of transportation and communication facilities. Private collectors and traders dominate the transactions with fruit farmers. However, the three pillars of commodity chains benefiting all participants, i.e. organised production, contract farming and branding, are still lacking.

The emergence of supermarkets in larger cities as a channel for the marketing of quality fruits is promising. However the linkage of such supermarkets with fruit producers is still *ad hoc* and small in scale. The establishment of new-style fruit cooperatives is also promising; however the number of effective operating cooperatives is still very small.

Key policies related to the fruit sector

1. *Agricultural sector policies.* Decision 182 of the Prime Minister dated 3 September 1999 approving the Programme for the development of vegetables, fruits and ornamental plants in the period 1999-2010. The objective (already reached) of this programme is to extend fruit tree cultivation to 750,000 ha of national fruit area. Priority is given to the Mekong Delta where the area is to be 250,000 ha (also already reached). By 2010 the whole sector is expected to produce 1 billion USD of exports and create 5 million jobs.

2. Resolution 09 of the Government dated 15 June 2000 on policies for the structural transformation of production and marketing of agricultural products. This resolution officially allows provincial governments to change land use from low value-added paddy rice to higher value crops such as fruit and shrimp.

3. *Development of improved fruit varieties.* Decision 225 of the Prime Minister dated 10 December 1999 on the approval of publicly funded national programs on research and development of high quality, high value varieties for agricultural production

4. *Land policies.* The Land Law, adopted in 1993 and revised in 1998, allocates land use rights. The terms of land use for perennial trees are set at 50 years, aiming to create confidence amongst households investing in fruit trees.

5. *Export policies.* Like all other agricultural products, export tariffs for fruit products have been kept at zero level. All value added taxes from domestic purchase of inputs are refunded after the products are exported. There have been some reward policies for companies

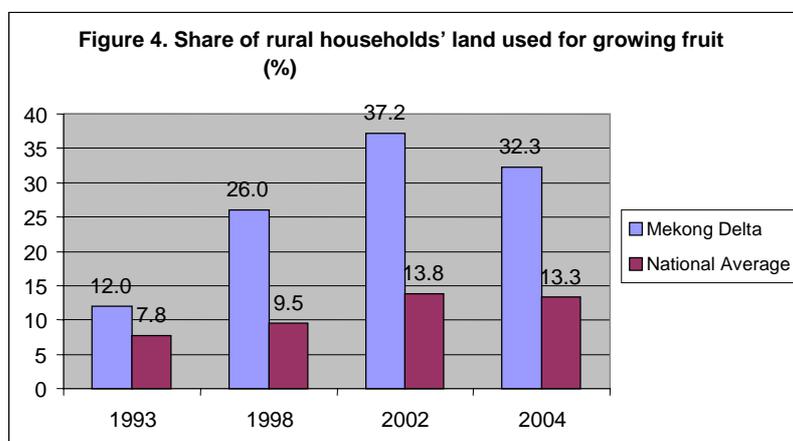
exporting processed fruits and vegetables. However, under WTO accession commitments, all export subsidies will be cut. Also, Vietnam has not yet finalised the agreements on sanitary labelling and quarantine of agricultural produce with China, especially fruit and vegetables, making it difficult for Vietnam's fruit to enter this vast market after Vietnam's accession to the WTO in January 2007.

6. *Import policies.* There is no quota or other non-tariff measures on imported fruits. Previously, the import tariff for fresh fruits and vegetables was kept at 40%, and 50% for processed products. However, under the implementation of CEPT (within the framework of AFTA) and WTO accession commitments, the import tariff for fresh fruits and vegetables will be reduced to 5% or less.

2.2. Fruit farmers in the Mekong Delta: an analysis of VLSS/VHLSS data⁶

Changes in land use for fruit farming.

In the past 10 years, rural households throughout Vietnam have reserved more and more of their productive land for fruit growing. According to VLSS/VHLSS data from 1993 to 2004, in 2004 on average this was more than 13% of household productive land, or 1.7 times the figure for 1993. In the Mekong Delta, farmers use much more of their land for fruit trees and the transformation of land use from paddy to fruit farming has been faster: 32% in 2004 compared with 12% in 1993, or an increase of 2.7 times. In 2004, rural households in the Mekong Delta had on average 1860 m² of fruit growing land, compared with a national average of just 706 m².



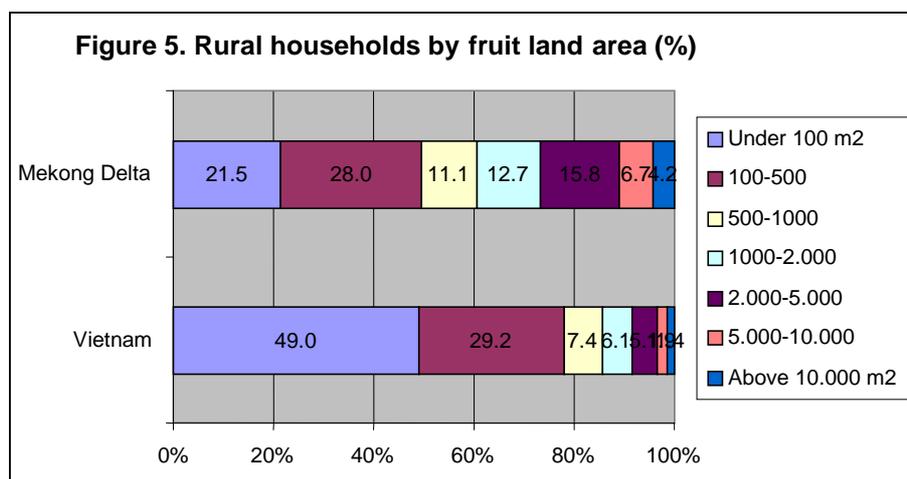
Dividing all rural households in Vietnam by expenditure category, we can see that better-off households reserve more of their (larger) farms for fruit. In 2004, rural households in the richest group owned on average 1600 m² of fruit land, while households in the poorest group owned on average just 330 m². However, the same trend of increased use of productive land for fruit farming can be seen across all expenditure quintiles.

⁶ Unless otherwise noted, all figures in this section draw on the analysis of VLSS/VHLSS 1993, 1998, 2002 and 2004, data prepared by Trung, Nguyen Dang for this study.

	1993	1998	2002	2004
Poorest	4.0	5.4	6.9	6.6
2	4.9	7.6	9.6	11.3
3	7.8	8.5	13.9	11.3
4	8.6	11.7	18.6	19.8
Richest	16.6	19.7	35.2	32.4
National Average	7.8	9.5	13.8	13.3

* Calculation for rural households growing at least one type of fruit.

Although in 2004 only 35% of rural households in the Mekong Delta grew fruit trees, less than the national average of 50%, the concentration of land used for fruit trees in the region is much higher. On average, only 15% of Vietnamese rural households have more than 1,000 m² of fruit land (an increase from 10% in 1993); but in the Mekong Delta, this figure is 39% (an increase from 25% in 1993). It is worth noting that the concentration of land in the Mekong Delta goes hand in hand with increased landlessness. In 2002, around 29% of the rural population in the Mekong Delta was landless, compared with 17% in 1993; and the poorer groups (by expenditure quintile) are more likely to be landless.⁷



A broader look at all main income sources of rural households reveals changes in rural livelihoods in the past 10 years. The percentage of rural households with an agricultural income component, including paddy rice, other food and cash crops, vegetables, fruits, husbandry, fishery has decreased substantially since 1993. This trend is in line with the urbanization of the country, growing landlessness, and the increase of non-farm work, including waged labour and out-migration, in rural areas.

Fruit farming has fluctuated in the same period: 1998 witnessed the highest percentage of rural households involved in fruit farming in Vietnam as a whole (but not in the Mekong Delta), followed by a decrease in 2002, and then a relative recovery in 2004. This fluctuation reflects the attitude of farmers to short-term price signals, particularly from the uncertain Chinese export market. For example, 1993-1998 was the booming period of fruit farming in the Northern Uplands; over-production however pushed prices down, so much so that many

⁷ Vietnam Development Report 2004, Joint Donor Report to the Vietnam Consultative Group Meeting, Hanoi December 2-3, 2003. The correlation between poverty and landlessness is not necessarily the same in other regions of Vietnam. For example, in the Red River Delta, landlessness appears to be higher amongst households in the richer rural expenditure quintiles.

households cut down their fruit trees. The increase in intensive gardening and commodity production of high-value crops in recent years can explain the recovery of fruit farming as an income source. However, there still remains a significant decline of fruit as an income source in the Mekong Delta. This is because of increasing out-migration over the years, especially of young people. Fruit gardening is now done primarily by older generations.

	Rural Vietnam				Rural Mekong Delta			
	1993	1998	2002	2004	1993	1998	2002	2004
1. Paddy rice	84.3	80.9	69.7	68.4	74.4	64.6	50.6	47.1
2. Other food and cash crops (except vegetables)	54.0	49.9	36.0	38.3	17.8	7.0	3.7	4.6
3. Vegetables	60.9	60.9	53.7	52.0	41.8	32.2	25.4	22.5
4. Industrial trees	52.6	53.9	37.2	39.4	54.5	44.4	21.9	23.7
5. Fruit	52.3	65.9	45.1	50.2	54.0	46.9	28.3	35.1
6. Husbandry	84.1	80.8	71.7	70.9	75.5	55.8	45.3	47.1
7. Fishery	53.6	19.4	33.9	35.2	75.4	24.3	54.8	57.4
8. Wages from skilled and unskilled jobs	23.2	22.8	52.9	57.9	37.6	30.0	57.6	57.4
9. Other self-employed non-farm work (trade and services)	40.1	38.5	34.0	35.7	46.1	40.0	31.8	33.0
10. Salaries for civil servants, pension & social welfare	20.2	21.5	17.5	18.0	12.6	19.2	9.2	8.9
11. Other sources	91.0	94.8	96.6	97.5	77.8	84.5	94.2	94.6

The changes in the structure of rural households' revenue also show a similar trend. In the past 10 years, the share of paddy rice and food and cash crops in total household revenue has decreased, while the share of wages from skilled and unskilled jobs has increased significantly. However the share of fruit in rural household revenue has fluctuated, with a sharp increase in 1998 followed by a gradual decrease. For rural households in Vietnam as a whole, in 2004 it had returned to 2.4%, the same as in 1993. Rural households in the Mekong Delta have a larger share of revenue from fruit at 4.1% in 2004, also more or less the same as in 1993.

	Rural Vietnam				Rural Mekong Delta			
	1993	1998	2002	2004	1993	1998	2002	2004
1. Paddy rice	28.0	26.2	18.9	17.1	28.8	29.8	22.4	20.2
2. Other food and cash crops (except for vegetables)	3.4	3.2	2.6	2.8	0.4	0.3	0.3	0.5
3. Industrial trees	4.7	5.7	4.6	4.7	4.1	5.5	2.4	2.2
4. Vegetables	2.8	3.6	2.4	2.3	2.2	2.6	1.3	1.9
5. Fruits	2.4	3.9	2.9	2.4	4.2	6.8	5.0	4.1
6. Husbandry	14.9	14.6	13.7	13.7	8.6	6.0	7.0	7.9
7. Fishery	2.4	1.7	4.2	4.3	5.1	3.9	9.5	10.1
8. Wages from skilled and unskilled jobs	7.2	8.5	19.8	20.3	13.7	14.5	24.2	23.0
9. Other self-employed non-farm work (trade and services)	21.7	21.3	14.2	14.5	24.9	23.1	15.6	15.1
10. Salaries for civil servants, pension & social welfare	2.5	4.1	3.4	3.5	0.9	1.9	1.1	1.0
11. Other sources	9.9	7.4	13.4	14.5	7.2	5.7	11.4	14.1

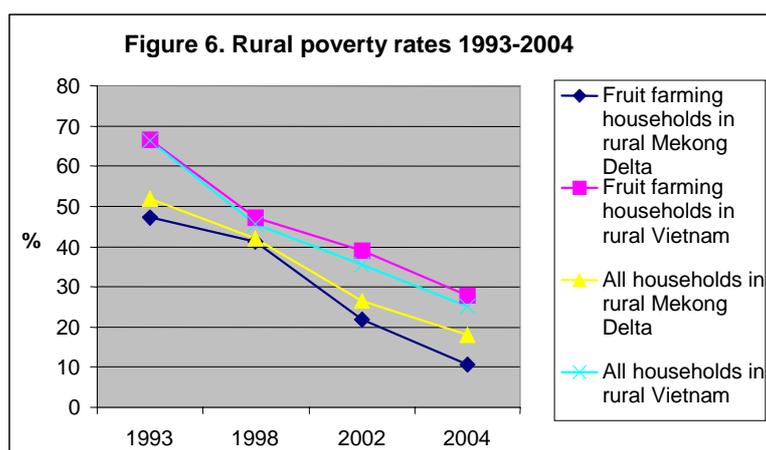
Characteristics of fruit farmers.

Using the VHLSS 2004 data, we present a comparison of socio-economic characteristics of rural households between those growing and those not growing fruits in 2004. On average, the fruit-growing households share most of the characteristics of all rural households. Some clear differences between all rural households in Vietnam and rural households in the Mekong Delta include:

- The education levels of household heads in the Mekong Delta are lower than the national average
- The percentage of rural households owning permanent and semi-permanent houses in the Mekong Delta is lower than the national average.
- The size of total productive land and fruit land per rural household in the Mekong Delta is higher than the national average
- Rural households in the Mekong Delta have better access to credit from different sources than the national average.

	Vietnam		Mekong Delta	
	Rural HHs growing fruit	All rural households	Rural HHs growing fruit	All rural households
Size of household	4.5	4.4	4.6	4.4
Education of household head (0: never educated; 1: < primary; 2: primary; 3: lower secondary; 4: upper secondary; 5: technical; 6: prof. secondary school; 7: college or higher)	2.5	2.4	1.6	1.6
Ratio of dependent members (>60 and <16)	40.4	41.3	37.5	38.0
Ratio of members doing non-farm jobs	11.3	13.7	9.9	12.8
Ratio of self-employed members	59.5	49.7	56.6	43.1
Ratio of members who are waged workers	20.3	22.0	21.1	25.2
Electricity connection	92.1	92.0	88.2	84.3
Ownership of television	76.4	73.7	84.7	72.5
Ownership of motorbike	40.7	42.2	36.5	34.1
Ratio of permanent house	14.3	14.9	8.0	7.2
Ratio of semi-permanent house	64.8	61.2	49.0	43.2
Public/private tap water connection	2.8	6.2	9.6	13.4
Water well	75.1	74.6	63.1	63.9
Total productive land (m2)	8173	7490	9472	10339
Fruit growing land (m2)	706	706	1863	1863
Ratio of access to credit (various sources)	51.4	47.9	54.9	49.3
Size of debt ('000 dong)	7605	9390	11942	13392

Table 6 above suggests that fruit farming households in rural Vietnam are slightly less wealthy than all rural households. But in the Mekong Delta, the trend is the opposite: on average, fruit farming households in the rural Mekong Delta are slightly better-off than all rural households in the region, suggesting that commodity fruit farming is better than paddy farming in the Mekong Delta. This trend is confirmed by the fact that, recent years, the poverty rate among fruit farming households in the rural Mekong Delta has declined faster than that among all rural households in the region (see Figure 6).



Fruit as a cash crop. Despite the decline in 2003, the percentage of rural households growing fruit as a cash crop seems to have recovered in all regions and across almost all expenditure quintiles, especially in the Mekong Delta region.

	1993	1998	2002	2004
Rural Mekong Delta	39.6	55.2	65.8	59.4
Rural Vietnam average	39.2	40.7	46.9	45.0
By expenditure quintiles in rural areas of Vietnam				
Poorest	38.2	38.5	39.7	38.2
2	40.7	42.4	44.7	44.9
3	39.1	39.3	48.3	48.2
4	38.2	42.6	51.7	48.7
Richest	40.2	40.9	58.3	46.5

Looking at the distribution of fruit farming households by value of commercialized fruits, we can see that in 2004 over 50% of households in rural Mekong Delta have a revenue of more than 1 million dong from selling fruits, compared to about 23% for rural Vietnam in general.

Value of commercialized fruits ('000 dong)	Rural Vietnam				Rural Mekong Delta			
	1993	1998	2002	2004	1993	1998	2002	2004
< 500	79.8	68.5	62.6	63.6	56.4	36.0	28.5	36.8
500 - 1,000	9.1	11.6	12.5	13.5	13.5	12.6	11.3	12.4
1,000 - 5,000	8.9	13.9	16.2	16.0	22.2	28.9	27.1	29.9
5,000 - 10,000	1.6	3.1	3.8	3.6	5.6	10.0	14.3	9.2
10,000 - 50,000	0.6	2.6	4.7	3.1	2.4	10.5	18.2	10.9
> 50,000	0.0	0.4	0.2	0.2	0.0	1.9	0.6	0.8

The VHLSS 2004 contains specific questions on the selling practices of respondents for specific farm products that were not available in previous surveys. Analysis of this data allows us to answer the questions of farmers' terms of trade i.e. selling "to whom" and "where" by specific types of fruit. The two main ways of selling fruits are "selling to private traders" and "self-retail", and the two main places where fruits are sold are home ("buyers come to the farm") and "commune daily marketplace". In the Mekong Delta, the proportion of farmers selling to private traders is much higher than the national average, and traders are more likely to come directly to the farm. This is because in Kinh settlements in the Mekong Delta there is no "commune marketplaces" (there are instead *cho phien* –open air fairs, often

in ethnic minority uplands). And clearly the roles of both state and private companies (through contract farming) in the fruit sector are still very limited.

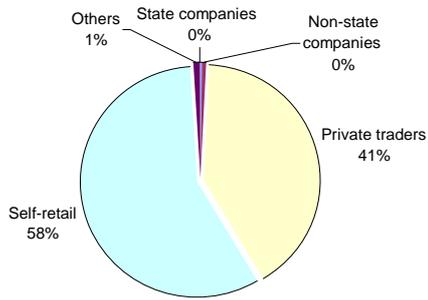
Table 9. Market access of fruit farming households in Vietnam, 2004

	Mainly to Whom in the past 12 months					Mainly Where in the past 12 months					
	State companies	Non-state companies	Private traders	Self-retail	Others	Buyers come to farm	At buyer's places	Commune daily market place	Commune weekly market place	Focal market	Others
Orange, lime, tangerine, pomelo	0.7	0.0	41.1	57.5	0.7	39.3	2.9	20.3	25.2	7.3	5.1
Pineapple	1.7	1.7	28.5	68.2	0.0	36.4	6.6	16.5	24.8	7.1	8.6
Banana	0.5	0.4	42.5	55.9	0.8	49.6	1.9	19.4	21.7	4.4	3.1
Mango	0.3	0.9	46.0	52.0	0.9	44.8	4.8	25.0	16.4	4.6	4.4
Apple	0.0	0.0	30.4	68.6	1.0	33.2	0.0	23.6	36.3	3.0	3.9
Grape	0.0	0.0	84.9	15.1	0.0	84.9	0.0	15.1	0.0	0.0	0.0
Plum	0.0	0.0	32.9	67.1	0.0	29.3	1.8	19.0	28.0	13.7	8.2
Papaya	0.0	0.0	31.6	67.7	0.8	30.9	2.4	28.2	25.0	7.5	6.0
Longan, lychee, rambutan	0.1	0.2	52.4	47.3	0.0	47.9	12.0	13.4	17.3	6.0	3.5
Sapodilla	0.8	0.0	32.4	66.8	0.0	40.2	7.6	24.4	16.2	7.3	4.3
Sweetsop, soursop	1.3	0.0	29.4	69.0	0.4	33.6	3.2	25.5	25.3	8.0	4.4
Durian, jack fruit	0.6	0.5	29.2	68.3	1.4	32.6	3.6	23.8	28.7	7.6	3.7
Mangosteen	0.0	0.0	94.1	5.9	0.0	42.2	27.7	30.1	0.0	0.0	0.0
Other fruits	0.0	0.0	40.1	58.3	1.6	39.7	4.2	21.8	22.5	7.5	4.4
All Fruits	0.4	0.3	40.8	57.8	0.7	42.4	4.6	20.4	22.3	6.2	4.2

Table 10. Market access of fruit farming households in the Mekong Delta, 2004

	Mainly to Whom in the past 12 months					Mainly Where in the past 12 months					
	State companies	Non-state companies	Private traders	Self-retail	Others	Buyers come to farm	At buyer's places	Commune daily market place	Commune weekly market place	Focal market	Others
Orange, Lime, tangerine, pomelo	0.8	0.0	81.0	18.2	0.0	60.8	10.3	13.8	4.7	7.6	2.8
Pineapple	0.0	0.0	81.8	18.3	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Banana	1.6	0.5	63.0	33.9	1.0	70.9	1.7	21.2	3.7	0.9	1.6
Mango	0.7	0.8	64.8	33.6	0.0	58.3	9.6	21.8	4.9	2.8	2.6
Apple	0.0	0.0	75.0	25.0	0.0	75.0	0.0	25.0	0.0	0.0	0.0
Grape	.	.	.	.	.	.	.	.	.	.	.
Plum	0.0	0.0	74.9	25.1	0.0	65.3	0.0	25.9	0.0	8.8	0.0
Papaya	0.0	0.0	40.4	59.6	0.0	44.5	0.0	43.7	0.0	3.3	8.6
Longan, lychee, rambutan	0.0	0.0	90.8	9.2	0.0	73.6	15.1	8.0	1.2	2.2	0.0
Sapodilla	7.8	0.0	92.2	0.0	0.0	45.6	31.1	15.5	0.0	7.8	0.0
Sweetsop, soursop	0.0	0.0	67.4	32.6	0.0	87.9	12.1	0.0	0.0	0.0	0.0
Durian, jack fruit	0.0	0.0	62.4	37.6	0.0	64.1	0.0	27.8	0.0	8.1	0.0
Mangosteen	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
Other fruits	0.0	0.0	79.8	20.2	0.0	70.8	14.2	8.1	2.9	2.6	1.4
All Fruits	0.9	0.3	71.9	26.7	0.3	65.8	8.1	17.8	3.1	3.3	1.8

Figure 7. Fruit: mainly sold to Whom, Vietnam 2004



Fruit: mainly sold Where, Vietnam 2004

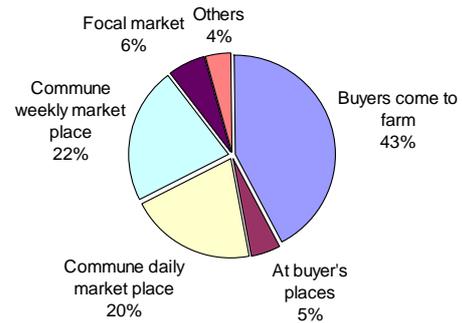


Figure 9. Fruit: Mainly sold to Whom, Mekong Delta 2004

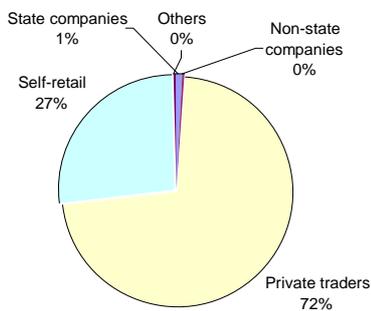
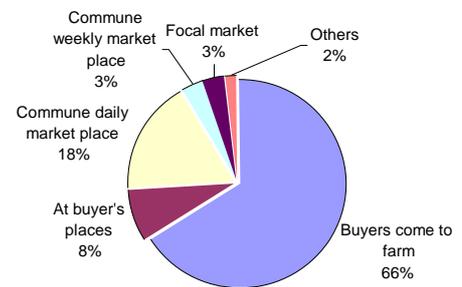


Figure 10. Fruit: Mainly sold Where, Mekong Delta 2004



2.3. Brief description of the study locations

The Mekong Delta has a land area of nearly 40,000 square km, comprising 13 provinces and cities. The region accounts for 12% of the national land area, and 21% of the national population. The proportion of the population living in urban centres is around 20%, slightly lower than the national average of 23.7%⁸. The Mekong Delta has a complex network of rivers and canals connecting the Tien and Hau branches of the Mekong River. The alluvial soil in the inland provinces of the delta is fertile with a good fresh water supply, suitable for growing paddy rice, cash crops and tropical fruit trees. The Mekong Delta is the largest agricultural region of the country. Annual rice production per capita is around 1,000 kg, making it the key supplier of Vietnam's rice exports.

The Mekong Delta is also Vietnam's main fruit growing region. The delta's speciality fruit, such as mangoes, dragon fruits, durians and oranges, is preferred by domestic consumers and exported to China, Canada, US and various European countries. The delta has about 300,000 ha of orchards, providing nearly 4 million tonnes of fruit per year. Its exported fruit volume makes up between 60 and 75 percent of the country's total.

Tien Giang and Vinh Long provinces⁹

Tien Giang province lies 120km in length along the Tien River. My Tho, the provincial capital, is only 60 km south of Ho Chi Minh City (HCMC). Vinh Long province is in the

⁸ According to the latest population census conducted in 1999.

⁹ If not otherwise noted, data in this section is derived from the 2005 Statistical Yearbooks of Tien Giang and Vinh Long provinces.

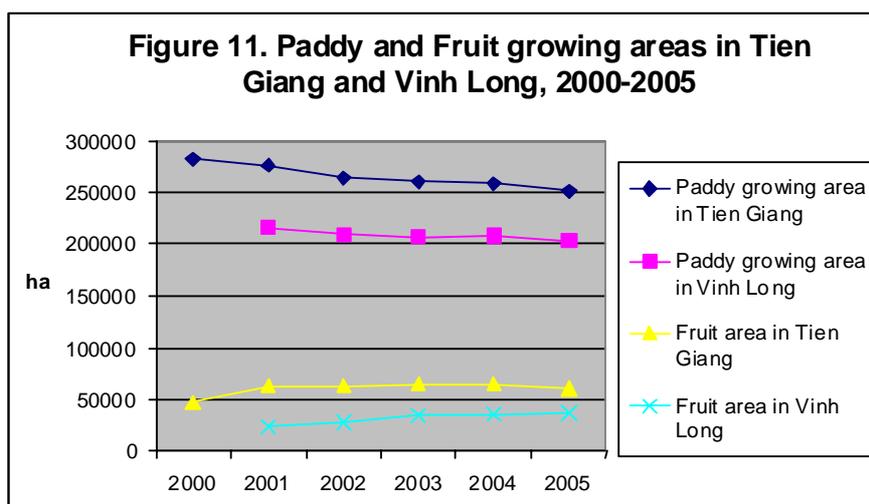
centre of the Mekong Delta, between the Tien and Hau branches of the Mekong River. It is 135 km south of HCMC and adjacent to Can Tho, the main city of the delta in the South. The construction of My Thuan bridge across the Tien River and the rehabilitation of highway No.1A have greatly improved road transportation between the two provinces and from Vinh Long to HCMC. Electricity and paved roads now reach all the communes of the two provinces.

Population density in these two provinces is the highest in the delta. Urbanization is increasing but, at 15% in 2005, it is still much lower than the national average. In both provinces, industry and services sectors have increased, although the economic base is still predominantly agricultural. In 2005, the total agricultural export values of Tien Giang and Vinh Long were 72 and 133 million USD respectively. In 2005, poverty rates according to the new poverty line¹⁰ were 23% and 12.75% for Tien Giang and Vinh Long respectively.

Table 11. Basic characteristics of Tien Giang and Vinh Long provinces

	Tien Giang	Vinh Long
Land area (km ²)	2,481.8	1,477.7
Agricultural land (% of total)	74	79
Population density (person/km ²)	685	714
Percentage of urban population (%)	15	15
Economic structure (2005):		
- Agriculture (%)	48.1	53.4
- Industry and transportation (%)	22.3	15.5
- Services (%)	29.6	31.1

Tien Giang and Vinh Long are two of the main fruit producing provinces in the delta. In the past years, farmers there have transformed parts of their rice land into fruit gardens, and fruit growing areas in Tien Giang and Vinh Long have increased by 30% and 55% respectively since 2000-2001. However, due to increased intensive farming, rice production per capita in 2005 remained high at 767 kg and 922 kg respectively in Tien Giang and Vinh Long, against 804 kg and 893 kg in 2000-2001.



Tien Giang is famous for its speciality mango (Hoa Loc) and milk fruit (Lo Ren), while Vinh Long is famous for its distinctive pomelo (Nam Roi).

¹⁰ The new income poverty line is 260,000 dong per head per month for urban areas, and 200,000 dong per head per month for rural areas

Table 12. Fruit tree area in Tien Giang (ha)

	2000	2001	2002	2003	2004	2005
Total fruit area	46,900	62,253	63,062	64,546	64,546	60,877
Orange	1,764	2,731	3,465	5,094	5,709	6,176
Mango	5,661	4,205	4,424	5,145	5,320	6,072
Milk fruit	1,435	940	940	1,483	1,867	1,826
Durian	1,156	1,664	1,281	4,105	4,571	4,873
Pomelo	1,476	1,786	2,603	3,284	3,732	5,120

Table 13. Fruit tree area in Vinh Long (ha)

	2001	2002	2003	2004	2005
Total fruit area	23,513	27,741	34,313	35,670	36,356
Longan	9,429	9,220	11,232	10,918	10,379
Orange	4,682	5,845	6,075	6,723	7,362
Mango	2,603	3,469	3,660	3,866	4,054
Durian	574	774	1,391	1,523	1,626
Pomelo	1,349	3,706	5,323	5,948	6,467

Table 14. Selected fruit basic data

	Growing Area (ha)	Harvesting Area (ha)	Yield (ton/ha)	Output (ton)
Pomelo (whole country)	28600	17700	11.8	209300
Tien Giang	3700	2800	17.2	48200
Vinh Long	5900	3400	12.4	42300
Mango (whole country)	77500	53500	6.3	337700
Tien Giang	5300	4900	12.7	62400
Vinh Long	3900	2800	12.5	34900
Milk fruit (Mekong Delta)	2550	2295	18	41310
Tien Giang	1867	1680	18.7	31410

Source: Institute of Design and Planning for Agriculture, HCMC 2006

The three study settlements¹¹

1. Vinh Kim commune (Chau Thanh district, Tien Giang province).

Vinh Kim commune is 10 km from My Tho city, the provincial capital. Its length is 10km, and its width is 1.8km. The total land area is 571 ha, of which 74% is agricultural land. Vinh Kim has 6 villages with a total population of 11,000 people in 2,300 households. Population growth in the commune is a combination of natural growth (1.5% per year), and in-migration (1% per year). Land is expensive: one 48m² (4x12m) plot right at the commune market place is priced at 300 million dong, while 1000m² (1 *cong*) of residential land along the commune road can fetch 100 million dong.

Vinh Kim is one of the seven focal communes of the district growing the famous Lo Ren milk fruit trees. Since 1995 almost all rice fields in the commune have been transformed into fruit gardens. Government investment and people' contribution to the improvement of irrigation schemes in the past 3-4 years has made fresh water supply to every garden much easier. With high population density, each household on average possesses just around 2000 m² of agricultural land, which is not enough to make a living. This, and the deterioration of old and stunted milk fruit trees (also due to improper techniques to induce off-season fruits)

¹¹ Data in this section is derived from interviews of the study team with the leaders and key informants of the study communes and villages in February 2006.

contributes to the decline of agricultural activities and the growth of trade and services in residents' livelihoods.

In the commune there are a long-standing Central Market and a newly built Fruit Market. Taking advantage of its central geographical location in the road and water transport networks connecting three surrounding districts to HCMC and other provinces, Vinh Kim concentrates around 150 fruit traders (*vua trai cay*), 6 specialized fruit packaging suppliers, and hundreds of associated small service providers (*tap hoa*), plus a pool of 300 porters (*boc vac*), personal transportation services/motorbike drivers (*xe om*) and vehicle guards (*giu xe*).

Vinh Kim has the appearance of an urban area. In 2007 the commune was recognized as a district township (i.e. the 5th grade urban area)¹², which is likely to entail the redesign of the commune boundaries. Its infrastructure is rather good: almost all inter-village roads are paved and electricity reaches all houses. At the commune centre there is a bus stop to My Tho city with 4 trips per day. On average, each day there are 30-40 trucks transporting fruits from the commune markets to HCMC and other provinces. People here have adopted the urban lifestyle of "mobile phone, cooking gas and bottled/filtered water". Environmental issues, especially the collection of solid waste from the market and household garbage, are an increasing concern. Up to the end of 2005, the poverty rate of the commune was 20%, according to the new poverty line.

Vinh Thoi village

Vinh Thoi village is at the centre of Vinh Kim commune, adjacent to the commune markets. It has 334 households with a total population of 1,766 people, plus 15 in-migrant households not yet assigned permanent residential status¹³. Its total land area is 81.7 ha. Village roads are paved and electricity reaches all households. In 2003, a public water system was installed in the village, and now 87% of households have access to tap water. Telephone lines were installed more than 10 years ago, and the fruit traders are the main users.

All rice fields in the village have been converted into gardens since 2000. All households in the village used to have Lo Ren milk fruit gardens; however now only 60 households have milk fruits for sale. The main reasons are diseases, floods and degraded soil. Fifteen percent of households earn their living primarily from trade and services. Out-migration is not popular, as there are many non-farm employment opportunities within the commune. In Vinh Thoi village there are 69 poor households, mainly elderly living alone, young couples or those in bad health. They often run small-scale services at the market or have fruit packaging jobs. Some women go to My Tho to work as house maids.

2. Hoa Hung commune (Cai Be district, Tien Giang province)

Hoa Hung commune is located along Highway No. 1A, right at the My Thuan bridgehead, and just 3 km away from An Huu market – one of the biggest fruit market nodes in the

¹² According to decree 72/2001/ND-CP of the Government, there are six types of urban areas: special, 1st grade, 2nd, 3rd, 4th, and 5th grade urban area. The 5th grade settlements must satisfy 5 criteria: (1) function as an integrated centre or specialize in politics, economics, culture and services to support the socio-economic development of a district or a group of communes; (2) off-farm work accounts for at least 65% of total employment; (3) the infrastructure of the area is under construction but not comprehensively finished; (4) the population of the area is more than 4,000 people; (5) the average population density is more than 2,000 people per km².

¹³ Vietnam's household registration system, *ho khai*, has become much less important with the implementation of *doi moi* reforms but people are still required to register with the local authorities where they reside. Newly arrived migrants can apply for a temporary resident registration. For more details, see section 5.

Mekong Delta. The commune has 1,540 ha of land, of which 58% is agricultural. Up to the end of 2005, the commune had 3,450 households with a population of 16,139 people, not taking into account temporary residents.

Hoa Hung is the home to the speciality Hoa Loc mango variety. Since 1996, all rice fields in the commune have been converted into gardens. In the past, almost all households grew mango, but in 1985-1990 many switched to longan, since at that time longan was exported to China at good prices. However since 1998 the prices of longan have fallen and the farmers replanted their mango trees. Currently, Hoa Loc mango is very famous and sells well in urban and export markets.

Since 1989, the electricity network covers the whole commune. In 1999, the first public water network was installed along the main road. Now 500 households have access to tap water. Almost a tenth of households have landline telephones, and around 30% of male household heads have mobile phones, mainly for exchanging market information. In 2001, the My Thuan bridge replaced the ferries to cross the Tien River. Several households that earned their living by serving ferry passengers had to switch to other jobs, and now more than 100 people in the commune work for the bridge maintenance company. In the commune, especially in the "Street" village along Highway No.1A, there are several services such as cafés, foodstuff and groceries shops selling gas bottles and bottled water. It is estimated that around 60% of households in the commune use gas cookers. The commune has 410 poor households, mainly those having too many young children, too little land or suffering losses in their family businesses.

Hoa village

Hoa village is famous for its production of speciality Hoa Loc mango. This large village has 576 households with 2,600 people. The total land area is 240 ha. and all households are connected to electricity. The main village roads are paved. In the village there are 120 telephones, and 80% of households have motorbikes.

The main income of the villagers is from gardening, and there is no rice farming at all as all rice fields have been transformed into fruit gardens. The 63-member Hoa Loc mango cooperative was established in 2003. In addition, there has been widespread diversification of income sources, with 50 households doing petty trade and services, 20 households doing private transport service, and more than 100 households with at least one member that has migrated to the cities. Around 30-40 seasonal immigrants do earth work, garden preparation and pesticide spraying.

3. My Hoa commune (Binh Minh district, Vinh Long province)

My Hoa commune is 7 km from Cai Von district town, and just across the river from Can Tho city. It has 3,650 households with 16,962 people. The total land area is 2,024 ha, of which 1,228 ha is agricultural land mainly for fruit trees (91%) and the remaining 117 ha for rice.

In 2004 a bridge was constructed to link the commune with Cai Von district town by road. Before that, transport of goods was mainly by boat. Now almost all roads in the commune are paved, and 99% of households are connected to electricity. The commune has no tap water system, and 90% of households use filtered river water; the remaining 10% use deep well water. There is no commune market, and residents go to Cai Von district town or to Can Tho city to buy their necessities.

My Hoa is famous for its speciality Nam Roi pomelo. Almost all garden land in the commune is for growing pomelo trees. The main concern of the farmers is the decrease in the price of pomelo, due to the excessive expansion of production in the province and also in other provinces of the delta. A Nam Roi pomelo association was established in the commune in 2000 with the sponsorship of the Hoang Gia Company, but the association is no longer operational, and the Hoang Gia Company is facing severe difficulties (see Box 11).

The commune has 175 poor households. Most of them lack productive land, while their family size is large. The main income sources of the poor are wage labour within the commune and small trade and services activities.

In the near future, it is anticipated that the pomelo gardens of the commune will be much reduced due to urbanization and industrialization. The planned construction of the big Can Tho bridge, Binh Minh river port, Binh Minh industrial zone and the green tourist centre will take away several hundred hectares of land. In 2002, 162 ha of pomelo garden were cleared for the first phase of the Binh Minh industrial zone construction. It is planned that within the next few years the commune will be converted into a township.

My Thoi 1 village

My Thoi 1 village has 320 households with 1,396 residents. The total land area is 146 ha. This village is called ‘buddy land’ by local residents, due to its fertile land and stable fresh water supply. All households are connected to electricity, and all village roads are paved. All households have television sets, and 15% have landline telephones, mainly for exchanging information on pomelo prices. Since 2003 the risks of flood have been eliminated and irrigation has improved after a surrounding dike was built by the State. My Thoi 1 village is at some distance from the commune centre so it will not be affected by the planned infrastructure construction. By the new poverty line, the village has 28 poor households.

Nam Roi pomelo is the pride and joy of the villagers. The conversion of rice fields to gardens started in the early 1990s. In 2001, when the formal restructuring plan of the commune was approved, almost all households had finished their conversion from paddy to pomelo farming. Now the main income sources of the villagers are gardening, husbandry, small-scale trade, services and migration to Can Tho and HCMC. It is reported that 30% of households in My Thoi 1 village have at least one trade or service job in addition to gardening and husbandry. Remittances are an important income for many households, and 30% have at least one seasonal or permanent migrant member.

Box 2: Origins and Characteristics of the Speciality Fruits in the Three Study Settlements

1. Lo Ren Milk Fruit

Origin

The first milk fruit tree belonged to Mr Ho Quang Le, the head of the district in Long Hung commune, Chau Thanh district, Tien Giang province. Mr. Le died in 1940. A man from Hue City brought Mr. Le a milk fruit as a present. After eating it, Mr. Le threw the seed in the blacksmith's working place, and there grew the first milk fruit tree. That's why the fruit variety was named Lo Ren, which means Blacksmith's Oven.

Characteristics

The Lo Ren milk fruit has a spherical tapered shape. The colour is light yellow, with pink tinges over 1/3 to 3/4 of the skin of the fruit, the rest is light green, shiny, soft and juicy. Its flavour is sweet and

rich. The Lo Ren milk fruit has an average weight of 0.25- 0.35 kg/fruit. The special characteristic of Lo Ren milk fruit is its thin skin, which is also the main constraint for post-harvest preservation. Due to this, and the fact that it does not ripen after being cut from the tree, milk fruit can not be transported far from the production area. There used to be 12 types of milk fruit. At present, only 3 types remain, of which Lo Ren accounts for 95% of the quantity produced.

Harvest

Main harvest: November to February of the following year

Inverse harvest (early harvest): October (the quantity is low)

Since the fame of the Lo Ren milk fruit is widespread nationally, its price is high, up to nearly 30,000 dong per kilo.

2. Hoa Loc Mango

Origin

The Hoa Loc mango tree was first planted in Hoa Loc commune, Giao Duc district, Dinh Tuong province which is now Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province. The mango variety therefore has been named Hoa Loc mango according to the name of its original area of plantation (or more exactly it is called Cat Hoa Loc mango, where "Cat" refers to the sugary sweetness of the fruit). Due to its good quality and flavour, Hoa Loc Mango is now planted on a large scale in many provinces of the Mekong Delta.

Characteristics

A Hoa Loc mango has an average weight of 0,35- 0,45 kg/fruit, oval and round shape with a sharp pointed tip. When ripe, the skin becomes light yellow, the flesh is deep yellow, with a silky texture and little fibre. The mango has a sweet flavour and smell, and a naturally powdery skin surface.

Harvest

Main harvest: from January to May

Inverse harvest (early harvest): October

Thanks to its high quality, the price of Hoa Loc mango is always twice or three times as high as the price of other mango varieties sold in the market.

3. Nam Roi Pomelo

Origins

Nam Roi pomelo originates from Long Tuyen- Can Tho province but is now being planted in Binh Minh district, Vinh Long province, and in provinces of Ben Tre, Tien Giang, Can Tho and Vinh Long. The pomelo is named Nam Roi due to an old time story of a farmer who once received a delicious pomelo as a present from a friend. The man then saved the pomelo seeds to grow the plant in his garden. He loved his pomelo tree so much that he shouted out a warning to his family: "Anyone who dares to steal a pomelo will be hit with five whips". Since then, the pomelo has been named Nam Roi, five whips. Currently 6 communes in Binh Minh specialize in pomelo crops.

Characteristics

The life of a pomelo tree is about 10-20 years. The pomelo fruit has the shape of a large pear. Its average weight is about 0.9- 1.45 kg/fruit. When ripe, the skin becomes green-yellow to bright yellow, easy to peel with an average thickness of about 15- 18 mm. Its fleshy pulp is light yellow, closely wrapped and easy to separate from its segment. The pomelo is rich in sour-sweet juice (Bricks degree: 9-11%). It has a sweet and slightly sour smell. It has few small seeds (0- 10 seeds/fruit). The flesh ratio is more than 50%.

Harvest

Main harvest: August, September

Inverse harvest: February- April

In addition, there is also the Tet harvest (lunar new year) when pomelo fruit is kept on trees waiting for higher prices. Nam Roi is sold at a rather high price, ranking second after Da Xanh pomelo.

3. Livelihood transformations

3.1. From rice to fruit: changes in land use

Fruits have long been important income sources for the three villages. The cultivation of Hoa Loc mango, Lo Ren milk fruit and Nam Roi pomelo trees in the settlements dates back more than half a century ago. It is believed that the fertile alluvial soil along the rivers and canals in the three villages makes a difference for the quality of fruits.

Population density in the three villages is much higher than the Mekong Delta's average, especially in Vinh Thoi (Lo Ren milk fruit) village (see Table 15). On average, households in Hoa and My Thoi 1 villages have around 6-7 *cong* (1 *cong* = 1,000m²) of agricultural land, while in Vinh Thoi village this is only 3 *cong*. Originally and up to the late 1980s, in Hoa and My Thoi 1 villages around 70% of agricultural land was for rice farming, while in Vinh Thoi less than 10% was for rice (only 18.7 ha of rice fields out of 240 ha of total farmland). Now, almost all agricultural land is set aside for fruit production, with some digged ponds near farmers' houses or rivers and canals that can be used to raise fish. No rice is grown in the villages: only 16 out of 300 respondents, of which 14 in My Thoi 1 village, still farm rice but in fields outside the village given as compensation for losing pomelo gardens to the construction of the industrial park in the commune. Other cash crops or vegetables are not grown any longer in the fruit gardens.

Table 15: Land distribution in the three study villages, 2006

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Population density (person/ha)	21.6	10.9	9.5
Average agricultural land per household (m ²)	3249	6541	7260
Average fruit garden per household (m ²)	3121	6424	6422
Average fruit garden per household member (m ²)	674	1333	1282

Source: Authors' household survey in the three study settlements, March 2006 (population density data is from the commune and village heads).

The transformation of rice fields, often on low-level land, into higher-level fruit gardens in these three villages was spontaneous, starting in the late 1980s and almost completed in 2000, just before the Government and local authorities officially encouraged agricultural restructuring in the Mekong Delta (i.e. 'the transformation of low value-added rice farms into higher value-added crops like shrimp in coastal provinces and fruits in inland provinces, while still ensuring the food security of the country', Resolution 9 of the Government in June 2000).

The farmers build up the rice fields to form the fruit gardens because "*rice farming is just for earning enough to live on without savings*", while fruit can generate an income at least 4-5 times that of rice on the same plot of land. The farmers followed some pioneers in the village who demonstrated the benefits of fruit compared to rice. As more and more rice fields were converted into gardens, it became increasingly difficult to continue rice farming as support services for land preparation and irrigation became unavailable.

Costs for gardening are higher than rice farming, but the benefits are also higher. For a maximum of 3 rice crops per year, we can earn 3-4 million dong, minus costs of up to 1 million dong per cong, whereas for 1 cong of pomelo garden we pay costs of 2-3 million dong but can earn 15-20 million dong. The initial costs for converting 1

cong of rice field into garden are around 800,000 dong. At first there are some difficulties, but when the fruit trees start producing, they give a much better income. Gardening is also much less labour consuming than rice farming...
(Female group discussion, My Thoi 1 village, My Hoa commune, Binh Minh district, Vinh Long province)

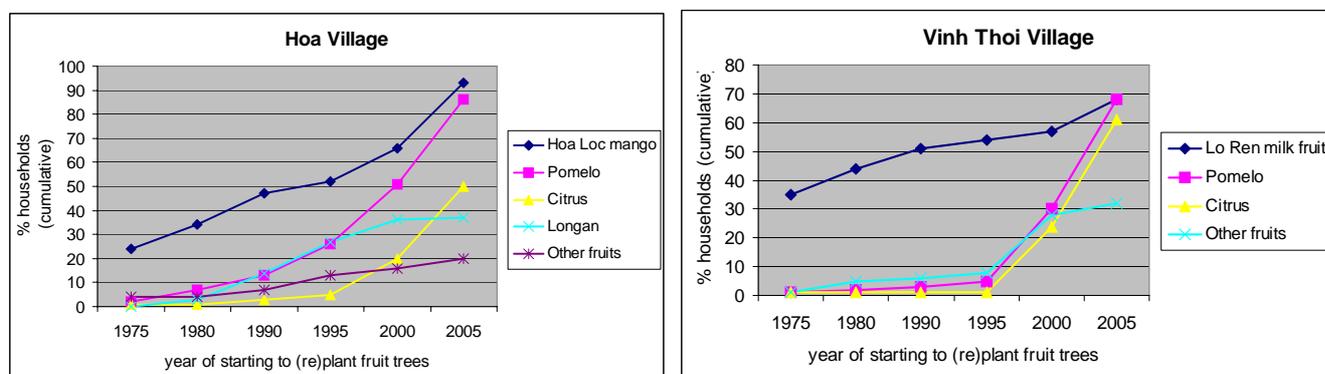
3.2. Diversification within fruit production: following market signals and offsetting risks

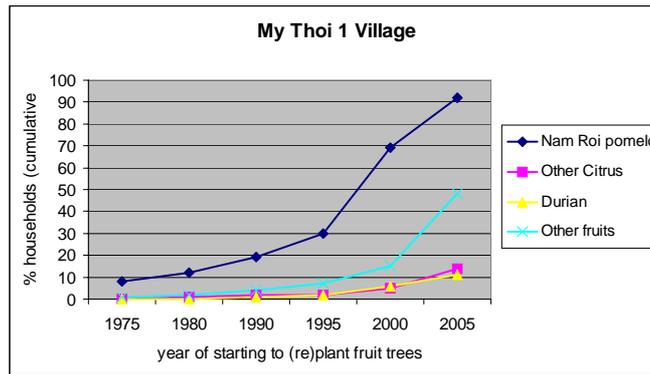
For the farmers, the transformation from short-term crops (rice, other cash crops) with growing periods of just 3 months to perennial fruit trees that stand for several decades is a big move. The benefits of fruit farming (if successful) over rice farming are clear. However, if the risks of one short-term crop can be quickly recovered within 3 months with the next harvest, the risks of investment in fruit trees, which only start full production after 5 years or more, are much higher. Thus, diversification within fruit production is an important strategy for the farmers.

In practice, transformation from rice to fruit in the study villages is a process of “*lay ngan nuoi dai*”, i.e. “using the short-term crops to nurture the long-term crops”. The farmers transform plot by plot to minimize investment costs. At first, when the shadow of the newly planted trees is not too much, they often also grow banana and cash crops like beans, maize, cucumber and cabbage on the same plot for additional income. After 2-3 years, when cash crops cannot be grown any more, many farmers continue to intercrop the long-term milk fruit or mango trees with shorter-term citrus trees like orange and tangerine. In My Thoi 1 village, farmers intercrop rambutan with pomelo trees.

Even when the main fruit trees are mature, almost all households still reserve part of their land to try other fruits and anticipate market risks. It is difficult to calculate exactly the land area for the main fruit and for other fruits because of inter-cropping practices. However, farmers estimate that on average 70% of the garden area in Vinh Thoi is for other fruits rather than milk fruit, while this figure in Hoa and My Thoi 1 is around 20% for fruits other than mango and pomelo. A large portion of the survey households in the three villages also plant other fruit areas in line with the time of (re) planting their speciality fruit varieties. Pomelo (Nam Roi plus other varieties like Long and Coco) is the preferred option for diversification in Vinh Thoi and Hoa villages.

Figure 12: Percentage of households growing different fruit trees by year of start (cumulative)





Because of the nature of production, responding to changes in market demand takes time and is risky. In the three villages, we often heard the term ‘movement’ to describe the villagers’ transformation from rice to fruit, but also changes between varieties of fruits. The export and domestic market signals plus other technical factors determine farmers’ movements. Each of our study villages has its own story of responding to changes in market demand.

The case of Hoa village, renowned for its Hoa Loc mango, is typical. From the late 1980s, longan was exported in bulk to China at very good prices, so a majority of households converted their rice land to longan gardens or even cleared their old mango trees to grow longan trees. After a peak in 1994-1998, longan exports to China declined, and its price dropped from 15-20,000 dong/kg to just 4-5,000 dong/kg. So the farmers moved to replace longan by citrus fruits like orange and tangerine to meet the growing domestic demand. After several years, they realized that the soil is unsuitable for citrus trees, and are now moving back to mango. The vast improvement in techniques for mango farming is also a key trigger for this last movement. Now the farmers in Hoa village consider they are at a transitional time: more and more longan and citrus trees have been cut (see table 16), but mango trees will not be fully productive for the next 5 years. Our survey data shows that now only 31% of mango trees in Hoa village are mature (compared to around 70% of milk fruit trees in Vinh Thoi and pomelo trees in My Thoi 1).

Table 16: Three periods of garden transformation movement in Hoa village

	1985 - 1990	1998 - 2000	2002 - present
Movement	From Mango to Longan	From Longan to Citrus	From Citrus back to Mango
Scale	Over 70% of garden area converted to longan. Many households cut mango to grow longan.	80- 90% of longan garden area converted to citrus fruits Some households lacking labour keep longan and mango.	80% of households have cut all citrus trees, the remaining 20% kept for inter-cropping with mango for “daily cash” 95% of households revert to growing mango
Reasons	<ul style="list-style-type: none"> In this period the longan was sold at high prices (15-20,000 dong/kg) due to high demand for cross-border export to China Mango was still naturally grown without technical interventions, thus generating low yields. 	<ul style="list-style-type: none"> Longan prices dropped dramatically due to the sharp decrease of export to China, down to 4-5,000 dong/kg (after a golden time in 1994-1998). In 2000-2002, the longan prices bottomed at 1.5-2,000 dong/kg. Prices of citrus fruits increased with growing 	<ul style="list-style-type: none"> farmers eventually recognized that the soil is not suitable for citrus trees (after just 1-2 harvests the trees start to be degraded), while it best suits mango trees. Mango prices increased due to both domestic and export markets expansion, stabilizing at 10-30,000 dong/kg depending on time of the year

	Mango was consumed mainly in the region with low prices (5-7,000 dong/kg).	domestic demand: sweet orange: 25-30,000 dong/kg; Nam Roi pomelo 10-25,000 dong/kg; sugar tangerine 30,000 dong/kg; Long pomelo 8-10,000 dong/kg.	<ul style="list-style-type: none"> Techniques for mango farming have improved. Key roles of lead farmers, farmers union, extension services of SOFRI and the cooperative in good practices dissemination and support for replanting mango trees (cooperative members are granted inputs for 120,000 dong and 40 young trees per cong for replanting mango).
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(Source: Male group discussion, Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province, March 2006)

In Vinh Thoi village, root diseases (due to flooding and improper irrigation techniques to push the trees to produce off-season fruit) have affected many mature milk fruit trees. Farmers cannot replant the milk fruit trees on the old garden because the soil needs some time to recover. Thus the diversification into pomelo and other citrus trees is a way to nurture the soil, and after 5 years the farmers can come back to farm milk fruit. The area of milk fruit garden has decreased much in Vinh Thoi compared to 10 year ago, even though the market prices are very good. Only 68% of survey households in Vinh Thoi now have their speciality trees, a very low proportion compared with the other two villages.

Table 17: Growing speciality fruits in the three villages

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Percentage of HHs growing speciality fruit (%)	68	93	92
Average number of trees per household	21	95	348
Percentage of mature trees (%)	70%	31%	67%
Average harvest per household per year (kg)	1760	1520	5300

In My Thoi 1 village, the key driver for diversification into other fruits is the decreasing price of Nam Roi pomelo. The main reason for this is that in the last 2-3 years the growing area of pomelo in all inland Mekong delta provinces has increased too much, resulting in over-production. Thus, the farmers are trying to grow other fruit varieties in anticipation of further decreases in pomelo prices. In addition, pomelo trees do not have a long life, only 10-12 years, and the farmers want to complement pomelo with other longer-term fruit trees like jack fruit, mango and durian.

Box 3: Diversification from pomelo to other fruits in My Thoi 1 village

Mr. Huynh Van T. is the head of a better-off family with 7 members in My Thoi 1 village. He converted all his 12,000 m² of land into garden in 2000. Now he has 1200 pomelo trees with annual earnings of more than 30 million dong. In the garden there are also some mango, jackfruit and java apple trees. He is anxious about the decreasing prices of pomelo: the first grade fruit now sells at only 5,000 dong/kg, down from 7-9,000 dong/kg two years ago.

His family also raises pigs, selling 12-18 animals per year for around 30 million dong. However he calculates that pig raising is not profitable because the high costs of breeding and animal feed. His son is in boat transport services, and his wife runs a grocery from home. Mr. T. also sells pomelo seedlings to other villagers for 2-3 million dong per year. According to Mr. T., there are now too many people growing Nam Roi pomelo everywhere. He tries to keep pomelo trees, but increasingly intercrops them with other fruits to anticipate market risks. This year he plans to plant 100 jackfruit, 20 mango and 100 java apple trees.

3.3. Decreasing and fluctuating husbandry

Husbandry is still an income source for the farmers in the three study villages, although it has much declined. The transformation from rice to fruit, fluctuating selling prices, ever-increasing costs for breeding and feed, and epidemic risks make husbandry much less important than it was in the past. Oxen, which were an important asset and were used for ploughing the rice fields, have now disappeared among almost all gardeners in the study villages, due to the changes in land use and the lack of grass for feeding the animals. Poultry is only kept in small flocks for home consumption, mainly due to epidemics risks. Some households have small ponds or utilize the garden canals to raise fish.

Only less than 25% of households raise pigs, once the most popular husbandry activity. The average size of herds has also decreased from 5-10 heads to 2-3 animals kept as savings. The use of chemical fertilizers instead of manure also makes pig and cow raising less important. However, in the last 2-3 years, pig prices have been rather stable and the veterinary services have improved; thus more farmers in Hoa village tend to raise pigs as an additional income, to offset the lost income from gardening while their replanted mango trees mature.

Goat raising in Vinh Thoi and My Thoi 1 villages is another story of 'farmers' movement' following market signals. Five years ago, in the two villages there was a wave of raising goats in cages feeding them with bought grass due to increased demand from the cities' restaurants. Fruit plus goat used to be promoted by local authorities as a 'good model' for farmers. It is reported that at that time around 50% of households in Vinh Thoi and My Thoi 1 villages raised at least 2-3 goats each. But then supply outstripped demand and prices fell dramatically, and farmers moved away from raising goats. A new movement is starting to emerge in these two villages with some pioneers: rabbit raising (easy to raise, quick expansion of herd, low investment), also in response from demand from restaurants in the cities. Nobody knows when and whether this 'rabbit movement' will go down like the goat one.

3.4. The growth of non-farm employment

The three villages are characterized by high population density thus low agricultural land per capita, lower labour requirements and higher incomes from gardening compared with rice farming, and increasingly urban lifestyles. A majority of households try to diversify their income sources into trade, services and other non-farm employment. Fruit trading (vendors or bigger traders with permanent stores, i.e. *vua*) is the preferred option for better-off households. *Vua* can generate jobs for local people, such as longan traders in Hoa Hung commune who hire several women in the village to do grading and packaging work.

Different household members can have different job opportunities. Out-migration is the popular option for the younger members. Within the villages, women do petty trade in and around the marketplaces in the commune, offer services like hairdressing and cafés along the main roads, and sell groceries from home. Men work as porters (*khuan vac*), vehicle guards (*giu xe*) and offer personal transport services on motorcycle (*xe om*) in and around the marketplaces, or work as petrol agents along the main roads. Members of the poorer households earn their living by selling lottery tickets, working as labourers in gardening, harvesting and packaging fruits for others. No traditional handicraft production exists in the three villages.

Table 18: Structure of primary employment by time of household members in the past 12 months (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Commune/village cadres	0.6	1.5	0.3
Civil servants	3.4	3.6	3.9
Factory workers (SOEs, private)	12.7	10.8	7
Agriculture	48.3	69.9	71.5
Handicraft	1.5	0	1.2
Trade and services	16.7	5.4	4.5
Wage unskilled labor	14.2	6.9	9.1
Other jobs	2.5	1.8	2.4

The structure of primary employment by time of household members (Table 18) shows that agriculture remains an important activity in the three villages. However, the structure of household income (Table 19) suggests that trade and services are increasingly important in all three villages. Especially in Vinh Thoi with its geographical advantage as the centre of the surrounding communes (and the Central and Fruit markets located in the commune), only 16.7% of household members work primarily in trade and services, but trade and services generate 67.9% of household income; and in contrast, nearly half mention agriculture as their primary job, but agriculture generates less than one fifth of household income. Wage labour, within the locations or involving the migration of household members, is also an increasingly important source of income for these households. Although the association between rurality and agriculture is still felt strongly, the economic base of the three settlements seems to be steadily moving away from farming alone, although with important differences between (and within) the settlements.

Table 19: Structure of household income in 2005 (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Agriculture (own farm)	19	61.8	46.3
Trade and services (own business)	67.9	17.7	26.8
Wage labour (skilled and unskilled, including migrants')	10.2	16.7	22.5
Civil servants, pension, social welfare	1.9	2.4	1.9
Others	1	1.4	2.5

3.5. Typical households in the three villages

Pure agricultural households

Only less than one tenth of households in Vinh Thoi, and one-quarter in Hoa and My Thoi 1, report no income from trade and services and wage labour (skilled and unskilled). These pure agricultural households often have 2-3 *cong* of land or less. They earn their living mainly from fruit gardening, and some raise pigs for sale. They focus on growing the speciality fruit of their locality, and also diversify into other fruits. Lack of labour prevents them from engaging in non-farm jobs and migration. The pure agricultural households are likely to fall in the lower-middle and poor groups.

Table 20: Percentage of households by ratio of income from agriculture over total income (%)

Share of agricultural income in total income (%)	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
<20	31	8	22
20-40	18	6	6
40-60	13	20	15
60-80	15	16	17
80-100	15	25	17
100	8	25	23

Fruit traders

Fruit traders are often the better-off households in the villages. They account for 10% of the survey households (15% in Vinh Thoi, 6-8% in the other two villages). There are two main types of fruit traders: larger traders with permanent buying places (*vua*) in the market nodes, and mobile collectors who act as intermediaries between the fruit farmers and the *vua*, often working seasonally. Some collectors bring fruit directly to wholesale markets in HCMC. Most of the local traders still have fruit gardens, and often hire permanent or seasonal labourers for work such as applying fertilizers, spraying and harvesting.

Box 4: A typical fruit trader in Vinh Thoi village

Mr. T, 32 years old, has 2 plots of fruit garden of 4,100m². Milk fruit used to be the family's main income source. However in 1994-1995 the frequent floods seriously damaged his trees; also at that time the market for milk fruit was still limited to the province. Thus he decided to convert all his garden to citrus trees like pomelo, orange and tangerine. Currently, he earns around 40 million dong per year from fruit, after deducting the costs of inputs and hiring one worker during harvesting time (one month) and for spraying (several days per crop).

The main income of Mr. T family, however, is from fruit trading. Since 1999, he is one of the few people in the commune who have a specialized channel for collecting and bringing milk fruit of super grade to Hanoi by air. Each day during the harvesting period, from the end of September to early February, he sells 300-500 kg of the best milk fruit in Hanoi, earning around 3,000-5,000 dong per kg.

Since 2002, Mr. T has started a new fruit trading activity, working from March to July. He acts as a fruit collector, an intermediary between the fruit traders in Vinh Kim commune and the gardeners in the other provinces of Dong Nai and Binh Duong. The main fruit is orange. He earns 500,000 dong per ton of collected fruit, and each month he can collect 10 tons of fruit.

Petty trade and services

There are many types of petty trade and services in the study villages. They attract households in the middle income group with just 2-4 *cong* of land. As many people said “*here, one household with 2 cong of land is not poor, but has just enough for everyday living. To have savings one has to do additional work out of agriculture*”. These additional activities can be small-scale trade or services in the market like porters or personal transport services, selling groceries from home, providing services for the everyday life of the community such as food selling and preparation, vehicle/electronics repairs, selling garments, hairdressing, running cafés and working as small-scale petrol agents.

Box 5: Portering in Vinh Kim commune

At the Central Market in Vinh Kim commune there is a group of around 100 professional porters. They are organized in a kind of union. They earn a good income: 60-70,000 dong a day, up to 200,000 in peak fruit harvesting time. Most of them have been able to erect permanent houses. This is an advantage of the Vinh Kim commune due to the existence of its crowded Central Market that not all surrounding communes enjoy.

The Central Market and Fruit Market in Vinh Kim commune concentrate petty trade and services. A woman running a small trade such as selling bananas or vegetables with a working capital of just a few hundred thousand dong can earn 20-40,000 dong per day. A man working as a porter or *xe om* (motorcycle) driver can earn 30-40,000 dong or more per day. The Vinh Kim markets attract around 200 *xe om* drivers, from both Vinh Kim commune and neighbouring ones.

Households with migrant members

Several factors contribute to increased migration from the three settlements, including better infrastructure and communications, better education among the young generations, and less need for labour in gardening compared with rice farming. Our survey shows that about half the households in the three villages have at least one migrant member (54% in Vinh Thoi, 48% in Hoa and 44% in My Thoi 1). The main destinations for seasonal migration (in off-fruit season time) are the neighbouring provinces, where people work in construction and agriculture with daily incomes of 25-50,000 dong. Permanent migrants go to cities and industrial zones in HCMC, Binh Duong, Dong Nai, with monthly salaries of 800,000-1 million dong for factory jobs, and 500-700,000 dong for vendors and domestic workers. Remittances are an important income source for these migrants' households.

Poor households

Lacking land is a key reason for poverty: the poor often have less than 1 *cong* of land. The shortage of productive land in Vinh Thoi village is most serious, thus in our sample out of a total of 11 'certified' poor households (registered as such by the commune), 9 are in Vinh Thoi, while only 1 in Hoa and another 1 in My Thoi 1. While in our survey sample there are very few completely landless respondents, they do not benefit from fruit production as wealthier households do (see Box 6). Key strategies of the poor include unskilled wage labour (working on the garden of other households, packaging fruits for the traders), doing petty trade in the marketplaces and sometimes migrating (see Box 7).

Box 6: Reluctance to move from rice to fruit: the case of a poor household in My Thoi 1 village

Mrs. D's family has 5 members, including her and her husband, both 42 years old, and 3 children, all still of school age. She has only 1 *cong* of land, around 20 minutes from her house by bicycle. The land used to be a rice farm, and then in 2002 she converted it to fruit. She was one of the last converters in the village.

Now she has 30 mango trees, not yet mature so producing a negligible income so far. She intercropped mango with lime. Each year she can earn 1.5 million dong from lime by selling it to the nearby Can Tho market across the river. She tries to learn new gardening techniques from her neighbours, but without cash for chemicals she cannot apply the techniques.

She or sometimes her husband sell their labour within the commune. However they can get work only for a few days in peak season. She estimates that from this, her family earns only 2 million dong per year. Her husband also works as a ferryman, but the roads are now so much better that people prefer them to boats, and he only earns 500,000 dong per year. Before 2000 she raised some pigs for sale,

but now the children are all at school and cannot help her in looking after the pigs, so she gave them up.

Mrs. D said “If I were free to decide I would prefer to keep the rice field, since the costs of rice farming are much lower than gardening. The workload of spraying the garden is heavier. My trees are young so produce few fruits, while the fruit prices are unpredictable. Rice farming gave me rice for family consumption, whereas now I have to buy it and spend 200,000 dong per month. I see that gardening can generate some income, but it is not much better than rice farming, because my land is so small. In any case I have to follow the commune’s movement, follow the people’s committee promotion of gardening. I have to follow the others, because if it is only me doing rice farming, how can I find mechanical services for land preparation, how can I irrigate the rice field for my tiny land”. Her main concerns now are finding enough money to afford the costs of rice and children’s education.

Box 7: Out-migration is important for poor households

Mr. T heads a certified poor household in My Thoi 1 village. He and his wife have 4 children and live with his old mother. The two older sons are 23 and 18 and both work away from the village. The girl, aged 17, is at home helping with the housework, and the youngest son aged 6 starts school this year.

In 1994-1995, Mr T. raised a flock of ducks which was decimated by epidemics, resulting in a large debt the family is still repaying. From 1997 to 2003, Mr T., his wife and the oldest son went to work as construction materials porters in Dong Thap province, sending back remittances to the family. In 2003, Mr. T. suffered an accident in Dong Thap and could not do heavy work anymore. The whole family come back to the village. His garden of 2,870 m² with just 14 pomelo trees, until then had been left idle, generating no income for the family. He started to rehabilitate the garden, planting more pomelo. Now he has 90 pomelo trees, but they are still too young for harvest. His wife sometimes does some work around the village (grass picking, firewood clearing) for 25,000 dong per day.

At the moment, the family relies on remittances sent every 3 months by the two migrant sons, one working in Song Hau farm (monthly wage of 2 million dong, sending back home 800,000 dong per month) the other as a guard in a tea factory in Binh Minh district town (monthly wage of 1.5 million dong, sending back home 900,000 dong). Mr. T uses the money for daily expenditure and to repay the debt. He calculates that by the end of this year he can pay back all the outstanding 4 million dong debt and start some savings for the family.

3.6. Outcomes of livelihood transformations

Improved living conditions

Most respondents recognize that living standards have greatly improved in the past 10 years. Almost all basic indicators of assets, housing and facilities of the survey households are much better than the average figure for the Mekong Delta. For example, according to the VHSS 2004, less than 40% of households in the Mekong Delta owned a television compared to 90% in the study settlements. The proportion of respondents living in permanent houses is also much higher than the Mekong Delta average (8%).

Table 21: Assets, housing and facilities of the surveyed households, 2006 (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
ASSETS			
Television	94	98	91
DVD/VCD/Video player	74	76	53
Radio/cassette	75	85	73
Bicycle	89	89	90
Motorbike	71	70	61
Landline telephone	47	47	30

Mobile telephone	14	21	11
Refrigerator	20	32	9
Expensive furniture (more than 1 million dong)	57	71	51
Computer	4	3	4
Air conditioner	2	2	0
Water heater	2	0	0
Automobile (car, truck)	2	0	0
Internet connection	1	0	1
Gas cooker	37	39	24
Motorized vehicle	1	2	1
Boat	6	53	25
Expensive production tools (more than 1 million dong)	13	69	21
HOUSING CONDITIONS			
Temporary wall	50	36	54
Permanent wall	50	64	46
Temporary roof	13	6	5
Permanent roof	87	94	95
Large house (4 rooms or more)	26	27	19
Average house (2-3 rooms)	60	65	71
Small house (1 room)	14	8	10
FACILITIES			
Tap water	57	81	5
Double vault compost latrine	34	33	12
Flush toilet/suilabh	21	35	22
Permanent bathroom	54	76	40
Electricity connection	92	93	96
Separate kitchen	69	74	60
Stainless water tank	6	3	3
Water pump	46	55	41

More ‘urbanized’ lifestyles

Assets and facilities more often associated with urban areas are increasingly available in the study settlements, especially among the better-off households. Landline and mobile telephones are widely available, and used extensively to exchange information on fruit market prices. There are also some computers with internet connections, which facilitate communications and access to information.

Few residents grow their own food, and most families rely on mobile vendors. In My Thoi 1 village, the less prosperous of the three settlements and the one that still retains a rural appearance, several residents cross the bridge to Can Tho city and its supermarkets.

A changing division of labour within the family

Gardening is less labour-consuming than rice farming, especially when the trees are mature and require less attention. The outcome is that most of the gardeners are older people. Young people are keen to move out of agriculture and, in many cases, out of the village. As the vice-chairman of Vinh Kim commune noted, ‘*from April to September there is no work to do here. From October to March the garden needs just some days each month for applying fertilizers, watering, spraying and harvesting*’. Due to the increase in non-farm activities and out-

migration, at peak agricultural times a large proportion of households hire outside labourers, although few do so on a regular basis.

Table 22: Hiring outside labourers for fruit farming in the last 12 months (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Regularly	3	9	1
Some times	40	51	38
Never	57	40	61

Fruit farming (applying fertilizers, spraying) and marketing (updating prices through telephone contacts) are considered more technical than rice farming, and men have taken over these activities. Husbandry has been downscaled, and vegetables for household consumption are no longer grown. Thus the role of women in household farming production has declined. Women who do not migrate are more likely to be engaged in petty services, grading and packaging of fruit, and more reproductive work at home. They have fewer opportunities to learn new production techniques and take part in community social activities.

Widening inequalities

The decline of labour-intensive farming and the growth of trade and services seem to have increased inequalities as the poor find it harder to adapt to these changes with their limited land, skills and capital. Since the number of the ‘certified’ poor in our sample is too small (only 11 out of total 300 survey households in the three villages), we use instead the quintile approach to measure inequality within the villages. We divide the survey households into 5 groups, from poorest to richest according to income. We then add other indicators (see Table 24) to explore the nature of the divide between the poorest and the richest in each village. From our calculations, the ratio of the average income of the richest group over the poorest group is highest in Vinh Thoi village at 20.5 times, and lowest in Hoa village at 9 times. In 2002, the national ratio was 8.14¹⁴.

Table 23: Inequality by income quintile, 2006

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Average income per capita per year of the 20% poorest group (dong)	1,308,000	1,632,000	1,961,000
Average income per capita per year of the 20% richest group (dong)	26,834,000	14,772,000	25,591,000
Ratio of the average income of the richest group to the poorest group	20.5	9.1	13

Other indicators highlight the causes and effects of such inequality within the communities. Almost all wealth indexes (poverty proxy indicators such as ownership of land and other durable assets, housing conditions and facilities) fit with the income index.

¹⁴ MOLISA, (draft) National Target Program – Poverty Reduction (NTP-PR) document for period 2006-2010

Table 24: Wealth indexes by income quintile, 2006

Indicators	Vinh Thoi (milk fruit)		Hoa (mango)		My Thoi 1 (pomelo)	
	Poorest group	Richest group	Poorest group	Richest group	Poorest group	Richest group
Size of household (persons)	4.6	4.5	5.0	4.7	5.3	4.4
Number of persons of working age	3.0	3.4	3.4	3.5	3.8	2.9
Number of out-migrants	1.0	0.5	0.5	0.9	0.6	0.6
Area of garden (m2)	2,057	3,744	3,101	9,476	3,795	7,505
Borrowing in the past 12 months (%)	70	55	63	70	47	54
Borrowed amount (dong)	7,000,000	13,727,280	14,000,000	34,143,207	7,666,660	1,000,000
ASSETS (%)						
Television	85	100	95	100	68	96
DVD/VCD/Video player	50	95	68	90	42	62
Radio/cassette	65	90	74	95	63	81
Bicycle	90	95	99	85	90	85
Motorbike	60	85	53	90	37	85
Landline telephone	15	80	26	65	21	39
Mobile telephone	5	35	5	40	5	19
Refrigerator	0	40	11	55	5	15
Expensive furniture (more than 1 million dong)	50	65	47	85	16	62
Air conditioner	5	5	0	5	0	0
Water heater	5	5	0	0	0	0
Automobile (car, truck)	5	5	0	0	0	0
Gas cooker	35	55	0	70	5	42
Motorized vehicle	5	0	0	5	0	0
Boat	5	10	53	70	21	39
Expensive production tools (more than 1 million dong)	10	15	63	95	16	31
HOUSING CONDITIONS (%)						
Temporary wall	75	45	42	15	68	39
Permanent wall	25	55	58	85	32	62
Temporary roof	15	20	5	0	11	4
Permanent roof	85	80	95	100	90	96
Large house (4 rooms or more)	10	35	16	35	11	39
Average house (2-3 rooms)	70	55	74	65	68	54
Small house (1 room)	20	10	11	0	21	8
FACILITIES (%)						
Tap water	40	75	79	100	0	12
Double vault compost latrine	20	45	16	55	5	23
Flush toilet/suilabh	5	25	26	50	16	19
Permanent bath room	25	65	74	90	21	46
Electricity connection	85	100	95	100	95	96
Separate kitchen	55	75	63	95	37	77
Stainless water tank	5	5	5	5	0	4
Water pump	45	55	47	75	21	54
INCOME STRUCTURE (%)						
Agriculture	60.6	16.3	52.5	43.8	36.4	48
Trade and services	19.5	81.1	35.7	53.1	48.4	47
Wage labor (skilled and unskilled)	19.2	1	10.8	1.6	12.6	3.4
Salary, pension, social welfare	0.4	1.2	1	0.8	1.7	0.7
Other sources	0.3	0.4	0	0.7	0.9	0.9

In terms of household income structure, there is a difference between the two extremes of Vinh Thoi village, the most urbanized settlement, and My Thoi 1 village, the least urbanized one, with Hoa village somewhere in between. In Vinh Thoi, more than 80% of the richest group's income is from trade and services, compared with about 20% for the poorest group whose shares of income from agriculture and wage labour are much higher. In My Thoi 1, the richest group earns more from agriculture than the poorest group, because rich households have much larger gardens. Trade and services account for similar shares of the income of the two groups, although in absolute terms, the richest group in My Thoi 1 earns from trade and services more than 5 times the amount earned by the poorest group.

4. Labour mobility

4.1. Main characteristics of migrants

Data from the household questionnaire survey show that migration is increasingly common in the three study settlements: of the 100 households interviewed in each location, 54 in Vinh Tho have at least one migrant member, as do 48 in Hoa village and 44 in My Thoi 1. Movement has increased over the years. Before *Doi Moi* (the Reform period) and during the following 5-6 years, out-migration was low; My Thoi 1 village had no out-migrants at all. The 1993- 1997 period saw a first increase and 12.4% of migrants from Vinh Thoi village left during that time. The highest percentage of migrants left during the period from 1998 to 2005 (see Table 25). The main reasons for the increase in out-migration are:

- (1) Incomes from farming are not stable (fruit prices fluctuate widely, together with other agriculture-related risks like animal diseases, climate vagaries and crop pests....) and there is much less farmland available; hence, migration is directly related to households' need to diversify their income sources;
- (2) The transformation from rice to fruit cultivation, from annual to perennial crops, has made farming less labour-intensive, resulting in the increase in labour redundancy especially in the off-season;
- (3) Educational levels have improved together with much easier access to information on employment, and the development of migrant networks has furthered the access to working opportunities in more distant areas;
- (4) Increased domestic and foreign investment in industry and services has created demand for workers in these sectors, especially in and around the cities;
- (5) Infrastructure has improved, making both short and long distance mobility easier.

Table 25: Distribution of out-migration by time period of departure in the study locations (%)

	Vinh Thoi village	Hoa village	My Thoi 1 village
Before 1986	3.1	2.2	
From 1987 to 1992	1	2.2	
From 1993 to 1997	12.4	9.9	4.5
From 1998 to 2005	83.5	85.7	95.5
Total	100	100	100

The main destinations for migrants are HCMC (53.1%) and urban centres in other provinces (17.3%) (see Table 26). Short-distance movement to other communes within the district and to other districts within the province is also relatively important. The three settlements share similar patterns of out-migration. Location can perhaps make a slight difference: Hoa village has a higher proportion of people migrating to HCMC, possibly because, amongst other factors, of its easy access to the city.

As might be expected, the overwhelming majority of migrants are young adults aged 15 to 35 (between 82.4 and 90.9%) who are mostly single (63.5 to 78.8%). These migrants find work in factories in industrial areas and export-processing zones in and around HCMC, Binh Duong and Bien Hoa; or work in other towns and cities in trade and services (including domestic service) or run their own small business. Movement for the purpose of study has also increased over the past ten years.

Overall, in the three settlements there are minor differences in the sex ratio of migrants. In total, 54.7% of them are men, and 45.3% are women. However, there are significant differences when it comes to destinations. Young men dominate short-distance migration: the proportion of men moving to communes within the same district is twice that of women. In My Thoi 1 village, men are eight times more likely to move to communes within the same district than women. Employment opportunities for women are more concentrated in large towns and cities like Bien Hoa, Dong Nai, HCMC, where they find work as house maids and in factories. Most of those women are single, with secondary school education. Some married women also migrate to work in factories, leaving their children in the care of relatives. Men, on the other hand, concentrate in seasonal migration and commuting for wage employment. Compared to women, destinations for men are more diversified and so are employment opportunities. Women marrying foreigners are also a growing trend across the three study sites, and their financial support is a crucial source of income, especially for poor households. Overseas labour (export) migration has just begun with some youths from better-off families, but this type of migration is not popular due to its often harsh conditions. Most of these migrants are men.

Table 26: Characteristics of migrants in the three settlements

	Vinh Thoi (%)	Hoa (%)	My Thoi 1 (%)	Total
Destination				
Other commune, same district	12.4	6.6	13.6	10.6
Other district, same province	14.4	7.7	13.6	11.8
HCMC	55.7	60.4	39.4	53.1
Other province, urban	11.3	18.7	24.2	17.3
Other province, rural	4.1	5.5	7.6	5.5
Abroad	2.1	1.1	1.5	1.6
Sex				
Male	50.5	58.2	56.1	54.7
Female	49.5	41.8	43.9	45.3
Year of birth				
From 1920 to 1950	1	2.2	1.5	1.6
From 1951 to 1970	10.3	12.1	7.6	10.2
From 1971 to 1990	86.6	82.4	90.9	86.2
From 1991 to 2005	2.1	3.3		2
Marital status				
Single	63.5	70.5	78.8	70
Married	32.3	26.1	19.7	26.8
Divorced	1	1.1		0.8
Separated	1	1.1		0.8
Widowed	2.1	1.1	1.5	1.6
Highest education level completed				
Primary	20.6	11	25.8	18.5
Lower secondary	26.8	23.1	30.3	26.4
Upper secondary	37.1	33	21.2	31.5
College	7.2	14.3	7.6	9.8
University	8.2	17.6	15.2	13.4

Migrants have diverse education levels, from primary school leavers to college and university graduates (see Table 27). HCMC and other urban centres outside the province are the most attractive destinations for migrants of all education levels, because of the wide range of employment opportunities they offer. Perhaps unsurprisingly, they are also by far the preferred destinations for university and college graduates, as cities concentrate high-skills jobs.

Table 27: Highest education level completed by migrants, by destination

	Primary	Secondary	High School	College	University
Other commune, same district	29.6 (8)	33.3 (9)	22.2 (6)	3.7 (1)	11.1 (3)
Other district, same province	10 (3)	13.3 (4)	43.3 (13)	26.7 (8)	6.7 (2)
HCM City	17 (23)	25.2 (34)	34.8 (47)	8.1 (11)	14.1 (19)
Other provinces, urban	20.5 (9)	22.7 (10)	27.3 (12)	9.1 (4)	20.5 (9)
Other provinces, rural	14.3 (2)	71.4 (10)	7.1 (1)		7.1 (1)
Abroad	50 (2)		25 (1)	25 (1)	

Household income does not seem to make a substantial difference in migration patterns (see Table 28). However, households in the poorest group have fewer migrants than the other groups, while most migrants are from group 2 and group 3.

Table 28: Proportion of households with migrants by income quintile group

	Vinh Thoi village	Hoa Village	My Thoi 1 village
Poorest group	45 (9)	36.8 (7)	36.8 (7)
Group 2	62.5 (10)	45 (9)	52.6 (10)
Group 3	68.2 (15)	50 (10)	47.4 (9)
Group 4	59.1 (13)	42.9 (9)	42.1 (8)
Richest group	35 (7)	65 (13)	39.1 (9)
Total	54 (54)	48 (48)	44 (44)

Decisions to migrate out of the village are discussed among household members without any age, gender or education discrimination. This is the case for all respondents in Hoa and Vinh Thoi villages, and 98% in My Thoi 1. Almost all decisions to migrate are supported by family members (83% on average for the 3 research sites). Qualitative information shows that almost all migrants have relatives and friends at destination, suggesting that the expansion of migration networks plays a major role in decisions on destination.

4.2. Immigration in the study settlements

Vinh Thoi village is rapidly transforming into a small town with a fruit market which concentrates the flows of goods in and out of the neighbouring areas. Trade and services closely linked with agricultural production, especially fruit production, have therefore significantly contributed to the local economy. This creates more non-farm employment opportunities than in the other two villages, increasing the rate of in-migrants. This can be seen in Vinh Kim fruit market, where with 10-15% of trading households are from other communes in the district, 10-15% are from other districts or different provinces and cities. *“There are more people coming here than going out. They come mainly to trade fruits, and then settle down. It is estimated that 15-20 out of 100 large traders are from outside the village, some came in the 1970s, and some came in 2000. Most of them are from HCMC and Da Nang. They first live temporarily in the settlement, rent a house, then buy land, buy a garden and finally settle down.”* (Group discussion with leaders of Vinh Kim commune).

Besides the large traders are many small ones, mainly people from the Central provinces. They arrive with their families, get temporary residency permits from the local authorities, rent a house and work as vendors, small-scale fruit traders or wage labourers. They can earn on average 30- 40,000 dong per day. There is also a group of about 200 people from other communes who gather around the market offering personal transport services. The average amount they earn is about 20- 30,000 dong per day.

Hoa village also has some people coming from other communes, mainly men from the rice-farming My Luong commune who do seasonal agricultural jobs such as gardening, canal cleaning, land ploughing, fruit picking and grass cutting (the latter is women’s work). About 30-40 people work here from January to March, before the rainy season, for an average wage of 40,000 dong per day. Fruit pesticide spraying is better paid, at 60,000 dong per 8-hour-working day, several days per month from November to February. There are also some Khmer people, more men than women, coming from Tra Vinh province, mainly from October to December, who are paid an average salary of 400-800,000 dong per person per month.

Compared to ten years ago, local households now have to hire more outsiders to do the gardening jobs as *“every household now has its own garden, life is much better, more stable, and people don’t need to do waged labour as before. There are few people in the village doing waged labour, few do the gardening manually as it is more and more mechanized, the price of hiring labour for earth work and gardening therefore is much higher: 40-50,000 dong per day on average. But finding labourers is not easy. Those few that are available are from areas that still keep rice cultivation and have more off-crop time to work for others.”* (opinions from group discussion of Hoa village, Hoa Hung commune). There is a striking difference between migration to Vinh Thoi village, which is mainly for non-farm employment and attracts wealthier migrants who often settle permanently, and migration to Hoa village which is part of a pattern of circular mobility by mainly low-income farmers.

4.3. Forms of out-migration

4.3.1. Long-term mobility

The number of people living and working away from home for more than 3 months at a time has increased over the past 10 years across the 3 study sites. The period 2001- 2005 witnessed the highest level of this long-term mobility compared to previous periods. The

number of people engaging in second and third trips is also higher. HCMC is the preferred destination for long-term migrants, accounting for the highest proportion of all trips (55.4% for the 1st trip; 55.6% for the 2nd trip and 75% for the 3rd trip), well ahead of other urban centres and rural destinations (see Table 29). The average length of these trips is between 1 and 2.5 years, and the main purposes are study and work.

Every 6 months, migrants must obtain written permission of temporary absence from the local authorities where they are registered under the household registration system. The documents to be submitted to the commune office include: (1) curriculum vitae; (2) an application form; (3) a health certificate; (4) a copy of the residential book (household registration); (5) identity card; (6) for men, the certificate of completion of military service.

Table 29: Long-term mobility

	First trip (%) (233)	Second trip (%) (63)	Third trip (%) (24)
Year of moving/migrating			
From 1978 to 1990	0.9	1.6	
From 1991 to 1995	1.3	1.6	
From 1996 to 2000	20.2	3.2	
From 2001 to 2005	77.7	93.7	10.3
Destinations			
Other village, same commune	1.7	1.6	
Other commune, same district	3	1.6	
Other district, same province	7.7	4.8	
HCMC	55.4	55.6	75
Other province, urban	24.9	36.5	25
Other province, rural	5.6		
Abroad	1.7		
Purpose of migrating			
For business/work	65.2	82.5	79.2
For market exploration	1.3		
Funeral, wedding, feasts	0.9		
For studying	25.3	12.7	20.8
Other	7.3	3.2	
Average length of stay (months)	24.44	19.67	11.25

Men are more likely to engage in long-term mobility; however, the number of women migrating has been increasing and is now equal to, or even higher than that of men. In the period 1996-2000, of those undertaking their first trip, 59.6% were men and of those at their second trip, 100% were men. However, during 2001- 2005 the proportion of women increased to 44.2% for the 1st trip, 49.2% for the 2nd trip and 53% for the 3rd trip. The proportion of men and women migrating to HCMC and urban centres in other provinces is similar, while for other destinations like other districts in the province and rural destinations in other provinces, the ratio of men is twice that of women. The purpose of moving, however, does not show significant differences between women and men.

The proportion of single migrants increased over time, from 50% in 1978- 1990, to 66.7% in 1991- 1995, 62.7% in 1996- 2000 period and 81.6% in 2001- 2005. Single migrants go predominantly to HCMC and urban centres in other provinces. This group has the highest share in all destinations and includes the small number of people going abroad. As might be expected, single migrants are over-represented among those who move to study, at 92.9%. But, at 71.7%, they also dominate the group of those who move to work. Compared to other

groups, single migrants spend more time at destination with an average of over 2 years, 24.13 months, compared to 22.7 months of the married group for the 1st trip. This difference remains for the second trip with singles staying on average 20.88 months compared to 14.10 months for married migrants.

The main types of employment for long-term migrants are:

Factory work. Working in factories in other provinces or cities is popular among young, mostly single migrants. This is a growing trend that is likely to continue. The main reasons are:

- The position of the study settlements, near cities where many factories and enterprises are located. More factories are under construction;
- Access to employment opportunities has become much easier with more information available through the media (papers, television) and other channels, including migrant networks;
- The youth of the communes are encouraged to undergo vocational training to work in the industrial zones;
- Young people migrate rather than stay at home growing fruit with their families as their educational levels are higher *“most children go to school now, and after graduation from upper secondary school go straight to the cities to study at university or work in factories where incomes are more stable and work is lighter”*. *“Youth are apt to migrate, and few would return, other family members do not have influence over them”* (opinions from group discussion in My Thoi 1).

Group discussions show that My Hoa commune, Binh Minh district has 300 young, single migrants, mainly women. *“Before 2000, My Thoi 1 had only 1-2 households with members working in the Kinh Do factory. Now the number is ten times as high. Young people go to the cities to make shoes, and get more money than if they stay at home growing fruit. Out of 10 households in our village, 6 or 7 have migrant members. They go to HCMC and Binh Duong to work in industrial zones”* (information from group discussion, My Thoi 1 village). Hoa Hung commune has about 200 young migrants, also mainly women. Hoa village in particular has 50 households with children working in factories. *“Hoa village, in 1995- 2000 had only 1-2 households receiving migrant members’ remittances, now 30% of households rely on remittances”* (group discussion, Hoa village). In Vinh Kim commune, on average 50-60% of households have migrant members.

Working in factories manufacturing cookies, shoes, cans or processing aquaculture products in Vinh Long, Can Tho, Binh Duong, Dong Nai, and HCMC is the most common job of migrants. Women often work in shoes or garment/textiles factories. The average monthly salary ranges from 650,000 dong to a maximum of 2 million dong, working all year round with just a few days to visit home for the Tet holiday or some other vacations.

Shoulder-carrying work. *“Cu li”* work, as it is called by the people of My Thoi 1 village, attracts 150 people from My Hoa commune, mostly men aged 18 to 40, who carry loads for a factory in nearby Can Tho city. They are paid per carried volume, about 15,000 dong per ton. Applying for these jobs has become much more difficult and the procedure is rather strict: workers must have photo id and a health certificate.

Domestic service in cities: Hoa village has 10 women working as housemaids in cities. Vinh Kim has a labour agency that has contracts with the Women Union and the Veteran Union to

bring about 100 people to various cities to work as housemaids or waiters and waitresses in restaurants. The average monthly salary is about 800,000 thousand dong. However, at the time of the fieldwork no workers had been hired yet.

Overseas labour migration. The number of people going abroad to work is small and has just started to grow in the 2000-2005 period. My Hoa commune has 15-17 international labour migrants, of which six left in 2005. Hoa Hung commune has three such migrant who left in 2005 and Vinh Kim has six. Malaysia, Korea, Taiwan and Japan are the main destinations. Most overseas migrants are single men, and few are women: two women from Vinh Thoi work in Taiwan and Malaysia, and one from My Thoi 1 works in Malaysia. International migration is expensive, and migrants come mainly from better-off households.

Marriage to foreigners. Although not strictly a form of labour migration, there is a trend across the three villages of local young women marrying foreigners. This pattern has been increasing since 1999- 2000. About 60 women from My Hoa commune have married Taiwanese men. In Hoa Hung commune, the 50-60 foreign husbands are also mostly Taiwanese, with some Koreans. The trend is growing: in Hoa village, at the time of the fieldwork, ten women were getting married to Taiwanese, American and Canadian men (often of Vietnamese origin). In Vinh Kim, about 10 households were marrying off their daughters to foreigners to whom they were introduced by local matchmakers or by friends. The brides often register initially for a 12-month absence from their home village. They must give up their local resident status within 3 years, during which time they can get back their permanent resident permit if they encounter problems abroad. Almost all brides are from households with below average living conditions, and generally send money to their relatives at home. Thanks to the daughters, these households improve their standard of living, building new houses and buying durable household assets.

4.3.2. Seasonal migration

Seasonal migration is popular across the three research settlements, mainly from April to September when it rains heavily and there is less gardening work. Seasonal labour migration has long been an activity of lower-income households. The main types of seasonal migrant work are:

Construction work: almost one-third of households in My Hoa commune have one seasonal migrant member working in construction in regional urban centres such as Vinh Long, Dong Thap and Can Tho. In Hoa Hung commune, these *tho ho* work in teams of about 500- 600 people for average daily wages of 40-50,000 dong. This type of work is increasing. The *tho ho* are mainly men from middle-income households. They have some building skills, and most of them own Honda motorbikes bought on credit to go to work.

Unskilled construction work: the average daily wage is much lower, at 20-30,000 dong. “Households with unskilled construction workers are often poor with many children, one worker has to feed ten people, so although the wages are not bad, they remain poor” (group discussion in Hoa village). Destinations are both near and far, close to the village as well as in other communes and provinces or in cities. “Men often go to work on construction sites in Dong Thap during the slack agricultural season. They go as a team. Wages are low, only half of those of skilled workers. It takes 5-7 years to become a skilled construction worker, and work is irregular” (Vinh Thoi group discussion).

Cutting rice in other communes: some poor people move during harvesting period to rice-producing areas, in a reversal of the movement of poor migrants from rice areas coming to the settlements. They are paid about 40-50,000 dong per *cong* (1000m²). There are more men than women doing this work, and, on average, 2 people can complete one *cong* per day.

4.3.3. Commuting and short-term mobility

Beside seasonal mobility, commuting for manual work to local urban centres is relatively popular. Of the three study sites, My Thoi 1 has the largest number of commuters, which can be easily explained by its close proximity to Can Von district town (only 7 km) and to Can Tho city. The provincial plan includes large-scale urban expansion and industrialisation. Accordingly, Binh Minh will become a township and My Hoa a town by 2008. Infrastructure there is being improved and upgraded with huge bridges and industrial zones. This entails employment opportunities for local people in the several construction sites, for respectable daily wages of 35,000 dong.

Short-term mobility, staying overnight away from the village, is mainly for social reasons like visiting friends and relatives, ancestor worshipping, and festivals. Destinations for this type of movement are mainly HCMC and other cities. Unlike long term migration, it is mainly married people that are likely to engage in short-term mobility. Women are twice as likely to move briefly within the district. The main mode transportation is public bus, followed by private car and motorbike.

4.4. The role of migration in household well-being and rural development

According to the household questionnaire survey, the average annual remittances per household with migrant members range from just under 4 million to over 26 million dong, or 330,000 to 2,250,000 dong per month. My Thoi 1 has the highest average remittances at over ten million dong, followed by Hoa with just under 9 million dong, and Vinh Thoi with just over seven million dong. There is a significant difference between the poorest and the richest, with the better-off group in all settlements receiving the highest amounts. In Hoa village, the richest receive twice as much as the poorest, while in My Thoi 1 village the richest households receive almost four times as much as the poorest (see Table 30).

Table 30: Amount of migrants' remittances by household income (quintiles), in VND

	Vinh Thoi village	Hoa village	My Thoi 1 village
Poorest group	7.771.428	6.866.666	7.125.000
Group 2	3.914.285	6.400.000	8.700.000
Group 3	8.110.000	7.266.666	7.200.000
Group 4	7.545.454	8.028.571	6.533.333
Richest group	8.000.000	14.714.286	26.800.000
Average	7.147.500	8.903.225	10.150.000

Migrant remittances are a significant part of household incomes, sometimes contributing as much as what is earned locally. Some households receive remittances 3-4 times higher than their local earnings. In relative terms, remittances are much more important for the poorest group, where they can represent 160% of average incomes. This is the case for 71.4% of the poorest survey respondents with migrant members in Vinh Thoi, 50% in Hoa and 75% in My Thoi 1 village. In contrast, remittances are a relatively low contribution to households with the highest average income. Only in My Thoi 1 do remittances contribute substantially to the

average income of the better-off group, with 66.7% of households in this group receiving the equivalent of more than 160% of their locally earned incomes (see Table 31).

Table 31: Remittances compared to HH locally-earned income

	Under 40%	From 40% to 100%	From 100% to 160%	Above 160%
Vinh Thoi village				
Poorest group Average income: 2.387.500	14.3		14.3	71.4
Group 2 Average income: from 2.387.500 to 3.745.400	57.1	28.6		14.3
Group 3 Average income: from 3.745.400 to 6.100.000	30	10	20	40
Group 4 Average income: from 6.100.000 to 13.080.000	18.2	63.6		18.2
Richest group Average income: Above 13.080.000	60	40		
Hoa village				
Poorest group Average income: under 2.900.000	33.3		16.7	50
Group 2 Average income: from 2.900.000 to 4.942.500	20	20	20	40
Group 3 Average income: from 4.942.500 to 8.911.111	50	16.7		33.3
Group 4 Average income: from 8.911.111 to 13.827.778	42.9	14.3	42.9	
Richest group Average income: above 13.827.778	42.9	28.6	14.3	14.3
My Thoi 1 village				
Poorest group Average income: under 2.342.500			25	75
Group 2 Average income: from 2.342.500 to 3.900.000			25	75
Group 3 Average income: from 3.900.000 to 5.266.667		20	60	20
Group 4 Average income: from 5.266.667 to 9.380.000	33.3	33.3	33.3	
Richest group Average income: above 9.380.000			33.3	66.7

However, most survey respondents have a different perception of the contribution of migrant remittances to their household income. Some think it contributes a half or more than a half of it, and very few recognize it as a major contribution to household income. Data analyzed by income groups show similar responses across all groups, who all agree that the contribution is quite modest (see Table 32).

Table 32: Opinions on the level of contribution of remittances relative to household incomes (%)

	Vinh Thoi village	Hoa village	My Thoi 1 village	Total
Contribute a little to HH income	72.5	87.1	60	74.7
Contribute about half of HH income	5	3.2	10	5.5
Contribute more than half of HH income	12.5	3.2	25	12.1
Contribute mostly or the whole of HH income	7.5	3.2	5	5.5
Mostly no contribution to HH income	2.5	3.2	0	2.2

Findings from the questionnaires show that women are more likely than men to send remittances to support their families, with 81.6% and 75.5% respectively. Remittances are sent monthly (50.6%), yearly (21.8%) and in very few cases, weekly (5.7%). There are minor differences depending on age and marital status, but overall the overwhelming majority of migrants send remittances to their families.

Remittances are used mainly to cover daily expenditure, health care or tuition fees for children. Investment in agricultural production ranks third in the use of migrant remittances. In general, remittances are used for consumption rather than being saved or invested (see Table 33). However, the allocation by item is different between the poor and the better off. The proportion of wealthy households investing remittances in agricultural production is higher than that of the poor. Some better-off households also use the money to improve housing conditions, while repayment of debt is an important use of remittances by the poor.

Table 33: Use of migrant remittances (%)

	Vinh Thoi village	Hoa village	My Thoi 1 village	Total
Agricultural production	27.5	35.5	30	30.8
Handicrafts	5	0	0	2.2
Small business/trade and services	2.5	6.5	0	3.3
Education, health care	40	45.2	30	39.6
Funeral, wedding, feasts	20	35.5	30	27.5
Housing improvement	5	6.5	15	7.7
Buying land property	0	0	0	0
Buying household assets	2.5	0	5	2.2
Repaying debts	7.5	12.9	0	7.7
Daily expenditure	72.5	77.4	85	76.9
Savings	12.5	3.2	15	9.9
No answers/ Don't know	0	6.5	0	2.2

Migrants have a minor role in decision-making on the use of remittances. Data from the questionnaire survey show that only 4.4% of migrants decide or are consulted. Their families are the ones that decide. Migrants sometimes need support from their family, especially when they are students in the city. However, the proportion is not high with only 21.8% of respondents saying that they provide such support.

5. Market access

The current supply of Lo Ren milk fruit and Hoa Loc mango cannot meet domestic demand, hence prices are high and exports of these two fruits are negligible. In contrast, prices for Nam Roi pomelo are low due to the excessive expansion of pomelo gardens and production in and out of the province.

5.1. Local market chains for fruits

In general terms, Lo Ren milk fruit, Hoa Loc mango and Nam Roi pomelo have more or less the same players in their market chains (see Figure 13). Farmers can sell their produce through six possible channels:

1. Farmers → collectors – the small and mobile traders → *vua* – the bigger traders (with permanent buying places), focal markets/wholesalers, supermarkets and retailers in cities.
2. Farmers → *vua* → focal markets/wholesalers, supermarkets and retailers in cities.
3. Farmers → cooperatives → supermarkets or companies, sometimes specific consumers.
4. Farmers → companies → supermarkets or export.
5. Farmers → retailers in local/wet markets.
6. Farmers → directly to consumers in local markets.

Private traders dominate the market chains. Our survey confirms that selling to collectors or *vua* is the most popular transaction. Among the three villages there is a difference between selling to collectors and *vua*: more farmers in Vinh Thoi village sell their milk fruit to *vua* to receive better prices, because these larger traders are located just in and nearby the commune's fruit market, while more farmers in Hoa and My Thoi 1 villages sell their mango and pomelo to collectors, because there are no commune fruit markets there and the distance from the villages to *vua* located in market nodes is longer (Table 34).

Table 34: Destination for sale of household's fruit (% HH)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Sell to Collectors (mobile traders)	42	76	90
Sell to <i>Vua</i> (larger traders)	69	46	15
Sell to Cooperatives	0	14	0
Sell to Retailers	3	1	0
Sell to Companies	0	0	0
Other destinations (e.g. directly to consumers)	8	1	4

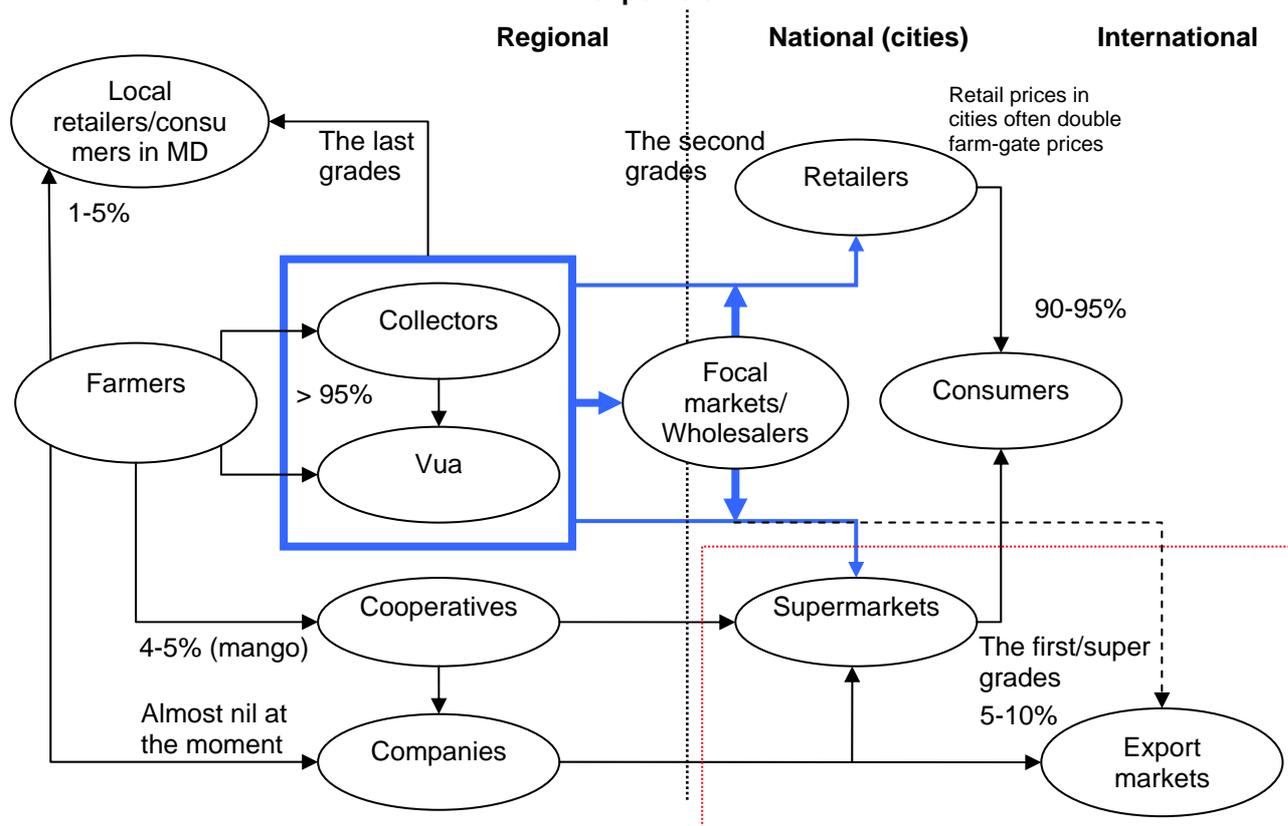
Selling fruit to cooperatives only exists in Hoa village where a mango cooperative has been established since 2003 with around 60 members. No farmers reported sales to companies in 2005. Farmers sell some of their fruit directly to retailers in cities and in local/wet markets or to consumers.

The aggregated sale volume of all survey households' fruit to different destinations (Table 35) shows a clearer picture of the local marketing channels. More than 95% of fruits are handled by the collectors and *vua*, before going through the focal markets/wholesalers, supermarkets or retailers in cities or in local/wet markets to reach the final consumers.

Table 35: Sale volume of household's fruit by destination (% quantity)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Sell to Collectors (small, mobile traders)	24.5	71.1	79.0
Sell to <i>Vua</i> (bigger traders, fixed buying places)	71.8	23.6	19.3
Sell to Cooperatives	0.0	4.3	0.0
Sell to Retailers	0.2	0.5	0.0
Sell to Companies	0.0	0.0	0.0
Other destinations (e.g. directly to consumers)	3.5	0.5	1.7

Figure 13. Typical market chains of Lo Ren milk fruit, Hoa Loc mango and Nam Roi pomelo.



5.2. The fruit farmers

Characteristics

The fruit farmers are small in scale; on average, they have few *cong* of productive land (2,100 m² in Vinh Thoi, 3,600m² in Hoa and 5,300 m² in My Thoi 1). They have broken out of the limited, though more secure, rice farming on their tiny plot to enter into the era of commodity production, more profitable but also more intensive and risky. In the three study villages, in addition to focusing on their speciality fruits, households diversify into other fruits and other income generating activities such as trade, services and migration. This income diversification in turn encourages them to initiate innovation and take risks by trying new things, including new fruit varieties, in an effort to balance short and long-term strategies.

Harvest

The fruits are harvested manually. Most farmers in Vinh Thoi and Hoa harvest their own fruit by themselves, but only one-quarter in My Thoi 1 do so. The harvest of milk fruit (and, to a lesser extent, of mango) needs some skill in thrusting down and catching the soft fruits from the tall trees without damaging them, and local people usually do it better. The experience of local milk fruit and mango harvesters is important in identifying which fruits are ready. For that reason, the local landless poor rather than outside people are often hired to harvest milk fruit. The price difference between harvesting by the farmers and harvesting by the buyers is reported to be around 4%.

After harvest, farmers place the fruits in simple baskets lined with soft cloth (in the case of milk fruit), into carton boxes (in the case of mango), or in jute bags (in the case of pomelo). The technique of “covering fruit on the tree” (*bao trai*) before harvest to improve quality was introduced to the farmers, but only few mango farmers in Hoa village practice it.

Grading

The farmers can choose to sell in bulk (*ban xo*) or sell selectively by grade (*ban theo hang*). In Vinh Thoi and Hoa, more farmers sell by grade to receive higher prices. Grading of fruit by the farmers is done mainly by eye and hand; sometimes the weight is checked with a scale. For the lowest grade, almost all farmers choose to sell to collectors/*vua* at very low prices.

From any one fruit tree there will be all possible grades: from the best (special and first grades, called *coi, xo*, often less than 10% of the total), to the lowest grade (called *trai dat* or *bi dan* i.e. small fruits with bad skin or scratched, often 10% or more of the total harvest). The best fruits are selected for supermarkets and for exports, the worst are for local wet markets and the middle quality (second grade) are for retail in cities across the country.

Table 36: Grading of fruits at the garden after harvest

Lo Ren Milk fruit	Hoa Loc Mango	Nam Roi Pomelo
Five grades: <ul style="list-style-type: none"> • Special: 300 gram, 110-140,000 dong/dozen • Grade 1: 30,000 dong/dozen (9,000 dong/kg) • Grade 2: 15-16,000 dong/dozen (6,000 dong/kg) • Grade 3: 5-6,000 dong/dozen (3,500 dong/kg) • Grade 4: residual, 25,000 dong/50 fruit (1,200 dong/kg) 	Four grades: <ul style="list-style-type: none"> • Special: >450 gram, 25-28,000 dong/kg • Grade 1: 390-420 gram, 20,000 dong/kg • Grade 2: 250-390 gram, 14,000 dong/kg • Grade 3: residual <250 gram, 6,000 dong/kg 	Four grades: <ul style="list-style-type: none"> • Special: >1200 gram, 5,000-6,000 dong/kg • Grade 1: > 1000 gram, 4,000-4,200 dong/kg • Grade 2: 500 gram - 1 kg, 2,500-2,800 dong/kg • Grade 3: < 500 gram, bad skin, 1,000-1,500 dong/kg

Source: information from group discussion with farmers and in-depth interviews with traders

Even within the same variety of Lo Ren, Hoa Loc or Nam Roi fruits, the quality of those from trees planted outside their original locations will be very different. In addition, there are different varieties of fruit with rather similar appearance. So given the wide variation of locations and techniques among small-scale farmers, it is very difficult to ensure a consistent high quality of fruits as required especially for large orders to cities or abroad.

Transportation

Most of the farmers in Vinh Thoi and Hoa transport fruits by themselves to buyers, while in My Thoi 1 the buyers often go to the village to collect the fruits. Modes of transportation are more diversified than in the past due to the improvement of roads in and out of the

settlements. In the past, fruit was transported mainly by boat or with shoulder-carrying baskets across ‘monkey bridges’, but these are now complemented by bicycles and motorbikes. According to the survey households, the ratio of fruit damage by transportation is small, less than 5%.

Table 37: Harvesting and transportation of fruit (% HH)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Harvest:			
Harvest by the farmers	81	95	25
Harvest by the buyers	19	5	75
Selling:			
Sell in bulk	31	5	58
Sell selectively by grade	69	95	42
Grading of fruit (if sold by grade):			
By the farmers	98	95	68
By the buyers	2	5	32
Transportation:			
Farmers transport fruit to the buyers	80	74	16
Collection at the farm by the buyers	23	35	86
Means of transportation by farmers:			
Bicycle	20	0	0
Motorbike	80	52	20
Automobile	0	2	0
Boat	2	64	40
Others (shoulder carrying baskets, three-wheel cart)	10	0	13

Transactions

The terms of fruit transactions are straightforward. More than 90% of households agree with the collectors or *vua* on selling prices right at the time of the actual transaction, with cash on delivery. There are currently no instances of contract farming in the three study villages.

Table 38: Terms of fruit transactions (% HH)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Transaction with the buyers:			
Agreement on prices at time of transaction	92	97	93
Agreement on prices at beginning of the crop	2	0	2
Cash advance, inputs provided by the buyers	2	0	0
Cash on delivery	91	92	92
Deferred payment	2	4	5
Use of the last (worst) grades:			
For self-consumption	9	1	0
Sold at low prices to traders	91	96	100
Retailed at local markets by farmers	0	0	0
Other uses (animal feed)	0	3	0

In the study villages there are some cases of farmers selling the whole garden harvest (*ban vuon*) to the buyers/collectors when the fruits are still small, for one or several crops. This is more frequent for pomelo in My Thoi 1 village. The buyers will be responsible for taking care of the trees (watering, applying fertilizers, spraying) and harvesting. It is often the poor

households in need of cash and lacking on-site labour that choose this kind of whole garden transaction.

- The farmers' income from selling the whole harvest in advance is about half of the income from selling fruit at harvest time.
- The price is fixed at the time of the agreement. Payment terms can be negotiated, sometimes all at once but often in instalments, i.e. 30-50% right after the agreement and 50-70% at harvest. Agreements are mostly verbal or through a simple hand-written note. In fact, if at the time of harvest the market prices are low, farmers may slightly decrease the price to keep the long-term relationship with the buyers.
- The garden owners are often hired by the buyers to do certain works in the garden such as guarding, watering and harvesting. There are also cases of co-investment between buyers and garden owners with income sharing at 70/30 or 60/40.
- In recent years the practice of garden selling has been decreasing. Among the main reasons are either good prices (for milk fruit and mango) so that the farmers prefer to sell at harvest; or negative price fluctuations (in the case of pomelo) so that the collectors fear losses; and the risks of garden degradation due to over-exploitation by the buyers. *“The buyers of the whole garden want a maximum harvest within the contract time. Thus they use a lot of chemical fertilizers and pesticides, without caring about the long-term viability of the gardens. After several crops, such gardens will be seriously damaged; the trees are over-doused with chemicals”.*

In the mango area in Hoa village, some core farmers with good technical knowledge also seek 'tree renting' transactions with other villagers under similar terms as garden selling. The only major difference is that the contract is made for individual trees, usually mature ones.

5.3. The fruit traders

Characteristics

Private fruit traders (mobile collectors and *vua* – the larger traders with permanent buying places) play decisive roles in the market chains to meet the growing domestic and export demands for speciality fruits. During fieldwork, it was reported that the number of traders within the study communes has increased considerably in recent years, up to 3-4 times that of 2000. In Vinh Kim commune alone there are more than 150 *vua* and 100 collectors who buy from the farmers and immediately sell back to *vua*, operating in the Fruit Market. In Hoa commune there are about 50 traders, both local people and immigrants.

Most *vua* are registered trading units with tax codes and bank accounts which do not engage in agricultural activities, while most collectors work as unregistered family economic units, running a mobile trade and also working on their own fruit garden. Collectors and *vua* often do not specialize in just one fruit, but diversify to suit the local supply and market demand and for levelling operations throughout the year.

One *vua* needs a working capital of hundreds of millions dong, up to billions dong, while one collector needs around 10-15 million dong to complete a shipment. *Vua* use their homes as permanent transaction addresses, or rent a space in the market or along the main roads. A collector can run his business using family labour without hiring people, while a *vua*, depending on the size of the business, can hire 4-15 regular workers and several labourers in

peak season for grading and packaging. One labourer working for a *vua* can earn 35-50,000 dong per day.

Box 8: Fruit traders (*vua*) in Vinh Kim commune

1. A large fruit trader:

Mrs. Le Thi Ng. and her husband, Le Van M., have been running a trading business in Vinh Kim fruit market since 1975. Her main products are milk fruit and sapodilla. Milk fruit from her shop will be transported by truck mainly to wholesalers in Hue and Danang cities, and smaller quantities to Hanoi and HaiPhong. Mrs. Nga maintains a network of more than 100 regular suppliers of fruit, both collectors and farmers. On average, in a normal day she delivers 200 boxes (20-30 kg each) using 15 laborers, and in peak times 500-600 boxes of fruit using 30 laborers. Her working capital is more than 1 billion dong.

After deducting all costs - purchase, labor and other items (e.g. shop rental, taxes and fees) - she can earn a net profit of 200-500 dong or more per kg. Mrs. Ng.'s main difficulty now is the lack of shop space (she needs 200m², but she can only rent a space of less than 100m², due to the limited availability in the Fruit Market). She reckons that in the past 5 years the number of fruit traders in this Fruit Market has increased 3 times.

2. An average fruit trader:

Uncle Hai Th. is an average fruit trader in Vinh Kim commune. He entered the fruit business in 1995. He uses his house along the commune road, near the Fruit Market, as his shop. His products include orange, sapodilla and milk fruit. He has a network of 10 regular collectors. Besides these, he goes to the Fruit Market to buy fruits that are brought in by the farmers; in peak times he buys fruit from other traders in the market. He sells milk fruit to wholesalers and fruit shops in the Central provinces and sapodilla to Hanoi.

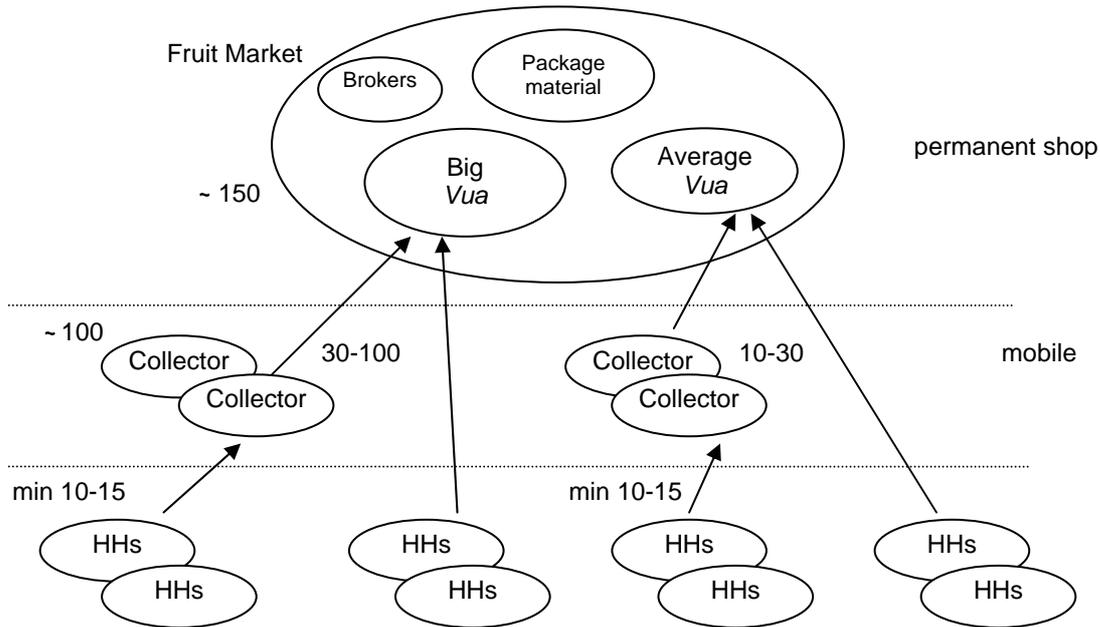
He has 5 regular laborers. Net profit per kg is about 500 dong. Transactions with partners are through bank accounts, with around 10 days of deferred payment. According to Uncle Th. the main risk of his business is the fluctuation of order prices from the cities/provinces. He plans not to expand his business, but keep it at the current level.

Networking

One collector typically has a minimum of 10-15 households as regular suppliers, while one *vua* can maintain a network of between 10-30 (for an average *vua*) and 30-100 or more (for a big *vua*) of both collectors and farming households to ensure a sufficient supply of fruit especially in peak demand time, e.g. Tet, national holidays, the first and fifteenth days of the lunar month. Traders try to maintain their own network, based on long-term relationships and trust. Between *vua* and collectors there is often a previous agreement on the quality, quantity and price of fruit, based on the orders the *vua* receives from city buyers. The farmer-collector relationships are looser. Except in the cases of whole garden selling (where between the collector and the farmer there is an agreement in advance), at harvest time the farmers decide to which network collectors sell fruit to, depending on competitive offers. In addition, in the fruit markets there are often brokers who buy fruits brought in by the farmers and then sell back immediately to the *vua*. These brokers buy small quantities of ungraded fruit – their main income comes from grading before selling to the *vua*.

There are no clear horizontal linkages, i.e. sharing of orders between the traders. The two minor exceptions of horizontal relationships are: (i) traders sharing the same truck service to reduce transportation cost (e.g. one truck serving the route Vinh Kim - Hue will transport the fruit from different traders in Vinh Kim to Hue in the same trip); (ii) at peak times, one trader may have to purchase fruit from other traders at market prices to fulfil the order.

Figure 14: Networking of traders in Vinh Kim commune



Grading and packaging

Grading and packaging are the main value-adding activities of traders. After buying in bulk or by grade from the farmers, the traders often reclassify the fruits into more grades according to specific market demand for quality (weight, size, shape, skin conditions). In fact, regrading to maximize profits is an art in itself, as in ‘buying by the kilo and selling by the dozen’ in the case of milk fruit (*mua can ban chuc*) or vice versa in the case of pomelo (*mua chuc ban can*). Graded fruit is then sent to specific markets:

- Special/super grades are for supermarkets in HCMC and Hanoi, export (through companies), and specific orders.
- First/second grades go to urban markets (through the focal markets/wholesalers), then to retailers/fruit shops, restaurants and hotels, also in nearby provinces.
- Lowest grades are for sale in local wet markets.

In My Thoi 1 village, after buying pomelo by weight from the farmers in 3 separate grades (with prices of 5,200, 3,500 and 1,200 dong/kg), traders transport the fruits in bulk to HCMC, then together with *vua* in focal markets in HCMC they reclassify the fruit into 10 sub grades with prices ranging from 140,000 to 10,000 dong/dozen.

In Vinh Thoi village, a group of collectors carries out selective purchases at much higher prices and/or regrading of the first grade milk fruit to separate a small quantity of super grade fruits. This super grade category accounts for less than 1% of total produce, and is solely for special orders from HCMC/Hanoi or for small-quantity fresh export by air to Europe.

Box 9: Grading of the super milk fruit for the Hanoi market

Mr. T is a fruit collector living in Vinh Thoi village, Vinh Kim commune. With his good grading skills, since 1999 he has specialized in collecting the super milk fruit (the best of the best) from the end of September to early February. The quantity of super milk fruit is very limited. On average, Mr. T can collect and send 300-500 kg of fruit by air to Hanoi each day.

Costs: after deducting all costs the profit can be 3-5,000 dong per kg.

- (1) Harvesting: he hires local people with good fruit classification skills at 40,000 dong/day. However at the main harvest time, the super fruits are collected only from a selected number of households who will harvest the fruits themselves;
- (2) Packaging (wrapping paper and boxes)
- (3) Transportation: by car from Vinh Kim to Tan Son Nhat airport (HCMC): 5,000 dong/box for 30-50 boxes per day. The airfreight costs from HCMC to Hanoi are borne by the Hanoi buyer.

Advantages

- (1) Since 1996-1997 the milk fruit market in the North has grown. Demand for super fruit always outstrips supply, and often increases significantly for some days during Tet or the full-moon day of the month.
- (2) The super fruit can be sold at high and stable prices; in turn the buying prices of this special grade fruit from the farmers are also high (always 30% higher than normal prices of grade 1; e.g. in 2006 Mr. T buys from the farmers at 180,000 dong per dozen, while the average price of grade 1 fruit is 110-140,000 dong per dozen).

Challenges:

- (1) Control of fruit quality: this is the most important factor. The super fruit must have a good appearance with polished white skin without any scratch. The average weight is 300 gram per fruit.
- (2) Coverage of collection areas: at peak harvest time there is no problem in ensuring the required quantity within the commune. However at other times it is much more difficult to ensure a minimum daily quantity of 300-500 kg. Mr. T has to expand his collection coverage to all surrounding 10 communes; thus he is busier and the costs are higher.
- (3) Competition: at the end of the 1990s there were only 2-3 traders specializing in super fruit. Since then, the number of traders offering the super fruit has increased 3-4 times. Other traders often select the super fruit from the bulk sale of the farmers. Mr. T's careful practices of pre-selection of fruit at source can ensure the quality of super fruit, but reduce his potential profit per kg. Price competition among the traders collecting the same super fruit has also affected his efforts to ensure a long-term relationship with the farmers.

After regrading, the traders pack the fruit into deep bamboo baskets or jute bags (for pomelo), wrap each fruit in soft paper then put it in carton boxes (for mango) or spongy boxes (for milk fruit). The normal packaging materials such as carton boxes are bought from local suppliers; there are 7 specialized suppliers of packaging material in the Vinh Kim market who serve the more than 150 traders there. Specialized packaging materials such as the spongy boxes are ordered directly by phone from the producing companies. For example, the milk fruit traders in Vinh Kim often order the spongy boxes from a company in Long An province. For each order the company will bring 500-700 boxes, enough for 3-5 days' requirement by a large trader.

At the moment, traders do not apply chemicals or use special techniques to preserve the fresh fruit for longer storage and better appearance, with the exception of refrigerated boxes used to preserve the small quantities of special/super grade milk fruit for export by airfreight.

Transportation

Each market has its own transportation system, depending on the quality of the fruit:

- Special/super fruit: by truck to HCMC, by airplane to Hanoi, by airplane (for milk fruit due to its shorter shelf life) or by ship (by containers as in the case of pomelo) for export.
- First/second grades: by truck directly to the cities.
- Last grade: by boat or by motorbike to the local wet markets in the region.

The truck services are convenient. Some big *vua* in Vinh Kim own several trucks for long-distance transport to various cities. Most of the other *vua* hire private or bus services. The

cost of transportation is about 5,000 dong per 20-30 kg box from the Mekong Delta provinces to HCMC. Each trader will mark on their fruit boxes the addresses of the recipients in the cities; the vehicle owners will deliver the fruit, and in some cases bring back the money to the traders on the return trip. If there is any loss the vehicle owners will compensate the traders for the same value as the buyers would have paid.

Transactions

Almost all transactions are verbal, by telephone. Only some *vua* or collectors sell fruit to supermarkets in Can Tho and HCMC (Metro, CoopMart) with written contracts certified by the commune authorities. Buyers in the cities make offers for prices and requests for quality and quantity, and then *vua* will decide the buying prices from collectors and farmers.

Payment from *vua* to collectors/farmers is cash on delivery; while payment from city partners to *vua* are cash in the case of small shipments (less than 10-15 million dong) or normally within 10 days through bank accounts. Each *vua* will open a bank account in the nearest city e.g. My Tho city in the case of *vua* in Vinh Kim. They regularly go to the bank to withdraw cash (1-3 times per week). The long-term relationship makes the verbal transactions rather secure, though late payment is popular. As one *vua* in Vinh Kim said “*in theory the partners will pay back within 10 days from delivery; in practice they often defer the payment for a longer period, up to 3 months. We have to accept the situation, since we cannot force them to pay when they face difficulties; and we have known each other for a long time*”.

Transactions for collectors bringing fruit directly to *vua* in focal markets in HCMC is on consignment (*ky gui*). The collectors bring the fruit in bulk, and regrading is done by *vua* in HCMC. *Vua* in (night) focal markets in HCMC receive a commission of 10% of the sale value. In fact the collectors and *vua* in focal markets will stand together to sell fruit throughout the night. Record of each sale is a piece of paper (*phoi*).

5.4. Cooperatives

Fruit cooperatives have been established in the Mekong Delta with the support of local authorities and research institutes (SOFRI) to better organize the production and marketing of speciality fruits. However, effective cooperatives are still rare. In our three study settlements, only Hoa village has a Hoa Loc mango cooperative, established in late 2002 with the support of SOFRI, the Vietnam Cooperative Association and local authorities. In addition, there are some farmer’s groups and extension clubs in the localities (Table 39). Respondents often value highly the contribution of the cooperative and farmer groups to the improvement of fruit farming, but not yet so for marketing.

Table 39: Participation in organized production of fruit by survey households

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Farmer’s group	13	46	17
Extension club	0	7	0
Cooperative	0	4	0
Fruit association	0	0	0
Contract farming	0	0	0

In addition to providing technical support, the cooperative acts as a collective trader for its members to bring the high quality fruits directly to specific markets, i.e. to supermarkets in

cities and to processing companies for export. Most of the cooperative's products are of the first grade and have the cooperative's trademark. Limiting the role of intermediaries helps the cooperative to sell products from its members at higher prices, but with stricter requirements. Transactions are made mainly in cash on delivery. However, many difficulties remain.

Box 10: The Hoa Loc mango cooperative

The Hoa Loc mango cooperative was established in October 2002 with the support of SOFRI (under an externally-funded project), the VCA and local authorities. The initial members comprised just 36 farmers, of which two-thirds were Party members of Hoa village. Up to now the cooperative has expanded to 63 members in the commune, among which are 6 poor households. At the moment more and more farmers want to become members. Membership is restricted to households growing Hoa Loc mango, who in addition must contribute to the cooperative capital (500,000 dong per stock per member, a member can own more than one stock), follow proper farming techniques (e.g. in the use of fertilizers and pesticides), and accept the cooperative charter.

Since its beginnings, the cooperative has signed contracts for the supply of Hoa Loc mango to a provincial fruit processing company and two foreign-invested companies for export to Japan and Taiwan, in addition to serving individual orders. Supply to supermarkets is on an order basis, but there has been no long-term commitment (orders change year by year "*when they need, they call*", and the transaction is not stable). However, a positive signal is the steady increase in the quantity required by CoopMart and Metro supermarkets in HCMC. In addition, the cooperative often serves small retail orders from local customers. In 2003, the cooperative supplied 60 tons, in 2004 250 tons, and in 2005 more than 70 tons of mango to its clients. In the year, 2005 the cooperative saw a sharp decline both in quantity and in net profit (10-12%) compared to the previous year. This was due in part to stiff competition from other collectors and traders, but the main reason is that the quality of the fruit does not meet the high requirements of buyers. The transaction with the processing factory in Tan Thuan industrial zone is an example. The quantity sold in 2005 to this factory was 12 tons compared to 45-50 tons the previous year. Such sharp reduction was due to higher requirements from the factory for uniform and safe fruits that the cooperative cannot meet. The average annual net profit of the cooperative has been more than 25% of the cooperative's total traded revenue; however this is decreasing due to price competition from other traders. Starting in 2006, the cooperative has decided to expand its product range to include orange and pomelo.

With assistance from various institutions such as the Extension Centre, the Gardening Association and SOFRI, cooperative members receive technical guidance on mango farming. In 2005, SOFRI together with the cooperative organized 2 training classes on GAP (Good Agricultural Practices). The Gardening Association in 2005 also granted some cash to buy fertilizers (80,000 dong per cong) and provided fruit-covering bags to promote safe gardening. The province has a project to subsidise 30% of saplings' prices for the expansion of Hoa Loc mango on its native land. The cooperative also supplies fertilizers to its members on a 4-month deferred payment.

The key difficulties of the cooperative:

- **Market:** all contracts require the supply of primarily grade 1 product (>420 grams each), and partly grade 2 product (390-420 grams each). The contracts are still small, unstable and short-term. So the cooperative can only absorb up to 10% of members' produce during the main harvest season.
- **Fruit quality:** this is currently the biggest concern. Although all members are trained in GAP, less than 50% follow the guidelines, and other farmers in the village are still unaware of GAP. Farmers still hesitate to invest in safe production, fearing that bad weather and price fluctuations will increase the risk of losses. Meanwhile, clients' requirements for high quality fruit are strict. For example, one company in HCMC has reduced its orders by almost three-quarters because it found excessive chemical residues in fruit for export.
- **Buying fruit from the cooperative members:** due to the small size of purchases and strict quality requirements, it is not easy to satisfy members when allocating the order and screening the fruits. There is still no effective enforcement arrangement between the members and the cooperative. So the members will sell their products to outside traders if the prices offered beforehand by the cooperative are not attractive enough.

- Capital: the cooperative now has 100 million dong of working capital, not enough for big contracts. The cooperative management contacted the bank, but without collateral they cannot borrow money.
- Land: the cooperative would benefit from having a garden plot for demonstration and as credit collateral.

5.5. Companies

Trading or processing companies are the main actors promoting exports of fruit, either fresh or processed. However the export quantity of Lo Ren milk fruit, Hoa Loc mango and Nam Roi pomelo is very small. The Sai Gon fruit export and service company reports that every year it exports only 3-4 tons of Lo Ren milk fruit and the same quantity of Hoa Loc mango to Canada, Germany and other countries where there is demand from overseas Vietnamese. There are two main reasons for the low volume of exports: the first is the high domestic demand for these speciality fruits; the second reason is the high quality requirements of fruits for export. i.e. uniform weight, size and appearance, no chemical residues. It is the lack of sufficient quantities of high quality fruits that limits exports, not the lack of orders.

The direct roles of companies in the market chains of the three fruits in our study are negligible, except for some small contracts with the Hoa Loc mango cooperative. No contract farming practices were found in the three settlements. Private traders (collectors and *vua*) dominate the market, and the companies still have to buy fruit from the traders to fulfil their export contracts.

Companies such as Hoang Gia tried to establish their long-term relationship with the farmers; but the efforts have not been very successful so far, again due to persistent conflicts between the high requirements of products for export and high-end domestic markets, and the small-scale, scattered nature of fruit farming.

Box 11: The Hoang Gia company: the difficulties of establishing a direct relationship with pomelo farmers

Hoang Gia is one of the few private companies trying to promote Nam Roi pomelo export, processing and sale to supermarkets. It is the first company in the Mekong Delta that exports pomelo by container to EU countries. It has registered the Nam Roi pomelo trademark and opened a website on the Nam Roi pomelo.

In 2002, Hoang Gia sponsored the farmers in My Hoa commune to establish a Nam Roi pomelo association in order to promote organized production and marketing. It placed shops in the commune to buy high quality pomelo from the farmers for export and supermarkets. It also signed "whole garden harvest sale" contracts with a few farmers in the commune. In 2004, Hoang Gia invested in a production line for canned pomelo juice to make use of the smaller fruits.

However, up to now the story of Hoang Gia Company in My Thoi 1 village is a sad one. In 2001-2003, about 70-80% of villagers sold their pomelo to Hoang Gia under two forms: (i) whole garden harvest sale contracts (3-5 households); and (ii) bringing pomelo to company's buying shops at harvest time to sell at slightly higher than market prices. The pomelo bought by Hoang Gia should be good in appearance and weigh more than 700 grams. However there have been continuous disputes between the farmers and the company's quality control. The farmers may bring one ton of pomelo to the shop but only a small part of it is accepted by the purchase employees; or it is accepted but graded at lower prices that the farmers expect. Thus the villagers after several transactions stopped selling their produce to the company. The Nam Roi pomelo association in reality has also stopped its operation. In addition, initial problems in processing pomelo juice, i.e. the bitter taste of the juice (now solved), the still limited demand for pomelo juice and the high operation costs, have contributed to the company's difficulties.

5.6. Supermarkets

Supermarkets in large cities with fruit sections and small minimarkets/shops specialized in fruit are important retailers of the high quality fruits, as the demand of city residents for speciality fruits has been increasing rapidly. According to our quick scan, first grade Lo Ren milk fruit, Hoa Loc mango and Nam Roi pomelo sell well in the supermarkets, and supply does not seem to meet demand.

The supermarkets do not buy fruit directly from the individual farmers, but through traders or cooperatives that act as screening and grading agents. For example, in Vinh Kim commune, 3-4 *vua* specialising in Lo Ren milk fruit have relationships with supermarkets in HCMC. In Hoa village, the mango cooperative sometimes sells Hoa Loc mango to CoopMart and Metro supermarkets. However, a long term, stable relationship between the supermarkets and the farmers or the cooperatives has not been established; thus the supermarkets' claim of quality control at source has not been realized in practice.

5.7. Focal markets/wholesalers in cities

The focal fruit markets and wholesalers in cities, especially in HCMC, act as the intermediaries between traders from the Mekong Delta and the retailers in the cities and surrounding provinces. The requirements for produce quality are not strict because consumer demand is diverse (i.e. from higher quality for restaurants to lower quality for retailers in small markets in and around the cities). Transactions in focal markets are often on consignment.

6. Factors affecting fruit farming and market access

In our household survey, we asked respondents what they perceived to be their difficulties in fruit farming. Respondents were asked to list up to three of their main difficulties. The results are fairly similar across the three settlements. Technical factors, especially pest management, are the main concern of farmers, followed by market prices and capital.

Table 40: Perceived difficulties in fruit farming (% HH)

Factors	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Land	8.1	2	1
Capital	25.3	25.3	20.8
Labour	10.1	5.1	2.1
Seedling	5.1	3	4.2
Techniques	47.5	27.3	41.7
Water	2	1	2.1
Infrastructure	0	0	0
Environment	0	0	0
Weather	7.1	30.3	3.1
Pests	68.7	73.7	71.9
Packaging, preserving	0	0	0
Transporting	6.1	2	0
Selling prices	31.3	45.5	42.7
Buyers	1	3	2.1
Local regulations	0	0	0

6.1. Fruit farming techniques

Fruit farming practices have improved significantly in the last 5 years. Farmers can learn from each other, and from pioneer farmers, traders, extension services, research institutes, input supply companies, and the mass media. Among these players, the roles of the pioneer farmers and the Southern Fruit Research Institute (SOFRI) are very important. Every year, SOFRI organizes a fruit fair to support the introduction and use of improved varieties in the region. It regularly provides training for fruit farmers on technical and marketing issues and supplies high quality seedlings, promotes GAP techniques and publishes a market newsletter. With assistance from externally funded projects, SOFRI has helped to establish some fruit cooperatives in the region, including the Hoa Loc mango cooperative.

Box 12: The roles of pioneers in gardening – the case of My Hoa commune

Mr. Tran Anh K. lives in Binh village, My Hoa commune, and is a key member of the technical group of the Hoa Loc mango cooperative. He was among the first farmers in the commune to adopt the new techniques of mango farming for better quality, higher yield and for off-season harvest. More than 18 years of mango farming and lessons learnt from Dong Thap farmers/traders (who were actually the first people coming to the commune more than 10 years ago to rent mango trees then apply fertilizers and spray chemicals for better yield and off-season harvest) have helped him in mastering the gardening techniques. Mango from his garden won several gold and bronze medals in regional fruit fairs. His own techniques for mango farming were disseminated by SOFRI in its newsletter.

Now, in addition to the tasks of helping cooperative members and other villagers in improving mango farming and following GAP, Mr. Kiet is expanding his technical services to other locations. He cooperates with some big mango farms under the product sharing agreements, by which he is responsible for technical supervision, especially for blossoming and fruiting, while the farms are responsible for investment; both sides then share the harvest.

However, mastering fruit farming techniques is still a major difficulty for farmers. More or less half the respondent households have not participated in any form of extension services in the localities in the past 12 months (see Table 41). It is reported that in the three study villages, training classes together with the distribution of technical material on fruit farming are undertaken regularly (3-4 times a year), but the extension services often only target the cooperative members, better-off households or village cadres. Farmers are still waiting for advice and practical and affordable solutions to technical issues, such as how to cope with frost (many farmers consider that favourable weather can contribute up to 70% of a successful harvest), root-harming bugs (for milk fruit) or yellow leaf disease (for pomelo).

Table 41: Participation in extension activities in the last 12 months (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Attending training classes	39	61	47
Receiving technical guidance material	35	48	43
Carrying out demonstration models	2	2	4
Exposure visits, market scan	1	1	0
Other activities	5	0	1
No participation	55	38	51

Knowing how to irrigate and apply fertilizers and how to spray some growth-support biochemicals for better yield and for off-season blossoming and fruiting is considered a breakthrough, contributing much to farmers' return to investment in their traditional milk fruit and mango trees. The techniques of off-season fruiting help farmers achieve better prices in the short term. However, in the long term the health of the trees may be seriously damaged

by these forcing techniques, as in the case of milk fruit trees in Vinh Kim commune (see Box 13).

Box 13: Aftermaths of the forcing techniques for off-season harvests in Vinh Kim

The gardeners in Vinh Kim commune are rather familiar with forcing techniques to produce off-season milk fruits that can attract good prices. Right at the end of the main harvest time, farmers build up a small dyke around their garden, pour water until it reaches a depth of 20-30 cm, and then let the water out after 2-3 days. This irrigation technique, together with the application of chemical fertilizers, will provoke the off-season blossoming of the milk fruit trees.

However, the longer-term aftermaths of such techniques are becoming clear. The milk fruit trees are exhausted, with serious root damage. Since 2001, more and more milk fruit trees in the commune have died. About 65 ha of over-20-year trees and 26 ha of less-than-20-year trees have been lost. It is difficult to recover the area of Lo Ren milk fruit, because it takes 15 years for trees to start producing harvestable fruit.

To promote the production of high quality, safe fruit to meet the increasing domestic and export demands, the Ministry of Agriculture and Rural Development (MARD) together with fruit associations, research institutes such as SOFRI and local authorities have been promoting safe production in fruit farming, especially the GAP standards (Good Agricultural Practices). “GAP Tien River” is an ambitious program to realize “four players” linkages in the fruit sector in provinces along the Tien River. If successful it can help create more efficient market chains of speciality fruit in the most concentrated fruit production area of the country. However, GAP is not an easy and quick process, and many obstacles remain. Most farmers are not aware of the program. Only some better-off farmers, especially the cooperative members in Hoa village, received training in GAP and are planning to expand its application after observing some demonstration models and receiving some support towards the cost of fruit-covering materials.

Box 14: “GAP Tien River” Program

On the 18th November 2004, MARD issued its Decision 4146 on the establishment of the Steering Committee for the program “Production linkages and marketing of safe fruit in the Tien River area” (known in short as GAP Tien River). On the 21st March 2005, the Committee was formally set up.

Objectives

GAP Tien River aims to establish sustainable and efficient linkages between the “four players” (farmers, companies, scientists and State administration) through the application and certification of GAP (and EUREGAP), in order to produce high quality safe fruit at competitive prices to meet the demand of domestic and export markets.

Organization

GAP Tien River covers six provinces along the Tien River (namely Tien Giang, Long An, Ben Tre, Dong Thap, Vinh Long and Tra Vinh) and HVMC as the centre for trade and processing. These provinces include the largest area of fruit cultivation in the country, producing around one-quarter of national fruit output. Up to now GAP Tien River has attracted more than 60 institutional members, comprising 7 provincial DARDs, 15 fruit production and trading cooperatives, 20 big fruit farms, 12 fruit processing and trading companies (2 foreign-invested), 3 NGOs and a research institute, SOFRI.

Key activities undertaken

- Establish technical groups on GAP and market chains, with priority given to domestic markets as the base for export.
- Organize training courses and workshops for gardening associations, extension centres and plant protection departments in the member provinces. The training topics are: safe fruit production,

fruit markets in the economic integration context, safe and efficient use of pesticides for fruit trees, preservation and pre-processing of Vietnam fruits with comparative advantages, basic knowledge of GAP and EUREGAP.

- Support the cooperatives in training on GAP application; ask the member organizations to implement extension projects in the cooperatives.
- Formulate projects for facilitating the establishment of 2 distribution centres in Ho Chi Minh City, one next to Binh Dien bridge and the other in Tan Binh market, for the fruit transactions of about 20 cooperatives of provinces within the Tien River area.

Feedback

GAP Tien River is still in its initial stages. Its main activities are limited to training and workshops. As Mr. Thanh Xuong, chairman of Duong Xuan cooperative in Long An province commented, “by participating in GAP Tien River, we have understood what is GAP and improved our awareness of safe production to meet export market demands. However, interactions between the members are limited to training and workshops. Extension projects are planned, but their implementation faces difficulties in starting”.

GAP in the study settlements

SOFRI has promoted GAP within its safe production program (funded by MARD) with the Hoa Loc mango cooperative. Six garden plots (30 mango trees each) were selected as demonstration models. In addition, cooperative members receive training, cash for the costs of garden rehabilitation (120,000 dong per *cong*), subsidized saplings (in total 5,500 young mango trees at 4,000 dong per tree compared with market price of 7,000 dong) and fruit-covering bags. The initial results are encouraging. At the moment less than 50% of cooperative members apply some GAP techniques. Some cooperative members and farmers expressed their intention to expand the application of GAP in the next crops, especially the fruit-covering techniques.

6.2. Market information

Selling prices of fruit in the study settlements change rapidly, by the day and even by the hour, depending on the orders from wholesalers in the cities and other provinces. At the Fruit Market in Vinh Kim commune, in the morning the price for Grade 1 milk fruit can be 30-40,000 dong, and in the afternoon down to 25,000 dong; but if there is a big order from HCMC the price will be up again at the morning level.

Weather also affects fruit prices. If in the North the weather becomes cooler, or in the Central regions there are storms, demand for pomelo decreases and so do prices of Nam Roi pomelo in Hoa Hung commune, at times even by half. In My Hoa commune, when the water level in the canals increases, the supply of mango will increase due to easier transportation by boat, and prices during the day will decrease.

Access to updated price information is easy for the farmers in the settlements because of the many visiting collectors, the short distance to *vua* shops and the increased use of telephones. In fact, the increased use of mobile phones in recent years by the household heads (mostly men) in Hoa village is firstly to enquire about mango prices from *vua*. The farmers can compare prices offered by different buyers before deciding their selling price. Those farmers who bring their fruit to the Fruit Market in Vinh Kim commune at peak time receive an informal bidding (*do gia*) from the buyers there.

Table 42: Sources of information on market prices of fruit (%)

	Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
Collectors	25	54	82
Telephone	2	23	7
Going directly to <i>vua</i>	69	64	12
Television, newspapers	6	3	1

However, the main concern of farmers is the longer-term sustainability of fruit prices. Many “movements” following short-term price signals in the past had failed. The return to producing traditional speciality fruits in the localities is now due to their good prices. At the same time, off-farm employment and migration are the preferred options for many young people. Thus, the diversification of income sources is the main strategy to offset market risks.

Farmers’ knowledge of market chains for their fruits is rather vague. Though knowing their fruit will be transported by the *vua* to other provinces or focal markets in cities, most fruit farmers don’t care much about the differences between their farm-gate prices and retail prices in the cities or elsewhere (this difference is often double the amount or more). The farmers however acknowledge that the pressure from supermarket and export buyers on quality and safety is very strong. In the study villages, it is the better-off groups who take the lead in the implementation of GAP. However, the constraints of weather and price fluctuations, and the lack of effective organized production limit the extent to which poorer farmers and those with little land are prepared to take up farming innovations.

6.3. Capital

Access to capital has improved for the farmers compared with the past. During the transformation of rice fields into gardens, most farmers were able to borrow money from the bank. According to a women’s focus group in My Thoi 1 village “almost all households borrowed 3-5 million dong per *cong* of land from the Agricultural Bank when building up the garden”. In the past 12 months, more than half of the survey households have received some credit from different sources. The credit terms are often 1-2 years with interest rates ranging from 0.6% (credit for the poor, from mass organizations) to 1.1% (market rate from the bank). The credit size varies from 300 thousand dong to 18 million dong.

It seems that garden land in such famous fruit villages is an acceptable collateral for the bank. In Hoa Hung commune, the Agricultural Bank sets up the credit groups (1 group per village, managed by the heads of the village). The main function of the credit group is to sign a guarantee agreement for the villagers borrowing money. The size of the credit depends on the land area and the potential earnings from the land. On average, for 1 *cong* of land farmers can borrow 5-10 million dong. In addition, mass organizations like the Women’s Union and the Veterans’ Union also actively organize the trust collateral for their poorer members to enable them to borrow from the Social Policy Bank. The poor without much land still face difficulties in accessing to available credit channels; and they often rely on non-farm incomes and from remittances to invest in agriculture.

Table 43: Percentage of households borrowing money in the past 12 months (%)

Vinh Thoi (milk fruit)	Hoa (mango)	My Thoi 1 (pomelo)
51	67	55

6.4. Land

Land area per capita in the three study villages is limited. The local authorities and research institutes often call for the establishment of concentrated, specialized fruit areas to produce enough speciality fruits for domestic and export markets. However, in the three study villages - the original and best places for growing such fruits - the land area for gardening has been decreasing, due to the increased pressure of urbanization and industrialization.

Box 15: The pressure of urbanization and industrialization

The densely populated Vinh Kim commune (of which Vinh Thoi village is part) is a favourable location for trade and services, and My Hoa commune (of which My Thoi 1 village is part) is located near Can Tho city; they are typical cases showing the increasing pressure of urbanization and industrialization on the long-term sustainability of farming. The main issues are the decreased agricultural land area due to growing in-migration (in the case of Vinh Kim) and the loss of farmland to industrial zones and infrastructure (in the case of My Hoa).

In Vinh Kim commune, many incoming residents buy gardens with fruit trees, and then clear all trees to erect houses. Pathways are becoming smaller where more houses are built in close proximity. Solid waste is now a serious problem. There is a private solid waste collection service for the traders operating in the commune's market places, but no services in residential areas. Water quality is another problem in the densely populated village. The limited land area per household makes the livelihoods of pure agricultural households – mainly the poorer group in the community - more difficult. The evidence is that income inequality has been widening. This is a key challenge for this urbanizing settlement in the future.

In My Hoa commune, out of 3650 households, 620 households have already had to move to other communes to provide land for construction. These farmers often move to other rice-farming communes (at their discretion) after receiving compensation from the state. The province has a policy of encouraging the land-losing farmers to undergo vocational training to find off-farm employment elsewhere. However the farmers do not follow such policy, as they are often too old to switch to skilled wage labour, and they are still essentially farmers. For the loss of 1 *cong* of garden they can buy 2-3 *cong* of rice fields or more (compensation for 1 *cong* of garden is 54 million dong, while the market price of 1 *cong* of rice field is only 11-12 million dong). The commune leader reports that after 3 years, around 50% of resettled households have stabilized their livelihoods. But a number of households find it difficult to maintain their livelihoods, because their original garden is small thus the compensation is not enough to buy adequate rice fields (and in some cases the farmers spent up their compensation in the social evils, i.e. gambling).

6.5. Infrastructure

Better infrastructure plays a decisive role in livelihood transformations and market access in the three villages, and for in and out migration. In the past, frequent flooding in My Thoi 1 prevented farmers from focusing on gardening. Then in the early 1990s, the enclosing dyke system was built together with irrigation schemes (through State investment and people's contributions of cash and labour), making gardening much easier and the farmers' movement of converting rice fields into gardens faster.

In the past, farmers used to carry fruits to the markets by shoulder baskets or by boat, because there were "monkey" bridges everywhere in the villages. Now the village roads are much better, motorized vehicles can reach the village and selling fruit is much easier. As said by the farmers in Hoa village "*we are just 2 km from the main road; but in the past we had to cross 10 monkey bridges; to bring fruit to the market we had to hire the shoulder carriers, 3,000 dong per load; now we can bring fruits to the markets by motorbike easily*", and in My Thoi 1 village "*in the past we used boats to go to the market; now the collectors drive the 2-3 wheel vehicles to our garden. Many of us have abandoned the boat – it used to be a key household asset in the past*".

Box 16: Road networks and market access: the case of Binh Dien bridge

Binh Dien bridge is in Binh Chanh district, HCMC. It connects the Mekong Delta provinces with HCMC. In 1998, a river barge hit the bridge pillar, with severe damages to the bridge. All road transportation from the Mekong Delta to HCMC was interrupted for several days. This accident seriously affected the transportation of milk fruit to HCMC. Milk fruit cannot be kept fresh for long and is at its best within three days after harvest (unlike other fruits like mango or pomelo that can be stored for several weeks). Without convenient road transport, the prices of milk fruit in Vinh Kim commune dropped dramatically. As recalled by local farmers “for the same grade of milk fruit, we can sell at the prices of 30-40,000 dong for 12 fruits if transport is good; but when there are problems with the roads, we only sell at the very low price of 6-7000 dong for 14 fruits”

Together with much improved road and communications networks, the distribution channels of fruit are becoming more diversified. Now collectors or even farming households can go directly to HCMC without relying on local *vua*. The distribution channels of *vua* have also changed: in the past they only brought fruit to focal markets in HCMC or Hanoi; from there, fruit was redistributed to other cities and provinces. Now *vua* in the Mekong Delta can transport fruit directly to every province, especially in the Central region, bypassing the large cities. As a big *vua* in An Huu market said “*in the past we relied on just 1-2 focal buyers in big cities, especially in HCMC; now transport and telephone are convenient and buyers everywhere want to do business with us directly, so now we have dozens of buyers in cities like Hue, Da Nang, Nha Trang, Hai Phong etc, although we also have much smaller order sizes per buyer*”.

Box 17: Farmers as collectors: an emerging trend for Nam Roi pomelo

In Vinh Thoi and Hoa villages, there are almost no farmers bringing their Lo Ren milk fruit and Hoa Loc mango directly to the focal markets/wholesalers in the cities. The high demand and limited supply of such fruits enable the farmers to sell to collectors or *vua* near home for competitive prices.

In contrast, in My Thoi village, there are an increasing number of farmers/collectors trying to bring their Nam Roi pomelo directly to HCMC. Each collector is also a pomelo farmer with a network of around 10-15 other farmers in the commune. They transport the fruit by boat to Cai Vo district town in Binh Minh district, 10 km from the village, in the early morning then transfer it to truck services to reach the *vua* in focal fruit markets in HCMC late in the evening. Early the next morning they return home. For each trip of 50-60 bags (50 kg each) of pomelo, one collector can earn 1-2 million dong after deducting all costs.

This is an emerging trend, showing the efforts of the farmers/collectors to bypass the local intermediaries in order to reach closer to the final consumers, thus getting better prices, in the context of unfavourable prices for Nam Roi pomelo.

6.6. Roles of the market nodes

The market nodes concentrate large fruit traders (*vua*) who have good market information and good distribution networks with other traders around the country. Vinh Kim Fruit Market and An Huu Market are located at the centre of the fruit areas, convenient for both road and river transportation. “Car above” (for the traders to transport fruits to cities and provinces), and “boat under” (for the farmers to bring fruits to the market, and for the traders to transport back the last grade fruits to local wet markets in Mekong Delta) are the essential conditions for a market node to prosper. Most fruits will be in and out within the same day. These distribution centres can generate employment for local people, from fruit grading and packaging, porter and vehicle guard, to many petty services to serve the many people coming and going.

Another case is Cai Vo district town in the area of Nam Roi pomelo growing, not a real market node in terms of concentration of fruit traders, but rather a transport node where collectors bring pomelo from the villages by boat, then move it to cars to go to HCMC.

Box 18: The market nodes for fruit in the Mekong Delta

1. Vinh Kim Fruit Market

Vinh Kim Fruit Market is a market node for fruits connecting 3 districts in Tien Giang province (Cai Lay, Cai Be and Chau Thanh) and Chau Thanh district in Ben Tre province to HCMC. It is located along the river, convenient for both car and boat transport. Within an area of 3 ha, there are 287 operating traders, of which 156 are fruit traders. Nearly 80% of such fruit traders are local people; the others come mainly from My Tho city.

The Fruit Market is crowded from midnight to mid afternoon. Each day around 150 tons of fruit go through the market. At peak time there are 3,000 people there including sellers, buyers, and the associated service providers. In the market there is a big labour force of fruit packagers (3-5 people per *vua*), porters (300 people) and personal transport service providers (200 people) coming from all surrounding communes, who can earn a decent income from serving the fruit trading activities.

The frequency of car transportation is very high: on average each day there are 40 car trips (of which 10-12 trucks are owned by local people) bringing packaged fruits to HCMC, Hanoi and the Central provinces. In addition, each day there are 12 boats coming to bring the last grade fruits back to the local wet markets. In the 2006 Tet holidays, traffic jams occurred at the gate of the market because there were so many cars there.

2. An Huu Market

Located along a branch of the Tien River, at the centre of the specialized fruit area of the provinces of Tien Giang, Vinh Long and Ben Tre, the An Huu market is the focal point for fruit, especially mango (it is only 3 km away from the Hoa Hung commune). Along the two riverbanks, there are about 100 fruit traders. Each trader's shop has a back door facing the river to receive fruits brought in by farmers and collectors by boat, and a front door for car transportation to cities and provinces. In peak harvest time, there are several hundred tons of fruit going through the market. An Huu market is well-known because it concentrates experienced fruit traders (especially for mango) with good distribution networks to almost all cities and provinces across the country. Prices offered by the one or two biggest traders here are the main reference for other fruit traders and collectors in the region.

Recognizing the importance of such market nodes for the fruit sector, the provincial authorities of Tien Giang together with Sai Gon Trading Corporation decided to invest 100 billion dong in a big "Hoa Khanh National Fruit Trading Centre" in the province. The Hoa Khanh centre is located next to national highway 1A connecting the Mekong Delta provinces with HCMC, 25km from An Huu market. It is ambitiously planned that the centre will be the focal receiving point for fruits from the Mekong Delta, and a centre for preserving, regrading, packaging and distribution to domestic, export and processing markets. Within its 12 ha space, there are fruit supermarkets (more than 1 ha), trader shops, a packaging area (nearly 1 ha) and freezing stores (2500m²). On January 2006, the first phase of Hoa Khanh fruit centre has been put into operation.

However, the viability of this modern centre to become a real market node is still questionable. At the moment, there are only 4-5 fruit shops operating there with small daily transactions of up to a few tons of fruit (longan and mango). Our initial discussions with some fruit traders reveal that they are still very reluctant to move to the new centre from their existing established market nodes with good river transportation.

7. Conclusions: the challenges ahead

In recent years, the poverty rate among fruit farmers in the rural Mekong Delta has declined more rapidly than among all rural households in the region and in Vietnam. This is despite huge fluctuations in the fruit export markets in the last decade. The findings from this case study in three rural settlements in Tien Giang and Vinh Long provinces suggest that the main driver of rural development is a positive reciprocal relationship between urban centres and farming. There are two main aspects to this: first, the growth of urban incomes throughout Vietnam, resulting in high demand for fresh fruit, and second, the increase in employment opportunities in non-farm sectors, which allows farmers to diversify their income sources and invest in fruit production.

But while, overall, urbanization has so far benefited the case study settlements, it also presents new challenges. At the present time, the three settlements are largely success stories, especially when compared to other rural settlements in the Mekong Delta region. However, whether they will be able to continue on this path will depend not only on the entrepreneurial spirit of their residents but also on wider socio-economic transformations. The differences between the three settlements also suggest that they may evolve following different trajectories, which in turn will present different risks and opportunities. New challenges will need to be addressed by appropriate and supportive policies based on the understanding of each settlement's specific circumstances.

Vinh Thoi, the growing market node

As Vinh Thoi achieves urban status, its role as market town serving its surrounding region is likely to increase. The role of farming in its residents' livelihoods, as a consequence, will probably continue to decline while that of non-farm activities will increase. What is likely to remain, however, is the strong link between traders and farmers from the surrounding rural areas that constitutes the economic base and the success of Vinh Thoi. Many small urban centres around the world have grown out of a reciprocal relationship with a prosperous surrounding rural region just like Vinh Thoi. However, this growth is not guaranteed, and needs to be supported by appropriate policies.

Local urban centres typically play an important role as providers of trade and services to a large number of small-scale farmers, but in many countries agricultural policies favour large-scale commercial agriculture on the grounds that it is more efficient in terms of production and access to high-end markets such as exports and supermarkets. It may seem strange that as Vinh Thoi moves away from farming, agricultural policies are those most likely to affect its economic base and the livelihoods of its residents, but in most cases, large-scale farms do not contribute to the development of market towns, as their operations tend to be centralised, with produce brought directly to markets in larger cities and little, if any, reliance on local processing and other services. Profits that are not reinvested in the farm are usually spent in the larger cities, where ownership of large farms is often based. Moreover, large-scale commercial farming may increase agricultural output for high-end markets, but is usually much less efficient in responding to rapid changes in domestic demand because of the costs involved in transforming large-scale production. It is also rather inefficient in promoting rural development which, as this case study and many other studies in other regions of the world suggest, can only be achieved through a reciprocal relationship between farmers and urban centres, especially local market towns, which provide opportunities for income diversification.

Another issue likely to affect small market towns such as Vinh Thoi relates to changes in food distribution systems in urban centres. Although currently supermarkets have a minor share of urban food retail in Vietnam (and absorb only around 5 percent of fruit produced in the three villages), this is growing fast, following similar trends in other Asian countries with high economic growth and urbanization rates. For urban consumers, there are many positive aspects to this expansion, which usually involves lower prices and greater choice of products. But experience in other countries suggests that supermarkets also tend to rely on large-scale producers and bypass local market towns and the services they offer, in favour of centralised operations. This is not necessarily the case, however, and supermarkets (as well as exporters) can contribute to the development of their supply areas by ensuring that value added activities such as processing, grading and packaging remain located in local market nodes, as is currently the case in the study settlements.

Infrastructure is another important element of the success of market nodes such as Vinh Thoi. What is significant is not only that they are well connected to the surrounding rural settlements where producers reside, and to the local cities of Can Tho and HCMC, but also to more distant markets such as Hanoi. The role of small towns as distribution nodes with the potential to bypass local cities has important implications for traffic congestion and air pollution, already major problems in HCMC, which should be taken into consideration in infrastructure planning.

Finally, like many ‘urbanizing villages’, Vinh Thoi experiences environmental problems such as water pollution and solid waste management from its increasingly densely built residential area and from market activities. The capacity of the commune to address these will probably increase with urban status, but achieving it will require appropriate training and resources.

My Thoi 1, the peri-urban settlement

Although My Thoi 1 settlement is not directly affected by the urban and industrial expansion of Can Tho city, it is likely that this will nevertheless have a significant impact on its residents. While they may not immediately lose their land, unlike households in other settlements of the same commune, there will be both opportunities and constraints as the city grows closer. Opportunities will consist mainly of increased employment opportunities in non-farm activities without the need to migrate. The settlement’s residents will however share the constraints of many residents in other peri-urban areas in the world for whom farming remains an important occupation, primarily in relation to the use and management of natural resources. Water is often a major cause for potential conflict between farmers and industrial users and, although there is no shortage of water in the area, industrial effluents can severely affect farming if not treated properly. Domestic sewage discharged in surface water from densely populated urban centres can also affect farming in downstream areas if left untreated. Solid waste from urban centres is usually disposed of in landfills outside the city boundaries, affecting the surrounding settlements. Finally, air pollution from industrial plants and from city traffic can have an adverse impact on fruit trees.

Most of these problems can be resolved through appropriate measures. However, in many cases the real issue is one of natural resource management, and more specifically of which local authorities are responsible for ensuring that the needs and priorities of all users are taken into account. Typically, peri-urban areas do not fall within the urban administrative boundaries and are not considered to be the responsibility of municipal authorities; at the same time, rural local governments and communes in peri-urban areas are much weaker in

terms of resources and capacity than municipal governments. This often undermines their ability to negotiate solutions that will protect their residents' livelihoods. In a context of rapid urban growth, these issues are likely to become increasingly central for urban planning and natural resource policies.

Hoa, the agricultural settlement

Of the three settlements, Hoa is the one where farming is still the main income source for resident households. Their speciality product, mango, sells well on urban markets, but while competition from imported mangos is still relatively limited, it is likely to increase as demand for consistent quality grows, especially in urban markets, and tariffs are reduced under WTO agreements. The success of agricultural policies that aim to address the key constraints of fruit production in Vietnam - low yields; insufficient supply of high quality and safe products in relation to both domestic and export demand; high post-harvest losses; and limited processing and labelling capacity – will have a strong impact on the residents of this settlement as on other producers of potentially higher-end products.

Much can be learned from the experiences of implementing elements of GAP by the Hoa Loc mango cooperative. In the context of this study, one important lesson is that poor farmers are reluctant to innovate, whereas farmers who can count on additional non-farm incomes are more prepared to take risks. In other words, supporting opportunities for income diversification is an essential component of successful agricultural policies and programmes. This often means collaborating rather than competing with local traders and service providers in marketing activities, as these can provide non-farm jobs within or close to the settlement.

Education and mobility as key elements of rural development and poverty reduction

As non-farm employment, either local or in different locations, is likely to grow in all three settlements in the future, education will become increasingly important to ensure access to better jobs. Low levels of education are currently a major problem in the Mekong Delta, and a key factor of poverty. One reason for the success of the three settlements is the relatively higher level of education than the low average in the region. Moreover, its perceived value among the survey respondents is reflected in the high proportion of remittances invested in education. Better education is stimulated by the existing opportunities for non-farm employment, which clearly show the benefits of skilled jobs compared to unskilled ones. Education policies are therefore extremely important in determining the ways in which the next generations will construct their livelihoods. Education is also essential in providing access to better livelihoods for the landless poor and to alternative livelihoods for those who will lose their farms to urban expansion.

Mobility and migration, as important features of income diversification, also play an important role in rural development. This case study shows that migration is essential for many households in rural areas to move out of poverty or reduce their vulnerability; in many cases, it allows people to stay in farming and to improve revenue from it (provided they have access to land and labour). However, this may not be the case for the next generations, currently the most mobile. The three settlements in this case study offer an overall positive picture of the impact of migration and mobility on livelihoods and local economic development. However, as the rapid growth of the larger cities in Vietnam remains a major policy concern, it is becoming even more pressing to ensure that economic growth strategies do not concentrate investment (and attract migrants) in and around the larger cities only, but support the development of smaller urban centres.

The government of Vietnam aims to halve the agricultural labour force by 2020. This is expected to be achieved through the promotion of agribusiness and incentives to larger production units, while small-scale farmers will have to switch to manufacturing and services, mainly urban-based. The findings of this case study suggest a different path to rural development, based on a positive reciprocal relationship between urban centres and rural areas and a strong role for small towns in local economic growth and poverty reduction. Whether this type of rural development represents just a transitional phase or a sustainable alternative with long-term prospects for poverty reduction and economic growth is likely to depend on the capacity of provincial and commune governments to formulate and implement appropriate policies, and on the support given to these by national development strategies.

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