



Urbanisation and rural development in Vietnam's Mekong Delta

Revisiting livelihood transformations in three fruit-growing settlements, 2006–2015

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Rapid urbanisation and industrialisation have had multiple impacts on rural Vietnam since economic reform in the mid-1980s. In 2006, the authors conducted a study of the social and economic transformations in three rural settlements in the area often described as Vietnam's rice bowl and where livelihoods and the nature of the local economic base, including farming, had changed radically. All could be described as success stories, especially when compared to other rural areas in the Mekong Delta region. Almost a decade later, this paper revisits the same settlements and describes their social and economic evolutions and the key factors that help decipher three distinct but similar trajectories.

Contents

Executive summary	4	5.4 Cooperatives	33
1 Introduction	6	5.5 Enterprises	34
1.1 Objectives	6	5.6 Supermarkets	35
1.2 Methodology	7	5.7 Wholesale markets in cities	35
2 Urbanisation, migration and evolving rural–urban linkages in Vietnam	8	6 Factors affecting livelihood transformation and market access	37
2.1 Overview of the study settlements	11	6.1 Fruit cultivation techniques	37
3 Livelihood diversification	14	6.2 Market information	40
3.1 Agricultural activities	14	6.3 Capital	40
3.2 Non-agricultural employment	17	6.4 Land	41
3.3 Outcomes of livelihood transformation	20	6.5 Infrastructure	42
4 Labour mobility	23	6.6 Sanitation conditions	42
4.1 Out-migration and mobility	23	6.7 Climate change	43
4.2 In-migration	25	7 Conclusions	45
5 Market access	26	Annex 1: Overview of the fruit industry in Vietnam	47
5.1 Market chains	26	Annex 2: Characteristics of the specialty fruits in the three study settlements	56
5.2 Fruit farmers	28		
5.3 Private traders	29		

Executive summary

Rapid urbanisation and industrialisation have had multiple impacts on rural Vietnam since the economic reforms in the mid-1980s. In 2006, the authors conducted a study of the profound social and economic transformations in three rural settlements in the area often described as Vietnam's rice bowl, and where livelihoods and the nature of the local economic base, including farming, had changed radically. Rice production had virtually disappeared, giving way to fruit orchards, and fruit acted as the key driver of diversification of the economic base of the study settlements. Rising urban (and rural) demand for fresh fruit and vegetables was supported by increased average incomes, reflecting Vietnam's success in reducing poverty. At the same time, employment in the growing industrial and services sectors absorbed large numbers of increasingly mobile rural residents, especially but not exclusively the young, contributing substantially to rural incomes and to rural households' capacity to invest in high value agricultural production. Within the three settlements, the expansion of non-farm activities related to fruit (processing and trade) opened up opportunities for wealthier and poorer groups alike. This increasingly blurred distinction between 'rural' and 'urban', whereby the complementary links between different sectors (agriculture, trade and services) not only become stronger but also take place within the same space, contributed to local economic growth and poverty reduction, albeit with widening income inequality.

In 2006, all three settlements could be described as success stories, especially when compared to other rural areas in the Mekong Delta region. However, the study also pointed out that maintaining the momentum would depend not only on the capacities of local residents and enterprises but also on wider socioeconomic transformations. Almost a decade later, this paper revisits the same settlements and describes their social and economic evolution and the key factors that help decipher three distinct but similar trajectories.

All three settlements continue to be success stories of synergetic rural–urban development. Speciality fruits, almost exclusively for the domestic market, remain the key economic activity in the three settlements, and

while the quality of fruit has improved, thanks to better techniques and also driven by demand, the trade and marketing system has hardly changed since 2006. The close relationships between private traders and small-scale farmers remain the basis of local economic development. With improved transport infrastructure and with most farmers now owning motorbikes, which allows them to transport fruit to traders' warehouses, the role of traders who collect fruit at the farm gate has declined. However, the role of large traders in the settlements has become even more important, as they collect about 70 per cent of the total fruit production, similar to the 2006 levels for Vinh Thoi, the market node, but much higher than the approximately 20 per cent at the time in the other two settlements.

As noted in 2006, what makes private traders more successful than cooperatives and government initiatives is their flexibility and the access to a wide range of final markets, as well as the resilience of the 'traditional' markets of which they are part. Supermarkets, which in 2006 seemed to be on the verge of transforming domestic markets, have been far less influential than expected; in part, this is because they cannot offer the advantages of private traders.

In all three study settlements, population has grown and non-farm employment opportunities have increased, either locally or within a short distance. Living conditions have also improved, and the official poverty rates have declined substantially. Farming has remained an important activity, and even the most 'urbanised' village, Vinh Thoi, maintains a close connection with farming through its role as a market node specialising in fruit. Moreover, in all three settlements, farming is almost exclusively of speciality fruits, which are well-adapted to local conditions and fetch high prices. However, farming is the sole income source for only a small and shrinking minority of residents, and their number has decreased sharply since 2006; now almost half the households have relatives who work in industrial zones, compared to less than 20–30 per cent in 2006. The number of households that have developed non-farm income-generating activities within the settlements has also increased substantially, and this is especially important for low-income groups that have little, if any, access to

productive land. The nature of waged employment has also changed, with an increase in jobs related to fruit processing and grading and services, but with a decline in agricultural wage labour. With general improvements in incomes and living conditions, inequalities have also increased. Land and family labour remain crucial assets, and better-off groups engage in social mobility by investing in higher education for their children.

Migration remains an important component of livelihoods, but is gradually being replaced by short-distance mobility linked to new employment opportunities in neighbouring towns and villages and to improved transport connections. Although earnings are lower, the costs of living are also lower and this allows people to save more while also avoiding the problems migrants face in the large cities. Perhaps as a sign of general economic improvements, international labour migration and marriage-related international migration have both declined since 2006, when they were seen as a way out of poverty for the poorest groups. The profile of migrants has also changed, with large-scale traders moving permanently to Vinh Thoi, the market node, and poorer labourers moving on a seasonal basis to the more agricultural settlements of My Thoi 1 and Hoa, where there is still a demand for seasonal wage labour, although this has decreased dramatically in recent years due to the growing mechanisation of agriculture.

In summary, the overall trends noted in 2006, namely the strong complementarity between farming, trade and services supported by local traders with access to a wide range of markets, seems to have remained the

basis for successful local economic development. At the same time, access to non-farm employment within the settlements and within commuting distance has reduced the need to migrate to the cities, while retaining the all-important access to non-farm income that supports investment in high value fruit production.

At the same time, new challenges have emerged. The first regards quality standards (GAP) in production, which still seem to be out of reach for most producers because of high registration costs and complicated and labour-intensive techniques. While this does not affect domestic markets, it certainly constrains access to export markets. Water pollution and waste management, both residential and agricultural, are increasingly problematic. Increased waste is a consequence of denser settlements where farming and non-farm activities co-exist and where the use of pesticides becomes more important (partly because of the impacts of climate change). Better capacity of local governments to manage waste remains an issue, as is farmers' awareness and capacity to dispose of pesticides.

The impacts of climate change are severe in the Mekong Delta, although they have not yet affected the fruit-producing areas, with the exception of Hoa village. Better planning for adaptation and mitigation is clearly needed. Finally, population and urbanisation pressures on land mean that if fruit production is to continue being the mainstay of local economies, some careful thinking on planning will be necessary to ensure that sufficient land is set aside for fruit production.

1

Introduction

1.1 Objectives

Integration into the global market, rapid economic growth and urbanisation have deeply affected Vietnam's food markets. High value foods producers, including fresh vegetables and fruit, have especially benefited from these transformations. The findings from a study carried out in three specialty fruit-growing settlements in Tien Giang and Vinh Long provinces in 2006 demonstrated that a positive reciprocal relationship between farming zones and urban centres, including the important role of small towns, is the key driver of local economic growth and poverty reduction. The main factors are first, the growth in average urban and rural incomes throughout Vietnam, resulting in higher standards of living, better diets and a growing demand for fresh fruit and vegetables; and second, the increase in employment opportunities in non-farm sectors, closely linked to better education and migration, allowing farmers to diversify livelihoods and invest in fruit cultivation. In addition, locally based traders play a key role in linking farmers to markets and in directly and indirectly stimulating non-farm employment in large villages and small market towns, thus reducing the vulnerability of poor households unable to migrate.

In 2006, all three study settlements were success stories, especially when compared to the other rural areas in the Mekong Delta region. However, the study suggested that any continued momentum would depend not only on the entrepreneurial spirit of local residents but also on wider socioeconomic transformations.

For Vinh Thoi, the growing market node, we expected that while its residents would engage less and less in farming and increasingly in non-farm activities, the town's success would largely depend on maintaining strong links with the surrounding rural region and in providing services to a large number of small-scale farmers. We identified changes in agricultural policies, especially if these favoured large-scale commercial farms, and changes in food distribution systems in urban centres (the 'supermarketisation' of distribution and retail) as most likely to have a negative impact on Vinh Thoi, as these 'modern' value chains would likely bypass the town and its traders.

For My Thoi 1, the peri-urban settlement, the management of natural resources around the rapidly growing city of Can Tho appeared to be the most immediate challenge, especially since My Thoi 1 lies outside the administrative boundaries of Can Tho; also, its rural local government may be in a relatively weaker position in negotiations over the management of water and other resources, and especially in reducing the impact of domestic and industrial effluents and waste originating mainly from the urban area. On the other hand, proximity to the city provided residents of My Tho 1 with numerous opportunities for employment in non-farm activities just across the river.

For Hoa, the agricultural settlement, agricultural policies that enable small-scale farmers to compete with imports and to access wider markets seemed to be important to the success of the settlement and its residents.

The differences between the three settlements suggested that they may evolve along different trajectories, which in turn will present different risks and opportunities. New challenges need to be addressed by appropriate and supportive policies based on an understanding of each settlement's specific circumstances. Hence, we also highlighted the importance of local governance systems in the three settlements.

In order to understand the changes in the three specialty fruit-growing settlements, a repeat study was conducted in early 2015, with the following aims:

- Document changes over the past nine years in terms of livelihood as well as the growing of specialty fruits and the selling and buying practices of local people.
- Understand how key factors (market linkages, the application of science and technology, farmer cooperation, climate change) affect local fruit production and trading compared to 2006.
- Document changes in urbanisation and labour mobility as well as the availability of local labour resources over the past nine years.

1.2 Methodology

The study used secondary data analysis and qualitative research tools, and an on-site survey was conducted in March 2015.

Study settlements

The three fruit-growing settlements in Tien Giang and Vinh Long provinces that participated in the 2006 study were subject to the repeat study in 2015. A detailed description of the three study settlements is presented in section 2.1

Secondary data

National, regional and provincial data relating to fruit cultivation area, yields, imports and exports, in-migration for the whole country and for the Mekong Delta are consolidated from reports, and the formal websites of relevant ministries (General Statistics Office – GSO and the Ministry of Agriculture and Rural Development – MARD) and provinces. Policies, including decrees, decisions and circulars that are relevant to the development of the fruit industry are also referred to and are summarised in Annex 1. Data on the status of the development of the fruit industry, on land use, poverty reduction, working migration and so on for selected communes are consolidated based on local statistical data and annual socioeconomic reports.

Qualitative research tools

In the three study settlements, the research team carried out six group discussions with a total of 26 commune and village officers and some typical households growing fruit trees; 20 in-depth interviews with households growing fruits trees (including households with high and average incomes and also poor households); households with members working far from home; and key players in the local fruit market chain. The research team also carried out repeat interviews with some typical households interviewed in 2006, in order to understand changes in these households' living conditions over the past nine years. Tools used in the on-site survey included wealth ranking, a labour mobility and goods transaction chart, and the listing and ranking of advantages and disadvantages in local fruit production and trading.

2

Urbanisation, migration and evolving rural–urban linkages in Vietnam

The 2006 study highlighted the importance of urbanisation in understanding the transformations in the three rural settlements. Indeed, urbanisation is a major force that shapes and is shaped by economic change in the country. Urban areas in Vietnam have developed rapidly. In 1990, there were about 500 cities; by 2000, this figure had risen to 649; to 656 in 2003; 752 in 2010; and as of June 2013, there were 760 urban areas, including the two major cities of Hanoi and Ho Chi Minh City, also 11 grade I cities, 11 grade II, 47 grade III, 54 grade IV and hundreds of grade V. However, urbanisation is still low, at around 31 per cent.

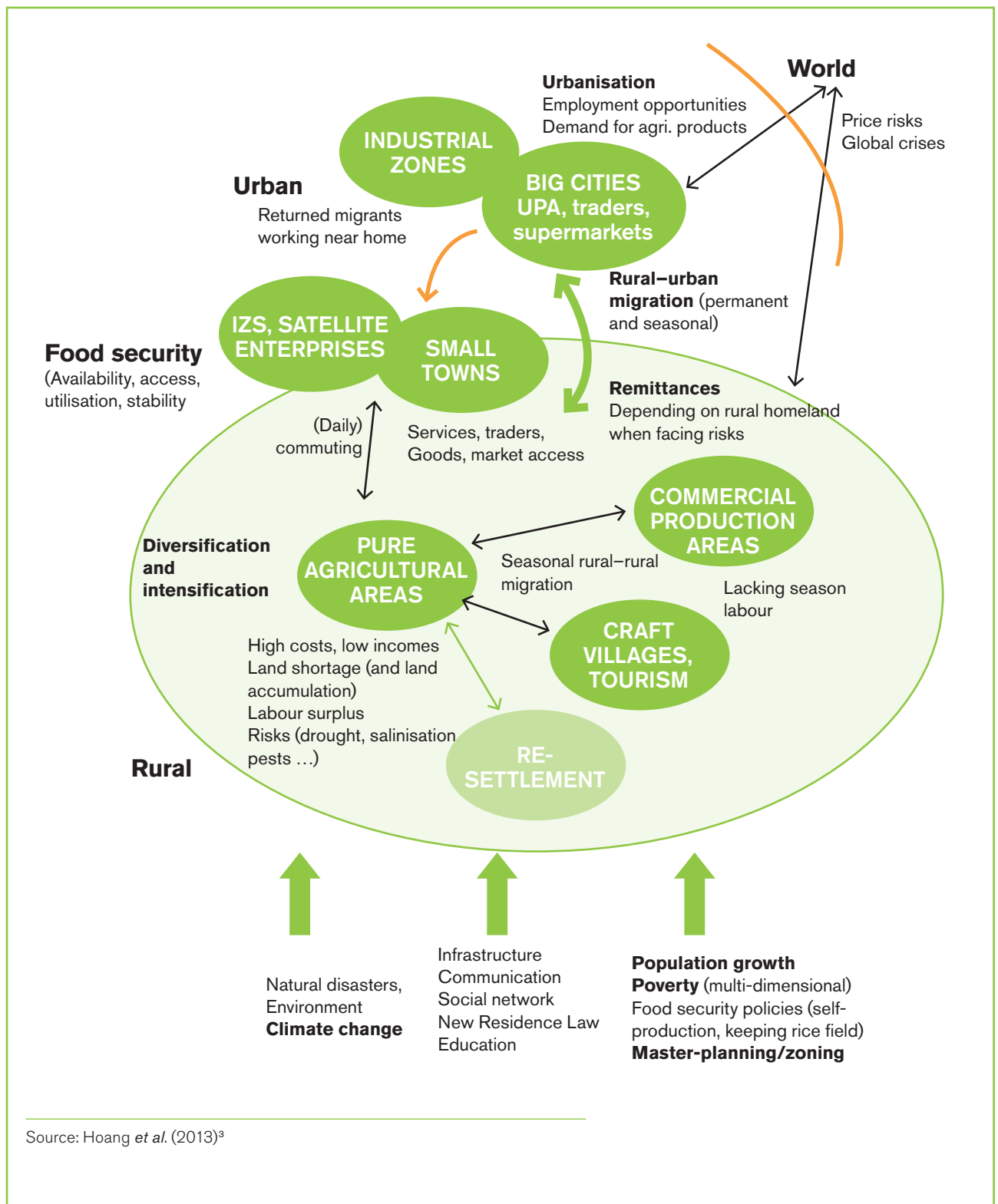
With an average economic growth in urban areas of 12–15 per cent (1.5–2 times higher than the national average), urban incomes, especially in big cities, account for 70–75 per cent of the country's GDP, creating millions of jobs for workers.¹

The linkages between rural and urban locations (large cities, small towns and industrial zones) and also between rural locations are very tight, but they are also flexible in responding to changes in the natural, economic–social environment.² Figure 1 shows the diversity of linkages, including those between rural areas and small towns and adjacent industrial zones through the daily commute of labourers and the flow of goods and services; between rural areas and major cities through migration (including seasonal, permanent and short-term migration) and the flow of goods and services; and between different rural areas through seasonal migration between regions to balance the demand for labour. Several factors affect migration and the nature and intensity of the linkages between rural and urban areas. Population growth and urbanisation are clearly important ones; access to natural resources, especially land and water, is also extremely important,

¹ Vietnam Urban Association (2013) Publication No. 29. June 2013, Hanoi, Vietnam.

² Hoang, X T *et al.* (2013) Food security in the context of Vietnam's rural–urban linkages and climate change. IIED, London.

Figure 1: Rural–rural, rural–urban linkages and food security in Vietnam



⁹Hoang, X T *et al.* (2013) Food security in the context of Vietnam's rural–urban linkages and climate change. IIED, London.

and increasingly under threat from natural disasters linked to climate change; and finally, global factors such as price volatility and financial crises can have a considerable impact on production and employment opportunities as well as on demand, which is affected by higher costs of living.

The complexity of the emerging system of rural and urban spaces is presented in part in Figure 1. It is also evident in migration data, which suggest that urbanisation in Vietnam is not simply a shift of population from the countryside to the (large) cities, but is part of a broader transformation involving population movements from rural to urban areas, and also between urban areas themselves and within the rural space. Internal migration increased significantly during 1999–2009. Census data from the GSO show that in 2009, rural–rural migration reached approximately 2.2 million people, twice as many as in 1999. Similarly, the rural–urban influx reached more than two million people, again twice as many as in 1999. The urban–urban movement was smaller, involving about 1.7 million people, while the figure for urban–rural migration was around 500,000.⁴ Between 1999 and 2005, the number of rural–urban migrants was greater than for rural–rural migrants. However, since 2005, rural–urban migration has tended to slow down and the growth rate has been lower than for rural–rural migration. This is consistent with data from the studies, with the conclusion that workers from the cities return home due to the difficulties of life in urban areas (Figure 2).

However, the number of migrants could be higher. According to GSO (2011), there is almost no data on short-term (seasonal, temporary) and return-migration flows, so the actual number of migrants will be much higher than the current data suggest. According to UNDP (2010), one of the challenges for poverty monitoring and evaluation in Vietnam is a lack of complete information on the extent and characteristics of poverty in the population who are not registered with a temporary or permanent residence, especially in urban areas. The Vietnam Household Living Standards Survey (VHLSS) is the main source of data and the most commonly used measurement of poverty. However, until 2008 the VHLSS did not cover migrants. By 2010, the VHLSS had shown a number of improvements (including new sampling methods and more attention to formal and informal migrants), but it is still not guaranteed to fully cover the migrant population.

According to recent statistics from GSO (2013)⁶, there were 870,800 migrants aged 15 and over,⁷ nearly three-fifths of which were women (58.9 per cent). Migrants form a small proportion of the population: 1.3 per cent overall, and 1.8 per cent in urban areas compared to one per cent in rural areas. The key reason for migration is economic, and the vast majority of migrants are employed.

GSO (2011) forecasts that by 2019, rural–rural migration will be the largest flow, with 6.4 million people (7.3 per cent of the total rural population); rural–urban

Figure 2: Urban–rural migration influxes from 1999 to 2009 and forecasts to 2019



⁴ GSO (2011) Socioeconomic situation in Vietnam in the ten years 2001–2010. Hanoi, Vietnam.

⁵ GSO, 2011a. Monographs Migration and Urbanisation in Vietnam: Current Situation, Trends and Differentials. Statistics Publishing House, Hanoi.

⁶ GSO, 2013. Report on the 2013 Labor force survey. Hanoi, Vietnam

⁷ In this report, migrants aged 15 and over migrated from other communes/wards/towns to their current location in the 12 months prior to the study. Therefore, these are mostly domestic migrants.

migration will reach five million (11 per cent of the total urban population), much higher than the urban–rural movement with 1.4 million (1.6 per cent of the total rural population); and urban–urban migration is expected to increase from 1.7 million (6.7 per cent of the total urban population). These figures are only indicative, since all movements are highly sensitive to changes in the economic, social and environmental contexts. It should also be kept in mind that estimates are based on existing data, which neglects the potentially large numbers of temporary migrants, as noted earlier.

2.1 Overview of the study settlements

Vinh Kim commune (Chau Than district, Tien Giang province) – the market nod

Vinh Kim commune has a land area of 571ha, of which 370ha is agricultural land. It has 12,000 permanent residents, up from 11,000 in 2006, and has approximately 2,000–3,000 temporary migrants. Commune officers estimate that an increase in the number of in-migrants accounts for 90 per cent of the population growth, while natural increase accounts

for only 10 per cent. The price of residential land in the commune is relatively high and has significantly increased compared to 2006, especially the residential land located in areas neighbouring the central market and the Vinh Kim fruit market. In 2006, a 48m² land lot (4x12m) next to the market was priced at 300 million dong (6.25 million/m² on average), while in 2015, a 100m² land lot (5x20m) is priced at up to one billion dong (10 million dong/m² on average).

According to the Tien Giang Provincial People's Committee plan, Vinh Kim is a targeted area for growing Lo Ren Star apples. However, in the last 3–4 years, local people have started to grow Purple Star apples rather than replace the Lo Ren Star apple trees that have died or withered. In 2014, the area under Purple Star apple cultivation was almost equal to that of the Lo Ren Star apple (149.6ha of Purple Star apples and 168.01ha of Lo Ren Star apples).

Being the central commune of the eight in Chau Thanh district, Vinh Kim has relatively developed services and businesses, especially at the two markets, namely the central market and the fruit market (Box 1).

Nine years on and Vinh Kim is increasingly developed and urbanised. The commune's master socioeconomic development plan to upgrade the commune to an urban town grade V by 2020 has just been formally approved by the Tien Giang Provincial People's Committee.

BOX 1: THE CENTRAL MARKET AND THE FRUIT MARKET IN VINH KIM HAVE BEEN DEVELOPING CONTINUOUSLY

Vinh Kim commune has an old central market and a new fruit market. In 2010, the central market was rebuilt using private resources. The An Phu enterprise provided funding for its construction and is now providing long-term leases (20 years) to local small enterprises at a cost of more than 200 million dong per kiosk (8m²). In 20 years time, the An Phu enterprise will hand over the market to the district people's committee, who will then manage it. The new central market measures 2,800m² and includes 318 kiosks selling a variety of goods, including clothes, groceries, fruit and food, and mostly serves local people.

Vinh Kim fruit market was built in late 2005 and has been upgraded and expanded three times since 2009. The number of fruit-selling households in the market has more than doubled since 2006, and the number of shipments transporting fruit to other provinces has also increased; the average number

was 30–40 shipments/ day in 2006 but more recently, during busy months there have been around 200 shipments/day (with an average yield of 300 tonnes/day) and in quieter months there are around 30 trips/day (with an average yield of 40 tonnes/day). Three households supply packaging to the fruit sellers to pack and transport fruit to other provinces. The management board of the Vinh Kim fruit market estimates that there are more than 50 intermediate sellers/traders (buying from sellers in the fruit market and then reselling to other stores), and during the high season there are up to 200 traders. There are also about 200 porters working at the market (compared to 100 in 2006). Vinh Kim fruit market was at its busiest during 2009–2011; however, since the Rach Mieu bridge was built, Ben Tre people have been setting up kiosks there to export fruit directly to other provinces rather than transporting fruit by boat and then selling it at the Vinh Kim fruit market.

Household assets have also increased, with an estimated 50 per cent of households having refrigerators; 70–80 per cent have gas cookers; more than 90 per cent use tap water; and 100 per cent are connected to electricity. Three-to-four-storey houses are built close to each other along the main roads leading to the central and fruit markets. The urban lifestyle is penetrating the community, with 70–80 per cent of households using bottled water. Sanitation conditions have further improved since 2006 but remain a challenging issue. There are ten garbage collectors for the whole commune, but they work mainly in high density residential areas (four collectors) and at the fruit markets (six collectors) with an average of ten garbage shipments/day and 30–40 trips/day at busy times. Domestic waste is usually buried or burned, or discarded directly into rivers by individual households. According to the new poverty line, 4.5 per cent of the commune's households are poor, down from 20 per cent in 2006.

Vinh Thoi village

Vinh Thoi village is located in the centre of Vinh Kim commune, next to the market. The village's internal road system has significantly improved since 2006 and 95 per cent of inter-village roads are paved up to the government's 'new rural' standard. The village has 1,891 permanent residents with 423 households (an increase of 125 residents and 89 households since 2006).

Following a common practice in the whole of Vinh Kim commune, many farmers have planted Purple Star apple trees as the key fruit tree to replace withered Lo Ren Star apple trees, which are hardly ever replanted. Da Xanh, Co Co and Nam Roi pomelos, as well as coconut trees, are also intercropped. It is estimated that about 40 households raise pigs and goats in small numbers and many local households work in fruit traders' stores, while others work in cities or in nearby industrial zones. Other households with resources become fruit traders or fruit collectors. Some poor and middle-income households become waged porters, masons and carpenters. Vinh Thoi village has 17 poor households (down from 52 in 2006), which are mainly small and include elderly residents or those in bad health or that have no or only a low income. Poor households rely on government allowances (according to Decision No. 67/13/136) or earn a living from coconut cropping and selling.

Hoa Hung commune (Cai Be district, Tien Giang province) – the agricultural settlement

Hoa Hung commune has a land area of 1,600ha, including 889ha of agricultural land (which accounts for 56 per cent of the total, a two per cent decrease since 2006). At the end of 2014, the commune had 3,900 households (an increase of 450 households compared to 2006).

In the past few years, living conditions for local people have improved remarkably. All roads are paved with asphalt or concrete; Hoa Hung commune officers estimate that nearly 100 per cent of local households have televisions and motorbikes; more than 90 per cent use tap water (compared to 15 per cent in 2006); and more than 80 per cent of households have gas cookers (compared to 60 per cent in 2006). The number of people using mobile phones has also increased significantly; whereas in 2006 only 30 per cent of males had mobile phones and 10 per cent used landlines, in 2015, 100 per cent of households used mobile phones and almost all had stopped using landlines. More than 80 per cent of houses are of 'three solids' standard (solid base, solid frame and solid roof); more than 50 per cent of households have refrigerators and 30–40 per cent have a washing machine. Restaurants and services in the commune have also developed, with new services such as hairdressing salons, guest houses and internet shops. There are also four small-scale markets in the commune.

Hoa Loc mangos are the main crop in the commune. Most of the local farmers also intercrop other fruit trees such as the Taipei mango, the Taipei guava, the Thai longan, also oranges and pomelos. Animal husbandry (pig raising) and aquaculture, which were developing quite rapidly in 2008–2009, have declined due to the increased price of foodstuffs and lower selling prices.

According to the new poverty line, 6.14 per cent of households in Hoa Hung commune are poor (a 5.7 per cent decrease compared to 2006), and these comprise mainly households with the elderly, small-scale households, households that have recently split up, and that have either little or no productive land. In 2001, the My Thuan bridge was built, replacing the ferry as the means of transport across the Tien rivers. In 2006, 100 local people who worked on the ferry were recruited to work for the bridge maintenance company (mostly selling tickets). In 2013, the toll station was dissolved and only ten were retained at the company, the others moving on to other jobs.

Hoa village

Hoa village has 630 households, 54 more than in 2006. Since that time, local people's living conditions have significantly improved. Village roads have been widened from two metres to four metres and have been concreted. By 2006, 50–70 per cent of local people owned boats although currently, these are no longer used to transport fruit. Houses are more spacious and there is no longer any temporary housing. Domestic sewage is mostly buried.

Growing fruit trees is the main income source for local people. Animal husbandry, especially pig raising, has declined because of the high cost of animal feed and the low return on products. Services and trading have grown in the village, with more than 100 households running market- or home-based businesses (in 2006, there were only 50 households involved in small-scale business or services). Since 2006, new services have emerged in the village, including a construction materials shop and hairdressing salons. There is a night market once a week.

Hoa village has 32 poor households (5.1 per cent of the total), with more than ten households comprising people over the age of 50 or people suffering from bad health; ten households have no productive land and ten households have a shortage of productive land (less than one *cong*⁸). Most of the households that have either no or only a little productive land are households that have split up, or that run small-scale businesses in the village markets, or work in the nearby industrial zones, or are masons.

My Hoa commune (Binh Minh district, Vinh Long province) – the peri-urban settlement

My Hoa commune has a total land area of 2,345ha, of which 1,277ha is agricultural land (54 per cent of the total). Most of the agricultural land is for pomelo cropping (90 per cent); the remainder is for other trees, including longan, coconuts, oranges (eight per cent) and other produce such as cucumbers, onions, bitter melons, sweet potatoes and corn (two per cent). In 2006, the commune had 117ha of rice but currently no rice is grown in the village.

The commune has 3,864 households (214 more than in 2006). The natural population growth rate for the commune is 0.31 per cent a year, and average per capita annual income has reached 29 million dong. The 2006 study expected the commune to become a town by 2008, but My Hoa currently remains a commune-

level administrative unit. However, living conditions for local people have improved, with 99.9 per cent of households being connected to the national electricity grid (the figure was 99 per cent in 2006); 22 per cent have tap water, while the rest use filtered river water (in 2006 no household had access to tap water, 90 per cent of households used filtered river water and 10 per cent used deep well water); 72.6 per cent of households have solid or semi-solid houses and there are no temporary houses left in the commune. The Ngoc Chinh public services cooperative processes garbage in four out of ten villages in the commune, and in the other six, garbage is either burned or buried. The most significant challenge facing the commune is that the high school and three primary schools have not met the government's 'new rural' standard and require an estimated investment of 60 billion dong.

My Hoa is famous for its specialty Nam Roi pomelos and pomelo trees are grown in almost all the gardens in the commune. A commune officer stated that in 2006–2007, there had been a rumour that eating pomelos increased the risk of getting breast cancer, which resulted in a decrease in pomelo consumption. Since 2010, however, when research agencies and the media provided evidence that eating pomelos was not harmful to people,⁹ the domestic pomelo price has been relatively stable and farmers have been able to sell pomelos at higher prices.

The poverty rate in the commune has decreased compared to 2006 (by the end of 2014, the poverty rate was 2.95 per cent according to the new poverty line, while the figure was 4.8 per cent in 2006). Poor households mainly comprise the elderly, those who are unable to work or those in bad health.

My Thoi 1 village

My Thoi 1 village has 346 households (26 more than in 2006). Poor households make up two per cent of the total (down by 6.7 per cent compared to 2006). The village has a land area of 146ha, of which 120ha are for pomelo farming. Most internal roads are paved.

Similarly to other villages in the commune, living conditions for local people have improved compared to 2006, and farming is the main income source. In addition to agriculture, up to 20 households run services or small-scale businesses in the markets; 20–30 households include family members who work as masons or as mason helpers and about 60 per cent of households include family members who are migrant workers (either long-distance migrants or daily commuters).

⁸ One *cong* of land is equal to 1,000m².

⁹ <http://vnexpress.net/tin-tuc/thoi-su/xu-phat-cac-bao-dang-tin-an-nhieu-buoi-bi-ung-thu-2094510.html>

3

Livelihood diversification

Within the evolving set of relationships with urban markets and employment opportunities, livelihoods have improved and also changed, combining greater agricultural specialisation with more diversified non-agricultural activities.

3.1 Agricultural activities

Farming

Within the settlements the key trend in agricultural activities has been the focus on specialty fruit farming. Having gone through the process of transformation from rice to tree farming and piloting several types of fruit trees, local people and officials in the study communes have identified the most viable specialty fruits that are suitable to the local climate and soil conditions, namely Lo Ren Star apples (Vinh Kim commune), Hoa Loc mangos (Hoa Hung commune) and Nam Roi pomelos (My Hoa commune) (see Annex 2 for a detailed description of each fruit). Furthermore, the price for these specialty fruits has remained relatively stable in recent years, hence the land area for specialty fruit tree planting has been maintained and expanded, although there is also some intercropping with other varieties of fruit tree.

“The Hoa Loc mango will not be replaced, as it is our specialty; in the past 4–5 years, no mango tree has been cut down, more trees have even been planted.” (Hoa village officers, Hoa Hung commune, Cai Be district, Tien Giang province)

The cropping area for specialty Hoa Loc mangos and Nam Roi pomelos has steadily increased. In Hoa Hung commune, as reported by commune officers, the mango planting area in 2006 was 528ha, but it is now 685ha; and the pomelo cropping area in My Hoa commune has also expanded. In Vinh Kim commune, although the local people really wanted to continue growing Lo Ren Star apples, many trees had withered and died. Only some were replanted, instead being replaced by Purple Star apple trees (also called Brown Star or Sapo). Purple Star apples are of a lower quality than Lo Ren Star apples but they are bigger and have a one month shorter harvesting cycle than Lo Ren Star apples, and as such bring in more revenue.

Intercropping multiple types of fruit trees in the same land area is apparent in Vinh Kim and Hoa Hung communes. In Vinh Kim, Lo Ren Star apple trees are intercropped with Purple Star apple trees, citrus trees (Da Xanh pomelo, Nam Roi pomelo, Co Co pomelo, orange trees), Sapo and coconut trees. In Hoa Hung, mature Hoa Loc mango trees are planted together with many other trees, including grafted mango, Taipei mango, guava, four seasons trees and Thai longan. As reported by the commune officers and local people, intercropping multiple types of tree in one land area is to *lay ngan nuoi dai* (that is, to use short-term crops to nurture long-term crops), so as to secure income throughout the year and prevent the risk of ‘bumper crop/falling prices’ or poor weather conditions affecting the key crops (especially Hoa Loc mangos).

In My Hoa commune, a specialised pomelo area has gradually been established (90 per cent of the agricultural area is for pomelo farming), given the greater economic benefits from pomelos than from any

other type of fruit tree. In 2006, rambutan was often intercropped with pomelo, but this is no longer the case. In some households, pomelo is intercropped with loquat and orange trees but only in small quantities.

“Most other fruit trees have been replaced with pomelo trees since they have low economic benefits. Rambutan is no longer planted given complicated requirements for cultivation and processing. Very few loquat trees are retained since it can be harvested only once a year, and if it rains during August and September, there will be no harvestable fruit.” (Group of My Hoa commune officers, Binh Minh district, Vinh Long province)

The establishment of a specialised pomelo cropping area, as in My Hoa commune, is an important direction in the development of the specialty fruit industry in the Mekong Delta.

Growing specialty fruit trees in the study communes is an efficient investment, especially for those households with large productive land areas. In My Hoa commune in particular, according to commune officers, a farmer with one cong (1,000m²) of land planted with pomelos, if taken care of properly, can bring a net return of 120 million dong a year after deducting costs of 4–7 million dong. In Vinh Kim and Hoa Hung, income from Star apples and Hoa Loc mangos is also high (Box 2). Although better-off households tend to rely on a variety of income sources, including non-farm employment, in many cases fruit production remains central to the household economy.

Income from fruit gardening is the key income source for many poor families, especially those who cannot rely on family labour (Box 3).

BOX 2: FRUIT GARDENING AS A KEY COMPONENT OF THE INCOME OF HOUSEHOLDS WITH ACCESS TO LAND

PND is a 54-year-old) from Vinh Thoi village who is prospering by growing Purple Star apples. In the past, all four *cong* of land belonging to the household were used to grow Lo Ren Star apples, but eight years ago he moved to growing Purple Star apples. While many households in the village are worried because Lo Ren Star apple trees can develop rotting roots, his Purple Star trees are growing well thanks to proper cultivation and processing techniques. Whenever he detects any disease on the trees, he visits the Southern Horticultural Research Institute (SOFRI) to consult agricultural engineers on the use of pesticides as well as techniques that encourage the trees to produce more and bigger fruit. In 2014 alone, after deducting costs (50 million dong for fertiliser and pesticides), he earned 250 million dong from his four *cong* of Purple Star apples. His family has just opened a grocery shop and built a house near the commune's people's committee office that is worth 1 billion dong. His daughter and daughter-in-law work

in a bank in Ben Tre province, and his son helps in the grocery shop.

TVT is a 53-year-old who is also doing very well from fruit gardening. His three children have finished vocational training and college and are working in other provinces. His family owns 5,900m² of land where he grows different types of fruit tree, including 80 Hoa Loc mango trees, 80 Cat Chu mango trees, 20 grafted mango trees, 300 guava trees and 150 *tu qui* (four seasons) trees. In 2014, as a result of a bad harvest, the average Hoa Loc mango yield for the whole commune decreased by 60 to 70 per cent compared to previous years, whereas the mango yield from TVT's garden decreased by just 30 per cent. The family's net income from fruit gardening (after deducting costs of 30 million dong) was 100 million dong, and in a normal year the family earns an average income of 150 million dong.

BOX 3: POOR HOUSEHOLDS WHO EARN THEIR LIVING MAINLY FROM GROWING COCONUTS

NVN is the 70-year-old household head of a poor family in Vinh Thoi village. He has six children, four of whom are married. The household currently has five residents: NVN, his wife, his oldest daughter, his youngest son and his grandchild. His oldest daughter is 44 years old, cannot read or write, and works as a domestic helper in Ho Chi Minh City; she sends home an annual remittance of 2–3 million dong. His youngest son is 35 years old, dropped out of school in sixth grade and works as an assistant driver in Dong Nai; he is unable to help his parents financially. NVN's family is in extremely difficult circumstances, as his 24-year-old grandchild is mentally disabled and his 66-year-old wife has been paralysed for three years.

Virtually all the family's income derives from two *cong* of gardening land. They grow a variety of trees, including Star apple, pomelo (Da Xanh, Co Co, Nam Roi) and coconut, and currently there are seven Star apple trees (two Brown Star apple trees and five

Lo Ren Star apple trees), 20 coconut trees and 30 pomelo trees of all types. Of these, the 20 coconut trees, five Lo Ren Star apple trees and ten pomelo trees are mature and produce harvestable fruit; the others are newly planted and not yet harvestable. Recently, the roots of the five Lo Ren Star apple trees have started to rot and wither. In 2014, the family earned 14.3 million dong from selling fruit, mostly coconuts. After deducting costs of two million dong for fertiliser, pesticides and workers' salaries, the family earned about 12 million dong. With the three million dong of remittances sent home by the daughter, the family has a total of 15 million dong to cover the living costs of three people. The income from selling coconuts is used to buy rice, there is a small area in the garden used for fish farming, and NVN also raises three dogs and 4–5 chickens to improve their daily meals. His grandchild, who is in fourth grade at a nearby school, sometimes goes fishing to supplement the family meals.

Animal husbandry and aquaculture

Decreasing and fluctuating husbandry. In Vinh Kim commune, households only raise a small number of goats and pigs. The practice of raising goats originally developed in Vinh Thoi village in 2000, and at one point up to 50 per cent of households in the village raised some. In 2006, when the price for goats fell dramatically, people stopped the practice; however, in the past two years, with rising prices, many households have started to raise goats again. In 2014, their number equalled that of pigs, at approximately 600. However, unlike in 2006, no one raises rabbits any longer.

The number of households raising pigs in Hoa Hung commune has also decreased, specifically in Hoa village. Three years ago, 30 per cent of households raised pigs but recently, given the fall in price, only 10 per cent of households currently raise any. However, some households raise large numbers (in the hundreds), and currently the total number of pigs in the commune is around 3,808.

In 2008–2009 in Hoa Hung commune, raising catfish was also popular but this has now declined sharply.

“Raising catfish along the river is no longer popular, as it was in 2008–2009. There used to be 90ha; this has now fallen to 45ha. People are not raising catfish because the price of foodstuffs has increased while the price of fish has decreased. Losing 1,000 dong/kg of catfish means a total loss of hundreds of million of dong for the whole pond.” (Group of officers from Hoa Hung commune, Cai Be district, Tien Giang province)

In My Hoa commune, unlike in Vinh Kim commune, pig raising is often on a large scale. Thirty households produce traditional tofu (which is consumed within the district and province or exported to big cities such as Hanoi and Ho Chi Minh City), and these families use the tofu residue to feed pigs; the number of pigs per household ranges from 10 to 30. As reported by the commune officer, during 2010–2011 lots of pigs died of disease. The local agriculture sector supported these households to start again and there are now about 750 pigs in the commune. In My Thoi village, only ten households raise pigs and no one raises any goats or rabbits.

A new finding is that while in 2006 few households raised any cows (due to the changes in land use from rice farming to tree farming and the lack of grass for feeding the animals), currently in all three study communes there are households that raise cows (in cages), as this is seen as an opportunity to accumulate assets. There are 267 cows in My Hoa commune, 23 in Hoa Hung commune and 10 in Vinh Kim commune.

3.2 Non-agricultural employment

The agricultural land area has steadily decreased due to the combined pressures of population growth, urbanisation and industrialisation. Most households have tried their best to diversify their income sources and engage in non-agricultural employment. As a result, the proportion of households that only engage in agriculture has steadily declined since 2006 and now there are none in Vinh Thoi village (compared to 10 per cent in 2006). In Hoa and My Thoi 1 villages, 25 per cent of households were purely agricultural in 2006, but this figure is currently about 10 per cent in Hoa village and less than 10 per cent in My Thoi 1 village.

The number of workers in the industrial zones has increased significantly in the past nine years.

Work is mainly in garment companies, aquaculture companies (packaging catfish and filleted fish) and in shoe companies. There tend to be more female workers than male. The percentage of households with family members working in the industrial zones is 40–50 per cent in all three study villages (compared to about 20–30 per cent in 2006). Unlike in 2006, those working in the industrial zones are not only young, single people but also married people; and they not only work far away from home but also nearby, on a daily basis, at local factories/companies (see Section 4 on labour mobility).

The average income of workers in the big cities (Ho Chi Minh City, Binh Duong) who live in rented accommodation is 4–5 million dong/month, whereas the average income of those working closer to home is lower, at 3–4 million dong/month depending on the hours worked and professional qualifications. According to officers and local people, after deducting living and rental costs, those who work closer to home contribute more to family income than those who work far away.

“It seems that working nearby is more efficient than working far away from home. Workers (middle-class group) are making better progress with their savings. Meals are provided by employers, both husband and wife can save a couple of million dong per month.” (Group of officers from Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

The number of households running small local businesses and services has increased significantly.

Rapid urbanisation, better transport and improved living conditions for local people have resulted in increased demand for commercial services.

In all the study areas, new services have emerged, including guest houses, internet shops, beer shops, restaurants, pawnshops, hairdressing salons, petrol stations and so on, and these are relatively well developed. The number of households selling groceries, pesticides and fertiliser has also increased. For example, in Vinh Kim commune there are four more gold stores¹⁰ than in 2006, also five guesthouses, a motorbike showroom and many other services, including restaurants, grocery stores, motorbike maintenance shops, pawnshops and hairdressing salons, as in cities. In Vinh Thoi village, four per cent of households run small businesses and grocery stores (excluding fruit traders). In for Hoa village, as it has two markets, about 20–30 per cent of households work in the markets or run grocery stores and delivery services. The figure for My Thoi village is about six per cent.

A number of households in the study villages are fruit traders. There are two types of fruit trader: small mobile traders/fruit collectors (*thuong lai, thu gom*) and larger traders with fixed buying places/kiosks (*vua*). *Vua* owners are mostly well-off, and there are 25 living in Vinh Thoi village and three in My Thoi 1 village.¹¹ Some mobile traders, once they have the financial resources, become larger traders. The livelihoods of fruit-trading households are quite diversified as some still have their own fruit gardens (Box 4).

The number of skilled and educated workers has increased slightly. Since 2006, increasing numbers of children have been encouraged and supported to attend high school, college or university, or undergo vocational

¹⁰ Local people buy gold for savings and often use it as a means of transaction for big assets such as land or houses.

¹¹ There is no larger trader (*vua*) in Hoa village.

BOX 4: FRUIT TRADERS IN VINH THOI VILLAGE

Forty-one-year-old T was noted in the 2006 report as a successful example of fruit trading in Vinh Thoi village. He is now married and lives with his mother, wife and 5-year-old son. His gardening area has increased to 7,000m² (from 4,100m² in 2006). In the past, he used to grow Star apples, which all died as a result of flooding in 1994–1995. He moved on to grow pomelos, oranges and tangerines as well as Star apples, but yet again all the apple trees withered after just a few months, so he started to grow coconuts. He now earns 5–6 million dong from harvesting coconuts on about 4,100m² (coconuts can be harvested throughout the year). Two years ago, he bought 3,000m² of land from his relatives in a neighbouring commune and continued to grow coconuts; the trees are still small and do not yet produce any harvestable fruit. The garden is now mainly taken care of by his mother and his wife, while he mainly focuses on fruit trading.

Compared to 2006, when he was a small mobile trader collecting fruit from gardens inside and outside the province, he has now become a larger trader with a *vua*. In 2006, he opened a shop selling ice to help with fruit preservation, but this closed five years ago as the profit was insignificant compared to the rental costs (the business only functioned four months of the year, whereas he had to pay rent for the whole 12 months). He also stopped collecting fruit (mainly oranges) from gardens in Binh Duong and Dong Nai, then set up his own fruit store four years ago as his economic conditions improved and he wanted to work closer to home. Currently, he rents a space off the main road in the commune, which is more convenient for his business.

training. As households earn more from specialty fruit tree cropping, they can now pay more attention to their children's education. Furthermore, in view of the fact that there is less available land but a growing population, many households are encouraging their children to gain a higher education in order to get stable, non-agricultural employment. For instance, in Hoa village in 2006, only 3.6 per cent of household members were public servants and almost none were white collar workers; in 2015, this number is estimated at ten per cent (both categories together). After graduating from college or university, most people look for work in Ho Chi Minh City, although some return to their home province or go to nearby provinces/cities to find jobs.

"After high school, most of them continue with higher education. Either vocational training, college, university. Just a few of them drop out." (Group of officers from My Thoi 1 village, My Hoa commune, Binh Minh district, Vinh Long province)

"We will manage our children's studying at all costs, since our land is limited, while we have so many children. We hope that in the future they can earn their living with their pens

instead of picks." (Group of officers from Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province)

The number of wage labourers (freelance labourers, manual labourers) is either increasing or decreasing depending on the type of work and the location.

Labourers come mainly from poor households that lack productive land or are people with a low level of education.

Labourers who package, grade and porter for the large fruit traders (*vua*) are more common in Vinh Kim and My Hoa communes. In Vinh Kim, the porters union¹² in the fruit market now comprises 200 members (an increase of 100 over 2006), with an average income of 100,000 dong/day/person; in the two months around the Lunar New Year, income is higher, at about 500,000–700,000 dong/day/person. There are about 800–900 labourers working for *vua* (with an average of 2–4 labourers per *vua*) in Vinh Kim commune; and in Vinh Thoi village, there are 20 labourers who work as porters and 40–50 labourers who work as fruit packagers. In My Hoa commune, there are 7–8 *vua* located near the centre of the commune, each employing 3–4 labourers to help grade and package fruit. Various local enterprises employ 10–20 labourers depending on the size of their

¹² There are four different groups of porters each with their own function (scaling, portering, arranging, pushing) and they are shift workers (eight hours/shift).

business. Income for labourers working in *vua* in both study communes is 100,000–200,000 dong/day.

The number of households with members who work as masons or as mason helpers has gone down

compared to five years ago, as some have become factory workers. There are 40 masons/mason helpers in Vinh Thoi village, 50–60 in Hoa village and 20 in My Thoi village. Their work locations include the commune, the district and Ho Chi Minh City. Twenty masons/mason helpers from Hoa village work in Ho Chi Minh City and 30–40 work in the district. In My Thoi village, all 20 work in Ho Chi Minh City, where skilled masons can earn a higher income.

The number of households with members who work as domestic helpers

has increased in Hoa village (from 10 in 2006 to 50 in 2015), but only a few people from Vinh Thoi and My Thoi 1 villages work as domestic helpers (5–6 per village). Their income is around 3–4 million dong/month, and most of them, from all three study villages, work in Ho Chi Minh City.

Local seasonal employment (canal cleaning, land ploughing, fruit picking and pesticide spraying)

has fallen significantly. Mature tree cultivation is less labour intensive; canal cleaning and land ploughing are now mechanised; other work, including pesticide spraying and even some fruit picking (for example, Star apples) requires skilled labour so often the families do it themselves. Seasonal labourers are mostly hired by households with elderly people or those with a shortage of labour, as well as well-off households with a lot of gardening land (at least 6–7 *cong*). Seasonal labourers' wages are 150,000–200,000 dong/day on average and pesticide sprayers are paid the most (200,000 dong/day). Currently, as many local people work in the nearby industrial zones, there is not always enough labour available locally, so seasonal workers are booked some time in advance if they are needed.

“Previously, employment opportunities were limited, now there are more. Society is developing, bringing more opportunities for the middle class. In busy seasons, it is even difficult to find out-of-work labourers. Booking should be made in advance, otherwise there are no available workers.” (Group of officers in Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

“If you are looking for labourers, you should book them a few days in advance, otherwise it will be very difficult.” (Group of local people in Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province)

“On-site labourers are not available, we have to search and there is no labour market. Most of them are doing canal cleaning, pomelo picking or are masons. The daily allowance is 200,000 dong/day. On the occasion of the Lunar New Year, they even refuse to work at the offered rate of 300,000–400,000 dong/day.” (Group of officers from My Hoa commune, Binh Minh district, Vinh Long province)

In 2006, there were 150 labourers from My Hoa commune working as porters at a factory in Can Tho. Currently, only 4–5 people still do this job, as the company now uses a conveyor system and so needs fewer people. In 2006, some households that lived near the river in My Hoa commune provided a ferry service, which was discontinued two years ago when a bridge was built.

Non-agricultural employment significantly contributes to local households' income, especially those that lack productive land. Living conditions for households in the study villages have improved, especially for middle-class households that can sell their labour or run small businesses. The average income for a wage labourer is more than 100,000 dong/day. Richer households open grocery stores, agricultural materials shops or *vua*, creating local non-farm employment opportunities for other poor and middle-income households.

Married women often work at nearby factories do fruit classification and packaging for *vua*, or run small businesses at the markets; they take care of their families the rest of the time. Married men often undertake popular jobs locally, and these include portering or working as motorbike-taxi drivers, masons or mason helpers.

BOX 5: LIVELIHOOD DIVERSIFICATION AS A SOLUTION TO ESCAPING POVERTY

Fifty-one-year-old D's family was mentioned in the 2006 report as being a poor household reluctant to transfer from rice farming to gardening. In 2006, the family had one *cong* of land where they grew 30 mango trees, although these were not yet harvestable. She also intercropped lemon trees and earned 1.5 million dong a year from selling lemons. She and her husband earned a further two million dong from selling their labour in the commune, and also 500,000 dong from running a ferry service.

In March 2015, when we revisited the family, D was working as a domestic helper for a family in Soc Trang and there was just her husband at home. In 2014, their income from various jobs (canal cleaning, masonry, carpentry, pomelo/coconut picking, pesticide spraying and sometimes working at a *vua*) was much higher

than previously, at about 15 million dong. D and her husband work ten days a month on average. Income from mango and lemon cultivation used to be low, with an annual lemon production of about 70–75kgs, while the mango garden did not produce any fruit. They noticed that other households in the village were growing pomelo trees and, realising the potential of this fruit, three to four years ago they cut down all the lemon and mango trees and replaced them with pomelo trees. Currently, they have 30 mature pomelo trees, which are starting to produce harvestable fruit, and they earned one million dong from the first harvest in early 2015. In the past, the family's income was derived mainly from selling their labour, but this year they have supplementary income from gardening.

3.3 Outcomes of livelihood transformation

Improved living conditions

In the three study settlements, living conditions for most local households have improved over the last nine years, and the amount of high value assets held in 2015 has increased significantly compared to 2006 (Table 1). Those who live in temporary houses are mostly from newly separated households.

A more 'urbanised' lifestyle

Urban lifestyles are penetrating the three communes. Assets and housing facilities that existed only in urban areas are now increasingly popular in the study sites. Mobile phones are widely used and when interviewed, many people said that "*most people now use 3G smart phones*"; they are useful tools for local people to get news updates and current market prices. In Vinh Kim, 70–80 per cent of households use bottled water, in Hoa Hung the figure is 60–70 per cent and in My Hao about 30 per cent.

Table 1: Changes in living conditions among households in the study villages (% households)

	VINH THOI		HOA		MY THOI 1	
	2006	2015	2006	2015	2006	2015
House with 'three solids' (solid base, frame and roof)	50	85	64	91	46	97
Tap water	87	100	80	85	5	50
Motorbike	71	100	70	97	61	100
TV set	94	100	98	99	91	100
Fridge	20	80	32	70	9	60
Gas cooker	37	90	39	100	24	50
Washing machine	5	65	0	30	0	10
Mobile phone	14	100	21	97	11	100
Computer	4	10	3	10	4	10

Source: 2006 data: Questionnaire survey of 300 households. 2015 data: Group discussions with key informants in Vinh Thoi, Hoa and My Thoi 1 villages.

A variety of leisure services are emerging, including restaurants, coffee shops, karaoke bars, hairdressing salons and guesthouses. The shopping and consumer needs of local people have increased, leading to the development of local markets, including the central market in Vinh Kim commune, 'frog' markets (small and temporary markets), cultural markets and a small-scale weekly night market in Hoa Hung commune, where people sell clothes, shoes and domestic commodities.

Changes in the division of labour by age and gender

There has not been much change in the division of labour since 2006. Young people tend to select non-agricultural employment and many work away from the villages. This is exacerbated by a reduction in the local demand for manual labour in fruit farming and processing, as most fruit gardens are currently mature and require less labour, and production facilities are now more advanced and mechanised.

Most gardening work, including fertilising, pesticide spraying and fruit transportation, all of which require good techniques and strong manpower, is mainly undertaken by men. There are employment opportunities in nearby industrial zones and factories, which allows married women to earn additional income close to their homes. In Vinh Kim commune, some women run small businesses or do fruit classification or packaging at the fruit market.

Inequalities tend to increase

Over the past nine years, local households' living standards have generally improved, although unequally between different groups, with the result that there is a growing gap between the well-off and middle-class groups and the poor group.

Well-off households are often those with plenty of land and who are investing in the intensive cultivation of specialty fruits and/or are running *vua*. A new finding compared to the 2006 survey is that these households can afford to educate their children, which means that they are often able to get professional/white collar occupations, for example in government agencies or in commercial banks or enterprises, and have stable incomes.

Although middle-class households might own less land than well-off households, they mostly have sufficient family labour. The development of nearby industrial zones and local markets has also brought more opportunities for them to diversify their livelihoods, thus greatly improving their standard of living.

"The worker group (middle-class group) is moving ahead, as they have stable jobs and savings. With meals being provided by employers, both husband and wife can save a couple of million dong per month. The middle-class group is now keeping pace with the development of society." (Group of officers from Vinh Thoi village, Vinh Kim commune)

The poor groups in the study settlements seem to be making slower progress than the other groups. Poor households are mostly those with elderly people or people in bad health, or those with a shortage of labour. These households cannot afford a better education for their children, which would allow them to earn higher and more stable incomes. This group either has no land or only small areas (often less than one *cong*), and income from any fruit is low given the lack of intensive cultivation. For instance, poor households in Vinh Thoi village that only have a small area of land often rely on growing coconuts to earn a stable income, as coconut growing doesn't require much investment in terms of fertiliser and pesticides.

Table 2: Characteristics of households in the study villages

	VINH THOI VILLAGE	HOA VILLAGE	MY THOI 1 VILLAGE
Well-off households	Public servants and <i>vua</i> owners; some households have more than 4 <i>cong</i> of land and invest in intensive cultivation, applying science and technology to production	Households have plenty of land (>1ha), invest in intensive cultivation and have children who work in other provinces, running small construction enterprises or carpentry.	Have plenty of land (>5 <i>cong</i>), invest in intensive cultivation employ labour; have family members who are public servants
Middle-class households	Normally those who have more than 2 <i>cong</i> of land and have income from grocery stores or have family members who are workers or local manual labourers	Have about 2–5 <i>cong</i> of land as well as additional income from other work or from running small businesses	Have productive land (2–5 <i>cong</i> of gardening land); have family members who are workers
Poor households	Small households with elderly people and only a small productive land area (<1 <i>cong</i> of gardening land) where they grow coconuts to earn money for rice	Households with elderly people or people in bad health or newly separated; they have no productive land and are small market traders	Households with elderly people or people in bad health; they have no labour; they have no productive land or only a very small area (< 1 <i>cong</i> of gardening land)

Source: Group discussions and in-depth interviews in the three study villages in 2015.

4

Labour mobility

4.1 Out-migration and mobility

Migration is increasingly common, especially among the young and middle aged (18–40 years old).

Currently, more than 50 per cent of households in all three communes have migrant labour (50 per cent in Vinh Kim commune, 60–70 per cent in Hoa Hung and My Hoa communes), which is an increase on 2006 rates. In Hoa village, for example, about 60–70 per cent of households include members who work far away from home (in 2006, the figure was 20–30 per cent).

As in 2006, the main reasons for increased labour mobility include:

- The agricultural land area remains the same whereas the population is growing, which results in a smaller per capita agricultural land area.
- The cultivation of mature trees is less labour intensive, which results in spare labour in some areas.
- Improved infrastructure and the availability of various means of transportation and communication (ie mobile phones) have made travelling much easier for both short- and longer-distance migrants. For instance, the Vinh Kim commune transport cooperative operated four buses a day on average in 2006, whereas in 2015, this has now increased to 12.
- More developed industry and services offer local people more employment opportunities. Companies that are located in the province or nearby have created favourable conditions for workers by arranging daily buses to transport them.

- Levels of education have improved, and out-migrants have better access to non-agricultural employment opportunities elsewhere.

In the study settlements, out-migrants can be classified into two groups: long-distance and short-distance migrants/commuters

Long-distance migrants are those who move far away from their homes, stay in rented accommodation and can't return home on a daily basis. Of those who left the communes to work or to study, long-term migrants accounted for 70 per cent of the total in Hoa Hung and My Hoa and 40 per cent in Vinh Kim (where there are more local employment opportunities). Long-distance migrants are mainly young people (18–35), especially single people. For instance, in Vinh Thoi village, 90 per cent of long-term migrants are young people. Most long-distance migrants are factory workers; some are 'professionals'; others work as masons, domestic helpers, waiters, lottery ticket sellers or street vendors. They also include students who leave home to go to college or university in the cities. Destinations for long-distance migrants are generally big cities such as Binh Duong and Ho Chi Minh City, where a large number of industrial zones are located.

Short-distance migrants (commuters) are those who travel to nearby areas for work but return home on a daily basis. Short-distance migrants, for both work and study purposes, account for about 30 per cent of the total number of out-migrants in Hoa Hung and My Hoa communes and 60 per cent in Vinh Kim commune. Short-distance migrants are mostly young or middle-aged (18–50 years old), and common destinations for this group are within the district or province or in nearby provinces. Short-distance migrants are often masons,

mason helpers or factory workers. The number of short-distance migrants has increased in recent years, and while in 2006 the rate for male short-distance migrants was higher than for females, the current ratio is nearly 50:50.

Improved infrastructure, better transport facilities and the development of enterprises and industrial zones have created favourable conditions for workers travelling a short distance from their home to work.

- In Vinh Kim commune, 70 per cent of workers work near their homes. In order to address the labour shortage, since 2008 many companies in the Tan Huong industrial zone (My Tho city, Tien Giang province) or in nearby provinces (Ben Tre, Tra Vinh) and a couple of enterprises in Ho Chi Minh City have arranged buses to provide workers with daily transportation.
- In Hoa Hung commune (Cai Be district, Tien Giang province), 30 per cent of workers work nearby. Hoa Hung commune is conveniently located geographically, only 25km from the Tan Phu industrial zone (Vinh Long province), just across the My Thuan bridge, and people can travel to work by motorbike and return home on the same day.
- In My Hoa commune, 30 per cent of workers work in nearby places. There are more than ten manufacturing companies in the industrial zone located in the commune, although these companies have not managed to attract local labour. Low-skilled people are looking for jobs mainly in industrial zones

in other communes. Living on the border with Can Tho province (which is just across the river) is an advantage as the demand for jobs there is very high. In 2006, however, before the Can Tho bridge was built, the only transport available was by ferry, which was inconvenient and people mostly worked in Ho Chi Minh City. However, since 2010, when the Can Tho bridge was completed, the number of people travelling to Can Tho and other neighbouring provinces in the Mekong Delta region for work has increased. Companies also provide workers with daily transportation by bus. As estimated by My Hoa commune officers, every year more than 1,000 local residents apply for jobs at companies in and out of the province (Binh Duong, Can Tho, Tien Giang, Hau Giang and Hoa Phu industrial zone in Vinh Long province).

The number of international migrants, and marriage-related migration, has not increased in the past nine years. Currently, in Vinh Thoi village there are no longer any international migrants, and in Hoa and My Thoi 1 villages there are on average only 1–2 households with members working abroad, most of whom are male. The number of women who marry foreigners is low in all the study villages, and this is no longer seen as "a solution for escaping poverty" as was mentioned in the 2006 report.

As in 2006, ***households that include migrant members are diverse, and include well-off, middle-class and poor households.*** Most household members of working age are migrant workers.

BOX 6: HOUSEHOLD INCOME DIVERSIFICATION

VVX (Vinh Thoi village, Vinh Kim commune) is head of a well-off household in the village and he has four children. The elder son and his wife (both of whom are disabled) live with him; the elder daughter is married and lives in Ho Chi Minh City; the younger son is currently working in Hanoi; and the younger daughter has just finished vocational training and works in Ho Chi Minh City. His family has four *cong* of land, with coconut and Star apple trees being the main crops, and the latter accounting for 70 per cent. However, since Star apple trees wither easily, most of those currently in his garden are newly planted and do not yet produce harvestable fruit. On average, he earns about 20 million dong a year from selling Star apples and 40 million dong from coconuts. His elder son works as a mason, earning 160,000 dong/day, and he works 15–20 days/month on average. His daughter-in-law is often hired by *vua* to package fruit during busy periods and is paid 10,000 dong/hour.

VVX commented: "Living and production costs are just part of the whole family expenditure; social expenditure is also significant, including attending marriages. Income from selling fruit is far from enough. My elder son is making a significant contribution to the total income of the family. Almost every month, my other son who has just graduated and is working as a graphic designer sends money home. His remittance is about 5–7 million dong a month on average. He sends money to his sister's bank account in Ho Chi Minh City, then she will send [it to] me by post. My younger daughter has just finished vocational school; she can hardly provide any financial support yet; we still have to take care of her. We just spend part of the remittance sent by my son, the remaining is saved for him to get married."

Migrants have diverse levels of education, ranging from primary school to college or university. Big cities, including Ho Chi Minh City and Binh Duong, attract large numbers of migrants with high levels of education, as most of the jobs there require skilled and qualified employees; this makes these cities preferred destinations for those migrants who have graduated from college or university.

4.2 In-migration

Increased mobility also means more migrants moving into the study areas, although there are substantial differences. Vinh Kim is the most developed of the three communes that were surveyed. It is very similar to a central town, with the fruit and central markets and large amounts of goods flowing to and from the surrounding areas. There are more local non-agricultural employment opportunities here than in the other two communes, and this attracts a large number of migrants. Currently, the total number of temporary residents living in the commune is around 2,000–3,000; 90 per cent of the population growth in the settlement is from in-migrants, who are mainly fruit traders or small service providers. The fruit market management board estimates that 40 per cent of traders are from Vinh Kim and the other 60 per cent are from other communes in the district (in 2006, only 10–15 per cent of traders came from other communes). The types of activities of migrants have also changed, reflecting changing contexts. In 2006, approximately 200 migrants from surrounding communes gathered around the Vinh Kim commune market offering motorbike-taxi services; however, now there are only about 20–30 of these, as most families have motorbikes (a cheap Chinese-made Dream motorbike can cost around 3–4 million dong).

By contrast, the number of migrants in Hoa village has significantly decreased. In 2006, there were about 30–40 mainly seasonal migrants, working in the fruit gardens, cleaning canals, ploughing land, picking fruit, pesticide spraying and cutting grass. Now there are

fewer than ten migrants who occasionally come to the village to work, earning an income of 150,000–200,000 dong/day. There are no longer any migrants from other provinces (for example, Tra Vinh) who come to work and stay in the village as in 2006. As the local officers explained, the decrease in the number of migrant agricultural wage labourers is due to the improved economic conditions and opportunities for more stable employment, and to the fact that the now-mature trees require less labour. Access to mechanised facilities (for example water pumps, grass cutters, high power pesticide sprayers) also means that most households can do the gardening themselves, so there is no need to hire labour.

In My Thoi 1 village, the number of in-migrants has increased slightly. Most of them, who come from neighbouring communes, are Khmer people. Usually, they don't gather in a fixed location but travel on motorbikes in groups of 5–10 through villages, offering their labour. If asked to, they will work together in a big group or can split up into smaller working groups of 2–3. They are often hired to do earth works, such as canal cleaning (in the dry season) or dam strengthening (in the wet season). About 30 per cent of households in the village hire these Khmer migrants. The work is labour intensive so all migrant labourers are male. The average wage is approximately 200,000 dong/day. According to the village officers, the number of people engaged in these activities is increasing, since local people are earning higher incomes from selling fruit and can afford to hire people. Also, as many Khmer households have motorbikes, the improved infrastructure means that they no longer have to walk to find daily work.

There are definitely differences in terms of in-migrant groups between the study villages. In Vinh Thoi, in-migrants mostly have good economic conditions. They move to the village to run businesses and provide services, and some are long-term temporary residents. However, in Hoa and My Thoi 1 villages, most in-migrants are low-income farmers or daily migrant manual labourers.

5

Market access

Demand for specialty fruits for the domestic market and for export is very high. In fact, the current supply of Lo Ren Star apples and Hoa Loc mangos is only just sufficient to meet domestic needs, and export volumes are low. Sources for the supply of Nam Roi pomelos are gradually stabilising as intensive cultivation areas have been established.

5.1 Market chains

Key players involved in the market chains for Lo Ren Star apples, Hoa Loc mangos and Nam Roi pomelos are almost the same as in 2006. Fruit gardeners can sell their fruit through the following six channels (Figure 3):

- Farmers → *vua* (the bigger traders with kiosks/ permanent buying places) → focal markets/ wholesalers, supermarkets and retailers in cities
- Farmers → collectors (the small and mobile traders) → *vua*, focal markets/wholesalers, supermarkets and retailers in cities
- Farmers → cooperatives → supermarkets or companies or sometimes to specific consumers
- Farmers → companies → supermarkets or export markets
- Farmers → retailers in local/floating markets
- Farmers → directly to consumers in local markets

However, sales volumes vary between the different channels, as estimated by the village officers and shown in Table 3.

In the study settlements, **the most popular channel is from farmer directly to *vua* (bigger traders with stores)**. In 2006, specialty fruits sold to *vua* accounted for around 70 per cent, 24 per cent and 20 per cent

of total volume sold in Vinh Thoi, Hoa and My Thoi 1 villages, respectively. These figures have increased in recent years and are now 70 per cent, 70 per cent and 68 per cent, respectively, as estimated by village officers (ie large increases in Hoa and My Thoi 1 villages). Most farmers choose not to sell fruit through collectors, in order to get higher prices, which means that the volume of fruit sold to collectors (small and mobile traders) fell in all three study villages compared to 2006, and now stands at about 30 per cent in Vinh Thoi village, five per cent in Hoa village and 20 per cent in My Thoi 1 village. The reasons include the increased number of *vua*, more convenient transport and more farmers having motorbikes, which makes the transportation of fruit directly to *vua* easier.

Selling fruit to companies is only evident in My Hoa commune, and currently there are four companies buying fruit there. The officers in My Thoi 1 estimate that the volume of pomelos sold to companies is about 10 per cent of total production in the locality. Some companies, including Huong Buo Co. Ltd. collect, package and label specialty fruits, which are then supplied to supermarkets or exported (to some European and Asian countries) through intermediate companies.

Selling fruit to cooperatives is only evident in Hoa Hung and My Hoa communes since the Vinh Kim Lo Ren Star apple cooperative no longer operates. Village officers estimate that the volume of Nam Roi pomelos sold to cooperatives is only 1–2 per cent of total volume and for Hoa Loc mangos the figure is 20 per cent. However, village people who are not members of the cooperative normally don't want to sell fruit to cooperatives because of the small quantities that are purchased, the request for high quality fruit and, especially, because of delayed payments.

Figure 3: Typical market chains for Lo Ren Star apples, Hoa Loc mangos and Nam Roi pomelos

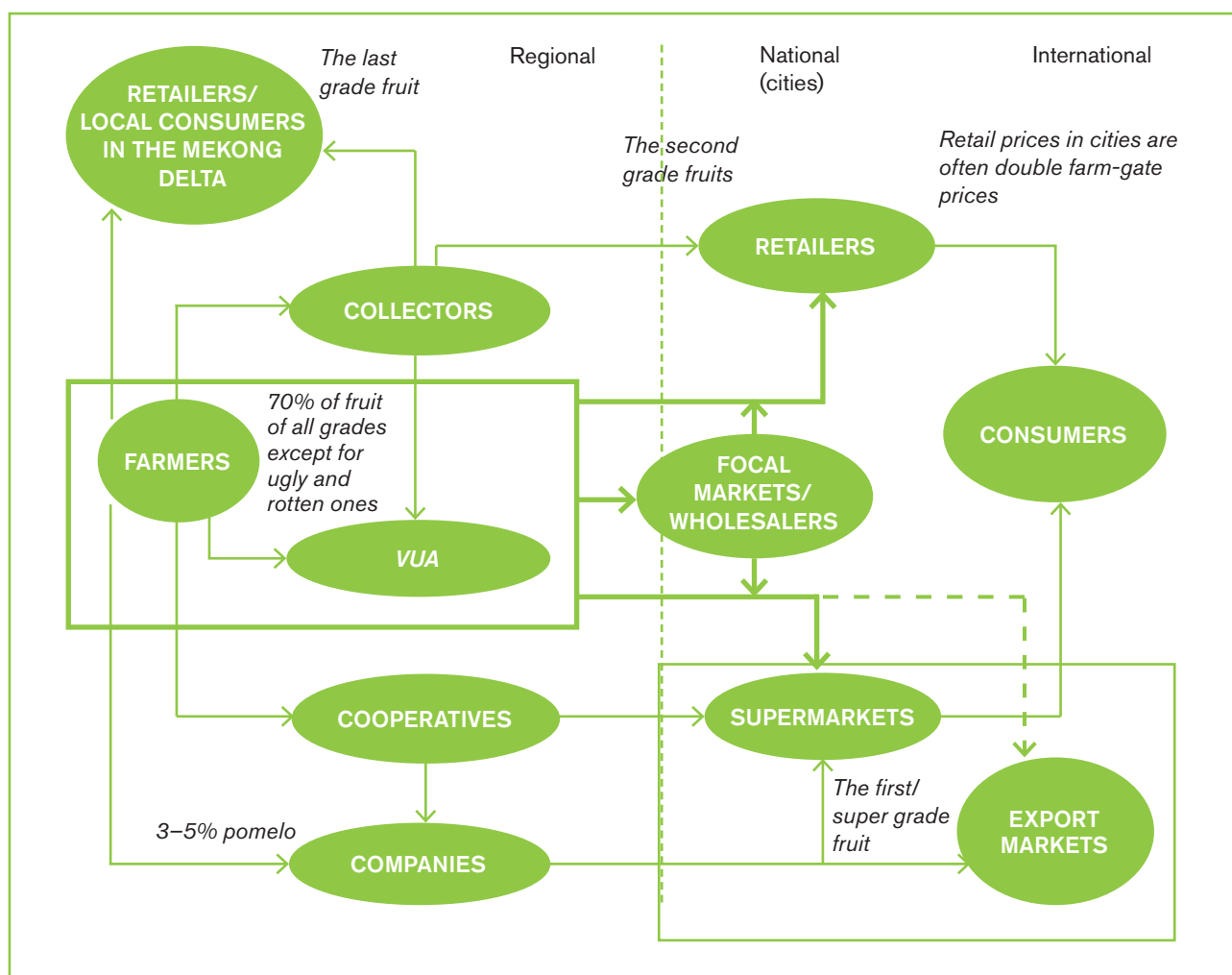


Table 3: Volume of fruit sold through different channels in the study villages, 2015 (%)

SALE CHANNEL	VINH THOI VILLAGE	HOA VILLAGE	MY THOI 1 VILLAGE
Sold to <i>vua</i>	70	70	68
Sold to collectors	30	5	20
Sold to cooperatives	0	20	2
Sold to companies	0	0	10
Other (sold directly to consumers)	Almost none	5	Almost none

Source: Group discussions with officers in the three study settlements, 2015.

The lowest (last) grade fruit is often sold to local retailers/consumers in small quantities. In Hoa village in particular, and Hoa Hung commune in general, some farmers often receive small orders for Hoa mangos of the first and super (best) grades from specific consumers (companies or individuals) as gifts on the occasion of holidays, the Lunar New Year and so on.

5.2 Fruit farmers

Characteristics

Farmers are often small-scale producers. The average productive land area per household in Vinh Thoi village is about 1,000–2,000m², 2,000m² in Hoa village and 2,000–3,000m² in My Thoi 1 village. In 2006, these figures were 2,100m², 3,600 m² and 5,300 m², respectively. The reasons for this decrease include rapid population growth while the land area remains the same, and parents dividing up the land and giving it to their children. In some areas, the productive land area decreases as a result of urbanisation and infrastructure development.

In addition to income from fruit crops, farmers are also diversifying their livelihoods with other non-agricultural employment.

Harvest

There has been no change since 2006; fruit is harvested manually in all the study settlements. Farmers manually pick the fruit themselves, although some do hire labourers. The work requires skill and the

ability to identify mature and non-mature fruit and the most desirable weight, and be able to avoid crushing or spoiling the fruit. Local people are best suited to this work (especially important for Star apples but less so for mangos).

After harvesting the fruit, and before transporting it to selling locations, farmers will cover the fruit with soft paper and pack it into boxes (mangos) or baskets (Star apples) or simply in jute bags (pomelos).

Grading

The method for fruit grading has not changed much since 2006. Before selling the fruit, farmers will grade it manually by handling and observing. In all three study villages, fruit is classified as: best grade (first grade, special or super fruits, also called *cõi* or *xõ*); middle grade (second grade), which is often transported through retail channels to provinces/cities nationwide; and last/worst grade (third and fourth grades, also called *dạt* or *bi* – disqualified fruit), which is normally sold in local markets.

Farmers can either sell the fruit by the kilo after grading it or sell the whole garden's worth in bulk (as for pomelos). As for Star apples, instead of selling them in quantities of 'tens' (normally 12–14 fruit) as in 2006, farmers currently sell by the kilo at an equivalent conversion price.

The percentage of first and second grade fruit has increased recently as farmers invest more in gardening and apply more advanced techniques to improve the quality of their produce. In 2006, the percentage

Table 4: Post-harvest fruit grading

LO REN STAR APPLES	HOA LOC MANGOS	NAM ROI POMELOS
5 categories:	4 categories:	4 categories:
<ul style="list-style-type: none"> ▪ Special: 300g; 20,000–25,000 dong/kg ▪ 1st category: 17,000 dong/kg ▪ 2nd category: 12,000–15,000 dong/kg ▪ 3rd category: 9,000–10,000 dong/kg ▪ 4th category: disqualified fruit; 5,000–6,000 dong/kg 	<ul style="list-style-type: none"> ▪ Special: >450g; 50,000–60,000 dong/kg ▪ 1st category: 390–420g; 30,000 dong/kg ▪ 2nd category: 250–390g; 20,000 dong/kg ▪ 3rd category: disqualified fruit; <250g; 15,000–17,000 dong/kg 	<ul style="list-style-type: none"> ▪ Special: >1.2kg; 14,000–16,000 dong/kg ▪ 1st category: > 1kg; 11,000 dong/kg ▪ 2nd category: 0.5–1kg; 7,000–8,000 dong/kg ▪ 3rd category: < 500g; bad-looking skin; 3,000–5,000 dong/kg

Source: Group discussions with farmers and in-depth interviews with traders, March 2015.

of special and first grade fruit was 10 per cent, and disqualified fruit also 10 per cent. Currently, first grade Star apples account for 20 per cent of volume and disqualified fruit account for less than 10 per cent. For Hoa Loc mangos, the figures are 30–40 per cent and 3 per cent, respectively (farmers get rid of disqualified fruit before they ripen). And for Nam Roi pomelos, first grade fruit accounts for 30–50 per cent according to interviewed households and disqualified fruit for less than 10 per cent. However, since the application of cultivation techniques varies among households, the fruit quality also varies. For instance, in Vinh Kim commune, those farmers that apply advanced techniques may produce up to 30 per cent of first grade fruit, while other households with less advanced techniques may only produce 10 per cent. In addition, productivity is affected by weather conditions (especially the mango trees), and cultivation techniques must be applied according to a strict timeline, otherwise productivity will vary, even from one day to the next.

“Currently, all farmers can access similar techniques, although their application in order to reach the desirable productivity is different among farmers.” (Group of officers in Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province)

Transportation

The means of transport for fruit has been changed significantly. In 2006, farmers mainly used motorboats (Hoa village and My Thoi 1 village) and bicycles or motorbikes (Vinh Thoi village). Currently, in all three villages, fruit is mainly transported by motorbike. In Vinh Thoi and Hoa villages, farmers no longer use motorboats and only a few do so in My Thoi 1 village. This is because transport infrastructure is now more developed (wider, paved, concreted and aggregated roads); living conditions have improved and nearly all households have motorbikes; transportation by boat is dependent on tides; and, most importantly, using motorbikes is cheaper and helps reduce the amount of spoiled fruit.

Transaction methods

As in 2006, the key transaction method between fruit farmers and traders is cash on delivery. Negotiations take place at the moment of transaction and there is a direct cash payment. In 2006, contracted farming did not exist in the three study villages, but now it is beginning to appear in My Thoi 1 village (for example, a contract for 2,000 Cat Tuong (Good Fortune) pomelos).

“As ordered by the Huong Buo Co., farmers are producing pomelo fruit in the requested shape. The client provides farmers with the frames and then purchases the produce from them.” (Group of officers from My Hoa commune, Binh Minh district, Vinh Long province)

The model whereby the whole garden harvest (ban la) for one or two crops is sold in bulk and the client is in charge of cultivation is no longer popular due to: lower benefits; traders often applying over-intensive techniques to produce as many fruit as possible, which affects the productivity of the following crops; and risks of poor weather affecting productivity. In 2006, in all three study villages, some farmers sold one or several crops in bulk to traders at the beginning of the cropping season or when the fruit was still young. This has now changed and currently, only a few households in My Thoi 1 village, who are poor, lack labour and are “in urgent need of money”, apply this method.

Some households in Hoa village apply the xit–chia model. This is a collaboration between a household that has land (fruit garden) and another that has labour, techniques and capital. In this model, the landowner is entitled to 40 per cent of the total benefit and the other household, who invests their labour and agricultural commodities, is entitled to 60 per cent.

5.3 Private traders

Characteristics

The number of vua has increased in Vinh Thoi and My Thoi 1 villages. There is no *vua* in Hoa village, since local farmers sell fruit directly to *vua* in nearby An Huu focal market (a well-known wholesale fruit market in the Mekong Delta region, just 3km away from Hoa village). Compared to 2006, the number of *vua* in Vinh Kim has more than doubled. Currently, there are about 230 *vua* with fixed/solid stores and 100 *vua* with temporary tented kiosks that are registered through fruit markets, and 50 more *vua* with *cap lỏ* (off the road) kiosks (the total number of *vua* in the commune was 150 in 2006). In My Hoa commune, there are about 7–8 large-scale *vua* near the commune centre and 2–3 small-scale *vua* in each village. These *vua* often hire long-term labourers or use domestic labour. On average, each *vua* employs 2–3 labourers; in high/busy seasons they will hire additional labourers. Almost all *vua* are legally registered, with business certification, tax codes and bank accounts. Often, *vua* will only deal with one or two key types of fruit, although on a seasonal basis they will sell other types of fruit as ordered.

The working capital for each *vua* can range from one to several billion dong, and this may come from bank loans or from family investment. *Vua* owners often rent kiosks in markets or alongside the main roads, or use their houses as transaction locations. According to the Vinh Kim fruit market management board, large-scale *vua* are generally not located in markets (most of them have off-road (*cap lô*) kiosks), while those that are are often small-scale *vua*.

Currently, many *vua* owners prefer to rent *cap lô* kiosks, as rental costs are lower than for kiosks in fruit markets (for example, about two million dong/month/30m² in markets compared to 2–3 million dong/month/100m² for *cap lô* kiosks). *Vua* operating in the fruit markets are also subject to other costs, including a 'market fee', a 'garbage collection fee', a 'loading location fee' and a 'fruit scaling fee'. Thus, earlier in 2015, the Chau Thanh District People's Committee (Tien Giang province) issued a decision to reduce the rental costs of kiosks in Vinh Kim fruit market by 50 per cent to retain those *vua*; however, despite this decision, traders still prefer *cap lô* kiosks.

The number of small mobile traders (collectors) has decreased in My Hoa and Hoa Hung communes.

Given the improved infrastructure, farmers can transport and sell fruit directly to *vua*. However, the number of mobile traders in Vinh Kim continues to grow as there is a large fruit market there with many *vua*, and mobile traders have the big job of collecting fruit from surrounding communes to supply *vua*.

In fact, there are two models of mobile trading: buying fruit at the market from individual farmers and then selling it to *vua* (ie brokers, so called *mua bán sang*

tay tại chợ); and buying fruit straight from gardens. The broker model is evident only at the Vinh Kim fruit market (there are on average about 50 regular brokers and up to 200 during peak seasons). In My Hoa commune, a few collectors buy fruit from gardens and then organise transport and sell directly to focal markets/wholesalers in Ho Chi Minh City and in other provinces. In My Thoi 1 village in My Hoa commune, there are ten such collectors and also about 50 farmers-cum-collectors who occasionally gather fruit from their gardens and from relatives to sell directly to *vua* in Ho Chi Minh City and Phan Thiet (4–5 trips/year).

Networking

On average, each *vua* collaborates with about 15–20 farmers and 20–30 collectors (or more in the case of large-scale *vua*). In order to secure a stable supply of produce, each *vua* builds long-term relationships with some core farmers and collectors. In this way, core farmers will benefit from guaranteed (somewhat preferential) prices when selling their produce to *vua*; and in return, the core farmers commit to selling their produce to a particular *vua*.

"In one single harvest, we have to sell all harvested fruit to one vua. If vua realise that we grade and sell high quality fruit to others and leave them with the lower quality fruit, they will never come back to us. That is not good." (A farmer in Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

BOX 7: VUA LOCATED IN VINH KIM FRUIT MARKET

BTM owns a *vua* in Vinh Kim fruit market, selling mainly Star apples together with pomelos, dragon fruit, durian and rambutan. She buys fruit from collectors and also from farmers who transport and sell their produce directly to her. She works with ten key collectors, who help her get enough Star apples every day (10–12 tonnes/day on average and 15 tonnes/day during the high season).

Currently, she is hiring 30 people to help her grade and package fresh fruit. BTM has about 25 core clients in eight provinces across the country and most of the transactions are made over the phone. Payments are made twice a month via bank transfer. Her working capital is about 3–4 billion dong, and her gross benefit from trading Star apples is currently about 10,000 dong/kg.

According to BTM, her volume of trade has decreased by 20–30 per cent compared to three to four years ago as there are now more *vua* competing with each other, especially in terms of price. Although each *vua* has their own key suppliers – who are either fruit farmers or collectors, these suppliers often compare prices paid by different buyers in order to get the highest price. Operating a *vua* at the fruit market is also more challenging due to increased monthly costs. In addition to the kiosk rental cost of two million dong a month (for a 30m² space), BTM has to pay loading station costs (which vary according to the type of vehicle involved, a commission fee (*hoa chi*) of 10,000 dong/day, a garbage collection fee of 100,000 dong/month and an excise tax of 24 million dong/year.

Collectors can do business within or even outside a commune. For instance, in Vinh Kim commune, collectors can expand their reach to other communes within Chau Thanh district or even surrounding districts such as Cai Lay and Ben Tre to buy fruit. There is often a pre-arranged agreement between *vua* and collectors on the quality, quantity and price of fruit, based on the orders *vua* receive from buyers.

As in 2006, there are no clear horizontal linkages, ie sharing of orders, between the traders. Only at peak times might one trader have to purchase fruit from other traders at market price in order to fulfil an order.

BOX 8: MANAGING THE BUSINESS NETWORK OF A *VUA*

Forty-one-year-old T was mentioned in the 2006 report as a typical case of a household business in Vinh Thoi village. From being a collector in 2006, he is now a *vua* owner.

He currently rents a kiosk alongside the main road and employs 3–4 people to do the grading and packaging. Every year, from October to February, he trades high quality (first grade) Star apples as the key business; during the other months, he trades rambutan sourced in Ben Tre. He has established a business network and has clients in Hanoi dating from 2006; however, land transport is now used rather than air transport in order to reduce costs. On average, the volume of high quality produce sold is 1–1.2 tonnes a day. He has a team of about 20 collectors who buy high quality fruit for him, while lower quality produce is delivered directly to his kiosk by local farmers and then sold to local retailers in the province (mostly in Go Cong – Tien Giang). Between 6am and 10:30am, while his collectors are collecting fruit from various gardens, he might go to some gardens himself and collect high quality Star apples directly from farmers.

Fruit grading and packaging

Grading is according to the quality of the fruit and there has hardly been any change since 2006. Fruit is graded into the following categories and then delivered to clients:

- Special/super grade, first rate: for supermarkets, export (through companies) or for specific clients in Ho Chi Minh City and Hanoi.
- Second grade: for urban markets (through focal markets/wholesalers then to retailers/fruit stores, restaurants and hotels) and for neighbouring provinces.
- Third and fourth (lowest) grades: for local markets.

There has been no change in the packaging and transportation of Hoa Loc mangos and Nam Roi pomelos since 2006. Hoa Loc mangos are covered with soft paper and packed into boxes while Nam Roi pomelos are packed into bamboo baskets, and these are then transported to other locations. However, there has been a change regarding Star apple packaging and preservation. In 2006, Star apples were covered with newspaper, whereas now they are covered with meshed spongy rubber and kept moist with water hyacinth leaves (Box 9).

As in 2006, most specialty fruits in the three study settlements are not preserved with chemicals.

Traders use ice boxes to preserve star apples and mangos for domestic long-distance transportation. For export orders, clients will advise traders of the preservation standards imposed by importing countries.

BOX 9: USING WATER HYACINTH LEAVES TO HELP PROTECT STAR APPLES AT THE VINH KIM FRUIT MARKET

In the past 3–4 years, many *vua* in Vinh Kim have started to collect water hyacinth leaves to help protect Star apples. For a short-distance order, Star apples are packed into spongy boxes. First, newspapers are laid on the bottom of the box, followed by the first layer of Star apples. These are then covered with meshed spongy rubber, followed by a layer of water hyacinth leaves and then another layer of Star apples. The top layer of apples is covered by a larger quantity of water hyacinth leaves. *Vua* owners say they use water hyacinth leaves because they are spongy enough to stop the fruit from getting crushed. At the same time, the leaves also provide some moisture, which helps to keep the fruit fresh for longer than by just using newspaper. Water hyacinth leaves cost 3,000–5,000 dong/kg and a middle-size *vua* can use one tonne of leaves/day, mostly collected from Vinh Long and Can Tho. Demand for water hyacinth leaves as a fruit-packaging material is increasing, creating more jobs for collectors and transporters.

For a long-distance order, Star apples are stored in boxes with ice to increase preservation time. An ice board is covered with a large plastic bag and

placed inside the box, which is then loaded with Star apples, placed inside a larger plastic bag and layered with water hyacinth leaves to prevent crushing. The bag is then tied up and put in a spongy box for transportation.

Figure 4: Lo Ren Star apples being covered by water hyacinth leaves for long-distance transportation



Transportation

Transportation has not changed much since 2006, with each market using its own transport system, depending on the quality of the fruit:

- Special/ high quality, first grade: transported by van to Ho Chi Minh City and Hanoi or by ship for export (in containers in the case of pomelos).
- Second grade: transported to cities by van.
- Lowest grades: transported to local markets by motorbike (in 2006, by boat on local floating markets).

Local traders' means of transport are diverse. In Hoa Hung, there is no *vua* for on-site mango purchasing. In My Hoa, *vua* owners can contract vehicles to transport pomelos to wholesalers, or rely on buyers to dispatch vehicles to collect pomelos. In Vinh Kim, *vua* owners use their own vans or contract transport to big cities or neighbouring provinces. According to the Vinh Kim fruit market management board, only 5–7 really big traders own vans; the others contract vehicles to transport fruit to other provinces. At present, six private enterprises

provide an inter-province transport service in Vinh Kim. The biggest has up to 50 vehicles and the smallest has about five vans used for transporting fruit for *vua*. Currently, transport costs are often covered by the party who places the order.

Transactions

As in 2006, most transactions take place through face-to-face negotiations or over the phone. Transactions between *vua*/collectors and supermarkets and also export transactions have written contracts. Payments from *vua* to farmers are cash on delivery, whereas *vua* clients pay on a monthly or bi-monthly basis. Occasionally, an on-delivery payment by the client will be made, but this is not popular and is only applied in the case of new clients or for small orders.

Transactions for a few collectors who bring fruit directly to *vua* in focal markets in Ho Chi Minh City are on consignment (*ky gui*), as in 2006, and *vua* receive a commission of 10 per cent of the sales value. In fact, the collectors and *vua* will stand together to sell the fruit.

5.4 Cooperatives

In the study communes, fruit cooperatives were established with the aim of improving the production and consumption of local specialty fruits (the Lo Ren Star apple cooperative was established in 2006; the Hoa Loc mango cooperative in 2002; and the Nam Roi pomelo cooperative in 2006). However, the Lo Ren Star apple cooperative in Vinh Kim has closed because it didn't have the financial resources to meet big orders and produce was not being sold to the cooperative because of the higher prices obtained from other *vua*. Similarly, although the Nam Roi pomelo cooperative still functions, it is facing financial difficulties (its chartered capital is only about 300 million dong) and payments are often delayed, which means that farmers don't want to sell their produce to the cooperative.

Only the Hoa Loc mango cooperative functions relatively well (Box 10). It provides guidance on cultivation techniques to its members and operates as a specialised *vua*, buying high quality fruit from its members (and sometimes also from outside farmers) at higher prices, and then selling to supermarkets, processing enterprises or export companies. The cooperative mainly purchases first grade produce with strict requirements concerning weight, appearance and safe cultivation techniques (applying GAP).

BOX 10: THE HOA LOC MANGO COOPERATIVE

The Hoa Loc mango cooperative was established in October 2002 with support from the Southern Horticultural Research Institute (SOFRI – funded by an international project), the provincial cooperatives alliance and local authorities. The cooperative initially comprised 36 members, two-thirds of whom were Party members from Hoa village. Currently, it has 120 members, 34 of whom are applying VietGAP and 33 others GlobalGAP. The cooperative manages 67ha of land, compared to 42ha in 2002. Its operation is gradually becoming more stable, and its members are now familiar with safe cultivation techniques and are also aware of the benefits of VietGAP and GlobalGAP. The cooperative's annual revenue has been around 1.5–2 billion dong in recent years, a significant rise since 2006.

Challenges:

- *Transaction methods:* Finding market niches remains a problem for the cooperative. Currently, it mainly sells fresh mangos to intermediate companies, who process these and export them to Japan; they also transport fruit to Hanoi on order, with an average shipment of 500–700kgs. As such, the volume of sales is dependent on the intermediate companies. Regarding individual orders, there is the risk of delayed payment or no

payment at all. Specifically, in 2014, the cooperative lost 48 million dong. Due to limited capital and poor accountability to its members in case of capital losses, long-distance delivery orders are not currently being taken unless the client pays in advance. Mr Nguyen Van T, vice chairman of the cooperative stated that: *"If we are willing to take risks, we can receive up to 50–70 orders a day, but this is a collective organ that dares to make bold decisions, that will be responsible for risks. Private enterprises can make their own decisions, but in this case how can we compensate the loss if it occurs? We just need to safely operate on a small scale and be accountable to the members."*

- *Marketing:* The cooperative operates without a proper marketing strategy because of the limited capacity of the management board. In most cases, the cooperative waits for clients to come to them rather than proactively seeking them out.
- *Buying fruit from members:* At present, the cooperative can only buy up to 30 per cent of all the fruit produced by its members. Given the low number of orders but the demand for high quality fruit, many members are very reluctant to sell their produce to the cooperative.

BOX 11: CHALLENGES FACING A FRUIT-TRADING COMPANY

Huong Bui My Hoa Co. Ltd. was established in July 2014 by two ex-core members of the Nam Roi pomelo cooperative. In addition to Nam Roi pomelos, the company also collects other kinds of fruit as ordered by its clients, including dragon fruit, coconuts, lemons and so on. It buys in bulk (*mua xò*) at gardens; buys selectively by grade at gardens; and also buys at the company gate, as delivered by farmers. After being graded, the fruit is sold through various channels, specifically:

- Special and first grade fruit with an attractive appearance is normally exported to the European market (it must be certified by GlobalGAP) and some Asian and Middle Eastern countries through intermediate export companies in Ho Chi Minh City.
- First grade fruit that fails to meet export standards and second- grade fruit is sold either to supermarkets or to wholesalers in Hanoi and Ho Chi Minh City.
- Third grade fruit (unqualified) is sold to enterprises that produce pomelo juice.

According to the company's executive board representative, there is potential for future development based around the specialised Nam Roi pomelo cultivation areas. For instance, in 2015 alone, it is expected that there will be at least 20 containers of mangos for export (20 tonnes/container

on average). However, there are also some significant challenges and difficulties, particularly regarding the export of fruit:

- There is a lack of fruit that meets the GlobalGAP standards, although the company can buy high quality fruit at high prices (for example, ten per cent higher than for normal produce).
- The application of advanced fruit cultivation techniques is still limited, which results in only small quantities of fruit meeting the required export standards (in terms of weight, identical appearance, pesticide residues). The volume of fruit that qualifies for export accounts for just 20–25 of the total harvest from gardens.
- Fruit is exported through an intermediate agent, and as such the profits are reduced by 25–30 per cent. However, the company is not yet able to connect directly with international markets due to limited capacity in identifying potential clients, in negotiating contracts and in requesting payments.
- There is a high level of competition. In the domestic market, there are more and more *vua* and peer companies who also trade in fruit. As for the export market, Vietnamese fruit has to compete in terms of price with Chinese fruit, since Chinese fruit has a relatively good appearance.

5.5 Enterprises

Trading or processing companies are key players in promoting the export of fresh or processed fruit. However, as observed in the study settlements, there are very few companies that operate effectively in this field. Some fruit-exporting companies (such as the Hoang Gia Co.) used to operate in My Hoa commune in 2006, but stopped being operational there 4–5 years ago. Currently in My Hoa commune, there is a new company purchasing specialty Nam Roi pomelos and various other fruit, namely the Huong Bui My Hoa Co. Ltd., but it is facing many challenges (Box 11).

In 2006, there was no contract farming in any of the three study settlements. Currently, the Huong Bui Co. has a contract with farmers in My Hoa commune, although it is only a small one (Box 12).

BOX 12: INITIAL ACHIEVEMENTS OF THE CONTRACT FARMING MODEL

In 2014, upon receiving an order for the occasion of the Lunar New Year from an enterprise in Hanoi, the Huong Bui My Hoa Co. Ltd. contracted with farmers to produce pomelos in the shape of Buddha's palm, called 'Cat Tuong' (Good Fortune) pomelo. The company provided technical guidance together with plastic moulds and committed to buying the harvested produce. Fruit of an adequate weight and with a good appearance were bought for 60,000 dong each, while smaller and less beautiful fruit cost 30,000 dong each. The number of high quality fruit supplied to the client in Hanoi was more than 2,000.

In 2015, the company plans to design new moulds and sign contracts with farmers who have good cultivation techniques, in order to test the market before expanding this contract farming model.

5.6 Supermarkets

At present, the *vua*, cooperatives and enterprises that were interviewed do not consider supermarkets as a preferred channel for their fruit for the following reasons: the supermarkets impose complicated procedures and strict requirements on the produce; they require favourable prices, with further price reductions for promotional purposes on the occasion of holidays and the Lunar New Year; and they pay late.

“A few years ago, we used to sell our fruit to supermarkets, but it was not preferable because they just wanted to buy cheap produce and even requested lower prices at holidays and the Lunar New Year. The same mango varieties planted in Can Tho and Dong Thap are cheaper, but our Hoa Loc mango is a well-known specialty fruit with a better taste so our prices are higher. And their payment was delayed for two months. The cooperative didn't have enough financial resources to afford the delayed payment.” (Nguyen Van T, vice chairman of Hoa Loc mango cooperative)

“In order to maintain a reasonable price level, supermarkets don't want to buy high quality–high price produce. We sell only second grade produce. If we want to sell our produce to supermarkets we have to reduce the price by five per cent and this will be taken into account in the price we pay farmers.” (Tran Van S, vice director of Huong Buo My Hoa Co. Ltd.)

5.7 Wholesale markets in cities

There are not many wholesale/focal fruit markets across the country, only in intensive fruit crop production areas in the Mekong Delta and the two major cities of Hanoi and Ho Chi Minh City. From these wholesale/focal markets, fruit will be distributed throughout the market system to reach end-consumers. On 7 August 2012, SOFRI and the Vietnam Association of Fruits

in cooperation with Vietkings (the Vietnam book of records) listed the top five wholesale fruit markets in Vietnam, which included Long Bien market (Hanoi), Thu Duc wholesale market (Ho Chi Minh City), Cai Rang floating market (Can Tho), An Huu floating market – Cai Be (Tien Giang) and Cao Lanh wholesale market (Dong Thap).¹³

The development of wholesale markets is an important link in the fruit market chain. This is most clearly illustrated in the case of Vinh Kim and Hoa Hung communes, where local people benefited directly from the development of the Vinh Kim fruit market (Star apples) and the An Huu market (mangos). Wholesale markets attract many *vua*, which offers farmers more opportunities to sell their fruit at competitive prices as well as helping to partly address local unemployment issues.

Vinh Kim and An Huu fruit markets are located in the centre of fruit cultivation areas, and as such it is convenient to transport fruit both by land and by water. In 2006, both methods were popular (*tren xe* and *duoi thuyen*) but at present, water transportation (*duoi thuyen*) has decreased and has mostly been replaced by land transportation (*tren xe*). The number of vehicles used has also increased. For instance, at the Vinh Kim fruit market, during the high season there are on average about 200 shipments/day, equivalent to about 300 tonnes/day of fruit; during the low season, there are about 30 shipments/day, equivalent to 30–40 tonnes/day; whereas in 2006, there were about 40 daily shipments of fruit to Ho Chi Minh City, Hanoi and central provinces. In addition, there are about 12 boats that transport low quality fruit to local floating markets.

When comparing the traditional wholesale fruit markets with the modern ones which were set up in accordance with the decision of the local authorities, it can be seen that the former still play an important role in the fruit market chain while the operation of the latter faces many difficulties. The Hoa Khanh national fruit trading centre is a typical example, as mentioned in the 2006 report. Concerns raised by the study team in 2006, when the first phase of the centre had just been launched, have actually materialised. The centre no longer operates and the premises are now rented out to other parties (Box 13).

¹³ http://www.tinmoitruong.vn/home/print_detail/15645

BOX 13: EARLY CLOSING DOWN OF THE NEWLY BUILT FRUIT TRADE CENTRE AND WHOLESALE FRUIT MARKET

The Hoa Khanh national fruit trade centre (Cai Be, Tien Giang) was established in 2006 with a total investment of 45 billion dong. It included a main building measuring 10,000m², with a cool storage capacity of 9,000 tonnes and packaging and post-harvest preservation facilities. There was also a 3,000m² port to accommodate up to 500 boats weighing ten tonnes or more. An additional 7ha of nearby land was rented to develop a processing plant for dried and canned fruit for the domestic market and for export. However, this wholesale market is no longer operational and is rented out to other business units.¹⁴ One major reason for the closing down was because of the greater distance to the centre compared to the traditional market, making it unattractive to local *vua* and gardeners.¹⁵

Similarly, the wholesale fruit market in Dong Thap (Hamlet 2, My Hiep commune, Cao Lanh district, Dong Thap province) was set up with a total capital investment for construction and equipment of about 19 billion dong. The 5ha site included a main building, cold storage, a fresh fruit preservation and processing area, automatic fruit washing and drying systems and a hotel/dining/entertainment area. But it has not been operating properly since 2006. It has become a normal market selling all kinds of items; all the fruit stalls are closed and very few trading activities take. The reported reason for this demise is that despite the large investment, the lack of policy support and on-site additional services means it fails to attract traders.¹⁶

¹⁴ <http://cafef.vn/nong-thuy-san/cho-dau-moi-trai-cay-quoc-gia-chet-yeu-20120328121310215.chn>

¹⁵ <http://laodong.com.vn/kinh-doanh/cho-dau-moi-nong-san-treo-dau-de-ban-thit-cho-hay-44812.bld>

¹⁶ <http://cafef.vn/nong-thuy-san/cho-dau-moi-trai-cay-quoc-gia-chet-yeu-20120328121310215.chn>

6

Factors affecting livelihood transformation and market access

6.1 Fruit cultivation techniques

Specialty fruit cultivation techniques have improved over the past nine years. Farmers' techniques improve through: peer learning; learning from other local farmers who have good expertise; funding projects (for example, projects that support VietGAP and GlobalGAP certification); workshops and training; guidance and support from provincial and district agricultural officers and research institute specialists; companies supplying inputs; and through access to mass media information (Box 14).

Every year in Vinh Kim, the commune's people's committee collaborates with the provincial agricultural college to conduct two training courses (for 30–40 trainees each) on the application of advanced techniques in Star apple cultivation. Some farmers also do their own research on fruit cultivation techniques, which are shared by SOFRI.

Similarly in Hoa Hung, district and provincial agricultural officers (sometimes in collaboration with fertiliser-supplying companies) deliver training once a month in the villages (with 30–40 trainees each time) and in

2013–2014, Can Tho University implemented a project that provided technical training, fertiliser and seeds for the cultivation of 20ha of Hoa Loc mango trees.

In 2014, up to 50 companies conducted workshops in My Hao. Having a solid knowledge of cultivation techniques, many households have been granted various levels of 'excellent producer' or 'good farmer' certification. In 2014, My Hoa had 83 nationally certified 'excellent producer' households, 222 at provincial level and 380 at commune level; also more than 800 certified 'good farmers' at commune level. In terms of farmers' technical capacity, according to My Thoi village officers, up to 80–90 per cent of farmers have adequate knowledge of cultivation techniques.

"In the village, about 80–90 per cent of households are familiar with cultivation techniques. After being trained, people often share their knowledge and experience with their relatives and neighbours. There are cases where the trainer is less experienced than the farmers." (Group of officers from My Thoi 1 village, My Hoa commune, Binh Minh district, Vinh Long province)

BOX 14: TYPICAL FARMER ACTIVELY TRYING TO ADVANCE STAR APPLE CULTIVATION TECHNIQUES IN VINH THOI VILLAGE

PND (54 years old) is a good example of someone actively trying to advance Star apple cultivation techniques in Vinh Thoi village, where his family has four *cong* of land planted with Star apple trees.

His Star apple garden was planted in 2007, but in 2009 some of the trees suffered from withering of the roots and died. Initially, he consulted the commune's agricultural officers to try and find a solution, but had no success. He then approached SOFRI, who told him that his trees were being attacked by an insect pest. He was then trained in the use of Nocap insecticide solution and advised to plant marigold trees around the Star apple tree roots, since their aroma could help drive away the insects; however, the marigold trees were eaten by poultry. SOFRI then further advised him to plant a type of grass tree from Thailand ('yellow flower grass') to drive away the insects, while he also applied other methods, including digging a canal in the garden to prevent the trees from being flooded and strengthening the tree roots. He has not had a recurrence of the root-withering disease since. Other farmers in the

village have now approached him to learn from his experiences and he is always willing to share his knowledge, although some farmers remain suspicious and refuse to apply his methods.

Farmers in Vinh Thoi village acknowledge that he has good cultivation techniques. First-grade Star apples from his garden can make up to 30 per cent of total production (compared to 15–20 per cent in other gardens), as can second and third grade fruit. There is no fourth grade fruit. In 2014, he earned 250 million dong from his Star apple garden, which is much more than other local farmers (a farmer cultivating three *cong* of Star apple trees normally earns around 60 million dong/year). Although PND has many years experience in Star apple cultivation, he still actively participates in agricultural training conducted in the commune. In addition, should there be any occurrence of a strange disease, he takes samples to SOFRI for testing or invites the institute's engineers to visit his garden and provide on-site guidance on prevention and treatment solutions.

The application of off-season fruit cultivation techniques (off-season blossom forcing) is economically efficient. The Mekong Delta's farmers are investing in off-season fruit crop production to make higher profits. This includes the development and implementation of seasonal calendars for five major varieties, in order to produce off-season fruit (dragon fruit, mangos, rambutan, durian and longan). In terms of economic efficiency, although production costs are higher, selling prices and profits are also higher.

In the study settlements, Hoa Loc mangos are a typical off-season fruit. According to the 2006 report, Hoa Loc mangos were harvested from January to May; at present, Hoa Cat mangos are harvested throughout the year. Similarly, the main season for Nam Roi pomelos used to be in August, September and the Lunar New Year period; currently, Nam Roi pomelos are harvestable all year round. The off-season harvest period for Star apples is also longer, from October to May of the following year (in 2006, the harvest period used to be from October to February).

Recently, more farmers are paying attention to and investing in satisfying the 'strange' and 'unique' tastes of customers. Many new fruit varieties have been specifically bred and introduced to the market at higher prices, especially for special occasions. These include wine-gourd-shaped pomelos (Buoi Ho Lo)

and yellow and heart-shaped watermelons. In My Hoa, farmers produce pomelos in the shape of Buddha's palm (Cat Tuong (Good Fortune) pomelos) for the Lunar New Year, which cost 2–3 times more than the normal pomelos sold during the same period. This could be a new direction for the traditional specialised fruit crop areas in the future.

The effective application of Good Agricultural Practices (GAP) is an important factor in the development of the speciality fruit industry. In the study settlements, many projects support farmers to apply for VietGAP or GlobalGAP certification. The 2006 report also mentioned these supporting projects, including the Tien River GAP implemented by MARD in collaboration with SOFRI. The project was successful in supporting farmers to apply GAP in the Hoa Loc mango production process and, as such, these projects have been successful in creating changes in the production process in the study settlements.

In Hoa Hung commune in 2012, the Hoa Loc mango cooperative, supported by the Tien River GAP, was successful in obtaining VietGAP certification. By 2014, with support from the project implemented by the Center for Science and Technology Services of Tien Giang Department of Science and Technology, Hoa Loc mangos were also granted GlobalGAP certification.¹⁷ In Hoa Hung commune, 109 households grow Hoa

¹⁷ <http://miennui.most.gov.vn/article/details/page/2/id/149>

Loc mangos according to VietGAP standards and 33 households are joining GlobalGAP, providing 20.7ha of land that reach GlobalGAP standards.

In My Hoa commune, Nam Roi pomelos were granted GlobalGAP certification in September 2008, with US\$ 40,000 funding from the project Supporting the Development of Goods-supplying System in Vietnam, co-implemented by the Ministry of Trade (currently the Ministry of Industry and Trade) and the German Technical Collaboration Organisation, Metro and Cash company.¹⁸ By 2014, 40 local households had been supported financially by the Provincial Department of Agriculture and Rural Development to renew GlobalGAP certification. In 2015, a further 24 households have been granted GlobalGAP certification thanks to the Vinh Long Provincial Department of Agriculture and Rural Development. Up to now, the total area granted GlobalGAP certification in My Hoa commune is 70ha.

In Vinh Kim commune, in 2008, 19 farmers from the Vinh Kim Star apple cooperative were granted GlobalGAP certification for 7ha of Lo Ren Star apple trees. However, by 2012, Vinh Kim commune had stopped requesting GlobalGAP registration as the Provincial Department of Science and Technology had stopped

providing support for the registration fee. Currently, there are only three households joining GlobalGAP, in a project managed by the province.

However, in all three study settlements, most farmers are not particularly interested in GAP for the following reasons: GAP-oriented fruit production requires complicated techniques and is more time consuming than the traditional production methods (especially GlobalGAP, with 200 criteria), while fruits produced following the GAP process are not as big as those produced using traditional methods; prices and consumption levels for GAP fruit are unstable, as consumers have not yet realised the difference between normal fruit and GAP-qualified fruit and, as such, GAP-qualified fruit are the same price as normal fruit;¹⁹ the effective period for GAP certificates is short (VietGAP certificates are only effective for two years from the issue date but can be extended by three more months while awaiting renewal, whereas GlobalGAP certificates are only effective for one year from the date of issue); local governments and projects only support the cost of the first GAP application, meaning that a number of farmers who are initially enthusiastic about applying then withdraw, as the cost of applying for certification and the necessary investment are high (Box 15).

BOX 15: WHY DO FARMERS ASK TO WITHDRAW FROM GAP?²⁰

2009 was a most memorable year for 26 members of the My Hoa Nam Roi pomelo cooperative (My Hoa commune, Binh Minh district, Vinh Long province) as they were the first group of farmers to be granted a GlobalGAP certificate for 23ha of pomelo trees in the commune. Upon certification, nearly 600 tonnes of Nam Roi pomelos were exported to the US and some European countries; however, since 2010 export turnover has been declining, with only 36 tonnes in 2011 and 15 tonnes in 2012. Most of the farmers have withdrawn from the GlobalGAP process and have returned to traditional production methods. They revealed that despite GlobalGAP certification, only 20–30 per cent of total production was sold at marginally higher prices, the other 70–80 per cent still being sold at normal prices. Furthermore, the cooperative will not guarantee that they'll take the farmers' pomelos, especially at harvest time, therefore the farmers still have to sell their GlobalGAP pomelos in local markets. Furthermore, cooperative members cannot afford to renew their GlobalGAP certificates at a cost of around US\$ 7,000.

Currently, 24 households who obtained GlobalGAP certificates earlier in 2015 have just linked up with the Huong Bui Co. Ltd. – a fruit-trading and exporting company in My Hoa – in order to overcome the problem. Mr Tran Van Sang – vice director of the company – has stated: “*GlobalGAP-certified pomelos can be priced higher than normal pomelos. Currently, GlobalGAP is entirely supported by externally funded projects. When the certification period ends, and if there is no support from any project, and if our business is going well, we will apply for renewal at our own expense. As far as I know, the renewal fee has increased twice and is about half of a new registration fee. We talked with the Vietnam Trade Promotion Agency, requesting special treatment so that we can afford the renewal. We also plan that in the future, we will put aside an amount for applications that will be deducted from the purchasing price from gardens.*”

¹⁸ http://www.mof.gov.vn/portal/page/portal/nif/Newdetail?pers_id=42972409&item_id=151480648&p_details=1

¹⁹ <http://tuoitre.vn/tin/kinh-te/20110525/san-xuat-cay-an-trai-viet-gap-con-manh-mun/439495.html>

²⁰ <http://giacaphe.com/27310/nong-dan-xin-ra-khoi-gap-vi-sao/>

6.2 Market information

The use of mobile phones in the study settlements has increased continuously, which facilitates easy access to information relating to market prices. Farmers can request price information from *vua*, collectors, the market management board or from other farmers. The increased number of *vua* also offers farmers more opportunities to sell their fruit at competitive prices.

As in 2006, fruit prices change rapidly by the day or even by the hour, depending on the orders from traders in other provinces and cities. At the Vinh Kim fruit market, fruit is priced higher in the morning than in the afternoon; however, in many cases, the price can change within an hour if a *vua* owner is in urgent need of a large quantity of fruit, and the price rises. Fruit prices are currently influenced by many other factors, including weather conditions.

A change from 2006 is that currently, some farmers are proactive in searching for consumer markets for their produce. They not only look at local prices but also at those in other provinces and cities. For instance, in My Thoi 1 village, some farmers compare the different prices at *vua* in the locality and in cities to decide whether to arrange transportation of fruit to cities at their own expense (Box 16).

6.3 Capital

Capital sources are available. Local people can offer their assets (gardening land, houses) as security for a bank loan or can apply for credit from mass organisations (women's union, farmers' union, youth union), and the process is reported to be relatively simple. In addition, many micro-credit groups have been set up in the study communes, and some households have savings, which means they can lend money to their relatives.

"There are a variety of sources: Sacombank, agriculture bank, social policy bank. The procedure is simple and interest rates are low. A loan/credit under 50 million dong does not require verification by the District Department of Natural Resources and Environment and a loan can be disbursed within a day." (Group of officers in Vinh Kim commune, Chau Thanh district and Tien Giang province)

The current need for loans among farmers is not high, since farmers mainly use their own capital. This is a big change from 2006, when half of the surveyed households borrowed capital from various sources. With a drop in the poverty rate, fewer people borrow

BOX 16: CHANGES THANKS TO UPDATES IN MARKET PRICES

NND (65 years old) has nine *cong* of land planted with Nam Roi pomelo trees. He used to sell fruit to local *vua* or collectors, but four or five years ago he was introduced to a *vua* in Phan Thiet (Binh Thuan province). He has since been selling fruit to this *vua* in order to get a higher price, and every year he has four shipments of five tonnes each of Nam Roi pomelo to Phan Thiet. The fruit is transported by van, and each shipment costs eight million dong, excluding the costs of portering and loading from garden to boat to van.

Like NND, 59-year-old TVS has five *cong* of land planted with pomelo trees. He admitted that when he found out from other farmers about the price differential between local *vua* and those in the wholesale markets in Ho Chi Minh City, he decided to approach *vua* in wholesale markets in Thu Duc (Ho Chi Minh City) to establish a business relationship. Since each van shipment can take up to five tonnes of fruit, which was beyond his household's capacity, he had to collect additional fruit from local gardens. Initially, he just aimed to sell his family's produce, but he gradually became a fruit collector in the village.

from the social policy bank – only five per cent as estimated by the officers in all three study settlements. In recent years, since fruit prices have been relatively stable, besides expenditures for living, households use part of the fruit revenue to buy pesticides and fertiliser, to hire labourers and for savings.

“After each crop, four-tenths of the total turnover is reinvested in fertiliser and in hiring labour, two-tenths is for living expenditures and the remaining four-tenths is for bank savings, in case of future need.” (A household in Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

“We recycle our own capital, this year turnover is used for investment in the following year. It is safer and we don’t need to borrow money from anyone.” (A household in My Thoi 1 village, My Hoa commune, Binh Minh district, Vinh Long province)

In addition to credits from the social policy bank, poor households obtain loans from other sources or purchase fertiliser and pesticides on credit from local agricultural commodity suppliers (some suppliers charge interest for late payment beyond three months by adding it directly to the price, others don’t charge interest but fix the payment timeline from one to three months). However, the number of poor households in the study settlements that take out loans or purchase on credit is low; in particular, households that have a shortage of labour don’t want to borrow, as they are afraid they won’t be able to pay back what they owe. Due to a lack of capital, poor households invest less in fertiliser and pesticides than rich households do.

“We borrowed four million dong from the Government’s Social Policy Bank for installing clean water pipes, which was paid back. Even if the government offers us loans, we aren’t. We don’t even procure anything on credit, we just spend what we have. Rich farmers invest more in fertiliser, we have less money, we invest less.” (A poor household in Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

Vua who are in need of large quantities of capital (1–3 billion dong) can apply for loans from Agribank or other commercial banks (Vietcombank, Sacombank). Interest rates imposed by commercial banks are higher (0.8 per cent/month) than the social policy bank (0.65 per cent/month).

*“Normally, each year we borrow one billion then we pay it back. For example, last year we borrowed one billion from Agribank, the interest was 0.8 per cent. We borrow money for business, which is essential; the required working capital is a lot, about three billion.” (A *vua* owner in Vinh Kim fruit market)*

“We can easily apply for a loan of one to two billion. But we just apply for short-term loans to complete an order, but not long-term.” (Tran Van S, vice director of Huong Buo My Hoa Co. Ltd.)

6.4 Land

Over the past nine years, the gardening land area has gradually decreased due to the pressures of urbanisation and industrialisation, and the rapid population growth has resulted in a lower average per capita land area.

Of the three study settlements, Vinh Kim has seen the most significant decrease in its agricultural land area. Compared to 2006, this has decreased from 74 per cent to 65 per cent of the total natural land area, as it is converted into residential land (for houses, shops, kiosks, service stations and so on). In Vinh Thanh village, there are currently no ‘pure’ farmers, as everybody is engaged in businesses or services as well as in gardening. Many migrant households buy agricultural land and then cut down the trees to build houses. More and more houses are being built along the main roads in the commune, and in the alleys and lanes, houses are built close together.

In speciality fruit cultivation areas, most households that don’t have any productive land are poor households. In Hoa village, there are ten households that have no land for production, seven of which are poor households and three are near-poor. They have very little chance of escaping from poverty, since

the income from selling their labour (for those who have labour) is just sufficient to meet the family's daily minimum living requirements.

"My family used to live here, but having no land for production, we moved to Dong Thap to reclaim virgin soil to grow rice. However, this area was flooded year round, impossible for cultivation, and we were living with support from our neighbours. Ten years ago, we returned here, and all family members sell their labour, catching snails for a living. Without land, we can never exit poverty."
(A poor household in My Thoi 1 village, My Hoa commune, Binh Minh district, Vinh Long province)

6.5 Infrastructure

Infrastructure in the study settlements has greatly improved since 2006. A concrete dyke system has been built, thus preventing flooding, and the transport system (roads, bridges) has been improved or expanded. In Vinh Kim, 60 per cent of internal roads are paved and meet the government's 'new rural' standards. Similarly, in Hoa Hung, roads leading to Hoa village have been widened to allow for 16-seater vehicles. A bridge linking Hoa and Binh villages has been built, making it easier to transport fruit to An Huu market by road (in the past, local people used to take mangos to the market by boat). In My Hoa, roads have been upgraded and a bridge near the centre of the commune has just been built.

Given the improved transport network and the better economic situation, more households have bought motorbikes since 2006. Local people use motorbikes to go to work or to transport fruit to *vua*, which is cheaper and quicker than by boat.

"Now all households have motorbikes, even the poor, a Honda costs only three to five million dong. It is easier. Motorbikes are an important tool for working." (Group of local people in Vinh Thoi village, Vinh Kim commune, Chau Thanh district, Tien Giang province)

"Boats are no longer used since the roads were constructed five to six years ago. Fruit is mainly sold to An Huu market. Transporting it by boat involved two to three labourers and took longer. Now one labourer is enough and it

is faster. (Group of local people in Hoa village, Hoa Hung commune, Cai Be district, Tien Giang province)

The improved transport infrastructure allows some farmers with large gardens to sell their produce directly to cities at higher prices, by-passing the local collectors and *vua*. For My Thoi 1 village, the 2006 report predicted that the number of farmers-cum-collectors would grow, and this is the case. Currently, according to village officers, up to 50 households in the villages transport and sell fruit directly to Ho Chi Minh City and other cities (including Phan Thiet and Binh Thuan province), and 20 of them are farmers-cum-collectors.

6.6 Sanitation conditions

In all three study settlements, there are garbage collectors, and in Vinh Kim and My Hoa communes, garbage collection teams have been established. However, these teams only work in some key roads or in the markets; in most residential areas, garbage is burned or buried by local people.

Waste pesticide packaging is also a major problem for farmers, especially for those who apply either VietGAP or GlobalGAP. They collect waste pesticide packaging as is required but there is no guidance on post-collection treatment, and storing large quantities of this packaging may cause harm to family members' health. Some households who do not apply VietGAP or GlobalGAP collect and burn the waste packaging; however, there have been instances where this has been thrown directly into gardens or nearby canals.

Garbage management and treatment in the markets is also challenging. In Vinh Kim fruit market, for instance, garbage is taken away by truck ten times/day on average, every day, and sometimes as many as 30–40 times/day in the high season. The garbage collection fees paid by *vua* in the market are partly used to pay the garbage collection teams. Those *vua* with fixed locations in the market pay 100,000 dong/month. As for other mobile traders, the fees range from 20,000 to 50,000 dong/month. Garbage from the market includes fruit leaves, rotten fruit, newspaper used to cover the fruit, spongy boxes and even personal waste discarded by people working there. However, according to the market management board, despite having garbage collection teams, they are unable to manage the situation properly and the market is heavily polluted (Figure 5).

Figure 5: Garbage at the Vinh Kim fruit market and empty pesticide bags discarded in a mango garden in Hao Hung commune



6.7 Climate change

Climate change is currently one of the biggest concerns and it greatly affects agricultural production.

Sea level rise could affect salinity levels in the fruit crop areas in the Mekong Delta. Forty per cent of the Mekong Delta could be submerged as a result of climate change.²¹ It is predicted that by 2030, approximately 45 per cent of the total area of the Mekong Delta region will suffer from saline conditions.²² Salinity levels peak in the dry season (from May to November), and hot spells, prolonged droughts and reduced rainfall, and falling water levels in the Tien and Hau rivers exacerbate saltwater intrusion in the Mekong Delta. However, as yet, there have not been any instances where fruit cultivation has been affected by salinity in any of the three settlements.

Another impact of climate change is the erratic changes in weather and climate in the Mekong Delta (prolonged

droughts and floods), which have a detrimental effect on fruit yields and increase the incidence of pests and diseases. In recent years, the Mekong Delta has experienced drastic climate extremes, with prolonged, intense droughts and hot spells during the dry season and extensive floods in the rainy season, and on occasion there have been two storms in a row, which previously was very rare in this area. All three settlements have been affected by these changes; for example, the long periods of hot weather in recent years have caused an increase in *thrip palmi*, which greatly affects the production of Hoa Loc mangos. In My Hoa, there was a significant outbreak of *citripestis sagittiferella* disease in 2011–2012, which caused heavy losses. Local people estimated that it reduced productivity by 40–50 per cent.

Local farmers can assess the effects of these changes by examining their increasingly negative impacts on annual fruit production (Box 17).

²¹ Under the project Climate Change and Water Provision in the Mekong Delta and Ho Chi Minh City, in cooperation with the Netherlands embassy in Vietnam, the Climate Change Research Institute of Can Tho University and the Can Tho City People's Committee.

²² <http://www.vietnamplus.vn/40-dien-tich-dong-bang-song-cuu-long-co-the-bi-nhan-chim/292093.vnp>

BOX 17: IMPACTS OF CLIMATE CHANGE ON LOCAL PEOPLE

According to local people in Vinh Thoi village, the very hot weather means that they have to increase irrigation and drainage to avoid leaf drop. During the Lunar New Year it now becomes much colder, with some mist on occasion, which delays the development of blossom on the Star apple trees. Recently, a dyke has been built, which means that fruit cultivation is now less affected by flooding; however, one side effect is that water no longer flows into the gardens, thus reducing the amount of alluvium.

In Hoa village, the weather is very changeable, with long periods of severe heat and high rainfall, and even some cold periods, which was rarely the case in the past. During 2014–2015, as a result of a long hot period with high rainfall during the flowering season,

most of the Hoa Loc mango trees did not flower, and production was estimated to have fallen by 70 per cent. Furthermore, there was an attack of *thrip palmi* ruining the mango trees' leaves and flowers and withering the fruit peduncles, which significantly affected productivity.

In My Thoi 1 village, according to local farmers, the hot weather is lasting longer, rainfall is low and there has been an increase in the incidence of insects and diseases. In 2014, while farmers were investing in pomelo cultivation for the Lunar New Year, there was a sudden long period of rain during the flowering season, which caused a lot of damage; as a result, production went down by 50–60 per cent on average compared to previous years.

7

Conclusions

A comparison of the findings of the 2015 study with those of the 2006 study in three specialty fruit-growing settlements in Tien Giang and Vinh Long provinces clearly demonstrates that the interactive relationship between production areas and urban centres has been the key driving factor for rural development and poverty reduction. Currently, all three study settlements continue to be success stories. The increasing demand for fresh fruit (especially those with high value) in urban areas and the development of non-agricultural employment (in which education and migration play important roles) have brought relative prosperity to these settlements compared to other rural areas in the Mekong Delta region.

According to the 2006 study, small-scale production and livelihood diversification based on market relationships between farmers and traders (with local central markets playing an important role) could be a potential development option for these settlements, and large-scale production through accumulating land would not always be essential. The 2015 study shows that the relationships between private traders and small-scale farmers remain close, and are contributing greatly to the development of Vinh Thoi village in particular. However, as mentioned in the 2006 study, the question is how to sustain this momentum. Thanks to improvements in transport and communications, traders no longer focus only on the central markets but are also developing their businesses along main roads. Various government projects that aimed to promote the fruit market chain have not been successful, and the Hoa Khanh national fruit trading centre is a typical example, as mentioned in the 2006 report, when the study team raised concerns when the first phase of the centre had just been launched. Currently, the centre no longer

operates and the premises are rented out to other parties. Cooperatives established by the government are not functioning particularly well either, in terms of networking farmer members to form sizeable production zones with quality produce.

In Vietnam, the supermarket network is developing rapidly and is one of the main fruit consumption channels that is continuously developing in terms of scale and types of fruit consumed. One of the challenges, as mentioned in the 2006 report, is that “*supermarkets tend to rely on large-scale producers and neglect small villages and local services.*” However, nine years later, the development of supermarkets has not in fact significantly influenced fruit farming and trading and relevant services in the three study settlements. Other consumption channels (including traditional markets and fruits shops) successfully maintain volume via a network of private traders who have unique advantages.

The export of Hoa Loc mangos in Hoa village remains a challenge. The quality of the fruit is still variable, as is the volume of supply; post-harvest preservation is limited and there is no proper product marketing, hence the volume of Hoa Loc mangos that are exported remains low.

The 2006 report was concerned about the impacts of urbanisation and the construction of industrial zones on fruit cultivation in My Thoi 1 village, however, these concerns have not been realised. With the building of the Can Tho bridge, transportation from My Thoi 1 to Can Tho is now even more convenient, which has helped with livelihood diversification. Short-distance migration (commuting) has provided local My Thoi 1 people with significant income-earning opportunities.

The 2006 study concluded that education and migration would be key driving factors in agricultural development and poverty reduction, and this remains the case in all three study settlements. However, the nature of migration has changed over the past nine years. Short-distance migration is increasing, at an even faster rate than long-distance migration. The main reasons include improved and more available transport as well as the development of local enterprises and industrial zones.

The 2015 study has identified some new challenges facing the local fruit industry in the study settlements since 2006.

First, fruit farmers still have little interest in GAP, although it is supported by many government projects. This is because of complicated techniques; it is labour intensive; the market is unstable; and certification only lasts a short time (1–2 years) and is costly. GAP plays an important role in product quality and branding, but it is not easy to know how to help farmers who are applying GAP to get higher and more sustainable incomes, and the relevant authorities need address these issues with appropriate policies.

Second, increased water pollution and problems with waste treatment are affecting the lives of local people. While the 2006 study findings focused mainly on water pollution and waste treatment in increasingly dense residential areas and the markets in Vinh Thoi (Vinh Kim commune), the 2015 study indicates that water

pollution and problems with waste treatment are now also affecting the other two settlements. The biggest concern in all three settlements at present is waste from pesticide packaging, as farmers are using increasing amounts of pesticides and there is no guidance or supporting policy for the treatment of this type of waste.

Third, climate change is increasingly affecting agricultural production in general and the fruit industry in particular. Sea level rise could affect the salinity levels of fruit crop land in the Mekong Delta. Although there has been no instance of fruit cultivation being seriously affected by salinity in any of the three study settlements, it could threaten the fruit industry in the future. In addition, other short-term impacts of climate change (prolonged droughts, increased rain, floods, abnormally severe weather) have affected fruit productivity and increased the incidence of pests and diseases, and this is most obvious in Hoa village. As such, it is necessary to intervene and to help people address the risks caused by climate change.

Finally, a reduced productive land area may greatly affect fruit cultivation in the study settlements. Given the pressures of urbanisation, industrialisation and population growth, the average per capita land area for growing fruit has decreased, posing a challenge for the development of specialty fruit cultivation zones that target the high-end domestic market and the export market.

Annex 1: Overview of the fruit industry in Vietnam

Fruit production

In recent years, the world's fruit industry in general has witnessed robust growth. From 1993 to 2012, world fruit production increased from 390 million tonnes to 636 million tonnes and the average yield increased from 8.73 tonnes/ha to 11.25 tonnes/ha (Figure 6).

In Vietnam, the fruit tree-growing area (FTA) increased from 281,000 to 778,000ha between 1990 and 2007, and levelled off at around 780,000ha during 2008–2013 (Lập, 2014) (Hình 2). (Figure 7). Although the

growing area has not increased, the average yield has, thanks to seedling improvements and applied science and technology, leading to continuously increased production. According to the Department of Crop Production (MARD), fruit production throughout the country in 2012 reached 7.6 million tonnes, compared to 4.5 million tonnes and 6 million tonnes in 2000 and 2005, respectively.

Not only is fruit in Vietnam very diverse but it is also available throughout the different seasons²³ (Figure 8).

Figure 6: World fruit production and yield (excluding melons)



²³ <http://xttm.mard.gov.vn/Site/vi-vn/73/81/199/19486/Default.aspx>

²⁴ <http://faostat3.fao.org/download/P/PI/E> (please chose: Country – Vietnam; lterms Aggregated – Fruit excl Melon, Total; Year: 1993-2012; Element – Producer Price index (2004-2006 = 100) and then click Preview/Excel to see the data)

Figure 7: Fruit production in Vietnam for the period 1990–2013

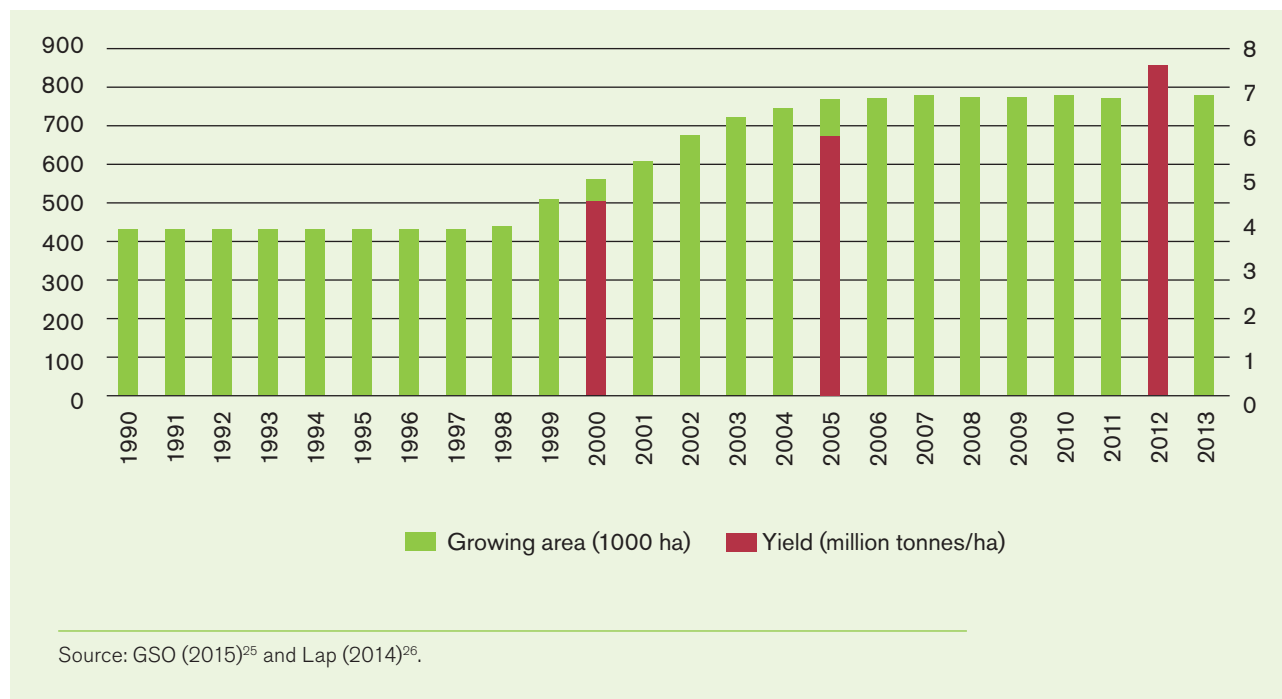
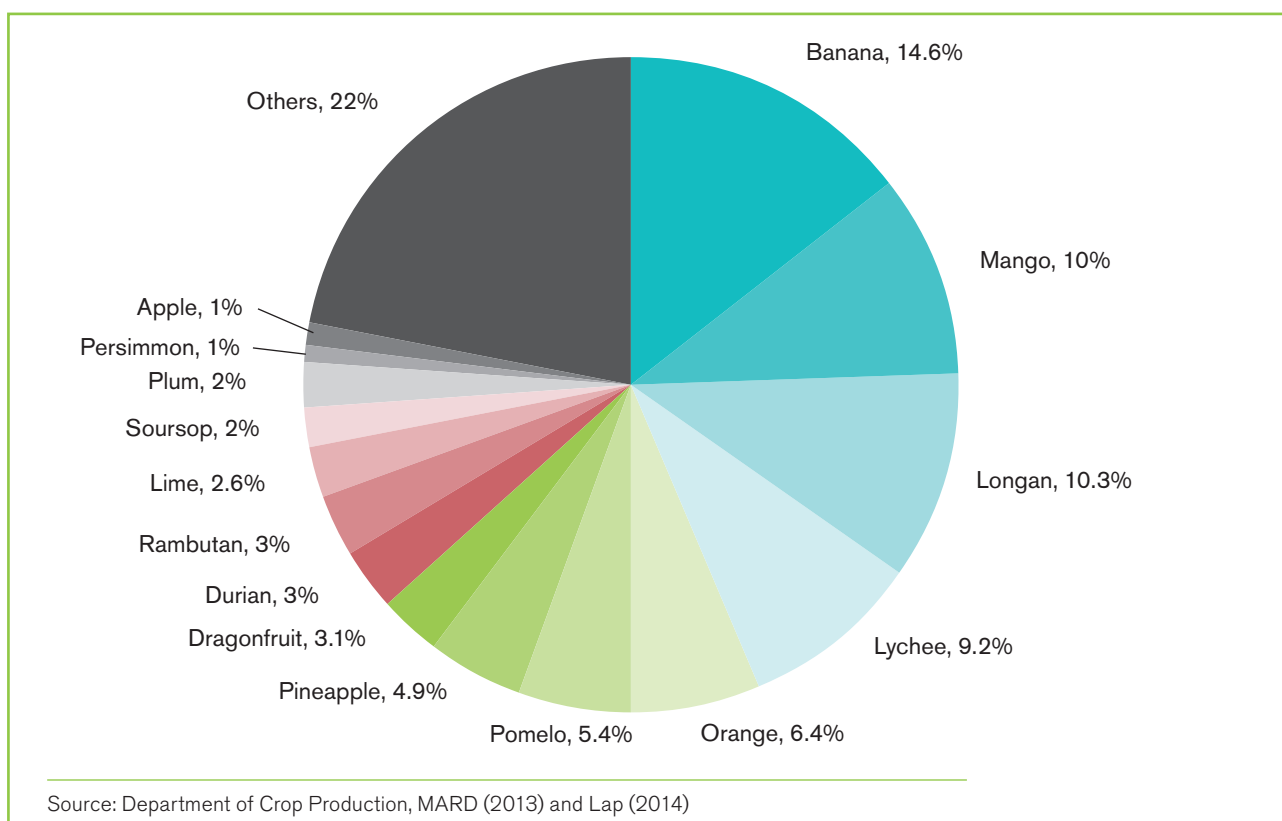


Figure 8: Breakdown of the fruit tree areas in Vietnam, 2012



²⁵ <http://tinyurl.com/nmtxtuk> (Please chose: Diện tích và chỉ số phát triển – select Diện tích (Nghìn ha); Năm - select 2009-2013 sơ bộ; Nhóm cây – select Cây lâu năm: Cây ăn quả to access the data)

²⁶ Lap, L. N. T. 2014. Some solutions for development of dragon fruit markets [Online]. Available: <http://tinyurl.com/p3coucf> [Accessed 3.2.2015]

However, the average fruit yield in Vietnam is still relatively low compared to other countries in the region and the world. In 2009, the average fruit yield was estimated at ten tonnes/ha, which is considered low in comparison to the region and the world. Specifically, the average yield of oranges and grapefruit in Vietnam is only about 50–60 per cent of that in Thailand and India; and pineapple yield is about 56 per cent of that in Thailand, 66 per cent in China and 35 per cent in the Philippines.²⁷

The Mekong Delta region (MD) is the largest fruit basket in the country. It has many advantages with regard to soil conditions, water, climate and so on that are suitable for the development of many types of tropical fruit. According to MARD, in 2013, the MD fruit tree area accounted for 34.6 per cent of the total fruit tree area of Vietnam. In 2000, the MD and the southeast region experienced the greatest expansion in the fruit tree-growing area.

Specialty fruit trees have been a focus for many provinces in the MD region. According to the Southern Horticultural Research Institute (SOFRI), over a period of three years (2011–2013), Tien Giang, Ben Tre, Dong Thap, Vinh Long, Tra Vinh, Soc Trang, Hau Giang and Can Tho City allocated an additional 20,000ha of productive land to specialty fruit trees, increasing the area throughout the region to 83,000ha and accounting for 29 per cent of the total fruit tree area in the MD.

- In Tien Giang province, there are about 5,000ha of different mango varieties such as Hoa Loc mango, Chu mango, mango cultivars and so on, and Cai Be district is the largest mango-growing area in the province, with more than 3,300ha.²⁸ Hoa Loc mangos have been granted a certificate for geographical indications by the Intellectual Property Office (Ministry of Science and Technology) and in 2012, the Hoa Loc mango cooperative organised production based on 'good agricultural practice' (GAP), with 20.73ha being certified with VietGAP standard. By 2014, higher quality production helped the cooperative get GlobalGAP certification.²⁹ Cao Lanh district (Dong Thap province) has more than 4,000ha of orchards, including a mango-growing area of 2,000ha, with Hoa Loc mangos (for which it is famous) and Chu mangos being the most widely cultivated.³⁰

- Specialty Lo Ren Star apples are grown intensively on 3,000ha in 13 communes of Chau Thanh district. The Lo Ren Star apple cooperative has 55ha of Star apples (out of a total of 174ha), which have been granted GlobalGAP certification (400 tonnes/year).³¹
- The Nam Roi pomelo is a specialty fruit from the Mekong Delta, and is the key fruit of Binh Minh district, especially My Hoa commune, with 1,300ha (nearly 200ha more than in 2006) and an annual yield of 40,000 tonnes. The Nam Roi pomelo cooperative in My Hoa commune was founded in 2006, with a total area of 26.3ha, and supplies 1,000 tonnes of quality pomelos to the market annually. With GlobalGAP certification, My Hoa pomelos have become renowned nationwide and are exported to countries in Europe, America and the Middle East.³²

Fruit exports

Rapid increase in export turnover. Besides providing up to 90 per cent of the domestic market, Vietnam exports fruit to many countries in the world, and its fruit and vegetable export turnover has been steadily increasing since 2003. In 2003, exports of fruit and vegetables reached US\$ 152 million; in 2010, the figure was US\$ 471.5 million; and in 2013 it passed the US\$ 1 billion mark. The export turnover for fruit and vegetables for 2014 was US\$ 1.47 billion, a 40 per cent increase over 2013, and surpassed the original 2020 planned figure of US\$ 1.2 billion. Currently, Vietnam is among the world's top five vegetable- and fruit-exporting countries, with fruit accounting for nearly 90 per cent of the export value³³ (Figure 9).

Key exported fruits include dragon fruit (accounting for more than 40 per cent of total export turnover), coconuts (27.2 per cent), pineapples (more than 16 per cent), jackfruit (3.5 per cent), pomelos (1.6 per cent), mangos (1.5 per cent) and acerola (1.1 per cent)³⁴ (Figure 10).

²⁷ <http://tinyurl.com/pw5359a>

²⁸ The mango production area of 13 communes in the Hoa Loc mango geographical indications area includes: An Huu, An Thai Dong, An Thai Trung, Hau Thanh, Hoa Hung, Hoa Khanh, My Duc Dong, My Duc Tay, My Loi A, My Luong, Tan Hung, Tan Thanh and Thien Tri (Cai Be); and more than 1,800ha in the communes of Phu An, Cam Son, Hiep Duc, Hoi Xuan (Cai Lay).

²⁹ <http://www.nhandan.com.vn/kinhte/chuyen-lam-an/item/25391002-tim-huong-phat-trien-xoai-cat-hoa-loc.html>

³⁰ <http://xttm.mard.gov.vn/Site/vi-vn/80/26/4/279/Default.aspx>

³¹ <http://www.kinhntenongthon.com.vn/Vu-sua-Lo-Ren-mat-mua-nhung-gia-thap-108-48928.html>

³² <http://xttm.vinhlong.gov.vn/web/guest/buoi-5-roi-my-hoa>

³³ <http://xttm.mard.gov.vn/Site/vi-vn/73/81/204/88077/Default.aspx>

³⁴ <http://sofri.org.vn/NewsDetail.aspx?l=&id=553&cat=3&catdetail=0>

Figure 9: Export turnover for fruit and vegetables in Vietnam, 1996–2014

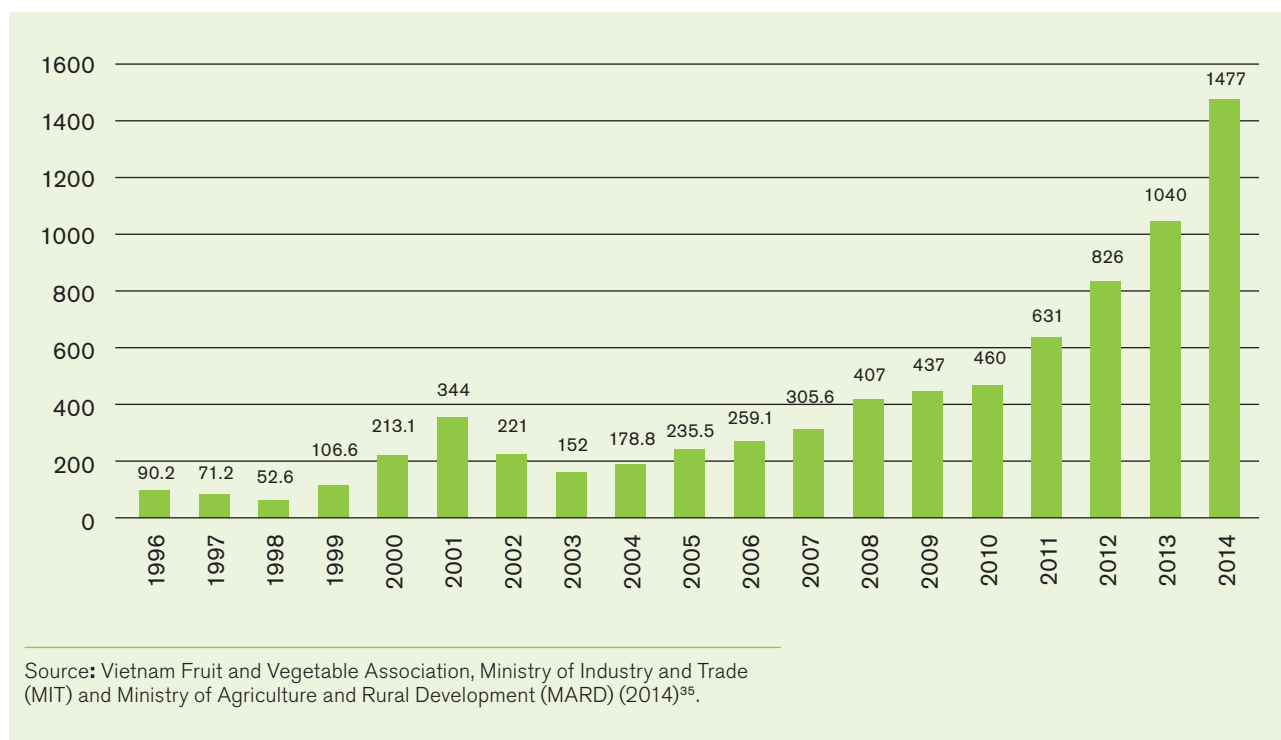
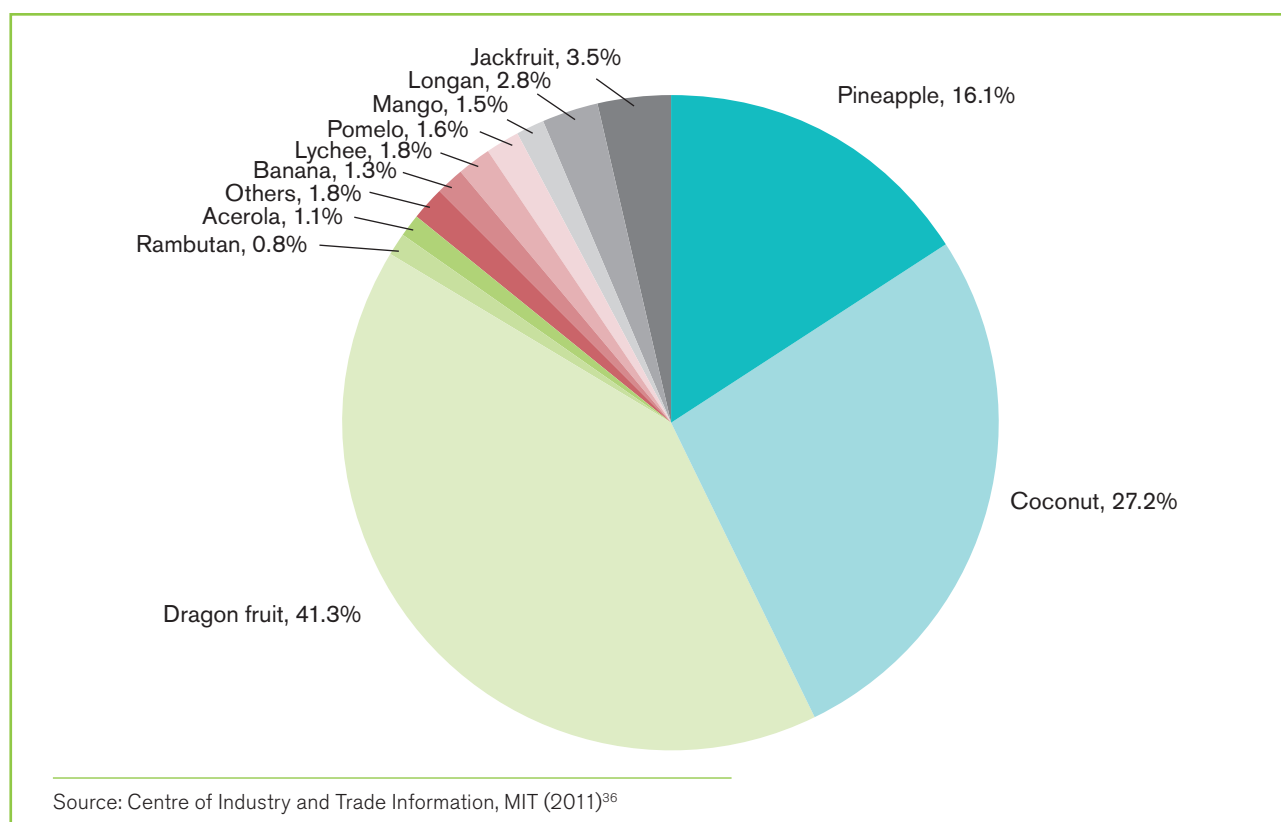


Figure 10: Proportion of export turnover for various fruits in Vietnam, 2011



³⁵ TTXVN. 2014. *Xuất khẩu rau, hoa quả đạt 1,47 tỷ USD* [Online]. Available: <http://xttm.mard.gov.vn/Site/vi-VN/73/81/0753/88077/Default.aspx> [Accessed 4.2 2015].

³⁶ Cited in Document No. 2837/QĐ-UBND dated 13 November 2013 of Binh Thuan PC, approving the Binh Thuan dragon fruit market development research project.

China is still Vietnam's main fruit market. In January 2014 alone, Vietnam exported US\$ 83.85 million worth of fruit and vegetables, of which the Chinese market accounted for 39.08 per cent, at US\$ 32.77 million; other markets include Japan (US\$ 5.08 million), the United States (US\$ 5.07 million) and Thailand (US\$ 4.96 million).³⁷

Vietnam's fruit export market area has also expanded, from 63 countries in 2011 to 76 countries currently. In 2014, Vietnam successfully negotiated the export of more varieties of fruit and vegetable to many markets, especially demanding ones with high export values, such as the USA, the EU, New Zealand, Japan and South Korea. Despite stiff competition from Thailand and Mexico, Vietnam has managed to export some varieties in large quantities. For example, off-season rambutans from Vietnam have regularly been entering the US market since November 2011. Dragon fruit exports to Japan and South Korea have reached about 4,900 tonnes cumulatively,³⁸ with 1,000 tonnes in the first six months of 2014 alone.

Vietnam's specialty fruits are gradually entering new foreign markets. So far, Vietnam is the only country in the world that exports Star apples, although in small quantities. By 2014, Hoa Loc mangos had been exported to Japan, Korea, Canada, New Zealand, Russia and so on. However, the export turnover of Hoa Loc mangos tends to be irregular. Up to now, Vinh Long has exported more than 1,000 tonnes of Nam Roi pomelos to Europe, and Ben Tre province has exported hundreds of GlobalGAP standard Da Xanh pomelos to Germany, Canada, the Netherlands, Russia and Hong Kong.

Despite the increase in fruit export turnover, it still accounts for only a very small percentage of total turnover compared to other agricultural products, and has yet to reach its full market potential. According to official statistics from the General Department of Vietnam Customs, the turnover for agricultural and aquatic products in the first quarter of 2014 reached US\$ 5.1 billion, an increase of 9.8 per cent over the same period in the previous year, and accounted for 15.1 per cent of total national exports. Of this, seafood export values were US\$ 1.6 billion (a 34.9 per cent increase), coffee US\$ 1.2 billion (14.7 per cent increase), rice US\$ 652 million (5.1 per cent decrease), pepper US\$ 336 million (33.9 per cent increase), cassava and its products US\$ 340 million (20.9 per cent decrease), cashew nuts US\$ 325 million (23.9

per cent increase), rubber US\$ 304 million (39.6 per cent decrease) and fruit and vegetables only US\$ 276 million (32.6 per cent increase).³⁹ Overall, fruit exports contributed least to agricultural export turnover.⁴⁰

The Food and Agriculture Organisation (FAO) forecasts that world demand for fruit and vegetables will increase by 3.6 per cent annually (especially for tropical fruit), but supply will increase by only 2.5 per cent on average. This will give Vietnam an opportunity to boost its fruit exports.

Fruit imports

Vietnam still has to import a large amount of fruit. The country's annual fruit and vegetable import value is about US\$ 500 million,⁴¹ with produce coming from China, Thailand, the USA, New Zealand, Australia, South Africa, Chile and India. However, this statistic may not reflect the actual situation as a substantial amount of unrecorded small-scale fruit importation also takes place.

Previously, China was the dominant source of fruit and vegetables for Vietnam. However, this has changed recently, and Thailand has now surpassed China to become its largest formal provider, not to mention the informal cross-border imports. MARD statistics indicate that in the first seven months of 2014, total fruit and vegetable imports to Vietnam reached US\$ 309.5 million, with 34.2 per cent of the products coming from Thailand (with a value of US\$ 106 million), an increase of 63 per cent over the same period the previous year. The import volume from China fell by five per cent to US\$ 74 million, accounting for 23 per cent of total imports (Table 5). The latest report suggests that by the end of Quarter 3 of 2014, fruit and vegetable imports from Thailand will have reached US\$ 135 million, while similar imports from China will have dropped to less than US\$ 100 million.⁴² This can be explained by consumers' concerns about the quality of Chinese products, which is lower than for similar types of Thai fruit, as well as concerns over the use of harmful preservatives in Chinese fruit. In addition, since Thai fruit prices are not much higher than for domestic products (5,000–7,000 dong/kg), consumers prefer to buy Thai fruit.⁴³

The management of fruit imports is facing many challenges. According to the Plant Protection

³⁷ <http://tinyurl.com/okek2pg>

³⁸ <http://www.foodexpo.vn/tin-tuc/125/hoa-qua-viet-nam-tung-buoc-chinh-phuc-thi-truong-the-gioi/86>

³⁹ <http://www.moit.gov.vn/vn/tin-tuc/3180/tinh-hinh-xuat-khau-nhom-hang-nong-san--thuy-san-cua-viet-nam-quy-1-nam-2014.aspx>

⁴⁰ <http://www.foodexpo.vn/tin-tuc/125/hoa-qua-viet-nam-tung-buoc-chinh-phuc-thi-truong-the-gioi/86>

⁴¹ http://www.nhandan.com.vn/mobile/_mobile_xahoi/_mobile_tintucxh/item/25520302.html

⁴² <http://kinhdoanh.vnexpress.net/tin-tuc/hang-hoa/trai-cay-thai-lan-tran-vao-cho-viet-3073847.html>

⁴³ <http://www.khoahocchonanong.com.vn/modules.php?name=News&file=article&sid=13957>

Table 5: Comparison of fruit and vegetable imports (official quota) between Thailand and China (US\$ million)⁴⁴

	JUNE 2014	JULY 2014	AUGUST 2014	SEPTEMBER 2014
Thái Lan Thailand	73	106	125	135
China	57	74	83	99.9

Source: <http://www.tienphong.vn/Kinh-Te/hang-hoa-thai-lan-am-tham-tan-cong-thi-truong-viet-781465.tpo>

Department (MARD), in 2014, 17,000 tonnes of apples from the USA were imported by 35 domestic businesses. When the US authorities recently announced that one supplier, Birdart Bros. (California), had sold infested apples to the Vietnamese market in January 2015, the Plant Protection Department (MARD) stated that this was not the case. However, Vietnamese consumers have reason to worry when apples from the USA are imported through different channels. Previously, the Plant Protection Department had sent a notice regarding the suspension of Australian fruit imports to Vietnam due to concerns about an outbreak of fruit fly. In addition to official fruit imports, the Vietnamese market is a significant consumer of fruit imported through unofficial small-scale channels, including smuggling, mostly from China and Thailand. Smuggled fruit is usually unlabelled, of unknown origin and is not quality guaranteed. Furthermore, smuggled fruit is often preserved with harmful chemicals to keep it fresh and eye-catching.⁴⁵

While international markets, including demanding ones such as the EU, the USA, Japan and so on are becoming more open to Vietnamese fruit, the domestic market is being abandoned and is increasingly dominated by Thai fruit. Thai products are gradually occupying the traditional markets of Vietnam, with the emergence of popular fruit such as durian, rambutan, langsat, tamarind and mangosteen. The reason for this is partly because of the narrow price gap between Vietnamese and Thai products, and because Thai fruit is of a better look, quality and uniformity.

Key challenges in the fruit sector

Fruit quality

In 2007, Vietnam officially joined the World Trade Organisation (WTO), since when many opportunities have opened up for cooperation with other countries regarding fruit exports. However, barriers are emerging with regard to product quality.

Vietnamese fruit is experiencing difficulties in penetrating demanding markets such as the USA, Japan and the EU. In the Mekong Delta, the yield of export standard fruit is too small and unreliable to ensure adequate quantities to meet the needs of importers. According to the Crop Production Department (MARD), up until June 2014, 83 per cent of the fruit from the region was traded through private agents, 10 per cent through supermarkets and only 7 per cent through processing, and import and export enterprises.⁴⁶

Statistics from the Export–Import Department (MIT) show that Vietnam's technical barriers with regard to exports lie mostly in agriculture, forestry and fisheries. As of 2012, the Japanese market has banned more than 30 varieties of Vietnamese fruit.⁴⁷ At the end of 2011, many fruit and vegetable shipments from Vietnam failed to enter the EU because of microbial infestations and pests. A dragon fruit shipment to the USA was also detained under the FDA Food Safety Modernisation Act (FSMA) because of detected pesticide residues.⁴⁸ And the most recent incident was the EU's warning

⁴⁴ <http://www.tienphong.vn/Kinh-Te/hang-hoa-thai-lan-am-tham-tan-cong-thi-truong-viet-781465.tpo>

⁴⁵ <http://baocongthuong.com.vn/lo-chat-luong-trai-cay-nhap-ngoai.html>

⁴⁶ <http://www.thesaigontimes.vn/115678/Trai-cay-xuat-khau-tang-kho-khan-cung-tangl.html>

⁴⁷ <http://xttm.mard.gov.vn/Site/vi-vn/73/81/199/72551/Default.aspx>

⁴⁸ <http://tinyurl.com/pz2manl>

about the low quality of vegetable exports from Vietnam. According to the Ministry of Industry and Trade, since the beginning of 2014, the Directorate General for Health and Consumers (DG SANCO) of the European Commission (EC) has received three announcements in a row from EU Member States concerning shipments from Vietnam containing harmful bacteria on basil (*Ocimum santum*) and bitter melon (*Momordica charantia*).⁴⁹ The EU has increased its inspection rate for vegetables and herbs from Vietnam by 20 per cent and is also considering a quality control inspection on 20 per cent of Vietnamese dragon fruit.⁵⁰ DG SANCO announced that if there were five cases of food safety and plant quarantine rule violations between February 2014 and February 2015, the EU would ban Vietnamese fruit and vegetable imports.⁵¹

Fruit processing and preservation

In Vietnam, the techniques and facilities for post-harvest preservation and processing are poor and post-harvest losses are high. MARD Decision No. 824/QĐ-BNN-TT dated 16 April 2012 states that at that time, the proportion of fruit post-harvest losses was as high as 25 per cent. This means that fruit exports from Vietnam, particularly to demanding and distant markets such as the EU, the USA, Canada, Australia and New Zealand, face enormous difficulties because of a lack of investment and underdeveloped techniques, technologies and facilities required for preservation, such as cold storage, specialised washing/sorting/handling equipment, ripening chambers and so on.⁵² Currently, only a few large enterprises and supermarkets in Vietnam use cold storage for fruit; the vast majority of firms and traders still store fruit in the conventional way and there is little post-harvest preservation or processing.⁵³

The development of the fruit-processing industry in Vietnam is not commensurate with its potential. Most fruit is consumed fresh and only about 11–12 per cent is processed.⁵⁴ At harvest time, many types of fruit ripen quickly, thus exceeding the capacity of the domestic market; hence fruit spoils easily and is wasted. The operational capacity of the fruit-processing plants has improved compared to 2008 but is still low.

For example, the total processing capacity in 2008 was 290,000 tonnes of fruit per year and had reached 313,000 tonnes per year by the end of 2010. However, in 2010 some fruit-processing plants operated only at 50 per cent of their design capacity, as they were at risk of closing down because of the high costs of buying fresh fruits for processing in comparison with other countries in the region.⁵⁵

Costs and prices

Prices for Vietnamese exported fruit are higher than in other countries in the region such as Thailand and China. This price differential can be explained by the lack of specialised fruit crop areas, having too many middlemen in the chain and higher transportation costs. These factors reduce the country's competitiveness; for example, shipping costs for grade I dragon fruit in 2015 are US\$ 1/kg but the long journey time (two months) can damage dragon fruit; air transport is much faster but is too costly (US\$ 6/kg).⁵⁶

Even in the domestic market, Vietnamese fruit is in fierce competition with imported fruit in terms of price. Most fruit from other countries, especially Thailand, that comes in over the southwest border is cheaper than local fruit of the same kind.

Brand development and product promotion

Over the past few years, many specialty fruits from Vietnam have been registered trademarks with the Intellectual Property Department. For example, Tien Giang registered the collective trademark for seven specialty fruits: Hoa Loc mangos, Vinh Kim Lo Ren Star apples, Tan Lap pineapples (Tan Phuoc), Cho Gao dragon fruit, Cong acerola, Co Co pomelos and Ngu Hiep durian.⁵⁷

However, the biggest challenge in exporting fruit from Vietnam is the lack of a proactive and effective product consumption strategy; also an absence of marketing programmes for Vietnamese fruit in terms of both quantity and quality, domestically and internationally, especially to difficult markets. There are niche markets for Vietnamese fruit, for example American supermarkets

⁴⁹ <http://socongthuonght.gov.vn/xuc-tien-thuong-mai/eu-can-h-bao-rau-qua309-xuat-khau-vie323t-nam>

⁵⁰ <http://baocongthuong.com.vn/doanh-nghiep-viet-van-tho-o-voi-cac-rao-can-ky-thuat-trong-thuong-mai.html>

⁵¹ <http://socongthuonght.gov.vn/xuc-tien-thuong-mai/eu-can-h-bao-rau-qua309-xuat-khau-vie323t-nam>

⁵² http://hungvuong.edu.vn/thuvien/index.php?option=com_content&view=article&id=378&Itemid=103&showall=1

⁵³ <http://www.muabannongsan.com/bao-quan-trai-cay-sau-thu-hoach/che-bien-va-bao-quan-nong-san>

⁵⁴ <http://www.khoahocphothong.com.vn/newspaper/detail/37015/de-trai-cay-dbscl-khong-phu-thuoc-vao-thi-truong-de-tinh.html>

⁵⁵ <http://www.thesaigontimes.vn/home/kinhdoanh/dautu/43683/>

⁵⁶ <http://news.zing.vn/Trai-cay-Viet-bi-re-rung-o-nuoc-ngoai-post511639.html>

⁵⁷ <http://danviet.vn/hoat-dong-hoi-tien-giang-da-co-17-hx-san-xuat-tieu-thu-trai-cay-200681.html>

(currently, Vietnamese fruit is only available in Asian supermarkets); also developing Vietnamese-owned chains of retail and wholesale Vietnamese fruit stores in big cities in the USA, introducing dragon fruit to the other main islands of Japan (currently sold only in part of Japan) and so on. Besides, the current heavy reliance on the Chinese market presents a major risk for the Vietnamese fruit sector, especially when the importer suddenly stops buying or applies pricing pressure.

However, no or poor labelling/packaging, or using foreign customers' packaging, is still an issue for fruit exports. Vietnamese enterprises have not paid attention to brand development and the promotion of Vietnamese fruit to the world. A Canadian Vietnamese pointed out that although Vietnamese fruit is delicious, nutritious and cheap, because the exporters have not paid attention to labelling/packaging, prices are usually lower than similar local fruit. For instance, Vietnamese dragon fruit in Canada are often sold in big piles, unlabelled and unpackaged, with no label of origin; therefore, they are not usually selected and soon rot.⁵⁸

Fruit sector development policy

General agricultural planning policies: Government issued Decision No. 124/QĐ-TTg dated 2 February 2012, which approved the overall development plan for Vietnam's agricultural sector up to 2020 and with a vision up to 2030, including agricultural zone development planning for the Mekong Delta. One goal is to increase the fruit crop production area to approximately 910,000ha, 350,000ha of which will be in the Mekong Delta, and to move towards the application of GAP (VietGAP and GlobalGAP), thus ensuring food safety.

Overall fruit sector planning: MARD issued Decision No. 1648/QĐ-BNN-TT dated 17 July 2013, which approved the zoning of specialty fruit farming areas and promotion of off-season fruit production for some fruit trees in the south until 2020. The objective is to develop 12 specialty fruit varieties, including dragon fruit, mangos, rambutan, durian, Star apples, pomelos, longan, bananas, oranges, soursop and tangerines, aiming for a revenue of 120 million dong/ha. Accordingly, the involved provinces in the Mekong Delta

have also issued their own decisions regarding the development of fruit crop production.

Land policy: The land law was amended in 2013 to create a flexible legal framework that enabled land consolidation for agricultural farms, the production of perennial crops and large-scale production.⁵⁹ Changes in land policy allowed farmers to decide on production and to convert from inefficient plants to fruit and vegetables. Moreover, thanks to a change in the long-term land allocation policy from 20 years to 50 years for fruit trees, as well as the new land accumulation cap of ten times the allocated agricultural land area, farmers can now invest more efficiently in their land.

Infrastructure support policy

- To construct closed dykes and levees: The Prime Minister issued Decision No. 1397/2012/QĐ-TTg, which approved the irrigation masterplan in the Mekong Delta region for the period 2012–2020 with the estimated investment budget of 171,700 billion dong, and issued guidance for further irrigation improvement in the region towards 2050.
- To construct sea dykes to prevent salinity: The Prime Minister approved a huge programme to consolidate and upgrade the sea dyke system from Quang Ngai to Kien Giang in the period 2009–2020 (Decision No. 667/QĐ-TTg dated 27 May 2009). However, due to budget constraints, up to 2013, the government disbursed only 738 billion dong out of the 11,000 billion dong allocated to the Mekong Delta provinces.

Policies to support the development of science and technology in agriculture and to improve seedlings and enhance safety controls on food imports: Decree 02/2010/ND-CP dated 8 January 2010 referred to agricultural extension services. Small-scale and poor farmers get full support for the costs of materials and for travelling and accommodation costs to attend training courses. Commodity farmers and farm owners, members of cooperative groups and agricultural/forestry farm workers receive 100 per cent support for the costs of materials and 50 per cent support for the costs of travelling and accommodation to attend training courses. Small and medium enterprises in the field of agricultural extension get 50 per cent support for the costs of materials. The government gives 100 per cent support to organisations that disseminate

⁵⁸ <http://baodatviet.vn/kinh-te/thi-truong/viet-kieu-chi-ly-do-trai-cay-viet-bi-ghe-lanh-3232021/>

⁵⁹ According to Article 29 of Land Law No. 45/2013/QH13 of the National Assembly, the allocation quotas for land for perennial crops for each household or individual in a delta commune, ward or township must not exceed ten hectares and must not exceed 30 hectares for each household or individual in a midland or mountainous commune, ward or township. If the household or individual is allocated additional land for perennial crops, this must not exceed five hectares in a delta commune, ward or township and must not exceed 25 hectares in a midland or mountainous commune, ward or township.

information on extension activities and to individuals running approved information and communications projects; 100 per cent support is also given for the organisation of contests, fairs, exhibitions and extension forums that are approved by the authorities.

To control the safety of imported foods under the provisions of food safety and international practice law, MARD issued Circular No. 13/2011/TT-BNN to provide guidance on food safety in plant-originated food. The document contains strict regulations for the control of imported goods; however, in recent years there have been a large number of smuggling cases through borders that have not been effectively controlled, leading to bad quality products penetrating deep into local markets. Dealing with these cases has been very difficult and costly, and included the confiscation and destruction of the goods.

In response to the urgent need to enhance the competitiveness and efficiency of agricultural production, as well as to increase farmers' incomes, MARD issued Decision No. 35/2008/QD-BNN dated 15 February 2008 regarding regulations on the management of household-level seedling production. The purpose is to encourage farmers to participate in the retention, preservation and exploitation of effective local plant genetic resources and to create new breeds; also to create favourable conditions for farmers to produce good quality, low price products to meet the current requirements.

Credit support and connection policy: The government issued Decision No. 01/2012/QD-TTg dated 9 January 2012, which concerns policies to support the application of GAP in agriculture, forestry and fisheries. One notable point in the decision is that the government will provide 100 per cent support for basic surveys that will identify production areas for VietGAP application; for training and coaching for managers, technical staff and extension staff at all levels; for vocational training for rural workers to apply VietGAP in safe production and semi-processing; and for the compilation and printing of documents and forms for training courses. MARD has already issued Joint Circular No. 42/2013/TTLT-BNNPTNT-BTC-BKHDT dated 16 October 2013, which provides guidance for implementing Decision No. 01/2012/QD-TTg.

In order to minimise agricultural losses as well as to support enterprises, cooperative groups and farmers to invest in manufacturing equipment (water-saving irrigation systems) and storage and processing facilities, and thus contributing to increasing production efficiency and fruit consumption, the government issued Decision No. 68/2013/QD-TTg dated 14 November 2013 on support policies to reduce losses in agriculture, which is the basis for fruit production development.

To encourage the development of the fruit sector, the Prime Minister issued Decision No. 62/2013/QD-TTg dated 25 October 2013 on the policies for promotion of farmers' collective actions, contract farming and large scale production. The decision identifies support and incentives for farmers, farmer-representing organisations and enterprises.

The government issued Decree No. 210/2013 ND-CP dated 19 December 2013 on policies to encourage enterprises to invest in agriculture and rural areas; this replaced Decree No. 61/2010/ND-CP dated 4 June 2010. Decree No. 210/2013 ND-CP has many new features and offers more incentives for enterprises to invest in agriculture. For example, enterprises that invest in specialised materials for crop production and offer reliable contracts will be prioritised for support. Similarly, enterprises can receive a 70 per cent reduction in land use fees for incentive agricultural projects and a 50 per cent reduction for agricultural projects that are on the list for preferred investment.

The credit support policy for rural and agricultural development comes under Decree No. 41/2010ND-CP. In particular, this allows credit institutions to provide loans without security up to the following levels: 50 million dong for individuals and business households engaged in production; 200 million dong for households carrying out activities that support agriculture and rural development; and up to 500 million dong for cooperatives and farm owners.

Annex 2:

Characteristics of the specialty fruits in the three study settlements

BOX 18: CHARACTERISTICS OF SPECIALTY FRUITS IN THE THREE STUDY SETTLEMENTS

1. Lo Ren Star apple

Characteristics

The Lo Ren Star apple has a spherical tapered shape and each fruit weighs on average 0.25–0.35kg. It is pale yellow with pink and green tinges, shiny, soft, juicy and sweet-smelling. The special characteristic of the Lo Ren Star apple is its thin skin, which is the main constraint in post-harvest preservation. Due to this and to the fact that it does not ripen any further once it has been cut from the tree, it cannot be transported far from the production area. There used to be 12 types of Star apple, but at present only three types remain, with the Lo Ren accounting for 95 per cent of production.

Harvest

Main harvest: November to February
Inverse harvest: April, May and October

2. Hoa Loc mango

Characteristics

Hoa Loc mangos weigh on average 0.35–0.45kg and are either oval or round with a sharp pointed tip. When ripe, the skin is pale yellow and the flesh deep yellow, with a silky texture and little fibre. The mango has a sweet smell and flavour and a powdery skin surface.

Harvest

Main harvest: January to May

Inverse harvest: The other months of the year (except for July and August, the rainy season, when production is low).

3. Nam Roi pomelo

Characteristics

The lifespan of a pomelo tree is about 10–20 years. The fruit is the shape of a large pear and has an average weight of 0.9–1.45kg. When the fruit is ripe, the skin is greenish yellow to bright yellow. The fleshy pulp is pale yellow, tight bound and easily peeled. The pomelo has a sour–sweet juice (Brix degree: 9–11 per cent) and smell, a flesh-to-peel ratio of more than 50 per cent and only very few seeds.

Harvest

Main harvest: April–May and September–October

Inverse harvest: The other months of the year (except for July and August, the rainy season, when production is low). In addition, there is the Tet harvest (Lunar New Year) when the pomelos are kept on the tree in anticipation of a higher price. Nam Roi pomelos command quite a high price, ranked second after the Da Xanh pomelo.

Rapid urbanisation and industrialisation have had multiple impacts on rural Vietnam since economic reform in the mid-1980s. In 2006, the authors conducted a study of the social and economic transformations in three rural settlements in the area often described as Vietnam's rice bowl and where livelihoods and the nature of the local economic base, including farming, had changed radically. All could be described as success stories, especially when compared to other rural areas in the Mekong Delta region. Almost a decade later, this paper revisits the same settlements and describes their social and economic evolutions and the key factors that help decipher three distinct but similar trajectories.

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