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**Farmers' responses to VietGAP: a case study of a
policy mechanism for transforming the traditional
agri-food system in Vietnam**

A dissertation presented
in partial fulfilment of the requirements
for the degree of

**Doctor of Philosophy in Agricultural Systems and
Environment**

at Massey University
Palmerston North, New Zealand



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2018

Abstract

The VietGAP programme is one of a suite of policies used by the Vietnamese Government to transform the country into a more market-led economy. It was implemented in 2009 to help foster the development of a modern agri-food system in Vietnam. However, it has had limited success with less than 5% of farmers adopting the programme. Little is formally known about how the programme was implemented or why it was not adopted by the majority of farmers. This dissertation contributes to understanding farmers' responses to VietGAP, a policy mechanism that is associated with an emerging socio-technical regime in the early stages of a transition to a modern agri-food system. A single-case study design was employed, and data was collected primarily through semi-structured interviews supplemented with relevant documents. Qualitative data analysis techniques were used to analyse the interview data and relevant documents.

In this study, VietGAP was viewed as a policy mechanism used by the government to help it shift from a traditional to a modern agri-food system. Significantly, this study found that the social, cultural, and institutional dimensions that define the dominant traditional agri-food system determined farmers' responses to VietGAP. Firstly, there was a lack of concern about food safety among value chain actors, particularly consumers and this limited demand for VietGAP-certified vegetables. Secondly, subjective rather than objective measures were used to assess vegetable quality by actors throughout the domestic vegetable value chain. Thirdly, the coordination of this vegetable value chain was dominated by informal, trust-based relationships between value chain actors rather than through formal written contracts.

In addition, farmers' responses to VietGAP were influenced by the broader transition from a centrally planned to a more market-led system that is occurring in the country. The implementation of VietGAP changed the roles and nature of relationships between value chain actors and this influenced how farmers responded to VietGAP. This study highlights that farmers' uptake of VietGAP requires changes to the socio-technical regime of the traditional agri-food system. Many farmers did not adopt VietGAP because of: 1) a lack of market demand for VietGAP-certified vegetables, 2) the risks associated with breaking informal institutions between farmers and preferred collectors; and 3) a lack of capability in key value chain actors. In contrast, a small number of

farmers adopted VietGAP because of: 1) the level of support they received from the local government; and 2) their political aspirations and loyalty to the government.

This research re-conceptualizes a public VietGAP scheme as a policy mechanism for transforming the traditional agri-food system in Vietnam. It provides insights into farmers' responses to such policy mechanism and provides a more systemic view of the determinants of GAP adoption by producers. The insights gained from this study into what shaped farmers' responses to VietGAP highlight areas that need to be considered when designing policies to enhance the uptake of public GAP programmes in developing countries that are in the early stages of a transition from a traditional to a modern agri-food system.

Acknowledgements

This PhD research project has been accomplished by an individual effort, and with the love, support, commitment, involvement, input, and encouragement from many people and organisations. I would like to take a chance to thank these people and organisations, and recognize their contributions. First, completing this PhD research would have not been possible without the love, support, and encouragement from my parents, parents-in-law, brothers and sisters, and my family: my daughter Hoang Minh Chau and my wife Duong Thi Dieu My who always inspired me to pursue this PhD study.

I am honoured to have been supervised by Dr Janet Reid and Dr David Gray. Both provided me with great wisdom in designing and implementing this PhD research. I sincerely thank you very much Dr Reid and Dr Gray for your teaching and enthusiasm and for what you have taught me about science. Your guidance, encouragement, support, patience, and commitment were significant to this PhD research project.

I would like to thank staff and friends at the School of Agriculture and Environment of College of Sciences at Massey University. I would like to thank Denise Stewart for her administrative support. Denise always ensures all PhD students at the School of Agriculture and Environment have what they need to accomplish their studies effectively.

I would like to thank each of the 54 participants who were involved in this study. Their inputs about the VietGAP programme for vegetables have contributed to the success of this research. I also would like to thank the Government of New Zealand for granting me a scholarship to study a PhD programme at Massey University. I would like to express my gratitude to Sylvia Hooker and Jamie Hooper for their support and facilitation in managing the scholarship during the study period. Finally, I would like to thank the Hue University of Agriculture and Forestry-Hue University where I have worked as a lecturer, and my colleagues at the university who supported me to study at Massey University for four years.

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Abbreviations

Abbreviations	Full phrases
ADB	Asian Development Bank
ASEAN	Association of South East Asian Nations
CPV	Communist Party of Vietnam
CPC	Commune People's Committee
CPCo	Commune People's Council
CIEM	Central Institute for Economic Management
DDARD	District Department of Agriculture and Rural Development
DERG	Development Economics Research Group,
DSAE	District Station of Agricultural Exertion
DPC	District People's Committee
DSM	Department of Survey and Mapping
DPCo	District People's Council
EurepGAP	European Retailer Produce Working Group Good Agricultural Practices
FAO	Food and Agriculture Organisation
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
GlobalGAP	Global Good Agricultural Practices
GOV	Government of Vietnam
GSO	General Statistics Office of Vietnam
MARD	Ministry of Agriculture and Rural Development
MOH	Ministry of Health
MOF	Ministry of Finance
MPI	Ministry of Planning and Investment

NCAE	National Centre for Agricultural Extension
NGO	Non-Governmental Organisation
PDARD	Provincial Department of Agriculture and Rural Development
PCAE	Provincial Centre for Agricultural Extension
PPC	Provincial People's Committee
PPCo	Provincial People's Council
SCNA	Standing Committee of the National Assembly
VietGAP	Vietnamese Good Agricultural Practices
VND	Vietnamese dong
WB	World Bank

CHAPTER ONE: GENERAL INTRODUCTION

1.1. Introduction

This dissertation presents the results of a case study that investigates farmers' responses to VietGAP, a policy mechanism that comprises a suite of technologies associated with an emerging socio-technical regime in an early stage of a transition to a modern agri-food system. Farmers' reasons for not engaging in VietGAP emerged as reflecting the stage of development of a modern agri-food system with which VietGAP is associated. The discordance between the prevailing social-technical landscape, social-technical regime and VietGAP influenced farmers' non-adoption of VietGAP. This chapter introduces the thesis by outlining the background to the research problem and considering why addressing this research problem is important. Subsequently, the research question is outlined. After that, a brief reflection on research is described. Finally, the structure of the thesis is presented.

1.2. Background to the research

Vietnam is a developing country. The majority (some 66%) of the population live and work in rural areas (GSO, 2017a). As such, agriculture plays an important role in the social and economic development of Vietnam (Dao & Nguyen, 2013). Facilitating agricultural development has thus been one of the Vietnamese Government's main development strategies for poverty reduction and improvement in social and economic growth. Several important programmes and policies have been introduced to facilitate agricultural development of the country since the 'Doi Moi' policy was introduced in the 1980s (Cervantes-Godoy & Dewbre, 2010). The VietGAP programme is one of a

suite of policy tools introduced by the Government of Vietnam to facilitate a shift from a traditional to a modern agri-food system. The programme has been implemented nation-wide (Information and Research Centre, 2015).

To facilitate the adoption of VietGAP, the central government has promoted it to farmers by providing extension services and incentives (MARD, 2013). For example, the National Centre for Agricultural Extension (NCAE) in cooperation with the provincial Department of Agriculture and Rural Development (PDARD) and the provincial Centre for Agricultural Extension (PCAE) have introduced a range of extension programmes across the country to demonstrate the benefits and applicability of VietGAP to farmers (MARD, 2013). The local government (through Commune Peoples' Committee) provides financial support to farmers if they adopt VietGAP. Despite this support, the programme has had limited success. In 2014, there were some 7,557 ha of vegetables, 11,027 ha of fruit; 7,554 ha of rice; 5,644 ha of tea; and 124 ha of coffee grown that complied with VietGAP requirements (Cultivation Department, 2015). These crop areas represent some 0.08%, 1.35%, 0.01%, 4.19% and 0.02% of the total area in each crop, respectively (Cultivation Department, 2015).

There is limited understanding about how the VietGAP programme is implemented and why it has not been adopted by the majority of farmers (MARD, 2013). Investigating the VietGAP programme for vegetables provides useful insights as to what influenced farmers' responses to VietGAP and the central government interventions directed at farmers, but linked to a broader transformation in the agri-food system. Such insights, this research argues, will be of value for proposing and designing policies to enhance the implementation of the VietGAP programme, and also how the government in developing countries facilitate technological changes as expected. This will help

increase the uptake of VietGAP by farmers and foster the transition towards a modern agri-food system in Vietnam. In the next section, the research question is outlined.

1.3. Research question

The question that frames this doctoral research is ‘What is shaping farmers’ responses to VietGAP?’ To answer the research question, this study argues that it is useful to investigate the VietGAP programme and farmers’ responses to VietGAP from a systemic lens. The use of a systemic approach to investigate the VietGAP programme and farmers’ responses to VietGAP is useful for two reasons. First, the VietGAP programme is considered by the Government of Vietnam to be part of a broader set of programmes and policies that have been developed and used to facilitate changes in the agricultural sector (MARD, 2008a). These changes are part of technological changes that have been occurring in Vietnam since the ‘Doi Moi’ policy was introduced in the 1980s (Athukorala, Pham, & Vo, 2009; Beresford, 2008; Cadilhon, Moustier, Poole, Tam, & Fearne, 2006; Gainsborough, 2010). Therefore, the historical, social, political, cultural and economic context in Vietnam has shaped the implementation of the VietGAP programme.

Second, the VietGAP programme involves multiple actors including the MARD; NCAE; the district and provincial Departments of Agriculture and Rural Development; the district and provincial Department of Agricultural Extension; farmers; and supermarkets, as well as the interactions between them, as highlighted in the evaluation report (MARD, 2013). The researcher of this study accepts, as argued by some scholars (e.g. Ayele, Duncan, Larbi, & Khanh, 2012; Bijman & Bitzer, 2016) that farmers’ responses to new technologies are shaped not only by farmer individual characteristics and circumstances, but also the system of which farmers are a part.

1.4. Reflection on research

This PhD research began as an exploration of reasons why farmers were not engaging in VietGAP. However, based on findings from the field, what emerged is the need to highlight the broader context in Vietnam and its influence on farmers' views of VietGAP. During the research, there were also some important changes that contributed to the accomplishment of this study. They are worth mentioning and acknowledging as these changes provide the reader with an understanding of the journey I have undertaken during the writing of this PhD dissertation. Initially, in this study, I adopted a technology transfer perspective on the adoption of VietGAP. I assumed that the low level of the adoption of VietGAP by farmers was because of the ineffectiveness of the agricultural extension programmes delivered to farmers under the VietGAP programme. However, working with my supervisors and undertaking a broader review of the literature, made me realise that looking at the research problem from a technology transfer perspective, provided a very narrow view of the problem. I then changed my approach to take on a more systemic perspective of the problem, looking at the research problem within its broader context.

In addition, in the early stages of the research I used an innovation system theory as the theoretical framework to guide my exploration of the implementation of the VietGAP programme for vegetables and the adoption/non-adoption of VietGAP by farmers. However, during my field work I realised other theories could provide useful insights into the problem situation, and also help to capture and articulate the findings from the research. Therefore, value chain theory and technological transition theory were incorporated into the literature review in conjunction with the innovation system theory. The theories are used in this research as a framework to describe and explore what has

shaped farmers' responses to VietGAP. In the next section, the structure of the thesis is presented.

1.5. The structure of the thesis

Generally, the structure of this thesis follows a standard monograph format. The thesis is comprised of eight chapters, including this general introductory chapter. The foci of the subsequent chapters are summarised as follows.

- Chapter Two provides an overview of the contextual information for the research. An overview of Vietnam, land ownership, agricultural development, the food marketing system, Good Agricultural Practices (GAP), VietGAP in Vietnam are provided. This review is not only necessary to interpret the research results, but also sets out a need to investigate the VietGAP programme for vegetables and the adoption/non-adoption of VietGAP by farmers from a systemic view.
- Chapter Three presents a critical review of literature relevant to the research. First, three bodies of theory including technological transition, innovation systems and value chains are reviewed. Research into GAP programmes and its adoption by producers is then examined. This review of literature focuses on the importance of the systemic approach in explaining technological changes.
- Chapter Four outlines the research methodology used in this research. First, the constructivist-interpretivist research paradigm that framed the study is described. The case study research design is then provided, and the data collection techniques are outlined. Subsequently, the data analysis procedure is presented. Finally, the means by which the quality of the research was managed, the role of the researcher and ethical issues are discussed.

- Chapter Five describes key information about the case at the study site. First, an overview of the Thua Thien Hue province is provided. Then, the main characteristics of the X district are described. Subsequently, the key characteristics of agriculture, the nature of farmers/farm, and the process of implementation of the VietGAP programme for vegetables in the XA and the XB communes are provided.
- Chapter Six reports key findings in relation to the research question. First, the impact of VietGAP on the local value chain for vegetables is described. Subsequently, the key characteristics of value chain actors, their roles and functions, and the interactions between the value chain actors within the interlinked VietGAP and traditional vegetable value chain system are presented. Finally, the main characteristics of support actors that are associated with the interlinked value chain system are provided.
- Chapter Seven discusses key findings in light of the relevant literature. First, the key theoretical characteristics of the case are outlined. VietGAP, as a policy mechanism for transforming the traditional agri-food system, is then discussed. After that, farmers' responses to VietGAP and its association with the technological transition in Vietnam are discussed. Subsequently, the elements that influence farmers' decision not to adopt, adopt and dis-adopt VietGAP are discussed, respectively. Finally, a summary of the chapter is provided.
- Finally, Chapter Eight provides key conclusions to the research question. It summarises key theoretical contributions of this doctoral research. Further, it discusses implications, limitations and future research.

CHAPTER TWO: RESEARCH CONTEXT

2.1. Introduction

This chapter provides the contextual information (at national level) for the research that will be useful for interpreting the research results. It is structured into six sections as follows: Section 2.2 presents an overview of Vietnam, which is where the research is conducted; Section 2.3 summarises the land ownership in Vietnam; Section 2.4 outlines the characteristics of the agriculture sector within the country; Section 2.5 describes the nation's food marketing system; and Section 2.6 describes the development of Good Agricultural Practices and VietGAP in Vietnam. In the final section 2.7, a summary of the chapter is provided.

2.2. A brief overview of Vietnam

Vietnam is a developing country, located on the Indochina Peninsula in Southeast Asia (Figure 2.1). Vietnam covers 331.230 thousand square kilometres (km^2) and in 2016, there was a population of 92.695 million people (GSO, 2017a). The Gross Domestic Product (GDP) of Vietnam was 4.5 quadrillion Vietnamese dongs (VND) ($\sim \$ 198$ billion USD) and the GDP per capita per year was 48.576 million VND in 2016 ($\sim \$ 2.215$ thousand USD per capita) (GSO, 2017a).

BẢN ĐỒ HÀNH CHÍNH NƯỚC CỘNG HÒA XÃ HỘI CHỦ NGHĨA VIỆT NAM
ADMINISTRATIVE MAP OF SOCIALIST REPUBLIC OF VIETNAM



Figure 2. 1: A map of Vietnam (DSM, 2017)

The Government of Vietnam is separately organised into three branches: the legislation (the National Assembly), the executive (the Government), and the judiciary (the Supreme Peoples' Court), starting at the top with the central Government (Figure 2.2) (GOV, 2016). At the local level, the Government is separated into provincial, district and commune levels. At each local level, there is an executive, legislative and jurisdictional branch. Branches of the executive, legislation, and judiciary thus exist at every sub-national unit, from the central Government down to the commune level (GOV, 2016; Malesky, Nguyen, & Tran, 2014). At the local level, the branches of the executive, the legislation, and the judiciary are represented by the People's Committee¹, People's Council² and People's Court³, respectively (except there is no People's Court at the commune level) (Figure 2.2).

Vietnam operates under a one-party system led by the Communist Party of Vietnam (CPV) (GOV, 2016). Therefore, all government organisations are subordinate to the CPV at each level. The Party leaders make the rules and set policy for the development of the country (GOV, 2016). The Party is the highest authority in the Government of Vietnam and the Party guides the policy-making process at both central and local levels (GOV, 2016).

¹ : According to the SCNA (1994, p. 1), “the People's Committee which is elected by the People's Council is the executive office of the People's Council, the State administrative organ in the locality. It is responsible for the implementation of the Constitution, the laws, the written decisions of the State organs of higher levels and the resolutions of the People's Council of the same level”.

² : According to the SCNA (1994, p. 1), “the People's Council is the organ of power in the locality, representing the will, the aspiration and the right to mastery of the local people. It is elected by the local people and is answerable to the local people and State organs of higher levels. The People's Council shall discharge the duties and powers vested in it by the Constitution and the laws, ensure the united leadership of the central organs and, at the same time, promote the initiatives and creativeness of the locality”.

³ : The People's Court is the judicial organisation of the Socialist Republic of Vietnam.

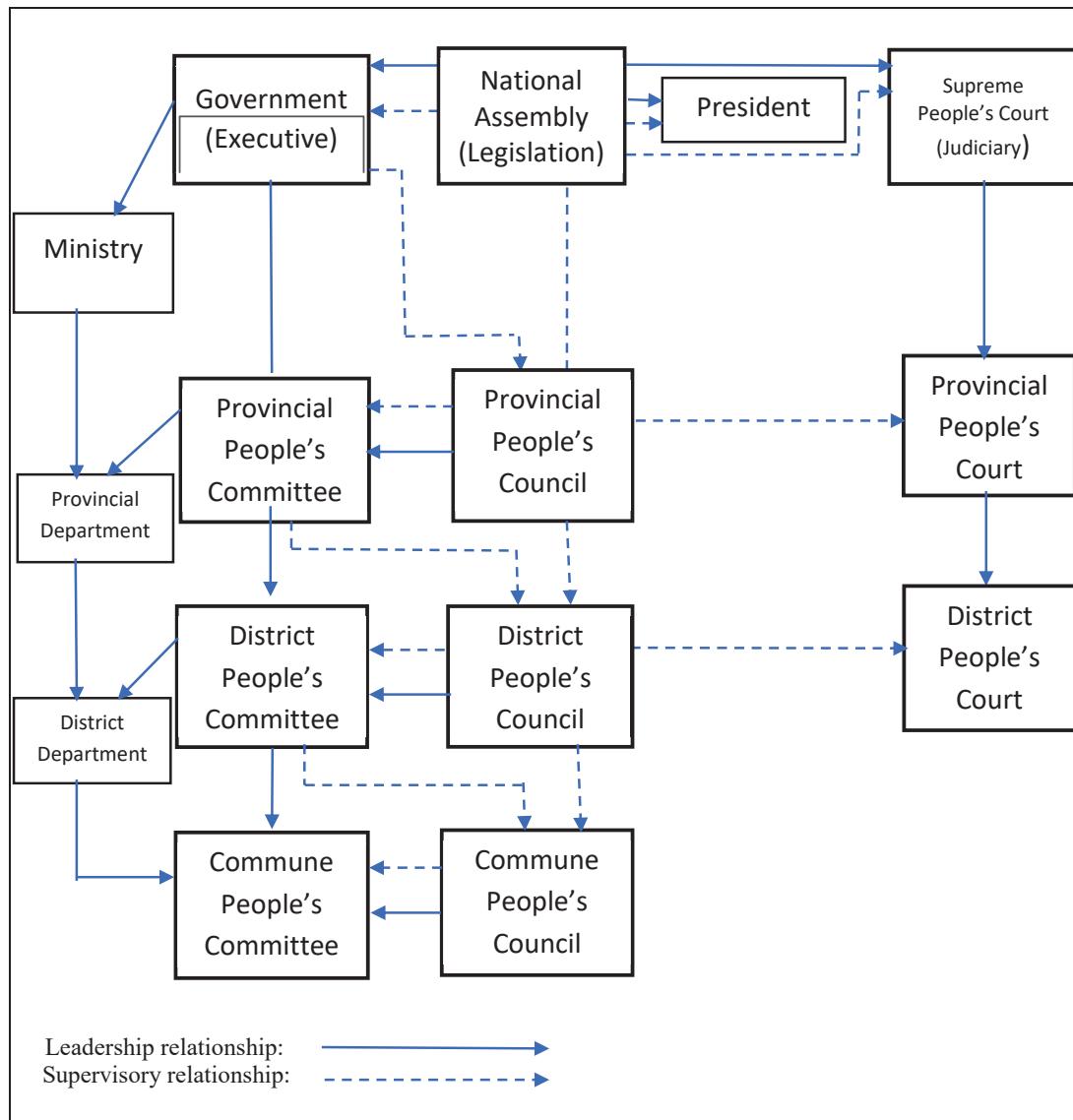


Figure 2.2: A simplified Vietnamese political system (Fforde, 2003)

Vietnam operates under a parliamentary system (Malesky et al., 2014). As such, Vietnamese citizens “vote to elect their representatives in the legislative branch, who in turn elect the leadership of the executive branch and appoint the heads of the judiciary branch” (Malesky et al., 2014, p. 148). The Vietnamese citizens “vote to elect each of these legislative bodies” at central and local elections (Malesky et al., 2014, p. 149). According to the newest election Law on Congressman and People's Council Representative (Vietnamese National Assembly, 2015a), the election at both central and local levels occurs every five years.

Administratively, Vietnam is geographically divided into provinces, districts and communes⁴. According to the GOV (2016), at the central level, ministries and ministerial level agencies are responsible for governing social and economic development nation-wide. At the local level, the Provincial People's Committees⁵ (PPC), District People's Committees⁶ (DPC) and Commune People's Committees⁷ (CPC) are responsible for managing social and economic development locally. However, these organisations also work under the guidance of higher level organisations such as the Provincial People's Council⁸ (PPCo), the District People's

⁴ : The Commune is the lowest administrative level of government in Vietnam.

⁵ : The Provincial People's Committee is the State administrative organ in the province. It is elected by the Provincial People's Council. It is responsible for the implementation of the Constitution, the laws, the decisions of the State organs at higher levels and the resolutions of the Provincial People's Council (SCNA, 1994).

⁶ : The District People's Committee is the State administrative organ in the district. It is elected by the District People's Council. It is responsible for the implementation of the Constitution, the laws, the decisions of the State organs at higher levels and the resolutions of the District People's Council (SCNA, 1994).

⁷ : The Commune People's Committee is the State administrative organ in the commune. It is elected by the Commune People's Council. It is responsible for the implementation of the Constitution, the laws, the written decisions of the State organs of higher levels and the resolutions of the Commune People's Council (SCNA, 1994).

⁸ : The Provincial People's Council is the organ of power in the province. It represents the will, the aspiration and the right to mastery of the people within the province. It is elected by the people within the province (SCNA, 1994).

Council⁹ (DPCo), and the Commune People's Council¹⁰ (CPCo), respectively (GOV, 2016).

With the current structural system of the Government of Vietnam, the People's Committee play a key role in local government and has administrative and budgetary responsibilities (Vietnamese National Assembly, 2015b). The People's Committee is charged with maintaining rules and regulations within their functions. It is responsible for developing and sending financial plans to organisations at higher levels. It is also responsible for developing social and economic development plans within their authority (United Nations, 2004; Vietnamese National Assembly, 2015b; Wescott, 2003).

Currently, there are 63 provinces and cities across the country (GSO, 2017a). Provinces are geographically sub-divided into districts. Six hundred and ninety-six districts across the country were recorded in 2016 and the average district population was roughly 133 thousand people (GSO, 2017a). The districts are then geographically sub-divided into communes. There were more than 11 thousand communes across the country in 2016, and the average commune population was approximately 7,500 people (GSO, 2017a), made up of roughly 1,500 to 2,500 households per commune. This research focuses on two communes within one district in the Thua Thien Hue province of Vietnam.

The economy of Vietnam has changed over the last three decades, from one that is a centrally planned system to one that is a more 'market-led' system (e.g. Cervantes-Godoy & Dewbre, 2010; Nguyen & Grote, 2004; Wescott, 2003) or termed by Lockie,

⁹ : The District People's Council is the organ of power in the district. It represents the will, the aspiration and the right to mastery of the people within the district. It is elected by the district people (SCNA, 1994).

¹⁰ : The Commune People's Council is the organ of power in the commune. It represents the will, the aspiration and the right to mastery of the commune people. It is elected by the commune people (SCNA, 1994).

McNaughton, Thompson, and Tennent (2013, p. 281) as the “market-based, socialist-oriented model”. Before 1986, the economy operated under the mechanism of central planning (a centrally planned economy) (Nguyen & Grote, 2004). Economic development activities, including agricultural development, were organised and implemented by state-owned enterprises and government-led co-operatives (Athukorala et al., 2009; Nguyen & Grote, 2004). Accordingly, all resources necessary for production were organised and implemented by these organisations. Farmers did not have land use rights. For example, in the field of agriculture, agricultural co-operatives were key organisations and they had control over all the important resources necessary for agricultural production (e.g. control over land and water resources) (Nguyen & Grote, 2004). These organisations were responsible for using production inputs such as labour, land, water, and materials to implement agricultural production plans at the local level. They were also responsible for controlling the outputs from agricultural production and the markets. For example, they controlled the prices of agricultural products. These prices were set by the central Government who controlled the sale of agricultural products (Nguyen & Grote, 2004). This form of agricultural production was called the “collective system of agriculture” in Vietnam (Athukorala et al., 2009, p. 289). During this period of collective agriculture, the economy of the country, according to Athukorala et al. (2009), performed poorly, and it was faced with a large number of problems. For example, Nguyen and Grote (2004) reported that there was a high poverty rate, a widening budget deficit and a high rate of inflation in Vietnam during the time of the collective system of agriculture (late in the 1970s and early in the 1980s).

From 1986 onwards, changes were implemented by the Government of Vietnam to improve and develop a more ‘market-led’ economy (Athukorala et al., 2009; Beresford, 2008; Cervantes-Godoy & Dewbre, 2010). One of the key factors designed to facilitate this change was the introduction of a comprehensive initiative called the ‘Doi Moi’ policy (Beresford, 2008; Cervantes-Godoy & Dewbre, 2010). Under the ‘Doi Moi’ policy, changes to the whole economy have been made by central government (Beresford, 2008; Irvin, 1995; Migheli, 2012; Painter, 2005). These include, but are not limited to, changes in land tenure, domestic market price management and trade policy reforms. For example, Vietnamese households were given land use right certificates that gave them land use rights over the land they farmed for a 20-year period. These reforms, according to Athukorala et al. (2009) gave farmers greater scope and freedom in their decision-making in relation to agricultural production.

In addition, price-fixing for agricultural products and inputs for agricultural production by the central Government were abolished. This allowed farmers to sell their agricultural products at market prices (Athukorala et al., 2009). Trade liberalisation was also promoted to assist Vietnam open up its economy and join international markets (Athukorala et al., 2009). For example, by 1995, Vietnam had joined the Association of South East Asian Nations (ASEAN) and the ASEAN Free Trade Area (Cervantes-Godoy & Dewbre, 2010). Given the profound changes promoted under the ‘Doi Moi’ period, the economy of Vietnam, in general, and agriculture development, in particular, have achieved significant progress (Athukorala et al., 2009). For instance, in 1986, Vietnam had to import 500 thousand tonnes of rice to meet domestic food demand (Cervantes-Godoy & Dewbre, 2010). In contrast, in 2012, the country exported over seven million tonnes of rice, making Vietnam the second largest rice exporter in the world (Giraud, 2013).

Recent statistics for the period 2014-2016 have shown that the GDP of Vietnam was increasing from 3.9 quadrillion VND in 2014 to 4.5 quadrillion VND in 2016, whereas the rate of household poverty was declining from 8.4% in 2014 to 5.4% in 2016 (Table 2.1) (GSO, 2017a). The population growth rate was 1.1% and has remained unchanged from 2014 to 2016 (GSO, 2017a). The agriculture sector accounted for 16% of GDP in 2016 and the percentage contribution of agriculture to GDP was declining (GSO, 2017a). However, 66% of Vietnamese were living in rural areas in 2016. This means that agriculture continues to play an important role for social and economic development in Vietnam. As such, the Government of Vietnam has put considerable effort into developing the agriculture sector. The next section describes the key characteristics of the land ownership policy in Vietnam.

Table 2. 1: Some recent economic indicators for Vietnam

Items	2014	2015	2016	
GDP (billion VND)	3,937,856.0	4,192,862.0	4,502,733.0	
Population growth rate (%)	1.1	1.1	1.1	
Rural population (%)	66.9	66.1	65.5	
Poverty household rate ¹¹ (%)	8.4	7.0	5.4	
% contribution to GDP	Agr./forestry/fisheries Industries/construction Services	17.8 33.2 49.0	17.1 33.2 49.7	16.4 32.7 50.9

Source: GSO (2017a)

2.3. Land ownership policy in Vietnam

All land in Vietnam belongs to the State (state ownership) and it is regulated by the Land Law and the land-related decrees of the Government of Vietnam (Vietnamese

¹¹ : The rate is calculated on the basis of official poverty standard (653,000 dongs/person/month or USD 2.25/ person/day) in Vietnam in 2010. Based on the poverty line, if income of a person is equal to or less than the official poverty line, then the person is defined as poor.

National Assembly, 2013). The latest Land Law promulgated in 2013 by the Government of Vietnam states “all land belongs to the entire people with the State acting as the owner’s representative and uniformly managing land. The State hands over land use rights to land users” (Vietnamese National Assembly, 2013, p. 2).

Under this Land Law and other government land-related decrees, agricultural land is allocated to households for a certain period, which is currently 20 years. After this period, the agricultural land is re-allocated. However, only households living in rural areas who have registered to reside permanently within a local commune will be allocated agricultural land in that commune when agricultural land is re-allocated (Vietnamese National Assembly, 2013).

Households will often be allocated different plots of land from those they were previously farming. However, they often swap these plots with other farmers to ensure they have plots that they had farmed before. As a result, most farmers tend to farm the same plots after re-allocation as they had previously. Under the Land Law set out by the Vietnamese National Assembly (2013) and other government land-related decrees, when households have land use rights certificates, they can alienate or exchange and lease their land use rights, but they cannot legally buy or sell land.

There are three main land types in Vietnam based on the land use purpose: agricultural land, non-agricultural land and unused land (GSO, 2017b). Agricultural land consists of agricultural production land, forestry land, aquaculture land (water surface land for fishing), land for salt production and other land (GSO, 2017b). Agricultural production land is defined as “the land used in agricultural production; including: annual crop land and perennial crop land” (GSO, 2017b, p. 27). Non-agricultural land includes ‘special used land’, ‘homestead land’ and other land. The ‘special use land’ is defined as:

land being used for other purposes, not for agriculture, forestry and living. It includes (1) land used by offices and non-profit agencies; (2) security and defence land; and (3) land for non-agricultural production and business and public land (GSO, 2017b, p. 27).

Homestead land is defined as “land use for housing and other works of construction serving the living activities of urban and rural inhabitants” (GSO, 2017b, p. 27). Recent statistics for the year of 2016 has shown that the total land area of Vietnam is 33.123 million ha and, of this, agricultural land comprises 27.3 million ha, accounting for about 82% of the total land use (Table 2.2) (GSO, 2017a). The agricultural production land and forestry land account for 35% and 45% of the total land area, respectively (GSO, 2017a). This means that the agricultural land in Vietnam is mainly allocated for agricultural production and forestry activities.

Table 2. 2: A summary of land use in Vietnam in 2016

No.	Type of land	Area (1,000ha)	Percent
1	Whole country	33,123.1	100.0
2	Agricultural land	Total	27,302.2
		Agricultural production	11,530.2
		Forestry	14,923.6
		Aquaculture	797.7
		Salt production	17.5
		Other land	33.2
3	Non-agricultural land	3,697.8	11.2
4	Unused land ¹²	2,123.0	6.4

Source: GSO (2017a)

¹² : Unused land is land where its purpose has not yet been determined.

Importantly, the Government of Vietnam has a policy that regulates the amount of agricultural production land allocated to each household nation-wide. For example, in a 2013 revised Land Law (Vietnamese National Assembly, 2013) and land allocation related government decrees specified that the Government of Vietnam can allocate up to a maximum 3.0 ha of annual cropping land per household. In addition, to ensure equity in the allocation of agricultural land, it is allocated per person (of any age if their names are in the household registered book).

The total area of agricultural production land allocated to each household varies from region to region. This is because different regions have different populations, densities and different areas of agricultural land. Although there is no official statistical data on the total area of agricultural land per household available at the time of writing, on average, the total area of agricultural production land allocated to one household (often from 4 to 6 people) in Vietnam, according to Kerkvliet (2006) was some 0.5 ha in 2006. A recent study of cropping systems in the Vu Gia-Thu Bon river basin in the Quang Nam province of Vietnam, (an another province of Vietnam), reported that the total area of agricultural production land per household in that province was some 0.4 ha (Pedroso et al., 2017).

In addition, the area of agricultural production land allocated to a household normally consists of several separate agricultural land plots (Dao & Nguyen, 2015; Kerkvliet, 2006). However, the process of land consolidation has been occurring throughout the country (Dao & Nguyen, 2015). Given these land tenure characteristics, most farms in Vietnam are typically characterised as small-scale with fragmented non-contiguous land-holdings. The next section outlines the main agriculture's characteristics of the country that shapes agricultural development programmes nation-wide.

2.4. The characteristics of agriculture in Vietnam

Agriculture is one of the main sectors of the country's economy. The following sections describe the administration of agriculture, agricultural organisations and the agricultural industry.

2.4.1. Administration of agriculture

Agriculture in Vietnam is administrated by both central and local government (GOV, 2008). A number of public organisations are involved in this administration (Figure 2.3). At the central level, the Ministry of Agriculture and Rural Development (MARD)¹³ is responsible for managing all agriculture and rural development issues nationally. These include the state administration of agriculture, forestry, fisheries, irrigation and rural development nation-wide (GOV, 2008). At the local level, three key organisations are in charge of managing agriculture and rural development (MARD, 2008b).

At the provincial level, the Provincial Department of Agriculture and Rural Development (PDARD) is responsible for managing the implementation of all agricultural and rural development activities within each province based on policies promulgated by the MARD.

¹³ : According to GOV (2008, p. 1), MARD is “a governmental agency performing state management functions in the fields of agriculture, forestry, salt production, fishery, irrigation/water services and rural development nationwide, including state management functions with regard to delivery of public service in accordance with legal documents”.

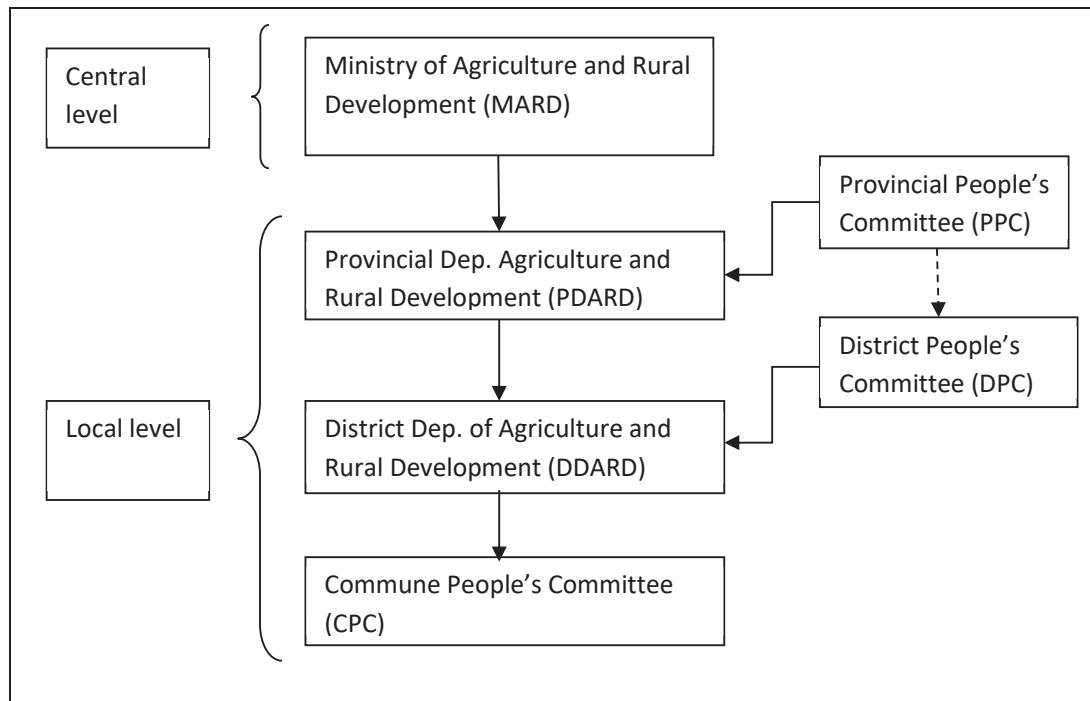


Figure 2. 3: A simplified structure of agricultural administration

According to the MARD (2008b), the PDARD is a public organisation under the authority of the PPC (refer to Figure 2.2 for details). The function of PDARD is to help the PPC to implement the local State management and this includes:

- 1) agriculture, forestry, aquaculture, irrigation and rural development;
- 2) flood and typhoon prevention;
- 3) safe agricultural, forest, aquatic and salt products; and
- 4) the public services for the agriculture and rural development sectors.

The PDARD also leads other organisations at the district and commune levels within the province to organise and implement agricultural and rural development activities. In particular, according to the inter-directives No. 61/TTLT-BNN-BNV, dated May 15,

2008 issued by the MARD (2008b), the PDARD plays two main functions. Firstly, it oversees the state administration of agriculture and rural development and provides agricultural services through its subsections. For example, it provides agricultural extension services for farmers through the Provincial Centre for Agricultural Extension (PCAE). Secondly, it provides general instructions related to agriculture and rural development at the provincial and district levels. For instance, it provides guidelines for agricultural land use registration, land allocation, and develops the overall plans for agriculture and rural development for the province and districts (MARD, 2008b). Given these functions, the PDARD is a key agency for developing and implementing agricultural and rural development programmes at the local level. This agency also influences activities related to agriculture and rural development for other organisations within the province that are under its authority such as the DDARD (MARD, 2008b).

At the district level, the DDARD, which is a public organisation under the authority of DPC, is responsible for guiding and assisting the CPC to organise and implement agricultural and rural development activities for farmers at the commune level (MARD, 2008b). The DDARD also works closely with the PDARD when conducting these activities. In addition, the DDARD works with the PCAE and the DSAE when carrying out these activities.

At the commune level, the CPC is in charge of managing and implementing all activities including agriculture and rural development within a commune (MARD, 2008b). The CPC works with other organisations such as the DDARD to implement agriculture and rural development activities within the commune. Given these characteristics, the CPC play a key role in organising and implementing agricultural development programmes at the commune level.

2.4.2. Agricultural organisations

Besides the operation of MARD, PDARD, DDARD, and CPC, there are other agricultural organisations that work with farmers in relation to agricultural and rural development activities in the commune. These include agricultural extension organisations, agricultural co-operatives and agribusiness enterprises.

Agricultural extension organisations

In Vietnam, the public agricultural extension system is mainly delivering agricultural extension services for farmers. The public agricultural extension system consists of the National Centre for Agricultural Extension (NCAE), which sits under the MARD, the Provincial Centre for Agricultural Extension (PCAE) and the DSAE (Figure 2.4) (GOV, 2010; MARD, 2017). The Government of Vietnam manages all public agricultural extension organisations (GOV, 2010).

In particular, it organises the agricultural extensions at two levels: central and local. At the central level, there is the NCAE. It is under the authority of the MARD and is responsible for providing agricultural extension services across the country (MARD, 2014a). These services currently include agricultural technology transfer, capacity-building, including training and the provision of information related to agriculture development (MARD, 2014a). The NCAE leads and works closely with the PCAE at the local level when providing agricultural extension services for farmers (MARD, 2014a).

At the local level, there are two main agricultural extension organisations: PCAE and DSAE. In many communes, there are some staff who work as agricultural extension workers at the commune and villages¹⁴, also (Figure 2.4) (MARD, 2014a). The PCAE is under the authority of the PDARD. It is responsible for working in partnership with other relevant organisations such as the Department of Cultivation (subordinate to the PDARD), the DDARD and the CPC to help farmers implement agricultural and rural development activities at the provincial level (GOV, 2010). For example, the PDARD and the DSAE conduct practical on-farm demonstrations at the commune level in order to stimulate farmers to apply advanced agricultural technologies. The DSAE is under the authority of the DPC. The DSAE collaborates with the PCAE and the CPC to assist farmers to conduct agricultural and rural development activities at the commune level within the district (GOV, 2010).

Apart from the public agricultural extension organisations, a number of other organisations are involved in agricultural extension and agricultural extension related activities (Nguyen, 2012). These organisations include agricultural universities, agricultural research institutes, agribusiness companies and non-governmental organisations (NGOs) (Nguyen, 2012). These organisations often collaborate with organisations at the local level, such as the DDARD and the CPC, to carry out agricultural extension at the commune level (Nguyen, 2012). However, the government (public) agricultural extension system plays a key role in providing agricultural extension services to the majority of farmers (Nguyen, 2012). The next section describes characteristics of agricultural co-operatives in Vietnam.

¹⁴ : For some communes, there are some villages, which are geographical areas within a commune. Normally, there is a village leader appointed by the CPC to help the CPC inform people about administration matters within a village. Officially, a village is not an administrative unit and a commune is the lowest administrative unit of the local government.

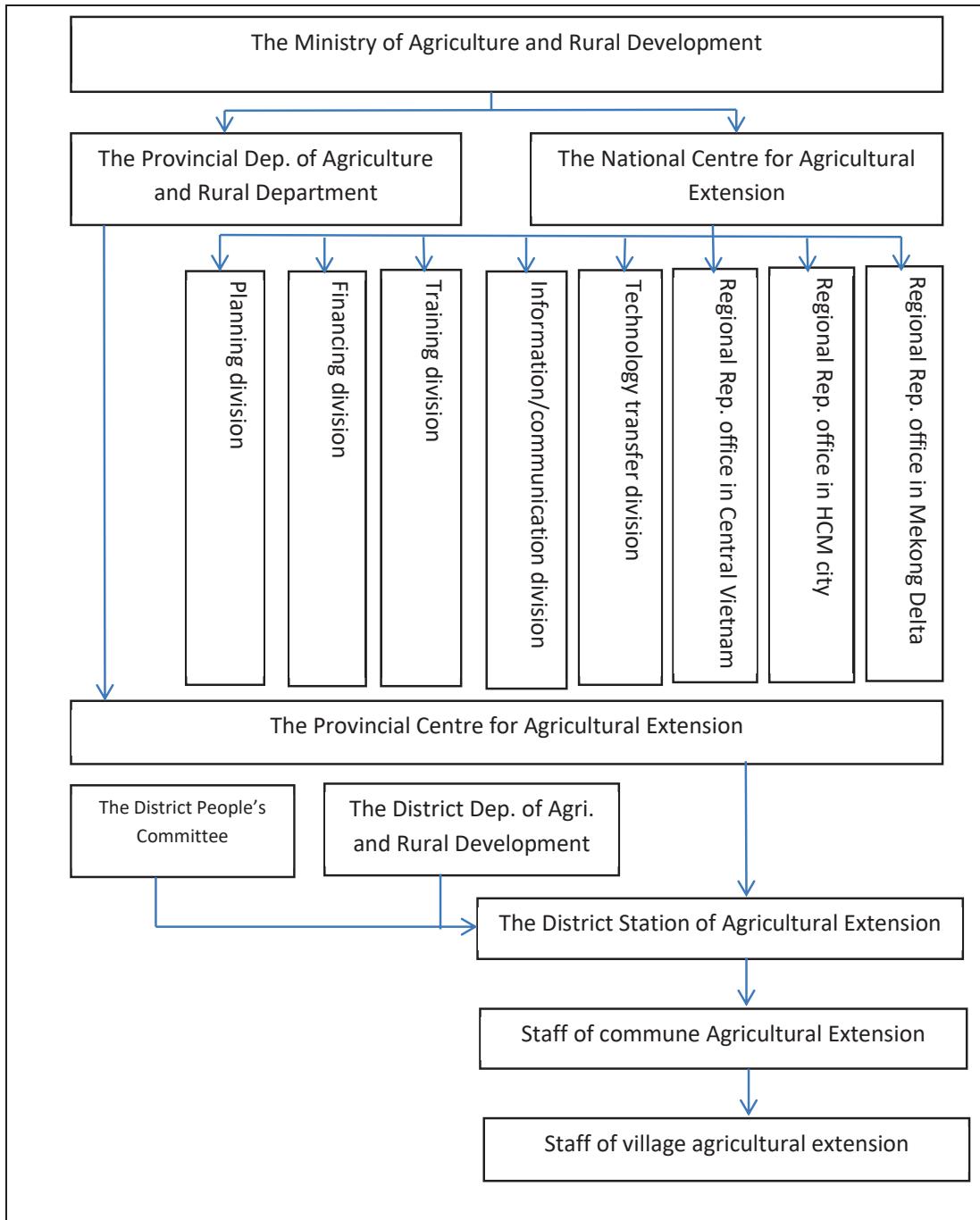


Figure 2. 4: The public agricultural extension system (MARD, 2017)

Agricultural co-operatives

The development of agricultural co-operatives in Vietnam started in the 1950s and they have played a significant role in agriculture and rural development as well as in the national economy (Dung, 2011; Nguyen, Ngo, & Nguyen, 2015; Nguyen, 2008). The Vietnamese Co-operative Law defines a co-operative as:

a collective economic organisation with co-owners and legal entity status, established voluntarily by at least seven members who cooperate with and assist one another in production, business or job creation activities to meet their common needs on the basis of autonomy, self-responsibility, equality and democracy in the management of the cooperative (Vietnamese National Assembly, 2012, p. 1).

In order to become a member of an agricultural co-operative, according to the new Co-operative Law promulgated by the Vietnamese National Assembly (2012), households need to fill in an application form to voluntarily join an agricultural co-operative and pay a small fee. Normally, the CPC set up agricultural cooperatives and appoint the director of agricultural cooperatives within a commune. The cooperatives are business organisations under the authority of the CPC and one of their functions is to assist the CPC provide physical and service inputs to commune farmers.

Research has shown the main services agricultural cooperatives provide farmers include access to: irrigation, electricity, the supply of farm inputs, agricultural extension (normally in collaboration with the CPC, DSAE, and PCAE) and market information (Wolz & Pham, 2010). As such, agricultural co-operatives play a key role in relation to input supply and marketing for Vietnamese farmers and this is the case in the study region (refer to Section 5.5.4 for details of agricultural cooperatives operating in the

region studied). The next section describes the characteristics of agricultural enterprises in Vietnam.

Agribusiness enterprises (firms)

Since the Doi Moi policy was introduced in the 1980s, the Government of Vietnam has put much effort into developing agribusiness enterprises as a part of transforming agriculture from a centrally planned, to a more ‘market-led’ system. Business enterprises in Vietnam are defined as “economic units that independently keep business accounts and have legal status. They are established based on Enterprise Law, Foreign Investment Law or by Agreement between the Government of Vietnam and the Governments of Foreign Countries” (GSO, 2017b, p. 263).

According to the (GSO, 2017b), there are three types of business enterprises operating in Vietnam. The first are state-owned business enterprises. These include:

- 1) business firms that have 100% of state capital and operate under the control of central or local government agencies;
- 2) limited liability companies that operate under the management of central or local government; and
- 3) joint stock companies that have domestic capital (not invested by foreigners), but where the government contributes more than 50% of the charter capital¹⁵ (which must be at least equal to or higher than legal capital¹⁶)(GSO, 2017b, p. 263).

¹⁵ : The charter capital is the amount of capital contributed to or will be contributed to by the shareholders of a company.

¹⁶ : The legal capital is defined as the minimum amount of capital required by law for the establishment of an enterprise engaging in certain conditional business (e. g. real estate, banking, securities).

The second are non-state-owned business enterprises. These are business firms that are established by domestic capital. In this case, private individuals own all of the capital or the capital owned by the government is less than 50% of the registered capital (GSO, 2017b). These types of non-state-owned business firms include:

- 1) private business firms;
- 2) cooperative companies;
- 3) private limited liability companies;
- 4) joint stock companies where no state capital is involved; and
- 5) joint stock companies where the government contributes less than 50% of the charter capital (GSO, 2017b, p. 263)

The third type of business enterprise comprises foreign direct-invested business enterprises. These are business firms that have capital that has been directly invested by foreign owners. These types of foreign direct-invested business firms include:

- 1) business firms where 100% of the capital is invested by foreign owners; and
- 2) joint venture business firms where the capital is provided by both domestic and foreign investors (GSO, 2017b, p. 263)

The GSO (2017a) reported that there were 3,850 agribusiness enterprises operating in Vietnam in 2016. Of these, 1,740 (45%) were operating in the agricultural sector; 645 (17%) were operating in the forestry sector; and 1,461 (38%) were operating in the fisheries sector. Business activities that are conducted by agribusiness enterprises in Vietnam vary. These include, but are not limited to, the provision of seeds, pesticides and fertilisers to farmers and the purchasing of agricultural outputs for processing and export, or for price regulation reasons. Given these characteristics, these agricultural

enterprises play an important role in farmers' agricultural production and marketing.

The next section describes the characteristics of the agricultural industry in Vietnam.

2.4.3. The agricultural industry in Vietnam

The Vietnamese agricultural industry consists of four main types of agricultural activity: cropping (cultivation), livestock, forestry and fisheries. These are described in the following sections.

Cropping

Cropping is the main agricultural activity within the agricultural industry in Vietnam (FAO, 2001; GSO, 2017a). Two important types of crops are cultivated in the country: annual and perennial crops. Annual crops (consisting of cereals, industrial crops and other annual crops) are the dominant crops cultivated in Vietnam and accounted for about 78% of the total planted area in 2016 (GSO, 2017a). Rice, maize, sweet potato, cassava and millet are annual crops that are cultivated by most farmers throughout Vietnam. Rice, a common and popular annual crop, is normally cropped in both lowland and wetland areas. The main regions where rice is cultivated are the Red River Delta in the south and the Mekong Delta in the north of the country (GSO, 2017a). For many Vietnamese farmers, rice is normally cultivated for household consumption with surplus rice sold at market. This is the case in the study region. Rice is one of the main food sources for most Vietnamese farmers living in rural areas (Dao, 2011). Recently, Vietnam has become one of the world largest exporters of rice (Giraud, 2013).

In contrast to rice, the other crops, including maize, sweet potato, cassava and millet, tend to be cultivated in the dry and highland areas (Keil, Saint-Macary, & Zeller, 2013).

These crops are also cultivated in some lowland areas in the dry season after rice is harvested, if conditions permit. For most Vietnamese farmers, these annual crops are

used for both family consumption and commerce (Dang et al., 2004; Keil et al., 2013; Nguyen & Pham, 2001). This is the case in the XA commune and XB commune of the X district of the Thua Thien Hue province where the study is conducted.

Annual industrial crops that are often cultivated by Vietnamese farmers include peanuts, sugarcane and soybean (GSO, 2017a). They are often grown in the dryland areas and, unlike the other annual crops, the main purpose for cultivating these crops for most Vietnamese is for commercial purposes rather than for family consumption. This is the case in the XA commune and XB commune of the X district of the Thua Thien Hue province.

The other main annual crop that is cultivated by Vietnamese farmers include a diversity of vegetables (GSO, 2017a). These vegetable crops can be classified into three main types:

- 1) leafy and bulb vegetables such as bok choy, fresh onion, cabbage, lettuce, cilantro, and Ceylon spinach;
- 2) root vegetables such as carrots, garlic, and red onion; and
- 3) fruiting or flowering vegetables such as chilli, chayote, bitter melon, and cauliflower.

All of these vegetables are cropped on both lowland and dryland areas across the country and they are often cropped several times per year. For many Vietnamese farmers, vegetables are becoming more and more important for their livelihoods as they provide more income than other crops (Huong, Everaarts, Neeteson, & Struik, 2013). This is the case for the XA and the XB commune of the X district of the Thua Thien Hue province. In particular, the XA Commune People's Committee (2016) reports that

vegetable production produces 2.5 times the income generated from rice per unit area and they state that vegetable production is one of the main crops for the commune.

Perennial crops are only grown in some regions of Vietnam due to land and climatic constraints. These crops consist of three types: 1) perennial industrial crops; 2) fruit crops; and 3) other perennial crops (GSO, 2017a). Perennial crops tend to be cultivated for commercial purposes rather than family consumption and these include rubber, pepper, coffee, and tea (GSO, 2017a). These crops are mainly grown in the Central Highland area of Vietnam and they are often cropped in concentrated areas (GSO, 2017a). Rubber, coffee and tea are grown by both state-owned enterprises and individual households (Phuc & Nghi, 2014). Other perennial industrial crops that are also important for Vietnamese farmers include coconuts and tobacco (GSO, 2017a). However, there are only some areas in Vietnam that farmers can grow these types of crops because of land and climatic constraints. For example, coconuts are often grown in provinces that are in the South-Central areas while tobacco is mainly grown in the northern area of Vietnam.

Fruit crops are also an important perennial crop for Vietnamese farmers and they are cropped throughout the country. The main fruit crops are citrus, mango, bananas, longan, and pineapple (GSO, 2017a). These crops are mainly cultivated by households and sold commercially.

Livestock

Livestock is the second most important agricultural activity in Vietnam. There are three types of livestock that are raised by Vietnamese farmers (GSO, 2017a). These include: 1) large livestock consisting of cattle, buffalos, horses, goats, and sheep; 2) pigs; and 3) poultry. Pigs, cattle, buffalos and poultry are the three main production activities for

many Vietnamese farmers. Pig and poultry production are the most common livestock enterprises that are run on Vietnamese farms (Maltsoglou & Rapsomanikis, 2005). In 2016, about 29 million pigs and 361 million poultry were farmed in Vietnam (GSO, 2017a).

Pig production provides an important source of income for Vietnamese farmers (Maltsoglou & Rapsomanikis, 2005). According to the GSO (2017a), there are two main types of pig production in Vietnam: household pig production and commercial pig production. The former is common in all regions of Vietnam. This type of pig production is small-scale. In contrast, commercial pig production only occurs in some regions of Vietnam and it is large-scale.

Cattle and buffalo production also provides an important source of income for many Vietnamese farmers (Maltsoglou & Rapsomanikis, 2005). Farmers raise cattle and buffalo as both draught animals for cultivation and to produce livestock and milk for sale. For many areas of Vietnam, raising cattle and buffalo for use as draught animals is important because they are suitable for the cultivation of small plots of land that are common on Vietnamese farms.

Poultry production is also an important source of income for Vietnamese farmers (Epprecht, 2005; Hong Hanh, Burgos, & Roland-Holst, 2007). Chickens and ducks are the main species that are raised by Vietnamese farmers. Most farm households raise poultry and the number of poultry can range from ten to hundreds of animals per household. Poultry is produced for both family consumption and sale at local markets (Epprecht, Vinh, Otte, & Roland-Holst, 2007).

Forestry

Forestry is the third most important agricultural activity in Vietnam (Sandewall, Ohlsson, Sandewall, & Viet, 2010). It is undertaken by both the state and individual farmers. For communities who live near a forest, their livelihoods tend to be dependent on forestry activities. These communities are often ethnic groups. There are three main types of forestry in Vietnam: production forestry, protection forestry and specialized forestry. According to the GSO (2017a), production forestry is the dominant form. It accounted for about 90% of the planted area in 2016. In contrast, protection forestry and specialized forestry accounted for 9% and 0.9% of the forest area, respectively (GSO, 2017a).

Fisheries

Fisheries make up the fourth most important agricultural activity in Vietnam (FAO, 2010). However, this sector is expanding and playing an increasingly important role in the agricultural economy (DERG & CIEM, 2010). There are two main fishery activities in Vietnam: fishing and aquaculture and these activities are conducted throughout the country, but only communities that are living near lagoons and the sea undertake fishing. Fishing is common in some regions such as the coastal areas of Vietnam, while aquaculture is common in the south of Vietnam. According to the GSO (2017a), total production from these two activities was 6,804 thousand tons in 2016. Fishing and aquaculture accounted for 46% and 54% respectively of the total fisheries production in 2016. In the next section, a brief overview of the food marketing system in Vietnam is provided.

2.5. A brief overview of the food marketing system in Vietnam

Along with considerable changes in land tenure and agriculture, the food marketing system in Vietnam has undergone significant changes such as the introduction and development of supermarkets since the Doi Moi policy was introduced. The food marketing system, according to Kaynak (1986, p. 5), is:

a primary mechanism for co-ordinating production, distribution and consumption activities in the food chain. In this context, marketing includes the exchange activities associated with the transfer of property rights to commodities, the physical handling of products and the institutional arrangements for facilitating these activities.

The development of food marketing systems in developing countries often changes over time as the country develops (Kaynak, 2000). As such, the structure of the food marketing system often shifts from a predominance of small-scale traditional distributors, such as spot markets, to a system of well-established grocery shops and convenience stores, then to a system of markets where highly developed integrated modern food retail chains, such as supermarkets, are dominant (Kaynak, 2000). In Vietnam, several types of food marketing organisations and retailing co-exist, and a diverse range of actors engage in the food marketing system (Cadilhon, Fearne, Moustier, & Poole, 2003). However, the modern food marketing organisations, such as supermarkets, are in the early stage of development. In addition, modern food marketing systems tend to be situated in major cities, in particular, Hanoi, Ho Chi Minh City and Da Nang (USDA, 2017).

The Vietnamese retail system for fruit and vegetables is predominantly characterised by traditional markets (Moustier, Figuié, Dao, & Nguyen, 2009; USDA, 2017) and this is

the case in the study area. Traditional markets are where most trading activities and trade-related transactions occur. Verbal bargaining is mainly used by traders in the traditional market when trading produce. The traditional market often consists of small and medium traders. The building in the traditional market mainly consists of kiosks, stalls and open areas.

The traditional market system for vegetables and fruit consists of official markets (formal markets), unofficial markets (informal markets), street vendors and small independent stores (shops) (Moustier et al., 2009). Official markets are markets that are planned by the local government. Normally, the official markets have been setup by local government (either the provincial, district or commune level government) and are managed and monitored at the local government level (Moustier et al., 2009; van Wijk, Trahuu, Tru, Gia, & Hoi, 2005). Each official market has a management board and this board is in charge of collecting fees and security control of the market places (Moustier et al., 2009; van Wijk et al., 2005). In these markets, retailers often pay a monthly rental for their stalls (Moustier et al., 2009; van Wijk et al., 2005).

Unofficial markets are ‘open-air markets’ that are not managed by the local government (Moustier et al., 2009; van Wijk et al., 2005). Unlike official markets, unofficial markets have no official management board (Moustier et al., 2009; van Wijk et al., 2005). Normally, traders come together every day at a particular area to trade agricultural commodities, including vegetables and fruit, to consumers who live nearby (Moustier et al., 2009; van Wijk et al., 2005).

Under the Vietnamese traditional market system, trust-based relationships are the key to its operation (Gerber, Turner, & Milgram, 2014; Hutton & Turner, 2009; Nguyen et al., 2015). In a study of food provisioning and wholesale agricultural commodity chains in

North Vietnam, Gerber et al. (2014, p. 57) stated that trust-based relationships “lie at the heart of each node along the fruit and vegetable commodity chains”. Trust plays a “crucial role in the selection of suppliers and buyers” in Tan Yen district of Bac Giang province of Vietnam (Nguyen et al., 2015, p. 107). According to some scholars (e.g. Hutton & Turner, 2009; Nguyen, 2005), personal relationships of trust are an essential component of most business activities in Vietnam.

The modern retail systems, including supermarkets and convenience stores, are also operating in Vietnam (Maruyama & Trung, 2007; USDA, 2013, 2017). Supermarkets appeared in Vietnam in the 1990s (Tam, 2004; van Wijk et al., 2005). However, by the end of 2002, the modern retail sector gained only a 1 to 2 percent share of the vegetable retail market in Hanoi and Ho Chi Minh City (Tam, 2004; van Wijk et al., 2005), and these are the largest and most developed cities in Vietnam (van Wijk et al., 2005). According to USDA (2013), the share of modern retail markets in Vietnam was four percent in 2012. As such, the supermarkets play a small role in the fruit and vegetable retail trade. This is also the case in the study area. In the next section, the characteristics of Good Agricultural Practices (GAP) and Vietnamese Good Agricultural Practices (VietGAP) are described.

2.6. Good Agricultural Practices and VietGAP in Vietnam

The following sections describe the development and implementation of GAP globally, and the development and implementation of VietGAP in Vietnam.

2.6.1. The development of GAP, EurepGAP and GlobalGAP

The term ‘Good Agricultural Practices’ is defined as “the application of available knowledge to addressing environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and healthy food and non-

food agricultural products" (FAO, 2003, p. 1). Historically, GAP was first developed and introduced by a group of European retailers. In 1997, the European Retailer Fresh Produce Working Group developed Good Agricultural Practice standards to harmonize food quality and safety standards in the European Union (Asfaw, Mithöfer, & Waibel, 2010; Hobbs, 2010) and to respond to consumers' concerns and European legislations on food safety (Tallontire, Oondo, & Nelson, 2014). The standard was named EurepGAP (*EurepGAP is the abbreviation of European Retailer Produce Working Group and Good Agricultural Practices*) and it has been accepted as the common food retail standard for the European markets since its development (Asfaw et al., 2010). Ten years later, in 2007, EurepGAP was re-named GlobalGAP to reflect its growing use by countries outside Europe¹⁷. GlobalGAP is now widely known as a private food standard internationally (Annor, Mensah-Bonsu, & Jatoe, 2016; Herzfeld, Drescher, & Grebitus, 2011) and GlobalGAP is adopted by producers in many countries that produce agricultural products for export markets (Annor et al., 2016; Lemeilleur, 2013; Muriithi, Mburu, & Ngigi, 2011).

Besides GlobalGAP, governments in some countries have also developed and introduced their own GAPs that are based on GlobalGAP (Premier & Ledger, 2006). This type of GAP is referred to as a public GAP, as opposed to the private GAP that is mainly governed by international retailers. Examples of public GAPs include: Q-GAP in Thailand (Amekawa, 2013; Krause, Lippe, & Grote, 2016; Wongprawmas, Canavari, & Waisarayutt, 2015), PhilGAP in the Philippines (Banzon, Mojica, & Cielo, 2013), MyGAP in Malaysia (Amekawa et al., 2017) and VietGAP in Vietnam (Nicetic, van de Fliert, Va Chien, Mai, & Cuong, 2010).

¹⁷ : See www.eurepgap.org and www.globalgap.org for the history of EurepGAP and GlobalGAP

The requirements of public GAPs have often less stringent standards than those for private GAPs such as GlobalGAP. For example, Q-GAP has some requirements that are less demanding than those of GlobalGAP (Wongsprawmas, Canavari, & Waisarayutt, 2014). Agricultural products produced under public GAPs such as PhilGAP in the Philippines (Banzon et al., 2013) and Q-GAP in Thailand (Wongsprawmas et al., 2014) are often exported to international markets. However, many products produced under public GAPs, such as VietGAP in Vietnam, are only sold in domestic markets.

Public GAP programmes provide a range of incentives for producers to participate in the programme and adopt public GAPs. These include, but are not limited to:

- 1) free training and advisory services about Good Agricultural Practices for producers;
- 2) financial subsidies that cover the costs of inspection and certification;
- 3) inputs subsidies; and
- 4) price premiums (Nicetic et al., 2010; Srisopaporn, Jourdain, Perret, & Shivakoti, 2015; Wongprawmas et al., 2015).

In contrast, private GAP programmes often rely on market incentives. For example, producers cannot access markets in developed countries unless they meet the GlobalGAP standards.

For private GAP programmes such as GlobalGAP, independent firms are employed to certify that the produce has met the standards set out by the programme (Lemeilleur, 2013). In contrast, governments tend to administer public GAP schemes. For example, the Thai Government certifies products that are produced under Q-GAP, the public GAP in Thailand (Wongprawmas et al., 2015). In Vietnam, the central Government is

responsible for assigning VietGAP certifying organisations. These organisations are from both the public and private sectors, but are mainly from the public sector.

2.6.2. The development and implementation of VietGAP in Vietnam

VietGAP was developed based on the GlobalGAP programme and introduced in 2008 to Vietnamese agricultural producers and others (Nicetic et al., 2010). It consists of the rules, orders and procedures that guide agricultural producers to produce, harvest and process agricultural products to meet a number of requirements. These include the requirements to do with food safety and quality, product traceability and environmental protection (MARD, 2008c). The reason for introducing VietGAP for the production of fresh fruit and vegetables, according to MARD (2008c, p. 2) were:

- 1) to enhance the responsibility in production and management of food safety of individuals and/or organisations;
- 2) to create the approval feasibility of VietGAP food safety for individuals and/or organisations;
- 3) to ensure the transparency, traceability and recall of produce; and
- 4) to enhance the product quality and economic efficiency of fruit and vegetable production in Vietnam.

Currently, a number of important approaches were used by the Government of Vietnam to assist the implementation of the VietGAP programme as well as the transformation of the economy toward a more market-led mode. One of these approaches is to implement new strategies about agriculture and rural development. For example, according to Decree No.210/NĐ-CP, dated December 19th 2013, issued by the Government of Vietnam, the MARD will implement the master plan for developing agricultural production and marketing by 2020, vision to 2030 nationally. The goal of this master

plan is to build an agricultural comprehensive system towards a modern, sustainable, large-scale commodity production and this is based on:

- 1) encouraging comparative advantage;
- 2) using science and new and advanced technology to increase productivity, quality efficiency and high competitiveness;
- 3) securing strong national food security for the short-and-long-term period;
- 4) adapting to the diverse needs of domestic and exports; and
- 5) enhancing the efficiency of land use, water resources, labour and capital for agricultural production.

In addition, according to Decision No. 899/QD-TTg, dated June 10th 2013, issued by the Government of Vietnam, a new master plan for restructuring the agricultural sector towards improving value-added and sustainable development is implementing by the MARD nationally. The plan is aimed at:

- 1) sustaining growth in agricultural field;
- 2) increasing efficiency and competitive capacity through productivity, quality and value addition; and
- 3) meeting better the requirement and taste of domestic consumers.

The Government of Vietnam also promulgates a number of decrees, decisions, directives, and circulars about improving traceability and environmental impact. One of the key policy mechanisms is the circular No. 74/TT-BNNPTNT, dated October 31st 2011, issued by MARD on traceability, recall and handling of unsafe agricultural and forest food. According to this circular, at the central level, the National Agro-Forestry-Fisheries Quality Assurance Department has the main responsibility for and coordinates with related organisations in inspecting the traceability, recall and handling of

agricultural and forest food warned to be unsafe by importing nations, the inspection organisations or other information sources nation-wide. At the local level, the Agro-Forestry-Fisheries Quality Assurance Sub-Departments or units appointed by provincial-level Agriculture and Rural Development Departments has the major responsibility for, and coordinate with related organisations in inspecting the traceability, recall and handling of agricultural and forest food warned to be unsafe by the inspection organisations or other local information sources.

According to the MARD (2008c), there are eleven aspects of production covered by VietGAP for fruit and vegetables and they are summarised as follows. First is ‘site assessment and selection’. The site for producing VietGAP fresh produce has to meet the requirements of the current Vietnam’s laws and regulations. In the case where the site is unsuitable for production, remedial action should be taken to manage the risk. Second is ‘planting materials’. Planting materials must be sourced from licensed suppliers. Third is ‘soil and substrates’. The risk of potential hazards in the soil and substrates must be analysed and assessed yearly. Fourth is ‘fertilisers and soil additives’. The risk of contamination of produce from the use of fertilisers must be assessed for crops grown complying with VietGAP. If a significant hazard from the use of fertilisers is identified, then suitable measures need to be taken to minimise the risk. Fifth is ‘water’. Quality of water used for irrigation and postharvest handling must be managed to comply with current requirements. Before growing crops complying with VietGAP, water testing is required to assess the risk of chemical and biological contamination in the region. Sixth is ‘chemicals, including pesticides’. Producers who grow crops complying with VietGAP must be trained appropriately for chemical use. Seventh is ‘harvesting and handling produce’. Harvested produce that is grown complying with VietGAP is not allowed to be placed in direct contact with soil. Eighth

is ‘waste management and treatment’. When growing a crop complying with VietGAP, suitable measures need to be taken to manage waste products from production and handling. Ninth is ‘workers’. Workers who participate in growing crops complying with VietGAP, including hired labours and farmers, need to be trained for chemical use and recording skills. Tenth is ‘documents and records, traceability and recall’. When growing crops conforming to VietGAP, all records of production, chemicals used, fertilizers, trading must be kept. Final is ‘internal audit’. When participating in growing crops conforming to VietGAP, all practices are reviewed, and an internal audit carried out at least once each year. The review and internal audits, which are based on a review checklist, are carried out and signed by individual businesses and/or certification bodies.

A number of decrees, decisions, directives, and circulars were promulgated by the MARD to lead the local governments to implement VietGAP. These decision decrees, decisions, directives, and circulars cover guidelines and support that the local government provides to farmers including technical and financial support. For example, Decision No. 379/QĐ-BNN dated January 28, 2008 issued by the MARD, promulgating the regulation on VietGAP for safe vegetables, fruit and tea production (MARD, 2008a). In this decision, article No. 3 states:

Article 3: The chief of the Ministry's Office, the director of the Agricultural, Forestry and Aquatic Product Quality Management Department, the director of the Cultivation Department (subordinate to the Ministry of Agriculture and Rural Development), heads of units attached to the Ministry of Agriculture and Rural Development, directors of the provincial-level Department of Agriculture and Rural Development, and concerned organisations and individuals shall abide by the Decision (MARD, 2008a, p. 1).

The Government of Vietnam also promulgate a number of other decrees, decisions, directives, and circulars about managing, certifying, using and trading agricultural products to help farmers and other actors, such as retailers, apply VietGAP. For example, decision No. 99/QD-BNN, dated October 15, 2008 issued by the MARD on the regulations associated with the management of safe vegetables, fruit and tea production and trading and directive No. 48/TT-BNNPTNT, dated December 21, 2012 issued by the MARD on regulations on certifying agricultural produce grown conforming to VietGAP.

Based on the decrees, decisions, directives, and circulars about VietGAP, promulgated by the Government of Vietnam and the MARD, organisations and individuals organised and implemented activities related to the implementation of VietGAP. For example, the NCAE collaborated with the Department of Cultivation of the MARD to organise and implement five to seven-day training courses about VietGAP for agricultural extension officers at the provincial and district levels across the country. These organisations also collaborated with the PDARD and the PCAE in some provinces to carry out on-farm practical demonstrations that apply VietGAP for some vegetables and fruit. The purpose of these extension programmes is to demonstrate the benefits and applicability of VietGAP to farmers (MARD, 2013).

Pursuant to the Government's Decree, decisions, directives and circulars, as well as plans for agriculture and rural development at each province, the local government organised and implemented activities to help farmers apply VietGAP. For example, staff from the PDARD collaborated with provincial/district agricultural extension officers, scientists from agricultural universities, the CPC and local cooperatives to provide training courses about VietGAP for commune farmers. They also organised a

specialised organisation that can carry out initial tests for soils and water in the commune before conducting on-farm practical demonstrations of VietGAP.

The VietGAP programme has been applied to a range of crops across the country since 2008, which includes vegetables, fruit, tea, coffee, and rice. There were no official statistics about the number of farmers who had adopted VietGAP available at the time of writing. However, according to a calculation by the Cultivation Department (2015), in 2014, there were some 7,557 ha of vegetables, 11,027 ha of fruit; 7,554 ha of rice; 5,644 ha of tea; and 124 ha of coffee grown that complied with VietGAP requirements (Cultivation Department, 2015). These crop areas represent some 0.08%, 1.35%, 0.01%, 4.19% and 0.02% of the total area in each crop, respectively (Cultivation Department, 2015). This indicates that a small number of farmers have adopted VietGAP since its introduction in 2008. This is the case in the study region.

2.7. Summary

Vietnam is a developing country and it is in transition from centrally planning to a more ‘market-led’ economy. Aligned with this, the agri-food system in Vietnam is in transition from a traditional to a modern agri-food system. Vietnam has a socialist government, which still plays an important role in directing agricultural development. Land in Vietnam is state-owned, but 20-year land use rights are provided to farmers and these rights are renewable. Most Vietnamese farmers farm small-scale plots that are fragmented and non-contiguous. Traditional markets that are characterised by spot markets are the dominant form in the vegetable marketing system and these play a key role in the retail trade for vegetables. VietGAP is a public GAP programme and it was introduced in 2008 to Vietnamese farmers and other value chain actors to facilitate changes in the traditional agri-food system. Local government subsidies on inputs,

certification costs, training, and price premium were given to farmers under the VietGAP programme in order to encourage farmers to adopt VietGAP. However, farmer uptake of VietGAP has been limited across the country.

CHAPTER THREE: LITERATURE REVIEW

3.1. Introduction

This chapter provides a critical review of the literature relevant to the research question. This study adopts a systemic approach, drawing on the theories of technological transitions, innovation systems and value chains to explore the VietGAP programme and farmers' responses to VietGAP. The chapter is structured into seven sections. Following the introduction, Section 3.2 provides a rationale for the adoption of a systemic approach; Section 3.3 reviews the technological transition theory; Section 3.4 examines the innovation system theory; Section 3.5 presents the value chain theory. Section 3.6 looks at the literature on the implementation of GAP programmes and the adoption/non-adoption of GAP schemes by producers. In the final section 3.7, a summary of the chapter is provided.

3.2. Rationale for taking a systemic approach

The characteristics of the Vietnamese economy are defined by the changes that have occurred within Vietnam over the last three decades after the 'Doi Moi' policy was introduced in the 1980s (Beresford, 2008; Gainsborough, 2010). Central government programmes that have been developed and implemented to facilitate a change in the economy, from one that is centrally planned to one that is more market-led, have shaped the social, economic and political context within Vietnam (Athukorala et al., 2009; Beresford, 2008; Gainsborough, 2010). The VietGAP programme is considered by the Government of Vietnam to be part of a broader set of programmes and policies that has been developed and used to facilitate the economy including the agri-food system

(MARD, 2008a). The historical context, as well as the social, political, cultural and economic context in Vietnam, has thus shaped the development and implementation of the VietGAP programme.

Good Agricultural Practices programmes (GAP), according to Premier and Ledger (2006), are introduced for different reasons and implemented in different ways in different countries. VietGAP is a public GAP programme that was developed and implemented by the Government of Vietnam. In Vietnam, the rationale for developing and implementing VietGAP is linked to the context within which it was developed and is being implemented. This means that the specific context at the commune level where VietGAP is locally implemented plays an important role in understanding farmers' responses to VietGAP. Thus, rather than exploring why farmers did or did not adopt VietGAP in isolation from the broader system, as has been undertaken by several researchers in Vietnam (e.g. Loan, Pabuayon, Catelo, & Sumalde, 2016; Vu Thi, Nguyen Mau, & Santi, 2016) or other GAP schemes in other developing countries (e.g. Annor et al., 2016; Krause et al., 2016; Lemeilleur, 2013; Srisopaporn et al., 2015), this research accepts that the decision by farmers regarding the adoption/non-adoption of VietGAP is shaped by the broader system of which they are part. For this reason, a systemic approach that takes into account not only farmers and their circumstances, but also the current system within which they farm and where VietGAP is implemented, is needed to obtain a better understanding of the adoption/non-adoption of VietGAP by Vietnamese farmers.

Vietnam is in technological transition¹⁸ from a centrally planned to a more market-led economy. This process was initiated after a comprehensive policy called the ‘Doi Moi’ policy was introduced in the 1980s (see Chapter Two). Aligned with this transition, Vietnamese agri-food system is in transition from a traditional to a modern agri-food system (Cadilhon et al., 2006; Mergenthaler, Weinberger, & Qaim, 2009). The VietGAP programme is considered part of the technological transition that is occurring in Vietnam. This broader context surrounding VietGAP is likely to influence farmers’ responses to VietGAP. As such, the literature on technological transition is reviewed in the following section.

3.3. Technological transitions

This section reviews the concept of a transition and its relevance to understanding the implementation of the VietGAP programme and farmers’ responses to VietGAP. First, the definition of the concept is reviewed. This is then followed by a review of the characteristics of a transition. Finally, technological transition is reviewed.

3.3.1. The nature of a transition

A commonly accepted definition of a transition is Rotmans, Kemp, and van Asselt’s (2001, p. 16) definition, who define it as “a gradual, continuous process of societal change where the structural character of society (or a complex sub-system of society) transforms”. Examples of transitions include “transport transitions from sail to steam ships or from horses to cars; and the energy transition from coal to gas” (Dewulf, Termeer, Werkman, Breeman, & Poppe, 2009, p. 27). Rotmans et al.’s (2001) definition of a transition has been adopted by many other researchers in the transition area such as

¹⁸ : Geels (2002, p. 1257) defined technological transitions “as major, long-term technological changes in the way societal functions are fulfilled”.

Negro (2007), Dewulf et al. (2009), Hodson and Marvin (2009), Lambin and Meyfroidt (2010), Chi et al. (2013), and Castrence, Nong, Tran, Young, and Fox (2014). The concept of a transition is used by scholars such as Belz (2004) and Poppe, Termeer, and Slingerland (2009) to describe and explain changes towards sustainable agriculture and food chains in Switzerland and the Netherlands, respectively. However, limited research has been undertaken that uses the concept of a transition to explain farmers' responses to a policy mechanism associated with changes in agri-food systems like VietGAP in developing countries.

3.3.2. The characteristics of a transition

A transition, according to scholars (e.g. Geels & Schot, 2010; Grin, Rotmans, & Schot, 2010), has four main characteristics. First, rather than being a linear process, change is accepted as being at the system level from one state of balance for the system (equilibrium) to another (Geels & Schot, 2010; Rotmans et al., 2001; Rotmans & Loorbach, 2010; Wilson, 2007). A system, according to Bergek, Jacobsson, Carlsson, Lindmark, and Rickne (2008, p. 408), can be defined as “a group of components (devices, objects or agents) serving a common purpose, i.e. working towards a common objective or overall function”. In this study, the food and agriculture sector in Vietnam can be viewed as a system in transition, which has been changing from a traditional to a modern agri-food system. The VietGAP programme is viewed in this research as one of the policy mechanisms that is being used by the Government of Vietnam to facilitate this transition.

Second, a transition involves a considerable shift in terms of the structure of the system and the relationships between the actors within that system (Darnhofer, Gibbon, & Dedieu, 2012; Dewulf et al., 2009; Geels & Schot, 2010; Hinrichs, 2014). The actors

can include, but are not limited to, policy-makers, private companies, knowledge-creators such as scientists and knowledge-appliers such as farmers (Darnhofer et al., 2012; Dewulf et al., 2009; Hinrichs, 2014). In the VietGAP programme, a number of actors are involved in implementing VietGAP as described in the Government reports. These include not only farmers, but agribusiness firms, Government authorities and other supply chain actors such as input suppliers (MARD, 2013). As highlighted in this research, VietGAP, along with other policies of the Government, seek to change the actors in the system (inclusion of supermarkets) and the relationships between actors.

Third, according to Geels and Schot (2010), a transition is characterised by ‘co-evolution’ processes that require a number of considerable changes in the socio-technical system¹⁹ and it involves innovation processes, which include the development, diffusion and adoption of new technologies. The concept of co-evolution in the context of a transition, according to various scholars (e.g. Geels & Schot, 2010; Kemp, Loorbach, & Rotmans, 2007) refers to a situation where the interactions between different sub-systems shape the dynamics of the individual sub-systems, leading to an irreversible pattern of change. According to Geels and Schot (2010), different sub-systems include the cultural, technical and economic systems, which co-evolve in many ways and can strengthen each other to co-define a transition. An example of co-evolution in the context of a transition provided by Slingerland and Rabbinge (2009) is in the agricultural landscape of the Netherlands where people and nature have been continuously shaping the rural area. A socio-technical system is described by Geels (2004, p. 900) as “the linkages between elements necessary to fulfil societal functions” and they often encompass “production, diffusion and use of technology”.

¹⁹: Geels (2002) described the socio-technical system as the alignment between a heterogeneous set of elements that need to fulfil societal functions.

Technology is defined differently by different scholars in the literature (Bergek, 2002; Bergek et al., 2008; Das & Van De Ven, 2000; Rogers, 1995). For example, Rogers (1995, p. 12) defined technology as “the design for instrumental action that reduces the uncertainty in the cause-effect relationship involved in achieving a desired outcome”. Technology can be viewed as “both knowledge and an artefact that together serve a specific functional need”, according to Das and Van De Ven (2000, p. 1301). This is different from Rogers (1995) definition in terms of the function and nature of the technology. More specifically, according to Bergek et al. (2008), technology refers to objects that are either physical, such as products, tools, and machines, or non-physical, such as procedures, processes and protocols. The term ‘technology’ also refers to “technological knowledge” in terms of knowledge “embodied in physical artefacts” (Bergek et al., 2008, p. 408). Given these conceptualisations, technology is a relatively broad notion. It could be a single technology such as a new variety of rice, or a suite of technologies such as food safety and quality standards. In this study, VietGAP is viewed as a policy mechanism and it comprises a suite of technologies as it includes not only new guidelines for farming practices, but also regulations and certification processes for agricultural products as highlighted in the MARD (2008c). It also consists of a mix of knowledge and artefacts and it is one of the policy tools that is being used by the Government of Vietnam to facilitate a transition in the Vietnamese agri-food system.

Fourth, a transition often takes place over a long period of time (e.g. at least 25 years) (Geels & Schot, 2010; Negro, 2007; Rotmans et al., 2001). This timeframe is required because of the stability and inertia of the established equilibrium of the existing system in which the transition is occurring (Rotmans et al., 2001; Rotmans & Loorbach, 2010). This obstacle to change is often called a ‘lock-in’ situation (Darnhofer et al., 2012; Unruh, 2000). The concept of ‘lock-in’ was used by several transition scholars such as

Unruh (2000), Bergek et al. (2008), Geels and Schot (2010) and Schiere, Darnhofer, and Duru (2012) to describe a situation in which new technologies face difficulties in relation to their integration into an existing system because of the dominance of the established technologies. The slow diffusion of biomass digestion that has occurred in the Netherlands over the last 30 years was because of the stability the established equilibrium of the fossil fuel system and this is an example of the dominance of the established fossil fuel technologies (Negro, Hekkert, & Smits, 2007). In the next section, technological transition is reviewed.

3.3.3. Technological transitions

Technological transitions, according to Geels (2002, p. 1257), are defined “as major, long-term technological changes in the way societal functions are fulfilled”. Examples of societal functions include transportation, the provision of accommodation for people, communication and the provision of food for people (Geels, 2002). Technological transitions comprise a change from one state of socio-technical configuration to another; and often involve the replacement of existing technologies with new technologies and changes in the elements of the system (Geels, 2002; Geels & Schot, 2007; Hodson & Marvin, 2009). Examples of the elements of the system include user belief, rules, norms and infrastructure (Geels, 2002).

According to scholars (e.g. Geels, 2002; Rotmans & Loorbach, 2010), replacing existing technologies and changing elements in an existing system during a technological transition are difficult to bring about. This is because elements of the existing socio-technical configuration are strongly connected and aligned with each other. This statement is in line with the argument made by Hekkert, Suurs, Negro, Kuhlmann, and Smits (2007). These scholars argue that it is difficult for new

technologies to replace existing technologies, because current elements within the system such as norms, infrastructure and user beliefs are firmly aligned with the existing technologies (Hekkert et al., 2007). New technologies, according to Elzen, Barbier, Cerf, and Grin (2012), thus face difficulties in replacing the existing technologies during the early phases of development. This implies that the adoption of new technologies is influenced by the broader system rather than just characteristics of adopters or new technologies. In this study, VietGAP is viewed as a policy mechanism that comprises a suite of technologies linked to the broader technological transition occurring in relation to agri-food system in Vietnam.

A process of transition, according to Rotmans et al. (2001), consists of four consecutive phases. These phases are: (1) pre-development, (2) take-off, (3) breakthrough, and (4) stabilisation. This description continues to be used by other researchers in the field of transition theory such as Negro (2007), Dewulf et al. (2009), Grin et al. (2010) and Elzen et al. (2012).

The ‘pre-development’ or ‘exploration’ phase starts to occur when there is growing awareness of new, encompassing societal goals (Dewulf et al., 2009; Rotmans et al., 2001; Van Lente, Hekkert, Smits, & Van Waveren, 2003). For example, an awareness of sustainable energy or sustainable agriculture is emerging. In this phase, the key activity, according to Van Lente et al. (2003), are the processes of experimentation to search for innovations such as experimentation in laboratories, universities and research institutes.

The next phase, ‘take-off’ occurs when the process of change in the system gets under way (Rotmans et al., 2001; Rotmans & Loorbach, 2010). In this phase, new technologies often compete with the established technologies in the system (Rotmans &

Loorbach, 2010). This competition continues until the new technologies emerge as dominant, or fail to replace the existing technologies. However, because of the 'lock-in' situation, new technologies will find it difficult to replace the established technologies. To overcome this difficulty, researchers argue that protected spaces where the new technologies can be introduced are needed (Kemp, Schot, & Hoogma, 1998; Negro, 2007). Protected spaces can be created by providing financial support for the new technologies such as tax advantages, subsidies and price support for the technology or for the produce produced by it (Kemp et al., 1998). For example, the provision of premium prices for the products produced by new technologies or providing tax advantages for them are needed to help the new technologies overcome the difficulty and replace the existing technologies (Kemp et al., 1998).

The third phase, that of breakthrough or 'acceleration' occurs when visible structural changes to the system such as social-cultural, economic, and institutional changes take place (Rotmans et al., 2001; Rotmans & Loorbach, 2010). In this phase, according to Van Lente et al. (2003), various technical, social, cultural and institutional developments of a new system become interlinked with, and supported by each other, and the system becomes irreversible.

The final phase of the transition process is the 'stabilisation' phase (Rotmans et al., 2001; Rotmans & Loorbach, 2010). This phase is reached when the speed of social change declines and a new equilibrium, which is the state of balance for the new system, is reached (Rotmans et al., 2001; Rotmans & Loorbach, 2010). At this stage, according to several scholars, (Rotmans et al., 2001; Rotmans & Loorbach, 2010; Van Lente et al., 2003), the new system is firmly established in the current infrastructure and legal framework.

According to several transition scholars (e.g. Grin et al., 2010; Rotmans & Loorbach, 2010; Van Lente et al., 2003), a transition can be distinguished at three levels of aggregation: macro, meso and micro. The concepts of socio-technical landscape, socio-technical regimes, and niches are used by scholars (e.g. Hinrichs, 2014; Rotmans & Loorbach, 2010; Weber & Rohracher, 2012; Wells & Nieuwenhuis, 2012) to describe and explain a technological transition and they are associated with these three levels: macro, meso and micro, respectively.

At the macro level, there is the socio-technical landscape (Elzen, Geels, Leeuwis, & van Mierlo, 2011). It is “an exogenous environment that influences niche and regime developments” (Elzen et al., 2011, p. 264). This landscape provides a representation of the system at the macro level (Elzen et al., 2011). According to Foxon, Hammond, and Pearson (2010, p. 1204), the socio-technical landscape represents “the broader political, social and cultural values and institutions that form the deep structural relationships of a society and only change slowly”. Examples of the elements within a socio-technical landscape include “political ideologies, societal values, beliefs, concerns, and macro-economic trends” (Geels, 2012, p. 473). In the case of Vietnam, examples of the elements within the socio-technical landscape can be the political system of the Communist Party of Vietnam, Vietnamese culture, the environmental situation and Vietnamese economic growth.

A socio-technical regime is “the semi-coherent set of rules and actors that reproduce, maintain and incrementally change elements that together fulfil a societal function” (Elzen et al., 2011, p. 264). This set of rules and actors represents the meso level (Foxon et al., 2010). A regime consists of the dominant practices and shared assumptions within the socio-technical system (Foxon et al., 2010). The actors within a social-technical

regime could include users, scientists, policy makers, and special-interest groups (Grin et al., 2010). The actors in a regime interact and form relationships with inter-dependencies. The rules within a socio-technical regime, according to Geels and Schot (2010), are responsible for creating lock-in situations within the existing technological system. These rules have a ‘buffering’ effect and inhibit change (Geels & Schot, 2010). In the case of VietGAP, rules and regulations in managing food and agriculture sector and institutions that govern relationships between actors involved in producing and marketing vegetables in the local area influenced the implementation of VietGAP and farmers’ responses to VietGAP.

Niches are “protected spaces such as R&D laboratories, subsidised demonstration projects, or small market niches where users have special demands and are willing to support emerging innovations” (Geels, 2011, p. 27). The niches form the micro level within a transition (Geels, 2011). Niches provide appropriate spaces to establish “networks that support innovations such as supply chains and user-producer relationships” (Foxon et al., 2010, p. 1204).

For breakthrough to occur, it is argued that development and change at socio-technical landscape, socio-technical regime, and niches should be connected, strengthened and supported by each other (Geels, 2002; Negro, 2007; Rotmans et al., 2001; Schiere et al., 2012). In addition, according to Schiere et al. (2012), changes at the socio-technical regime and socio-technical landscape levels need to occur in order to provide the opportunity for new technologies to break out of niches and integrate into the existing system. For example, in the case study of a transition from ‘industrialised agriculture’ to ‘sustainable agriculture’ in Switzerland, Belz (2004) showed that changes at the socio-technical regimes and landscape levels of the industrialised agricultural system were

important and needed to occur to support the development of both organic and integrated farming, two niches, and their integration into the existing system. In particular, when “production firms and large retailers” in Switzerland “began to change their strategies towards ecological food products” and participate in trading organic food products, the Swiss Government issued comprehensive policies that provided financial compensation for ecological forms of agriculture which included organic and integrated farming (Belz, 2004, p. 106). As such, this compensation provided support for the niches and it was also considered as a key economic incentive for conventional farmers to convert to ecological forms of agriculture (Belz, 2004). The Swiss Government also issued new comprehensive regulations on organic farming and the labelling of organic food products (Belz, 2004). These new regulations helped to ensure actors involved in the food sectors were clear about what constituted organic products and they also encouraged key retailers such as the Coop (the largest retail chain in Switzerland) to participate in trading organic food products (Belz, 2004). These actors then developed new markets for organic food products and also cooperated with other actors to develop such markets (Belz, 2004). Consequently, Belz (2004) argues that the established socio-technical regime that was industrialised agriculture went into decline and was gradually replaced with ecological agriculture.

Although, this research does not focus on the technological transition of the general economy that is occurring in Vietnam, it takes into account the characteristics of the technological transition in Vietnamese agri-food system when exploring farmers' responses to VietGAP. To explore farmers' responses to VietGAP within a broader transition where the traditional agri-food system is changing into a modern agri-food system, insights into the interactions and relationships between elements that sit in niches and regimes are important. To obtain this, a theory that considers the interactions

and relationships between farmers and the broader system within which the farmers operate is needed. Innovation systems theory (e.g. Spielman, Ekboir, Davis, & Ochieng, 2008; World Bank, 2007, 2012) provides a relevant framework as it expands the analysis beyond the characteristics of producers and takes into account the broader context where the technology is developed, diffused and adopted. The concept of innovation systems is reviewed in the next section.

3.4. Innovation systems

The following sections review the concept of innovation systems and its relevance to understanding the implementation of the VietGAP programme. First, a review of the definition of the term innovation system is provided. Then, the different ways by which innovation system can be classified are examined. Finally, the innovation system approach is reviewed.

3.4.1. What is an innovation system?

Until recently, research into the adoption of new technologies by producers has been based on a relatively narrow perspective, which has primarily relied on a relatively narrow technology diffusion model such as the diffusion of innovations (Rogers, 1962, 1995, 2003). The assumption underlying this technology perspective seems to be that it is the producer, the technology, the farming circumstances or farmer and farm-related factors that need to change to enhance the diffusion and adoption of the technologies. However, this perspective has been criticized for its failure to understand the nature and dynamics of the technology adoption process (Edquist, 1997; Hounkonnou et al., 2012; Sumberg, 2005; World Bank, 2007, 2012). This is because the institutional environment that sits around producers such as norms, stakeholders and their activities, stakeholders' practices, values and preferences, influence innovation processes, which include the

development, diffusion and adoption of a new technology (Asres, Solkner, Puskur, & Wurzinger, 2012; Geels, 2002; Klerkx, Hall, & Leeuwis, 2009; World Bank, 2007, 2012).

The concept of innovation systems has been used by innovation scholars (e.g. Freeman, 1987) since the 1980s. The idea of innovation systems, according to Geels (2002), is that the determinants of technological change can be found both in organisations and in the structures that surround them. World Bank (2007, p. xiv) defined an innovation system as “a network of organisations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organisation into social and economic use, together with the institutions and policies that affect their behaviour and performance”. In this context, World Bank (2007) emphasised the importance of interactions between actors and the institutions that shape the relationships between actors for technological changes. The World Bank (2007) definition of innovation systems has been adopted by several scholars such as Davis, Ekboir, and Spielman (2008), Spielman et al. (2008) and Hellin (2012).

3.4.2. The classification of innovation systems

Researchers in the field of innovation systems have classified innovation systems into four types, depending on the level of analysis used by researchers to analyse the system (Munoz & Encinar, 2014). First, one can analyse innovation systems at the national level (Lundvall, 1992). At this level of analysis, researchers often focus on investigating the capacities of key organisations to innovate and national institutional arrangements that support or hinder such capacities (Liu & White, 2001). An example of this type of innovation system can be seen from the work of Lundvall (1992), Nelson (1993), Freeman (1995), Liu and White (2001) and Davis et al. (2008).

Second, innovation systems can be analysed at the regional level. The concept of a regional innovation system was inspired by the literature on national innovation systems. However, the main focus of this analysis is on regional institutional arrangements such as the networks of companies instead of national institutional arrangements (Nilsson & Moodysson, 2014). The authors who are interested in this type of innovation system include Cooke, Gomez Uranga, and Etxebarria (1997), Renate (2014) and Nilsson and Moodysson (2014). However, researchers who are interested in regional innovation systems (e.g. Nilsson & Moodysson, 2014; Renate, 2014) tend to apply the concepts of sectoral innovation systems in a developed country.

Third, some researchers analysed innovation systems at the sectoral level (Breschi & Malerba, 1997; Malerba, 2002; Somasekharan, Chandran, & Harilal, 2014). A sectoral innovation system is defined by Malerba (2002, p. 250) as a "set of new and established products for specific uses and the set of agents carrying out market and non-market interactions for the creation, production and sale of those products". The authors who have studied these types of innovation systems include Breschi and Malerba (1997), Malerba (2002, 2004, 2005) and Somasekharan et al. (2014). However, most researchers discussed these concepts normatively and few researchers, except Somasekharan et al. (2014) have studied sectoral innovation systems in a developing country context.

Finally, innovation systems can also be analysed at the technological level (Bergek et al., 2008; Hekkert et al., 2007; Markard & Truffer, 2008). A technological innovation system, according to Markard and Truffer (2008, p. 611), is defined as "a set of networks of actors and institutions that jointly interact in a specific technological field and contribute to the generation, diffusion and utilization of variants of a new

technology and/or a new product.” From this definition, it can be seen that a technological innovation system overlaps with other types of innovation systems mentioned above. The authors who are interested in this type of innovation system include Bergek (2002), Negro et al. (2007), Bergek et al. (2008), Suurs (2009) and Tigabu, Berkhout, and van Beukering (2015). The concepts of technological innovation systems have been applied in a developed country context (e.g. Bergek et al., 2008; Hekkert & Negro, 2009; Negro et al., 2007) and developing countries, but with a limited extent (Tigabu et al., 2015).

3.4.3. Innovation system approach

Compared to the technology transfer perspective, the innovation systems perspective (e.g. Spielman et al., 2008; World Bank, 2007, 2012) fundamentally expands the focus beyond producers and accepts that the innovation process is the result of multiple actors and the system of which producers are a part. From the innovation systems perspective (e.g. Klerkx et al., 2009; Spielman et al., 2008; World Bank, 2012), there are four key concepts that are important for understanding innovation processes. These are actors, institutions, interactions and infrastructure. Actors are individuals and organisations who are involved in generating, disseminating and using knowledge or technologies and they influence innovation processes (Asres et al., 2012; World Bank, 2012). Actors can be government bodies, non-governmental organisations and private companies or farmers (Asres et al., 2012; World Bank, 2012). As such, a key aspect of any innovation system study is to determine the actors involved in the innovation system and their characteristics such as the capability of the actors (World Bank, 2012).

Institutions are, according to the World Bank (2012), rules, governmental policies, regulations and cultural norms that govern the relationships between actors within an

innovation system. Innovation system scholars recognise North's (1990) definition of institutions which differentiates between the two types of institutions: formal institutions such as legislation and certification and informal institutions such as norms and social conventions. As such, a key aspect of any innovation system study is to determine the formal and informal institutions that shape relationships between actors. VietGAP is associated with formal institutions such as regulations and certification. It operates in a regime that is dominated by traditional markets, which rely on informal institutions. As such, to understand why farmers have adopted or not adopted VietGAP, one has to take into account both formal and informal institutions.

Interactions are relationships which include networks and linkages between the different actors in an innovation system (Asres et al., 2012; World Bank, 2012). Interactions, as argued by the World Bank (2012) are important for facilitating innovation processes. This is because knowledge that is required for the effective implementation of a new technology (or the creation of knowledge) can be created through the interactions between key actors (Klerkx et al., 2009; Markelova, Meinzen-Dick, Hellin, & Dohrn, 2009). As such, a key aspect of any innovation system study is to determine networks and linkages between the different actors. This research identified the actors relevant to the implementation of VietGAP programme for vegetables by focusing on two communes in the X district within the Thua Thien Hue province of Vietnam. The relationships between the actors and how the relationships have changed (or not) was explored, as was the factors that shaped framers' responses to VietGAP.

Infrastructure includes technical structures that influence the innovation process (Smith, 2005; Wieczorek & Hekkert, 2012; World Bank, 2012). Examples of this include instruments, machines, buildings, bridges and harbours, strategic information, and

subsidies and grants for the development, diffusion and use of the new technology (Smith, 2005; Wieczorek & Hekkert, 2012). As such, to understand why farmers have adopted or not adopted VietGAP, one has to take into account the technical structures that influence the innovation process relative to new technologies. In this study, the operation of food distribution systems, including traditional markets and supermarkets are explored as factors that influenced the implementation of the VietGAP programme and the responses of farmers to VietGAP.

The innovation system approach has been used to study the performance of innovation systems in a wide range of contexts. However, it has been used predominantly in developed countries (e.g. Busse et al., 2015; Hekkert & Negro, 2009; Klerkx et al., 2009; Lamprinopoulou, Renwick, Klerkx, Hermans, & Roep, 2014; Negro, 2007; Van Alphen, Hekkert, & Turkenburg, 2010; Van Alphen, Noothout, Hekkert, & Turkenburg, 2010), but less in developing countries (Asres et al., 2012). The approach was used to develop recommendations to foster innovation processes within the innovation system investigated (Chowdhury, Hambly Odame, & Leeuwis, 2014; Klerkx et al., 2009; Spielman et al., 2008; Van Alphen, Hekkert, et al., 2010). It is argued by several innovation researchers such as Negro et al. (2007), Klerkx et al. (2009), Hekkert and Negro (2009) and Van Alphen, Hekkert, et al. (2010) that an innovation system approach can be used to help identify factors that hinder or enhance the performance of an innovation system. From such analysis, they argue that one can then recommend possible solutions that lead to improvements within the innovation system such as fostering the adoption of new technologies by users (Asres et al., 2012; Klerkx, Aarts, & Leeuwis, 2010; Van Alphen, Hekkert, et al., 2010). In this research, the innovation system approach was used as a framework for analysing what has shaped the system and the adoption/non-adoption of VietGAP by farmers.

The innovation system approach highlights the importance of facilitating interactions between diverse stakeholders in order to put new technologies into use. For example, Asres et al. (2012) conducted research into livestock innovation systems in Ethiopia and found that the capacities of actors who were involved in on-farm milk production and milk commercialisation were limited. This was because of a lack of interactions among the stakeholders (e.g. producers and support services) involved in the innovation system. The researchers recommend that the public sector should play a more active role in supporting the development of interactions and partnerships between these diverse stakeholders. Asres et al. (2012) argue that the agricultural extension service, which was one of the main actors within this system needed to transform its role and become a linking organisation. This would allow it to link the different sources of knowledge held by different actors in order to foster its application and use (Asres et al., 2012).

Similarly, Negro et al. (2007) examined the failure of the diffusion of biomass digestion technology in the Netherlands from an innovation systems perspective. The researchers identified factors that hindered the development and diffusion of biomass digestion technology. These factors included unstable institutional arrangements that support the use of biomass digestion and a lack of interactions between academia, research institutes and local projects. From this analysis, the researchers proposed solutions to foster the development and diffusion of biomass digestion technology. For example, they recommended the establishment of economic incentives for biomass digestion technology such as fixed electricity tariffs (Negro et al., 2007).

By applying an innovation systems approach to the study of new technology adoption, the researchers (e.g. Asres et al., 2012; Negro et al., 2007) obtained useful insights

about what hinders the development, diffusion and adoption of new technologies. They also obtained insights into the policy interventions that are required to overcome the hindering factors of the development, and diffusion of new technologies. However, no research has been undertaken that investigates producers' adoption/non-adoption of GAP schemes using an innovation systems approach in both developed and developing countries.

The concept of innovation systems provides a framework to analyse innovations systemically. However, the innovation systems approach has not yet fully developed as a sufficient tool for understanding the nature of innovations and generating appropriate policies in developing countries for suitable interventions (Spielman, Ekboir, & Davis, 2009). Further, the innovation systems approach has been criticised for focusing "mainly on horizontal interactions among actors within a broader network of relationships, often in particular territorial or sectoral settings, and its analysis of innovation is mostly restricted to the level of agricultural production" (Bitzer & Bijman, 2015, p. 2184). The innovation system approach thus "underestimates the importance of the value chain, including vertical relationships along the chain and demand aspects" (Bitzer & Bijman, 2015, p. 2184). Several researchers (e.g. Jaffee, Henson, & Rios, 2011; van Putten et al., 2010; Wongprawmas et al., 2015) suggest using a value chain perspective to capture insights into the adoption of food safety and quality standards in developing countries. Other scholars (e.g. Anandajayasekeram & Gebremedhin, 2009; Ayele et al., 2012) have also suggested using an innovation systems approach, together with a value chain perspective to investigate the nature and dynamics of innovation processes in developing countries. The implementation of the VietGAP programme is associated with, not only farmers, but also other value chain actors, such as input suppliers, collectors and supermarkets as highlighted in the literature (MARD, 2013).

Therefore, value chain concepts have been used in this research along with concepts from innovation systems and technological transitions, to explore and make sense of VietGAP in a way that help comprehensively answer the research question. The next section reviews the literature on value chains.

3.5. Value chains

The following sections examine the literature on value chains and their relevance to understanding the implementation of the VietGAP programme and farmers' responses to VietGAP. First, a review of definitions of the term 'value chain' is provided, after which the ways in which value chains are classified are reviewed. Finally, the value chain approach is reviewed.

3.5.1. What is a value chain?

Historically, the term 'value chain' has been used by business scholars (e.g. Porter, 1980, 1983; Shank, 1989) to describe and explore the issues related to competitive advantage and strategy. In this context, a value chain is defined as "the linked set of value-creating activities all the way from basic raw material sources for component suppliers through to the ultimate end-use product delivered into the final customers' hands" (Shank, 1989, p. 50). In a later study, Kaplinsky (2000, p. 121) defines a value chain as "the full range of activities which are required to bring a product or service from conception, through the intermediary phases of production, delivery to final consumers, and final disposal after use". Although Kaplinsky's (2000) definition of a value chain extends to the stage of final disposal after use in the chain compared to Shank's (1989) definition, it is clear that both scholars focus on the interlinked set of activities and emphasise the value created within the chain from the production stages through the distribution stages and to the final consumer. Both scholars also tend to

focus on linear linkages between producers and consumers. However, more recently, the network characteristics of the linkages between different actors including producers and consumers, is recognised by Trienekens (2011, p. 59) who define a value chain as “a network of horizontally and vertically related companies that jointly aim at/work towards providing products or services to a market”. In this regard, Trienekens (2011) meaningfully describes the concept of a value chain, not only by the way value is created through the chain when a product or service is passed throughout the chain, but importantly characterises the strategic network structures within the chain. Given the focus of this research is to search for the linkages and relationships between actors involved in the VietGAP programme, as well as the institutions that govern the relationships between the actors, Trienekens (2011) definition of a value chain is relevant to this study.

3.5.2. Types of value chains

According to Gereffi (1994) value chains can be classified into two main types based on the characteristics of its governance structures: ‘buyer-driven value chains’ and ‘producer-driven value chains’. This classification of value chains is adopted by other value chain researchers (e.g. Anandajayasekeram & Gebremedhin, 2009; Kaplinsky, 2000; Kaplinsky & Morris, 2001; Ponte & Sturgeon, 2014). Often, buyer-driven chains are ‘labour-intensive’ industries (Gereffi, 1994; Kaplinsky, 2000). In these chains, buyers often handle the key activities in the chain and shape the specifications of the products (Anandajayasekeram & Gebremedhin, 2009; Gereffi, 1994). According to Anandajayasekeram and Gebremedhin (2009, p. 24), in the context of Ethiopia, “a dairy value chain is a good example of where the buyer preferences and food safety and quality play a critical role in product handling and packaging”. In contrast, producer-

driven value chains are often more ‘capital intensive’ (Gereffi, 1994; Kaplinsky, 2000). In this context, key producers in the chain, often determining important technologies, shape the specifications of a product and often play a decisive role in harmonising the links in the chain (Anandajayasekeram & Gebremedhin, 2009). For example, the automobile industry can be viewed as a good example of this type of value chain where producers play a pivotal role in influencing the specifications of the products.

3.5.3. Value chain approach

From a value chain perspective (e.g. Anandajayasekeram & Gebremedhin, 2009; Kaplinsky & Morris, 2001; Trienekens, 2011), key concepts that are important for understanding how a value chain operates include market demand and vertical coordination. Market demand is viewed by value chain scholars (e.g. Anandajayasekeram & Gebremedhin, 2009; Trienekens, 2011) as the key element that pulls goods or services through the chain. It is a key factor that influences the decisions of each actor in the chain including farmers and hence how the chain functions (Anandajayasekeram & Gebremedhin, 2009; Trienekens, 2011). Bitzer and Bijman (2015) have noted that market demand is an important issue that needs to be considered for innovations in value chains. As such, an important aspect of any value chain study is to examine the dynamics of demand for both domestic and international markets (Anandajayasekeram & Gebremedhin, 2009; Trienekens, 2011). Market demand for VietGAP-certified produce in the study region as well as in Vietnam, was taken into account as a significant aspect that shaped farmers’ responses to VietGAP in this research.

Value chain ‘coordination’ is defined as “managing dependencies between activities” within the chain (Malone & Crowston, 1994, p. 90). Bijman, Muradian, and Cechin

(2011, p. 84) argue that to make value chains function as expected, “coordination is needed because of the interdependencies between different activities and different transactions in the value chain”. The performance of a value chain often hinges on how well the actors, including input suppliers, farmers and traders, across the whole value chain are coordinated (Anandajayasekeram & Gebremedhin, 2009). According to scholars (e.g. Anandajayasekeram & Gebremedhin, 2009; Bijman et al., 2011), value chain coordination requires conducting several processes, and these include:

- 1) overseeing the product at each stage in the chain and the final outcomes;
- 2) connecting the discrete and various activities between value chain actors;
- 3) organising and governing the different relationships between the different actors in the chain; and
- 4) arranging necessary logistics to sustain networks in the chain.

The main idea of value chains is to improve value chain coordination vertically (Anandajayasekeram & Gebremedhin, 2009; Bijman et al., 2011; Trienekens, 2011). Better vertical coordination in a value chain, according to Anandajayasekeram and Gebremedhin (2009, p. 25) can lead to a “better matching of supply and demand between the value chain stages”, and result in efficiency of using resources and information for production and marketing of products. As such, to understand why farmers have adopted or not adopted VietGAP, it is important to consider how the chain is vertically coordinated.

The institutional arrangements, such as certifications and standards that are used to harmonising different stages of the chain, are viewed as coordinating mechanisms (Anandajayasekeram & Gebremedhin, 2009; Trienekens, 2011). Other types of coordinating mechanisms include contracts and types of markets such as the spot

market (Anandajayasekeram & Gebremedhin, 2009). These coordinating mechanisms influence relationships and interactions between value chain actors and they influence the decisions of value chain actors including farmers (Trienekens, 2011). VietGAP is associated with a shift from a traditional to a modern agri-food system where formal written contracts and formal certification are used. As such, to understand why farmers have adopted or not adopted VietGAP, one has to take into account coordinating mechanisms used by value chain actors.

The value chain approach has been used by several researchers (e.g. Chagomoka, Afari-Sefa, & Pitoro, 2014; Dolan & Humphrey, 2000; Kaplinsky, 2000; Makosa, 2015; Pietrobelli & Saliola, 2008) to examine the inter-relationships between diverse actors involved in all stages of the marketing channels and to assess the linkages between production activities. Several scholars (e.g. Donovan, Franzel, Cunha, Gyau, & Mithöfer, 2015; Lie, Rich, Kurwijila, & Jervell, 2012; Rich, Ross, Baker, & Negassa, 2011) argue that the value chain approach can be used to identify problems in the chain and solutions for upgrading value chains. For example, to improve the livelihood for small-scale farmers in Tanzania whose livelihood relies on goat milk production, Lie et al. (2012) applied the value chain approach to identify the possibilities for upgrading and the determinants of competitiveness in a value chain for goat milk production. From a value chain perspective, the research revealed that the goat milk production tends to focus on supply side, with less attention paid to marketing strategies. The authors also identified a number of problems of a value chain for goat milk production that hinder the value chain functions as expected. These problems include:

- 1) unstable milk supply;
- 2) limited local market demand;
- 3) the lack of adequate quality assurance and packaging;
- 4) limited access to cooling systems, given sporadic to no access to electricity;
- 5) limited access to information, particularly on new marketing opportunities (Lie et al., 2012, p. 80).

Based on these results and the current situation of the local area, Lie et al. (2012) suggest a solution to upgrade the value chain through improving marketing of the product of milk in local villages. This comprises of establishing a collection centre in the local area and developing a new marketing channel for selling milk to the local primary schools (Lie et al., 2012).

Unlike Lie et al. (2012), in a study of '*Enhancing innovation in livestock value chains through networks: Lessons from fodder innovation case studies in developing countries*' Ayele et al. (2012) applied an integration of value chain and innovation system perspectives to explore how fodder innovation has been introduced and adopted by livestock farmers in developing countries. The study found that "fodder innovation is triggered and diffused by actors interacting and learning in networks, and on farms" (Ayele et al., 2012, p. 333). Fodder innovation is only "sustainably enhanced when it linked to other innovations and market-oriented activities" because it is only one of several elements within a value chain for livestock (Ayele et al., 2012, p. 333). The authors argue that the "success of fodder innovation, and for that matter innovation in other livestock technologies, depends on other inputs, institutions and markets" (Ayele et al., 2012, p. 344).

Based on findings from these studies (e.g. Ayele et al., 2012; Lie et al., 2012), it can be seen that the linkages between value chain actors and the role of market are important factors that influence how the producers make decisions in relation to new technologies. According to the value chain perspective (e.g. Kaplinsky & Morris, 2001; Trienekens, 2011; World Bank, 2007), producers are conceptualised as being part of a chain or a system and they interact with other actors under institutional contexts. This is similar to the innovation system view (World Bank, 2007). More importantly, value chain approach emphasises that the producers are not working in isolation, but interacting purposefully with other actors associated with the value chain (Trienekens, 2011). Although some studies (e.g. Hammoudi, Hoffmann, & Surry, 2009; Henson & Humphrey, 2010) propose that it was useful to look at private GAP programmes using a value chain perspective, limited research has been undertaken that applies the value chain approach to investigate the farmers' responses to public GAP schemes.

It is clear that innovation system and value chain perspectives share many common and complementary features, and this is also stated in the literature (e.g. Anandajayasekeram & Gebremedhin, 2009; World Bank, 2007). They both expand the focus of the analysis beyond the users of technologies and the technologies themselves and take into account the context where the 'technology' is developed, diffused and adopted. Both can be used to take a systemic and broader perspectives to technology adoption than the narrow technology perspective as highlighted by the World Bank (2007). Further, several scholars (e.g. Bitzer & Bijman, 2015; Humphrey & Schmitz, 2002; Pietrobelli & Rabellotti, 2011) have noted that the innovation systems perspective would benefit from integrating with the value chain dimensions and vice versa. In this research, the value chain approach was used in conjunction with innovation systems and technological transition as a theoretical framework for analysing what has shaped the system and the

adoption/non-adoption of VietGAP by farmers. The next section reviews relevant research into the implementation of GAP programmes.

3.6. Research into Good Agricultural Practices programmes

This section looks at research into GAP programmes and its adoption by producers. Factors that explain the adoption/non-adoption of GAP by producers, the drivers for the development and introduction of GAP and the impact of the introduction and implementation of GAP on farmers, are reviewed in the following sections.

3.6.1. Factors that influence producers' adoption of GAP schemes

Research into producers' adoption of public and private GAP schemes has been undertaken in both Vietnam (e.g. Loan et al., 2016; Vu Thi et al., 2016) and other developing countries (e.g. Krause et al., 2016; Srisopaporn et al., 2015). However, the vast majority of the literature (Krause et al., 2016; Lippe & Grote, 2016; Loan et al., 2016; Parikhani, Borkhani, Fami, Motiee, & Hosseinpoor, 2015; Srisopaporn et al., 2015; Vu Thi et al., 2016) tends to view GAP schemes as a 'single technology' and investigates its adoption by producers from a relatively narrow and non-systemic viewpoint. Further, the majority of the studies focused on GAP programmes that have been mainly developed for export markets where produce is sold overseas into modern agri-food systems dominated by supermarkets that require GAP labels demanded by consumers (market demand already exists) (Annor et al., 2016; Asfaw et al., 2010; Holzapfel & Wollni, 2014; Loan et al., 2016; Muriithi et al., 2011). Overall, this body of literature tends to explain producers' adoption/non-adoption of GAP based on the either some or all of the four following characteristics and factors:

- 1) the characteristics of producers such as age, education level and experience (Kersting & Wollni, 2012; Krause et al., 2016; Lippe & Grote, 2016);
- 2) the characteristics of farms and households such as farm size, the availability of labour, and access to off-farm income (Annor et al., 2016; Jin & Zhou, 2011; Loan et al., 2016; Muriithi et al., 2011);
- 3) the characteristics of the technology (GAP schemes) such as the complexity of new farming practices, the need for additional labour to implement the new farming practices, the cost of new inputs to meet certification standards, and certification costs (Banzon et al., 2013; Lippe & Grote, 2016; Srisopaporn et al., 2015; Vu Thi et al., 2016); and
- 4) the level of support given to producers under Good Agricultural Practices programmes such as technical training, price support or input subsidies (Banzon et al., 2013; Kersting & Wollni, 2012; Lippe & Grote, 2016; Muriithi et al., 2011).

There are two main points that emerge from this body of literature. First, the majority of the literature (e.g. Kersting & Wollni, 2012; Krause et al., 2016; Lippe & Grote, 2016; Loan et al., 2016; Muriithi et al., 2011) tends to concentrate on the either some or all of the four characteristics mentioned above without considering the broader system within which GAP schemes such as the structure of value chains are implemented to explain the farmers' adoption/non-adoption of such GAP schemes. In a normative paper '*Global value chains and agrifood standards: challenges and possibilities for smallholders in developing countries*', Lee, Gereffi, and Beauvais (2012) argue that the structure of value chains such as spot markets and requirements by consumers influenced the adoption of private food standards by small-scale producers. However,

there was little empirical literature that report factors such as the characteristics of local domestic market and formal and informal institutions that govern relationships between value chain actors participating in GAP programmes as influencing factors to producers' adoption/non-adoption of both public and private GAP schemes.

Second, the characteristics of farmers, farms, the technology (GAP schemes) and the level of support given to producers under GAP programmes were found by many researchers (e.g. Annor et al., 2016; Ganpat et al., 2014; Krause et al., 2016; Lemeilleur, 2013; Lippe & Grote, 2016; Loan et al., 2016; Muriithi et al., 2011; Srisopaporn et al., 2015; Vu Thi et al., 2016) to be key determinants of producers' adoption of GAP schemes. However, the findings across studies were not consistent. This suggests producers' responses to GAP schemes are shaped not only by the circumstances of individual farmers, farms, the characteristics of the technology (GAP schemes) or the level of support given to producers under GAP programmes, but also by a broader system of which they are part. This is likely the case as some scholars (e.g. Atasoy, 2013; Subervie & Vagneron, 2013) suggest that the context within a country shaped the producers' operations of production and marketing systems and they impacted on the successful implementation of private GAP programmes. This research argues and illustrates that farmers' responses to VietGAP are shaped by a wide range of systemic elements that go beyond the characteristics of farmers, farm or farmer/farm-related factors as reported in the majority of the literature, and is linked to the development of a value chain for VietGAP-certified produce.

3.6.2. The drivers for introducing and implementing GAP programmes

There is a lack of clarity about main drivers for the development and application of different types of GAP programmes in the literature (Premier & Ledger, 2006). Initially, the main driver for the development and introduction of the private EurepGAP, which was then renamed GlobalGAP, was to respond to consumer concerns about food safety and quality and European legislation in the European Union (Asfaw et al., 2010). Some other scholars (e.g. Burrell, 2011; Hobbs, 2010) argued that the primary driver for the introduction of GlobalGAP was to enhance the management of the supply chain and this included reducing transaction costs within the chain and limiting the legal liability of chain operators and retailers. For export-oriented countries, the introduction of private GAP programmes such as GlobalGAP to producers is driven, not only by food safety and quality concerns, but also to ensure the producers maintain their role in international markets (Lippe & Grote, 2016).

Several types of public GAP programmes, such as Q-GAP in Thailand (e.g. Krause et al., 2016; Wongprawmas et al., 2015), PhilGAP in the Philippines (e.g. Banzon et al., 2013) and VietGAP in Vietnam (e.g. Loan et al., 2016) were developed and implemented. However, the drivers for introducing and implementing public GAP schemes in the context where private GAP schemes such as GlobalGAP were already introduced, are not clear in the literature. In the Philippines, PhilGAP was introduced by the Philippine Government to improve food safety, reduce pesticide overuse and health problems in rural communities and to ensure continued access to export markets (Banzon et al., 2013). In contrast, Q-GAP in Thailand was promoted by the Thai Government as part of the strategy to maintain and expand export markets (Krause et al., 2016), reduce “the use of agrochemicals” by farmers (Wongprawmas et al., 2015, p.

2235), and improve “on-farm operations to produce safe products and preserve the environment while reducing the costs of production” (Srisopaporn et al., 2015, p. 242). In addition, Premier and Ledger (2006, p. 555) claim that although the aim of implementing GAP programmes is to produce foods that are safe to eat, “the drivers for the introduction of Good Agricultural Practices are different from country to country”. This suggests that the main drivers for developing and implementing public GAP programmes in developing countries vary.

3.6.3. The impact of the introduction of GAP schemes on farmers

A body of literature has investigated the development and spread of private GAP programmes such as GlobalGAP and assessed its impact on producers in developing countries (Asfaw et al., 2010; Hatanaka, Bain, & Busch, 2005; Henson & Jaffee, 2006; Tennent & Lockie, 2013). This body of literature tends to interpret private GAP programmes such as GlobalGAP as market-based governance mechanisms. Within this body of literature, several studies (e.g. Jaffee & Henson, 2005; Martinez & Poole, 2004; Mausch, Mithöfer, Asfaw, & Waibel, 2006; Okello, 2005) showed that complying with private GAP programmes, such as GlobalGAP, entails substantial investment costs. They found that the financial benefits associated with complying to a private GAP programme were not sufficient to cover the costs (Asfaw et al., 2010). Similarly, several other scholars (e.g. Martinez & Poole, 2004; Mausch et al., 2006; Okello, 2005) have argued that most small-scale farmers in developing countries cannot cover the compliance costs. To overcome these compliance constraints, some authors (e.g. Graffham & Cooper, 2008; Humphrey, 2008) have recommended that donors provide financial assistance to help farmers to adopt private GAP standards. In this context, the majority of studies tend to argue that private GAP programmes, such as GlobalGAP, act

as barriers for small-scale farmers in developing countries and exclude them from mainstream markets (Augier, Gasiorek, & Lai Tong, 2005; Martinez & Poole, 2004; Mausch et al., 2006; Okello, 2005). However, little is known whether public GAP schemes exclude small-scale farmers from traditional markets.

Some studies, not denying the challenges faced by small-scale farmers in developing countries when complying with private GAP, however, argue that private GAP programmes can act as a catalyst for a change (Asfaw et al., 2010; Henson, 2008; Henson & Jaffee, 2008; Maertens & Swinnen, 2006; Minot & Ngigi, 2004). For example, several authors (e.g. Asfaw et al., 2010; Henson, 2008; Maertens & Swinnen, 2006) have identified the positive impacts that complying with private GAP programmes have on producers in developing countries. These include helping to upgrade the country's food supply systems and providing strategic advantages to producers in the global market. However, little is known about whether public GAP programmes can act as a catalyst for change in an agri-food system in the context when the private GAP programmes already operating in the country.

3.7. Summary

A systemic approach that draws from the theory of technological transitions, innovation systems and value chains was employed to explore the implementation of the VietGAP programme and farmers' responses to VietGAP. An intensive review of the extant literature on GAP programmes found the following gaps. First, there is a lack of a systemic approach to explain the decision of the producer to adopt GAP schemes, or not. The majority of the studies focused on both GAP programmes that have been mainly developed for export markets where a market demand for certified produce already exists. The characteristics of farmers, farms, the technology (GAP schemes) and

the level of support given to producers under GAP programmes were found to be key determinants of producers' adoption of GAP schemes. Elements such as characteristics of the marketing system, institutions and relationships between actors participating in the GAP programmes have not been reported as influencing elements to producers' adoption of GAP schemes. Second, there is a lack of clarity of the main drivers for the introduction and implementation of public GAP programmes in developing countries. Private GAP schemes such as GlobalGAP are often interpreted as market-based mechanisms to govern food safety and quality or improve the supply chain for agricultural products. However, it is not clear how and why public GAP programmes are used in developing countries like Vietnam when there is the operation of private GAP programmes.

CHAPTER FOUR: METHODOLOGY

4.1. Introduction

The research question for this study is ‘What is shaping farmers’ responses to VietGAP?’ This chapter outlines the research paradigm and design that framed the study and describes the research methods used in this study. The chapter is structured into ten sections. Following the introduction, Section 4.2 describes the author’s philosophical research paradigm; Section 4.3 presents the case study research design; Section 4.4 describes the case selection process; Section 4.5 describes the data collection process; and Section 4.6 explains the data analysis process. In Section 4.7, the means by which the quality of the research was ensured is presented, while Section 4.8 discusses the role of the researcher. The approach to managing the ethical issues associated with the study is presented in Section 4.9 and the final Section 4.10 provides a summary of the chapter.

4.2. Philosophical research paradigm

The philosophical research paradigm is the researcher’s worldview that forms the basis of any research (Crotty, 1998). It is the collection of beliefs that guides the research process and it consists of the ‘ontological viewpoint’, ‘epistemological perspective’ and the ‘methodological premise’ of the researcher (Crotty, 1998; Denzin & Lincoln, 2008). As such, the philosophical research paradigm guides the way in which the researcher formulates the research question and the research purpose and deals with the research process and, to some extent, shapes the nature of the research results (Creswell, 2014; Crotty, 1998; Denzin & Lincoln, 2008). Basically, the author of this study believes that

human behaviour and social phenomenon require a holistic perspective; that is a perspective that considers people and their points of view, not in isolation, but interconnected to the system in which they live and work. Therefore, the researcher has adopted a constructivist-interpretivist paradigm as opposed to a positivist paradigm²⁰.

Constructivism is a worldview that believes ‘meaning’ is socially constructed by people and, that for a given phenomenon, different people can construct ‘meaning’ or ‘truth’ in different ways (Crotty, 1998). The constructivist approach is based on the perspective that “there is no objective truth” but that “truth or meaning comes into existence in and out of our engagement with the reality in our world” (Crotty, 1998, pp. 8-9). The constructivist perspective accepts that knowledge about the world is context-dependent and reality is socially constructed (Crotty, 1998; Tracy, 2012).

Interpretivism is a worldview that considers reality as a social product and that it is constructed and interpreted by people based on their beliefs and within their value systems (Crotty, 1998). The interpretivist perspective assumes that the nature of reality is socially constructed, subjective and diverse (Crotty, 1998; Esterberg, 2002). This is different from the positivist perspective that assumes that the nature of reality is objective, tangible and uniform (Aliyu et al., 2014). A constructivist-interpretivist approach is used to study the VietGAP programme.

4.3. Research design

This study adopts a single-case study research design. Stake (1995, p. xi) defines case study as “the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances”. The case study concentrates on

²⁰ : The positivist paradigm is a philosophical paradigm that believes that reality is stable and can be observed, measured and described from an objective viewpoint (Aliyu, Bello, Kasim, & Martin, 2014).

investigating in-depth, one or a small number of cases within a specific context, to explain and understand the nature of a given phenomenon (Yin, 2009, 2014). According to scholars (e.g. Gerring, 2006; Yin, 2014), the case study is useful for research that is exploratory in nature.

The case study design was chosen for this study for three reasons. The first reason is that the case study is recognised as suitable for providing specific and context-dependent knowledge on a research topic (e.g. Flyvbjerg, 2006; O'Leary, 2005; Stake, 1995) and this is essential for the generation of new knowledge. The complex relationships between diverse stakeholders involved in the VietGAP programme and the institutions that shape these relationships in Vietnam are assumed to be context-specific and context-dependent in this study. The second reason a case study was chosen is that it is suitable for understanding in-depth contemporary phenomena (Yin, 2009, 2014). A case study can provide a richer description and more insightful explanations than other research designs such as the survey research design (Yin, 2009, 2014). Finally, the case study research design has been used by other researchers to investigate the adoption of new technologies in agriculture from a systemic perspective (Davis et al., 2008; McElwee, 2012; Negro, 2007; Tigabu et al., 2015). On the basis of these three points, the case study design was used for the study of the VietGAP programme for vegetables through a systemic lens.

A single case study of the VietGAP programmes for vegetables in one province was employed in this research. Two communes in a district within the province were chosen as examples of the VietGAP programme for vegetables implemented at the local level. A single-case study was chosen because the nature of the phenomena in terms of the number of actors involved in the VietGAP programmes and the need for an in-depth

analysis. As highlighted in the government report (MARD, 2013), a wide range of actors are involved in the implementation of VietGAP. These include, but are not limited to, input suppliers, farmers, government officers, agri-business firms, and other value chain actors. In the next section, the process of selecting the case is described.

4.4. Case selection

The case in this study is the VietGAP programme for vegetables in the Thua Thien Hue province of Vietnam. The VietGAP programme for vegetables was chosen for two reasons. First, this programme is a major VietGAP programme that is currently implemented in most of the provinces in Vietnam. According to the MARD (2013), there are 52 out of 63 provinces and cities in Vietnam implementing VietGAP for vegetables. This means that findings from this research can provide potential insights into understanding the implementation of the VietGAP programmes across Vietnam. Second, the VietGAP programme for vegetables has been in use in Vietnam since 2009, soon after it was developed (MARD, 2013), and it is the programme that has been operationalised for the longest period in Vietnam. Therefore, investigating the VietGAP programme for vegetables not only provides potential insights into how this programme was developed, implemented, and its adoption/non-adoption by farmers, but it also provides insights that may be useful for other VietGAP programmes that are currently being developed and implemented.

The site of this case study is in the Thua Thien Hue province of Vietnam (refer to Figure 5.1). This province was selected, based on two criteria. First, it had to be an area where the VietGAP programme for vegetables has been implemented for several years. According to the MARD (2014b), the VietGAP programme for vegetables has been implemented in the Thua Thien Hue province since 2009. The second criteria was

‘access’ (Yin, 2002). The researcher wanted an area where he would have good access to information about the VietGAP programme for vegetables. The Thua Thien Hue province was chosen because the researcher has good networks and a detailed understanding of the farming systems in the region. The researcher had been living in this area for many years and had personal and professional networks within the community. These would allow the researcher to easily access stakeholders when collecting data.

To determine where in the province to conduct the study, provincial reports on social and economic development (e.g. Thua Thien Hue Province People's Committee, 2010, 2011, 2012, 2013, 2014) of the Thua Thien Hue province were collected. A document review was conducted to obtain a general overview of the implementation of the VietGAP programme for vegetables in the province. A meeting with the head of the Provincial Department of Agriculture and Rural Development (PDARD), responsible for managing all agricultural development activities in the province, was held to identify which district and which communes within that district had implemented the VietGAP programme for vegetables.

The head of the Provincial Department of Agriculture and Rural Development was asked to select a suitable district for the study and then identify two communes within this district where the data collection would take place. Criteria used for the selection of the study sites (district and commune sites) were the period under which VietGAP had been implemented and that the sites were reasonably typical of the region. The X²¹ district was chosen because the VietGAP for vegetables programme had been implemented in this district since 2009, so it had been operating under the programme

²¹ : X is the pseudonym of one of districts within the Thua Thien Hue province.

for the longest period of any of the districts. The district was also chosen because it was fairly typical for the district in the province such as in terms of farming systems, production and marketing system, and population.

Two communes (XA²² and XB²³) within the X district of the Thua Thien Hue province were selected as suitable sites for the study because they had been under the VietGAP for vegetables for the longest period of that province at the local level. These two communes were considered relatively typical of those in the province in relation to the farming systems, population, vegetable production and marketing system, infrastructure and the VietGAP implementation process that was applied in those communes. These two communes are not distinctively different or unique from other communes in the province. The VietGAP programme for vegetables has been operating in these two communes since 2009. The next section describes the data collection process used in this research.

4.5. Data collection

The following sections describe the within-case sampling method and the data collection procedures used in this study.

4.5.1. Sampling method

The research applied a purposive and snowball sampling method to select participants. This method of sampling is commonly associated with qualitative research approach (Miles & Huberman, 1994; Miles, Huberman, & Saldana, 2013). The process of sampling was undertaken as follows. First, the researcher had a meeting with the staff of the XA Commune People's Committee to identify organisations who participated in the

²² : XA is the pseudonym of the first commune within the X district.

²³ : XB is the pseudonym of the second commune within the X district.

VietGAP programme for vegetables in this commune. The participating organisations within the commune include the XA Commune People's Committees, the XAKT²⁴ Agricultural Cooperative and the XAHC²⁵ enterprise. Within these organisations, people who were knowledgeable about the VietGAP programme for vegetables (key informants) were identified and selected to interview. Key informants in the commune were selected and they were selected on the basis of:

- 1) their knowledge about the implementation of the VietGAP programme for vegetables;
- 2) their positions related to the implementation of the VietGAP programme for vegetables as recognised by other informants; and
- 3) their knowledge about vegetable production and marketing in the commune.

In total, three key informants in the XA commune were identified. They were the senior manager of the CPC, the senior manager of the XAKT agricultural cooperative and the senior manager of the XAHC enterprise – VietGAP-compliant vegetable collecting firm in the XA commune. A summary of key informants that were interviewed in the XA commune is provided in Table 4.1.

Table 4. 1: A list of the interviewed key informant in the XA commune

No.	Pseudonym	Positions
1	Nguyen Khoa Van	the senior manager of the Commune People's Committee
2	Nguyen Ty Van	the senior manager of the XAKT agricultural cooperative
3	Nguyen Dinh	the senior manager of the XAHC enterprise, VietGAP-compliant vegetable collecting firm in the XA commune

²⁴ : XAKT is the pseudonym of one of agricultural cooperatives within the XA commune.

²⁵ : XAHC is the pseudonym of one of agribusiness enterprises within the XA commune.

Farmers were then selected from the XA commune to interview. To do this, a list of commune farmers was collected from the office of the XA Commune People's Committee and the researcher had a discussion with a senior staff member of the commune to identify and select the most suitable farmers to interview. Three types of farmers were identified from the discussion with the commune staff and these were:

- 1) Farmers who were involved in the VietGAP programme for vegetables and were currently applying VietGAP (VietGAP farmers);
- 2) Farmers who had been involved in the VietGAP programme for vegetables, but were not currently applying it to their farming practices (dis-adopted VietGAP farmers); and
- 3) Farmers who had never participated in the VietGAP programme for vegetables (non-VietGAP farmers).

The farmers were selected on the basis of:

- 1) their knowledge about VietGAP vegetable production and marketing in the region;
- 2) have been producing and marketing vegetables before the VietGAP programme for vegetables was introduced in the region.
- 3) were representatives of farmers in terms of farming system, production and marketing system in the commune.

In total, six VietGAP farmers, two farmers who had dis-adopted VietGAP and four non-VietGAP farmers were identified. As only two farmers had dis-adopted VietGAP in the commune at the time of the research, they were selected as dis-adopted VietGAP

farmers to interview. A summary of the farmers who were interviewed in the XA commune is provided in Table 4.2.

Table 4. 2: A list of the interviewed farmers in the XA commune

No.	Pseudonym	Positions
1	Nguyen Hoa Van	VietGAP Farmer
2	Dao Yen Thi ^{a26, b27}	VietGAP Farmer
3	Nguyen Thoi Thi	VietGAP Farmer
4	Bui Hoa Thi	VietGAP Farmer
5	Nguyen Hoi Van ^a	VietGAP Farmer
6	Tran Quang Van ^a	VietGAP Farmer
7	Dao Minh Quang	Dis-adopted VietGAP Farmer
8	Nguyen Sinh Van	Dis-adopted VietGAP Farmer
9	Nguyen Loc Van	Non-VietGAP Farmer
10	Le He ^a	Non-VietGAP Farmer
11	Nguyen Chinh	Non-VietGAP Farmer
12	Tran Tuong Duc	Non-VietGAP Farmer

Other key value chain actors within the commune, including collectors, inputs suppliers, wholesalers, and retailers were identified through both the key informant and farmers interviews. They were selected on the basis of:

²⁶ : Selected by the interviewees.

²⁷ : Indicated interviews where handwritten notes were used to record the interviews rather than tape recorders. In these situations, the interviewees were not comfortable with the interview being recorded.

- 1) their positions within the value chain as recognised by other informants;
- 2) their knowledge about vegetable production and marketing in the study area.
- 3) have been doing their business before the VietGAP programme for vegetables was introduced to farmers in the study region.

In total, two main collectors/retailers, two collectors/wholesalers and one key input supplier were identified in the commune. A summary of the value chain actors who were interviewed in the XA commune is provided in Table 4.3.

Table 4. 3: A list of the interviewed value chain actors in the XA commune

No.	Pseudonym	Positions
1	Nguyen Nhan Thi	Collector/retailer
2	Nguyen Huong Thi ^a	Collector/retailer
3	Nguyen Suong Thi	Collector/wholesaler
4	Dao Le Thi ^a	Collector/wholesaler
5	Nguyen Hang Thi	Private input supplier

The same process was applied to sample interviewees in the XB commune. The researcher met with staff of the XB Commune People's Committee to identify organisations which participated in the VietGAP programme for vegetables within the commune. The outcome of this meeting was that the XB Commune People's Committees and the XBQT²⁸ Agricultural Cooperative were identified as key participating organisations. For these organisations, people who were knowledgeable about the VietGAP programme for vegetables were identified and selected to interview. They were selected on the same basis as key informants for the XA commune. In total,

²⁸ : XBQT is the pseudonym of one of agricultural cooperatives within the XB commune.

two key informants were identified in the commune. They were the senior manager of the CPC and the senior manager of the local cooperative (XBQT agricultural cooperative). The manager of the local cooperative was also senior manager of VietGAP vegetable collecting firm and input supplier in the XB commune. A list of the key informants who were interviewed in the XB commune is provided in Table 4.4.

Table 4. 4: A list of the interviewed key informants in the XB commune

No.	Pseudonym	Positions
1	Hoang Phong Cong	the senior manager of the CPC
2	Hoang Tai Minh	the senior manager of local cooperative (XBQT agricultural cooperative); the senior manager of VietGAP vegetable collecting firm; the input supplier in the XB commune.

Farmers were then selected from the XB commune to interview. To do this, a list of commune farmers was collected from the XB Commune People's Committee offices and the researcher had a discussion with the staff of the commune to identify and select the most suitable farmers to interview. As there were no farmers who had been involved in the VietGAP programme for vegetables, but were not currently applying it to their farming practices (dis-adopted VietGAP farmers) in the commune at the time of the research, only two types of farmers were identified to interview in this commune, and these included:

- 1) farmers who were involved in the VietGAP programme for vegetables and were currently applying VietGAP; and
- 2) farmers who did not participate in the VietGAP programme for vegetables.

They were selected on the same basis as farmers for the XA commune. In total, six VietGAP farmers and six non-VietGAP farmers were identified in the XB commune. A summary of the farmers who were interviewed in the XB commune is provided in Table 4.5.

Table 4. 5: A list of the interviewed farmers in the XB commune

No.	Pseudonym	Positions
1	Ho So	VietGAP Farmer
2	Nguyen Tan Cong	VietGAP Farmer
3	Nguyen Chinh Dinh	VietGAP Farmer
4	Nguyen Chien Cong ^a	VietGAP Farmer
5	Cao Chanh Quang ^{a, b}	VietGAP Farmer
6	Nguyen Hanh Cong ^{a, b}	VietGAP Farmer
7	Tran Phu Phu	Non-VietGAP Farmer
8	Nguyen Nam Van	Non-VietGAP Farmer
9	Nguyen Thi Ha Thu	Non-VietGAP Farmer
10	Duong Duc	Non-VietGAP Farmer
11	Nguyen Hoang Huu ^a	Non-VietGAP Farmer
12	Nguyen Quang Huu ^{a, b}	Non-VietGAP Farmer

Other key value chain actors within the commune were then identified. They were also identified during the process of interviewing the key informants and farmers. These include collectors, inputs suppliers, wholesalers, and retailers. They were selected on the same basis as for the first commune. In total, two collectors/wholesalers and two collectors/retailers were identified in the commune. A summary of the value chain actors who were interviewed in the XB commune is provided in Table 4.6.

Table 4. 6: A list of the interviewed value chain actors in the XB commune

No.	Pseudonym	Positions
1	Nguyen Hien Van ^a	Collector/wholesaler
2	Tran Tho Phu	Collector/wholesaler
3	Nguyen Cam Thi ^b	Collector/retailer
4	Phan Phong Huu ^b	Collector/retailer

Actors outside the commune level were then identified because they were either involved in the VietGAP programme for vegetables in the two communes or the vegetable value chain system. The researcher had a meeting with the head of the X District Department of Agriculture and Rural Development. The outcome of the meeting was that participating organisations in the VietGAP for vegetables programme were identified. These included the X District Department of Agriculture and Rural Development and the X District Station of Agricultural Extension. Within the participating organisations, staff who were knowledgeable about the VietGAP programme for vegetables were selected for interview. They were selected on the basis of:

- 1) their anticipated knowledge about the implementation of the VietGAP programme for vegetables; and
- 2) their important roles related to the implementation of the VietGAP programme for vegetables as recognised by other informants

In total, two government officers were identified in the district level. They were the head of the X District Station of Agricultural Extension and senior officer of the X District Department of Agriculture and Rural Development. A summary of the government officers who were interviewed in the X district is provided in Table 4.7.

Table 4. 7: A list of the district government officers interviewed

No.	Pseudonym	Positions
1	Nguyen Quang Van	the head of the X District Station of Agricultural Extension
2	Tran Nam Dinh	the senior officer of the X District Department of Agriculture and Rural Development

The researcher then had a meeting with the head of the Thua Thien Hue Provincial Department of Agriculture and Rural Development to identify organisations who participated in the VietGAP programme for vegetables in the province. The outcome of the meeting was the participating organisations in VietGAP were identified. These were the Provincial Department of Agriculture and Rural Development (PDARD), the Provincial Centre for Agricultural Extension (PCAE), and Hue University of Agriculture and Forestry (HUAF). Within the participating organisations, staff and academics who were knowledgeable about the VietGAP programme were selected for interview. They were selected on the basis of:

- 1) their anticipated knowledge about the implementation of the VietGAP programme for vegetables; and
- 2) their positions related to the implementation of the VietGAP programme for vegetables as recognised by other informants.

In total, two academics from HUAF and four provincial government officers were identified at the provincial level. The provincial government officers consist of a senior manager of the provincial Department of Agriculture and Rural Development (PDARD), a senior extension officer of the provincial Centre for Agricultural Extension

(PCAE), a senior manager of the Cultivation Division (subordinate to PCAE) and the senior staff of Plant Protection (subordinate to PDARD). A summary of the academics and government officers who were interviewed in the province is provided in Table 4.8.

Table 4. 8: A list of the provincial academics and government officers interviewed

No.	Pseudonym	Positions
1	Nguyen Phuc Khac	the lecturer/scientist from HUAF
2	Tran Hoa Dang ^a	the lecturer/scientist from HUAF
3	Le Thao Quy	the senior manager of the PDARD
4	Ngo Tri Viet ^a	the senior extension officer of the PCAE
5	Phan Anh	the senior manager of the Cultivation Division
6	Nguyen Tan ^a	the senior staff of Plant Protection

Key value chain actors in the province were then selected. They were identified during the process of interviewing the key informants, government staff at the district and provincial level and value chain actors in two communes. They were selected on the basis of:

- 1) their anticipated knowledge about the implementation of the VietGAP programme for vegetables; and
- 2) their positions and experiences related to marketing vegetables and the implementation of the VietGAP programme for vegetables as recognised by other informants.
- 3) their anticipated knowledge about producing and marketing vegetables in the province.

In total, five key value chain actors were selected. These include three retail managers from two supermarkets and two main wholesalers from the wholesaler market in the province. A summary of the provincial value chain actors who were interviewed in the province is provided in Table 4.9.

Table 4. 9: A list of the value chain actors at the provincial level interviewed

No.	Pseudonym	Positions
1	Nguyen Mai Thi	the senior retail manager from Co-opmart supermarket
2	Nguyen Son Van ^a	the senior retail manager from Co-opmart supermarket
3	Le Quang A	the senior retail manager from BigC supermarket
4	Hoa Manh ^b	a key wholesaler at the wholesale market
5	Tung Ut ^b	a key wholesaler at the wholesale market

As the information provided by the interviewees and documents collected show that people from outside the Thua Thien Hue province were also involved in the VietGAP programme for vegetables in both communes studied, the process of identifying interviewees extended to outside the province. They were identified during the process of interviewing the key informants and government staff at the district and provincial level. They were selected on the basis of:

- 1) their position related to the implementation of the VietGAP programme for vegetables; and
- 2) their anticipated knowledge of the VietGAP programme.

In total, three government officers were selected at the national level. These were the senior managers of the National Centre for Agricultural Extension (NCAE), senior manager of the Department of Cultivation (subordinate to NCAE) and the senior staff of

VietGAP certifying organisation. A summary of the government officers who were interviewed at the national level is provided in Table 7.10.

Table 4. 10: A list of the government officers at the national level interviewed

No.	Pseudonym	Positions
1	Ha Hanh Thuy	the senior manager of the NCAE
2	Vu Thuy Thi ^a	the senior manager of the Department of Cultivation (subordinate to NCAE)
3	Ngo Thi Ha Thuy	the senior staff of VietGAP certifying organisation

4.5.2. Data collection

The following sections describe the choice of data collection techniques, the process of designing interview protocols, the process of interview and document collection.

The choice of data collection techniques

According to several scholars (e.g. O'Leary, 2005; Stake, 1995; Strauss, 2001; Yin, 2003), there are a wide range of data sources that can be used for a case study research. These include documents, records, interviews, observation, and physical artefacts. However, given the research question, semi-structured interviews and documents were the main data sources for this research.

Semi-structured interviews were used to collect data for two reasons. First, they are useful to gain an ‘in depth’ understanding about the research topic. In addition, according to King (2004), semi-structured interviews allow flexibility in the interview process and reduce the possibility of influencing the interviewees. For example, the semi-structured interview method allows the interviewees to provide answers that they consider important without restriction from the interviewer. The semi-structured

interview method was also selected because it has been used by several researchers (e.g. Asres et al., 2012; Davis et al., 2008; Negro et al., 2007) to gather data for studies that have applied a systemic perspective to investigating the adoption of new technologies.

Documents were used as sources of information in this research because documents contain important information regarding the development and implementation of the VietGAP programme for vegetables. According to Merriam (1998, p. 126), “data from documents are particularly good sources for a qualitative case study because they can ground an investigation in the context of the problem being investigated”. Documents provide useful additional information to other methods of collecting data such as interviews when identifying aspects of research problems being under investigation (Yin, 2002).

The design of the interview protocols

Interview topic guidelines were developed to guide the semi-structured interview process. According to Yin (2002), protocols or interview guidelines help to increase the reliability of the case study. In this study, interview guidelines were developed based on the literature and the research question. Four types of interview guidelines were designed for use when interviewing different groups of participants, as participants had different information regarding the VietGAP programme for vegetables. These include: 1) Interview topic guidelines for key informants in the communes, 2) Interview topic guidelines for farmers in the communes, 3) Interview topic guidelines for other value chain actors in the commune, district and province, and 4) Interview topic guidelines for government officers/academics. Please see a copy of interview topic guidelines in Appendix A (number I-VIII) of the thesis.

The process of the interview

Interviewing key informants in the communes was undertaken to obtain an understanding of the context and the implementation of the VietGAP programme for vegetables (at the community level) and identify key actors in the system. These interviews were completed before the interviews with farmers, government officers, academics and other value chain actors in the system were conducted. The interview process was essentially the same for all participants. However, the topic areas that were covered were different, depending on the type of participant. The interview guidelines for the different types of participants are provided in Appendix A (number I-VIII).

The general interview process was as follows. First, after identifying a research participant, the researcher contacted the participant to introduce them to the research topic. This included explaining who the researcher was; what the research was about; why the researcher was undertaking the study; what the researcher wanted to interview the participant about and obtain verbal consent. The research then organised a suitable time in advance. Upon arrival, the researcher explained the study using the information sheet. The consent form was then introduced and explained to participants, as suggested by Esterberg (2002). This included information about what input they would have into the research, including their time commitment, that they could withdraw within two weeks of the interview, that they did not have to answer questions if they did not wish to, and if they would allow the interview to be tape recorded. They were then asked to sign the consent form. Some interviewees were not happy to have the interviews recorded and this was noted on the consent form. In such situations, the interview was not recorded, rather, detailed notes were taken about the interview. Once consent was obtained, the researcher then initiated the interview with simple questions to obtain

contextual information about the interviewee, as recommended by Patton (2002). Once the contextual information was obtained and the interviewee had relaxed, topic areas from the body of the interview guideline were covered. Probing questions and clarification questions were also used in the interview as suggested by King (2004) to obtain further details about areas relevant to the research topic. At the end of the interview, the researcher thanked the interviewee.

The following is an example of the interview process with key informants. The researcher started with some simple questions about the key informant:

- 1) What is your position in this organisation?
- 2) How long have you held this position?
- 3) What are your main areas of responsibility and what experience have you had with VietGAP?

Then, the researcher moved to other questions to obtain an understanding about the context (background) that lead to the introduction of VietGAP. The following types of questions were asked:

- 1) What can you tell me about the reasons for setting up VietGAP?
- 2) Can you take me through how VietGAP was developed and implemented?

After that, the researcher moved to the other questions to obtain an understanding about how the VietGAP programme was implemented, why it was implemented that way, and how the performance of the VietGAP programme might be improved, and why some farmers adopted VietGAP whereas other farmers did not adopt VietGAP. Examples of the questions that were asked included:

- 1) Who are involved in the VietGAP programme for vegetables and why are they involved?
- 2) What do farmers have to do when they apply VietGAP?
- 3) How can the performance of the VietGAP programme for vegetables be improved?
- 4) What do you know about why some farmers apply/do not apply VietGAP?

The researcher then asked if there was anything else about VietGAP that would help the researcher, and asked who else the researcher should interview to obtain more information about VietGAP. Examples of questions that were asked:

- 1) Who else should I interview in relation to VietGAP?
- 2) How can I contact these people?

At the end of the interview, the researcher thanked the interviewee for their time.

The process of document collection

Relevant documents were accessed to provide data for the study. The researcher collected data from government documents, reports, and journals that were relevant to the VietGAP programme for vegetables. These documents were collected from the office of the provincial Department of Planning and Investment (PDPI), the office of the provincial Department of Agriculture and Rural Development (PDARD), the office of the provincial Centre for Agricultural Extension (PCAE), the offices of other organisations who are involved in the VietGAP programme for vegetables, libraries, and Vietnamese Government websites. Additional documents were collected during the fieldwork including those as interviewees mentioned documents that might be of relevance. A table of key VietGAP related-documents collected during this study is

provided in Appendix B of the thesis. In the next section, the process of data analysis is described.

4.6. Data analysis

Dey's (1993) guidelines for analyzing qualitative data were well-recognized and most of these guidelines were followed in this research. The procedure for analyzing data in this study was conducted through five steps as follows. The first step was to transcribe the interviews (into Vietnamese which is the mother language of the researcher). Forty-five interviews that were digitally audio-recorded were transcribed verbatim by the researcher. Nine interviews that were not recorded, but had detailed notes taken, were written up based on the detailed notes straight after the interview was completed by the researcher. For the analysis, these documents were treated as transcripts, even though the material was not verbatim from the interviewee. Line numbers were added in the margin of the transcripts to assist with analysing the data.

The second step was to organise all the transcripts into groups that had similar characteristics (Table 4.11). In total, there are seven groups of transcripts. These were key informants' interviews, VietGAP collectors' interviews, VietGAP farmers' interviews, dis-adopted VietGAP farmers, non-adopted VietGAP farmers, local value chain actors' interviews, and governments/quasi-government/academics' interviews.

Table 4. 11: Classification of interview transcript groups

No.	Groups	Transcripts
1	Key informants	3
2	VietGAP collectors	2
3	VietGAP farmers	12
4	Dis-adopted VietGAP farmers	2
5	Non-adopted VietGAP farmers	10
6	Other value chain actors	14
7	Governments/quasi-government officers and academics	11

The third step in the analysis process was to analyse the data intensively for each group of transcripts. First, a description of each transcript was written (Dey, 1993). The purpose of this description is to describe the research interest, provide an overview of the raw data, highlight important aspects and maintain the holism of the data. Given the interviews were semi-structured, this description of each transcript was useful to capture a general understanding about what is said by interviewees in relation to the research question.

Second, the researcher coded the data manually from a transcript from each group (e.g. VietGAP farmers). Coding or classification (Dey, 1993) is the process of identifying and defining themes and concepts (categories) relevant to the research focus. A deductive and inductive approach was used during the coding process. Miles and Huberman (1994) suggest using a starting group of codes that are related to the research question and theoretical framework adopted (deductive analysis approach). The transcript was read line by line, and themes and concepts (e.g. market demand, marketing infrastructure, relationships and interactions between farmers and collectors) that were relevant to the research question and theoretical concepts were identified. Dey

(1993) suggests using data-bits to define a piece of text from the transcript, that is, an example of a theme or concept, and this was adopted in this study. After doing this, an inductive approach was primarily used to find emerging themes and concepts from the transcript. The transcript was re-read line by line and emerging themes and concepts (e.g. preferred or trusted collectors, verbal agreement or promise, loyalty, visual assessment) that were relevant to the VietGAP programme, were identified. Themes and concepts that emerged across groups of transcripts were also identified and noted (e.g. trust-based relationships between farmers and preferred collectors and between collectors and wholesalers). Questions emerged from the analysis that directed the researcher to explore relevant documents (e.g. government decisions on VietGAP). Key quotes were also identified during this coding step.

Third, the researcher identified possible connections that are the relationships between the identified themes and concepts. Dey (1993) calls this process ‘connecting’. The researcher re-read the transcript line by line, and looked for phrases or terms that link data-bits that represent identified themes and concepts (e.g. I did not adopt VietGAP *because* ..., I did not make a contract with VietGAP collectors *because* they could not meet our requirements). Once this was done, the researcher then wrote a detailed description informed by the coding and connecting processes. This description is used as a model for analysing the remaining transcripts within each group. Once all the transcripts within each group was analysed, a summary of findings from the interview transcripts was written. The same process of analysing transcripts applied to other groups of transcripts. In total, there were seven summaries of findings from seven groups of transcripts.

The fourth step in the analysis process was to bring all summaries of findings from seven groups and write a report. The report was translated into English and then sent to supervisors. Several discussions with supervisors about the report were held. Any questions that emerged during the discussions with supervisors required the researcher to re-examine the transcriptions, documents and refine the report. This was done several times.

The final step in the analysis process was to write up the results chapter. The report that contains key findings of research was re-structured. Important quotes from transcripts and relevant documents were extracted and included. Both quotes in Vietnamese and English were used. The results chapter was finally written.

4.7. Research quality

In the qualitative literature, the concept of trustworthiness is used to ensure the quality of the research (Hipps, 1993; O'Leary, 2009; Rolfe, 2006). Several scholars (e.g. Golafshani, 2003; Lincoln & Guba, 1985; Seale, 1999) assert that trustworthiness is necessary to ensure ‘reliability’ in qualitative research. Seale (1999, p. 467) states that the “trustworthiness of a research report lies at the heart of issues conventionally discussed as validity and reliability”. Qualitative scholars (e.g. Lincoln & Guba, 1985; O'Leary, 2005, 2009) propose four criteria for assessing the trustworthiness of a study. These are credibility, transferability, dependability, and confirmability. These are discussed in the following sections.

4.7.1. Credibility

‘Credibility’ in the qualitative research refers to the establishment of believable results of the research and it is related to the richness of information collected (Lincoln & Guba, 1985; Patton, 2002). Given this research is adopted from the constructivist-

interpretivist approach, data from different sources was not used to check or triangulate as suggested by some scholars (e.g. Patton, 2002; Woodside, 2010), rather they were used to enrich information to enhance the credibility of the research. Different points of view and understandings about the VietGAP programmes for vegetables gained from different research participants were presented in the dissertation.

4.7.2. Transferability

‘Transferability’ in the qualitative research approach refers to the ability to apply the research results to other contexts (Lincoln & Guba, 1985; O’Leary, 2009). This does not mean that the results of the research can be generalised to larger populations. Rather, it highlights that “lessons learned” from this study “are likely to be applicable in alternative settings or across populations” (O’Leary, 2009, p. 63). A highly detailed description of the research context and the research methods are key indicators of transferability (O’Leary, 2009). In this research, the research context (Chapter Two), case description (Chapter Five) and the research methods, as described in Section 4.6 of this chapter, were fully described and provided. The main characteristics of the case were outlined, and key findings were linked to the context of the case.

4.7.3. Dependability

‘Dependability’ in qualitative research refers to a transparent, detailed and systematic description of the research methods used in the study (Lincoln & Guba, 1985; O’Leary, 2005, 2009; Yin, 2002, 2009, 2014). Dependability demonstrates “quality assurance through methodological protocols that are designed and developed in a manner that is consistent, logical, systematic, well-documented and designed to account for research subjectivities” (O’Leary, 2009, p. 60). According to Yin (2002), interview topic guidelines help to increase the ‘reliability’ of the case study. To ensure dependability, in

this research, interview topic guidelines have been carefully developed based on the literature and the objectives of the research. Different interview guidelines were designed for use when interviewing different types of participant groups, as the participants had different information regarding the VietGAP programme for vegetables. Interview topic guidelines guided the semi-structured interview process as described earlier. Interview topic guidelines used in this research can be found in Appendix A (number I-VIII) of the dissertation.

4.7.4. Confirmability

‘Confirmability’ refers to the degree to which the research results could be confirmed by others (Lincoln & Guba, 1985; Patton, 2002). To enhance confirmability, research context (Chapter Two), case description (Chapter Five) and research methodology (Chapter Four) were fully described. In addition, an intensive literature review regarding not only VietGAP and other types of GAP programmes, but also systems theory was conducted. The researcher attempted to include several voices from participants in quotes in the results.

4.8. The role of the researcher

Constructivist-interpretivist researchers acknowledge that their roles as a researcher may influence how the data is analysed, interpreted and presented in the report to some extent (Esterberg, 2002). As described in Section 4.2, this research is approached from a constructivist-interpretivist perspective. Therefore, the researcher acknowledged that his personal experience and knowledge might have influenced the research outcomes to some degree. The researcher has been working in the field of agricultural extension and rural development for many years. In addition, an intensive literature review regarding, not only VietGAP and other types of GAP programmes, but also systems theory, was

conducted prior to carrying out the research. This provided a wide range of perspectives and theoretical models that contributed to the knowledge of the researcher. This knowledge and experience were beneficial during data collection and the data analysis process.

4.9. Managing ethical issues

This research was approved by the Massey University Human Ethics Committee and it was assessed as low risk. Two ethical issues that arose in this study include: (1) informed consent and participant rights and (2) confidentiality and anonymity. These issues and how they were managed are discussed in the following sections.

4.9.1. Informed consent and participants' rights

In this research, all participants were informed about the research and the commitment required from them during the study. All participants were asked to carefully read the research information sheet (Appendix C) and sign a consent form (Appendix D) at the beginning of the interview. If any participants could not read, then the researcher read the research information sheet to the participants. During the interview, the researcher ensured that the participants' rights were respected as described in the research information sheet, that interviewees had the right to make decisions such as declining to answer any particular question; withdrawing from the study or asking for the tape recorder to be turned off.

4.9.2. Confidentiality and anonymity

All participants were reassured that the people who used the data from this research, including the researcher and his supervisors, would maintain confidentiality. All audio tapes, transcripts, notes, and signed consent forms would be kept in a safe place that only the researcher and his supervisors could access. All participants were assigned a
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pseudonym to ensure anonymity. In addition, the name of VietGAP-compliant vegetable collecting firms (VietGAP collectors), the name of local cooperatives, the name of both communes, and the name of the district and the name of reports collected at the office of communes and district were assigned a pseudonym to ensure anonymity. A copy of the confidentiality form was provided in Appendix E of this dissertation. However, given the small number of people in some organisations at the provincial and national levels associated with the VietGAP programme for vegetables, anonymity for these people may not be guaranteed.

4.10. Summary

This research adopted a constructivist-interpretivist approach and employed a single case study design focused on two communes within one district of a province. Qualitative research methods including interviews and document reviews were primarily used. The process of interview and document collection was described. The research applied a purposive and snowball sampling method to select participants for this study. A wide range of actors including key informants, farmers, academics, government officers and other value chain actors were interviewed, and a number of relevant documents were collected. Qualitative data analysis with an iterative approach was used. The literature review helped to identify themes that were used as preliminary concepts at the beginning stage of data analysis. However, these themes were used with caution and considered as a starting point to ensure new concepts emerged. Issues associated with research quality assurance, confidentiality and anonymity have been discussed and addressed.

CHAPTER FIVE: CASE DESCRIPTION

5.1. Introduction

This chapter describes the key characteristics of agriculture and the implementation of the VietGAP programme for vegetables in the study region. The chapter is structured into eight sections. Following the introduction, Section 5.2 provides a brief overview of the Thua Thien Hue province; Section 5.3 describes the characteristics of the X district and its agriculture; Section 5.4 outlines the XA commune; Section 5.5 discusses the XB commune; Section 5.6 explains the nature of farmers and farms in both communes; Section 5.7 describes the VietGAP implementation in both communes. In the final section 5.8, a summary of the chapter is provided.

5.2. The Thua Thien Hue province

This section provides an overview of the Thua Thien Hue province of Vietnam and portrays the main characteristics of agricultural development in this province.

5.2.1. A brief overview of the Thua Thien Hue province

Thua Thien Hue is one of 63 provinces and cities in Vietnam. It is located in the Central Area of Vietnam (Figure 5.1). The province is geographically divided into 8 districts and one city-Hue city (Thua Thien Hue Statistical Office, 2017). Recent statistics show the total land area of the province is 5,026 km² and had a population of 1.149 million people in 2016 (Thua Thien Hue Statistical Office, 2017). The total GDP of the province was 36.431 trillion VND (~ 16 billion USD) in 2016, comprising about 0.8 % of the total GDP of the country (Table 5.1) (Thua Thien Hue Statistical Office, 2017). In 2016, the household poverty rate was around 7%. Service and industry/construction

accounted for 55% and 38% of the total of GDP, respectively. Although, agriculture contributed about 14% to GDP of the province, more than 51% of the total population were in rural area and engaged in agriculture activities in 2016 (Thua Thien Hue Statistical Office, 2017). The next section describes the agricultural characteristics in the Thua Thien Hue province.

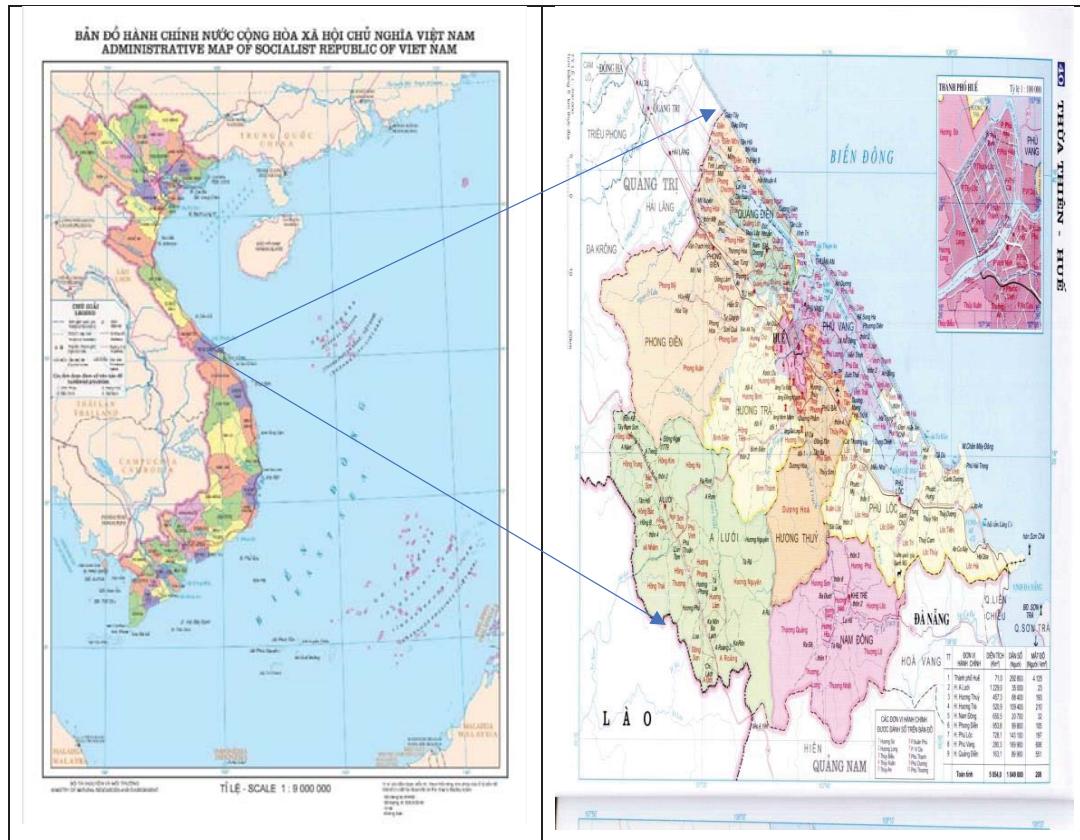


Figure 5. 1: A map of Thue Thien Hue (DSM, 2017)

Table 5. 1: Social and economic indicators of Thua Thien Hue province

Items	2016
GDP (billion VND)	36,431.3
Population growth rate (%)	1.1
Rural population (%)	51.3
Household poverty rate (%)	7.1
% contribution to GDP	Agriculture, forestry and fisheries Industries and construction Services
	13.6 30.8 55.6

Source: Thua Thien Hue Statistical Office (2017)

5.2.2. Land use in the Thua Thien Hue province

Like other provinces of Vietnam, there are three main land types in the Thua Thien Hue province: agricultural land, non-agricultural land and unused land (Thua Thien Hue Statistical Office, 2017). Recent statistics for 2016 has shown that the total land area of the Thue Thien Hue province is 502.63 thousand ha (5,026.3km²), of which agricultural land comprises 411.817 thousand ha, accounting for 82% of the total land use (Table 5.2) (Thua Thien Hue Statistical Office, 2017). The agricultural production land and forestry land account for 14% and 66% of the total of the land area, respectively (Thua Thien Hue Statistical Office, 2017). This means that the agricultural land in the province is mainly allocated for agricultural production and forestry activities.

Table 5. 2: A summary of land use in Thua Thien Hue province in 2016

No.	Type of land	Area (ha)	Percent
1	Whole province	502,629.4	100.0
2	Agricultural land	Total	411,816.8
		Agricultural production	69,835.3
		Forestry	334,908.1
		Aquaculture	6,056.7
		Other land	1,016.6
3	Non-agricultural land	83,430.1	16.6
4	Unused land	7,382.6	1.4

Source: Thua Thien Hue Statistical Office (2017)

5.2.3. Main characteristics of agriculture in the Thua Thien Hue province

As with the rest of Vietnam, agriculture in the Thua Thien Hue province is characterised by four main agricultural activities: cropping, livestock, fisheries, and forestry (Thua Thien Hue Province People's Committee, 2016). The first two activities are in most districts while the fisheries only occur in the coastal areas of the province that are close to the sea. In contrast, forestry only occurs in the mountainous areas. Although, the agricultural industry contributed about 14 % of GDP in the Thua Thien Hue province in 2016, over half of the people (51.3%) were engaged in agricultural activities in 2016 (Thua Thien Hue Statistical Office, 2017). This means that agriculture development is important for the social and economic development of the province.

Like many regions throughout the country, agriculture in the Thua Thien Hue is characterised by mixed crop-livestock farming. Cropping is an important agricultural industry in the Thua Thien Hue province (Thua Thien Hue Province People's Committee, 2016), and a range of crops are cultivated. These include cereals, vegetables, fruit and other perennial industrial crops such as rubber and pepper. Rice is

the most common crop grown. In total, 56.148 thousand ha of cereals were planted in the Thua Thien Hue province in 2016, with rice accounting for about 97% of the total area planted in cereals (54.510 thousand ha) (Thua Thien Hue Statistical Office, 2017).

Vegetables are also a common crop cultivated by the majority of farmers in the province. In total, 10.100 thousand ha of vegetables were planted in 2016, accounting for 15% of the total of the agricultural production area (Thua Thien Hue Statistical Office, 2017). However, the actual cultivated area of vegetables can be much larger than 10.100 thousand ha as recorded in the statistical data. This is because, in many regions within the province, several large areas of land for cropping rice are cropped vegetables in the dry seasons. In the XB and XA communes, which are the study area, vegetables are planted by most farmers in the land for cropping rice during the dry seasons (X District People's Committee, 2015).

Livestock is also an important agricultural industry in the province (Thua Thien Hue Province People's Committee, 2016). Buffalo, cattle, pigs, goats and poultry are farmed in the province (Thua Thien Hue Statistical Office, 2017), with pig production being the dominant form of livestock production. The most recent report shows that there were 205.649 thousand pigs, 22.442 thousand buffalo, 33.588 thousand cattle, 7.772 thousand goats, and 2.764 million poultry farmed in 2016 (Thua Thien Hue Statistical Office, 2017).

Forestry is also an important agricultural industry in the province, but only in the mountainous districts (Thua Thien Hue Province People's Committee, 2016). There are two main types of forests in the province, and these include natural forest and plantation forest. According to the Thua Thien Hue Statistical Office (2017), the area in natural

forest and plantation forest were 203 thousand ha and 95 thousand ha in 2016, respectively.

Fisheries are also an important activity in the Thua Thien Hue province (Thua Thien Hue Province People's Committee, 2016), however, this activity only occurs in the coastal areas. The total area in aquaculture was 7.175 thousand ha in 2016 (Thua Thien Hue Statistical Office, 2017). The Phu Vang (3.024 thousand ha) and Phu Loc (1.385 thousand ha) districts were the two districts that have the largest area in aquaculture in the Thua Thien Hue province (Thua Thien Hue Statistical Office, 2017). The next section describes the key characteristics of the X district and agricultural development in the district.

5.3. X district and agriculture in the district

X district is one of eight districts in the Thua Thien Hue province and agriculture is a significant contributor to its economy. The district comprises 163.05 km² (16.3045 thousand ha) and, in 2016, its population was 83.872 thousand people (X District Statistical Office, 2017). The X district is geographically subdivided into ten communes and one town. The gross output of the district in 2016 was 2.1 trillion VND (~ 93 million USD). The agricultural sector, service, construction, agricultural processing industry, and commerce accounted for 41%, 28%, 12%, 10%, and 9% of the gross output of the district, respectively, in 2016 (X District Statistical Office, 2017). About 87% of the population live in rural areas and are engaged in agricultural activities (X District Statistical Office, 2017). Facilitating the development of the agricultural sector is thus a key component of the social and economic development plan for the district (X District People's Committee, 2015).

The agricultural industries in the district consist of cropping, livestock, and fishery activities. Cropping is the most important contributor to agricultural activity and hence a focus for the development in the district. The recent official statistics show that crops accounted for 45% of the total gross output from agriculture in 2016 (X District Statistical Office, 2017). Crops include annual and perennial crops. In 2016, the gross output of annual crops accounted for 98% of the total gross output from crops (X District Statistical Office, 2017). Main crops in the district include rice, maize, sweet potato, cassava, and vegetables. In 2016, the gross output of cereal crops and vegetables were 285.3 and 38.441 billion VND (~ 12.5 and 1.6 million USD), accounting for 77% and 11% of the total gross output from annual crops (X District Statistical Office, 2017). Vegetables and livestock were the main cash income which contributed to income of the most households in the district given rice was mainly produced for family consumption. However, there was no statistical data on the percent of vegetables contributed to household income available at the time of writing. This means that vegetables play one of the important roles for household income.

The second main agricultural industry undertaken by farmers in the X district is livestock (X District Statistical Office, 2017). These activities include raising pigs, poultry, buffalo, and cattle. Most farmers living in the district undertake these kinds of agricultural activities in combination with cropping. The gross output from livestock was 219 billion VND (~ 9.6 million USD) in 2016, making up 26.5% of the total gross output from the agriculture sector (X District Statistical Office, 2017). Pig, poultry, buffalo and other cattle accounted for 61%, 34% and 6% of gross output, respectively (X District Statistical Office, 2017).

Fishery is the third important agricultural industry in the district, contributing 28.5% of the total gross output of agriculture (X District Statistical Office, 2017). The two main fishery activities undertaken by farmers in this district were fishing and aquaculture. According to the X District Statistical Office (2017), the total gross output from fishery was 237.642 billion VND (~ 10.4 million USD) in 2016. Fishing and aquaculture accounted for 38% and 62% of the total gross output, respectively.

There are two communes within the district where the VietGAP programme for vegetables has been implemented since 2009. These two communes were supported by both central and local government to implement the VietGAP programme for vegetables. They are potential regions for developing vegetable production within the district. The next section describes key characteristics of the XA commune, which is one of two communes within the X district of the Thua Thien Hue province where the VietGAP programme for vegetable is implemented.

5.4. XA commune

The following sections describe the physical, land use, social and economic characteristics and organisational arrangements for agriculture in the XA commune.

5.4.1. Physical characteristics

XA commune is a predominantly agricultural commune and agriculture plays a key role in the livelihood of the people living in this area. It is a delta commune located in the X district. It is about 7 to 8 km southeast from the district center; and about 20 km east from Hue city, the provincial capital center. In 2016, the XA commune was reported to cover 10.743 km² (1074.3 ha) and with an official population of 9,628 people, the majority of which are engaged in agricultural activities (X District Statistical Office, 2017).

The XA commune is characterised by a monsoon tropical climate with two main seasons. The dry season starts around March and finishes at the end of August, and the rainy season typically lasts from September to February. In 2016, the annual average temperature, rainfall, humidity, and sunshine duration were 25.5°C, 316mm, 87.5%, and 145.2hrs, respectively (Thua Thien Hue Statistical Office, 2017).

Three local markets are located in the commune and several others are situated in neighbouring communes (XA Commune People's Committee, 2016). At these markets, people from different communes trade agricultural products, such as vegetables and fruit and access inputs such as fertilisers and pesticides. In addition, there is also a local wholesale market located in another commune, which is about 7 km away from the commune. People from within the district and throughout the province attend this market.

The transport system is relatively poorly developed within the commune and between the XA and neighbouring communes. Although, there are inter-village roads, inter-commune streets which allow transport between communes and from the commune to other centres in the district and the province, these are still in the early stages of development. The roads are suitable during the dry season, but transport between the commune and other centers is difficult during the rainy season.

The commune's information system, and that of the district, is still in a developmental phase. The landline telecommunication system to the commune has been in place since 2000-2001. A mobile phone network was developed in recent years and this allows people to communicate easily. In addition, the internet system is in the early stages of development and people in the commune can access the internet from some points at the centre of the district. However, according to many participants in this study, they do not

trust the accuracy or validity of the information available on the internet, especially information related to agricultural products and inputs for agricultural production.

5.4.2. Land use characteristics

Recent official statistics show that the total area of land in the XA commune is 1,074.3 ha (10.743km²) and consists of three main types of land: agricultural production land, special used land, homestead land and other land (Table 5.3) (X District Statistical Office, 2017). About sixty-five percent of the total area of land in the XA commune is allocated to agricultural production. Special use land, homestead and other land accounted for 12%, 9% and 14% of the total, respectively (X District Statistical Office, 2017).

Table 5. 3: Land use in the XA commune in 2016

No.	Name of land types		Quantity (ha)	Percent
1	Total area		1,074.3	100.0
2	Agricultural production land	Total	695.8	64.8
		Rice	550.5	79.1
		<i>Maize, potato and cassava</i>	-	-
		Vegetables	65.0	9.3
		Perennial crops	1.3	0.2
		Aquaculture	79.0	11.4
3	Special used land		129.4	12.0
4	Homestead land		100.6	9.4
5	Other land		148.5	13.8

Source: The X District Statistical Office (2017)

Agricultural production land in the XA commune consists of wetland for cropping rice, and dryland for growing other crops that are primarily vegetables. The wetland is the main type of agricultural production land. In 2016, the official statistics recorded 550 ha of wetland for cropping rice, which accounted for 79% of the total of agricultural

production land in the commune (X District Statistical Office, 2017). This type of agricultural production land, can crop rice two to three times a year, depending on the variety of rice and the nature of the land. The wetland areas are sometimes inundated during the winter in some areas. In addition, it can be used for other land use such as vegetables if required.

The other type of agricultural land in the commune is dryland and this is used for growing other annual crops. Vegetables are the main crops that are planted on the dryland. A recent official report from the commune indicated that 65 ha were planned to be solely cropped in vegetables in 2016 and this accounted for 9% of the total agricultural production land (XA Commune People's Committee, 2016). Key informants indicated that the official commune report is not an accurate reflection of the actual area cultivated in vegetables and they believed that the actual cultivated area was closer to nine times (585 ha). The reasons given for this discrepancy were:

- 1) Most farmers in the commune are often cropping vegetables in their own gardens which are not included in the 65 ha of dry land mentioned above;
- 2) Some large areas of wetland for cropping rice are used to grow vegetables during the dry season;
- 3) Many of the varieties of vegetables can be cropped several times per year. For example, bok choy (cải bẹ trắng), coriander (rau mùi), lettuce (xà lách búp), and crown daisy (cải cúc/tầng σ) can be cropped seven to eight times per year in this commune.

In contrast to agricultural production land, aquaculture land in the commune accounts for a relatively small proportion of the total agricultural land. In 2016, the official statistics indicated 79 ha was in aquaculture land (X District Statistical Office, 2017).

5.4.3. The social and economic characteristics

Agriculture plays a key role in the development of the XA commune. Most people living in the commune rely heavily on agricultural activities. Table 5.4 is the breakdown of some social and economic indicators for the commune in 2016. It can be seen that the official population of the commune was 9,628 thousand people that comprised 2,748 thousand households. The average income per person per year was 23 million VND (~ 1,100 thousand USD). The poor household rate was 6.3%, which is higher than the national poor household rate (5.4%). To be classified as ‘poor’ a household must earn less than 653 thousand VND/person/month (~ USD 2.25/ person/day). On average, there are about 0.25 ha of agricultural production land per household.

Table 5. 4: Some of social and economic indicators in the commune

No.	Indicators	Calculated unit	2016
1	Population	People	9,628.0
2	Population growth rate	%	1.0
3	Households	Household	2,748.0
4	Poor household rate	%	6.3
5	Average income/person/year	Mill. VND	23.0

Sources: The X District Statistical Office (2017)

According to annual commune reports (e.g. XA Commune People's Committee, 2014, 2015, 2016), most of the households undertook agricultural activities and some undertook handicraft and construction (bricklayer, builder), and services/commerce. Agricultural activities including cropping, livestock and aquaculture are the main economic activities for most of the people in the commune. Only a relatively small proportion of people were engaged in handicrafts and construction. Handicraft production includes, but is not limited to, timber processing; making and repairing

wooden objects; building materials exploitation; iced water production; agricultural product processing; and mechanical activities. In 2016, in total, 180 people working in handicraft production workshops were recorded in this commune (XA Commune People's Committee, 2016).

Households in the commune also undertake services and commerce. However, a relatively small proportion of people engage in these activities. For the service activity, the most recent data reveal that there were 160 people within households undertaking services in the commune in 2016. Service activities include, for example, motorbike repair, electronics repair, restaurants, transportation, and wedding hire services (XA Commune People's Committee, 2016). For commerce activity, there are several small commercial business shops in the commune. These include small trading at commune markets and more broadly among households and at family owned enterprises (XA Commune People's Committee, 2016).

In addition to mentioned activities, 1,600 thousand labourers (farmers) who live in this area undertook jobs and services in neighbouring provinces during times that were not cropping time in 2016 (XA Commune People's Committee, 2016). Moreover, there were 600 local labourers (farmers) participating in hired working services and trading at Hue city and other neighbouring areas at the time they are not doing agricultural activities (XA Commune People's Committee, 2016).

5.4.4. Organisational arrangements for agriculture

In the XA commune, the XA Commune People's Committee is a key organisation that is responsible for governing all aspects within the commune. These include, but are not limited to, social, economic, political, security and defense aspects. According to the government regulations in Vietnam, as described in Chapter Two, the Law of the

People's Committee and the Law of People's Council of Vietnam define the functions of the People's Committee and People's Council (Vietnamese National Assembly, 2003). The XA Commune People's Committee is voted in by the CPCo, which is elected by local people living in the commune. It is overseen by the CPV of the commune. The main duties and responsibilities of the CPC are to develop and implement plans for social and economic development for the whole commune under the leadership of the higher organisations such as the CPCo, the DDARD and the DPC. The plan for social and economic development, which is developed by the CPC, is then organized, implemented and monitored by the CPC.

Under the authority of the CPC, there are agricultural cooperatives operating within the commune. These organisations support the CPC to implement plans and policies relevant to agricultural development that are either developed by the commune or received from higher organisations such as the DDARD. Currently, the agricultural cooperatives within the commune have worked as business organisations, focusing on providing inputs for agricultural production for farmers (XA Commune People's Committee, 2016). The the commune's most recent annual report shows that there were two agricultural cooperatives operating at the XA commune with a total membership of 2,660, accounting for 96% of households in the commune in 2016 (XA Commune People's Committee, 2016). These agricultural cooperatives have assisted farmers through providing agricultural production services such as labourers for soil preparation and harvesting (the cooperative using machines to do soil preparation or rice harvesting for farmers), fertilisers and pesticides (XA Commune People's Committee, 2016).

In addition to the agricultural cooperatives, private business (firms) are operating in the XA commune (XA Commune People's Committee, 2016). These enterprises provide

agricultural inputs for farmers. They include, but are not limited to, agricultural input supply and marketing. The most recent report shows that there were four registered business firms officially operating in the commune in 2016 (XA Commune People's Committee, 2016). This shows that a mixed public and private input supply and marketing system co-exists within the commune. The next section describes the key characteristics of the XB commune, which is the second commune where the VietGAP programme for vegetables was implemented.

5.5. XB commune

The physical, land use, social and economic characteristics relevant to agriculture in the XB commune are similar to those of the XA commune. Therefore, the following sections only describe briefly these characteristics and compare them to those of the XA commune.

5.5.1. Physical characteristics

The recent statistical data show that the total area of the XB commune was 949.2 ha (9.492 km^2) in 2016, which is slightly smaller than the XA commune (10.743 km^2) and its official population was 6,883 people in 2016, which is less than the XA commune (9,628 people) (X District Statistical Office, 2017). About 78% of households are engaged in agricultural activities (X District Statistical Office, 2017). The characteristics of climate, local markets, transport system, and information system of the XB commune are very similar to those of the XA commune.

5.5.2. Land use characteristics

The characteristics of land use in the XB are the same as those of XA commune. Table 5.5 is the breakdown of some land use indicators in the XB commune in 2016. Similar to the XA commune, agricultural production land in the XB commune consists of

wetland for cropping rice, and dryland for growing other crops including maize, potato, cassava and vegetables. There were 302 ha of land allocated for rice production in the XB commune in 2016, accounting for 61% of the total of agricultural production land. Similar to the XA commune, this type of land can crop rice two to three times a year. Therefore, the actual cultivated area of rice per year could be double or treble compared with the area recorded in the official documents.

Table 5. 5: Land use in the XB commune in 2016

No.	Name of land types	Quantity (ha)	%
1	Total area	949.2	100.0
2	Agricultural production land	Total area	500.1
		Rice	302.8
		Maize, potato, cassava	96.0
		Vegetables	73.3
		Perennial crops	15.3
		Aquaculture land	12.7
3	Specially used land	109.4	11.5
4	Homestead land	138.6	14.6
5	Other land	200.7	21.1

Source: The X District Statistical Office (2017)

Slightly different from the XA commune, farmers in the XB commune cultivate maize, sweet potato, and cassava. The area of land for planting these crops (maize, sweet potato, and cassava) and vegetables in the commune was 96 ha and 73.3 ha, accounting for 19% and 15% of the total agricultural production area, respectively. Similar to farmers in the XA commune, the area of cropping vegetables (73.3 ha) indicated in the official commune report is not an accurate reflection of the actual cultivated area of vegetables grown. Accordingly, the actual cultivated area of vegetables grown (the “cultivated area” that has cropped vegetables in the commune) is very much greater than 73.3 ha. The reasons for this discrepancy are similar to the XA commune.

Aquacultural land in the commune accounts for a small proportion of agricultural land. In total, 13 ha of aquacultural land were recorded in 2016 (X District Statistical Office, 2017), which is smaller than the XA commune (79 ha).

5.5.3. Social and economic characteristics

As a predominantly agricultural commune, agriculture is the key element for the economy of the XB commune. Table 5.6 is the breakdown of some of the main social and economic indicators of the commune in 2016. There were 1,658 households in the XB commune in 2016, which is much less than the XA commune (2,748 households). Poor household rate was 6.0%, which is slightly less than that of the XA commune (6.3%). Average income per person per year was 24 million VND, which is slightly higher than that of the XA commune (23 million VND).

Table 5. 6: Some of social and economic indicators in the commune

No.	Indicators	Calculated unit	2016
1	Population	People	6,883.0
2	Population growth rate	%	1.1
3	Households	Household	1,658.0
4	Poor household rate	%	6.0
5	Average income/person/year	Mill. VND	24.0

Source: The X District Statistical Office (2017)

On average, there are about 0.3 ha of agricultural production land per household, which is slightly larger than that of the XA commune (0.25 ha). Similar to the XA commune, most of these households undertake agricultural activities. Some undertake handicraft/construction, and services/commerce activities and the characteristics of these activities are similar to those in the XA commune. Agricultural activities, which include crops, livestock and aquaculture activities are the main agricultural activities for

most people in the commune (XB Commune People's Committee, 2016). Like the XA commune, there is a small number of people undertaking these activities. These activities include exploiting building materials and doing carpentry (XB Commune People's Committee, 2016). A small number of people from households undertook services and commercial activities in the commune (XB Commune People's Committee, 2016). Similar to the XA commune, these activities include, but are not limited to, agricultural products transportation services, motorbike repair services, electronics, agricultural production input supply, building and construction services, irrigation and labour for soil preparation and harvesting, post-harvesting services and others. Given these characteristics, farmers in the XB commune have diverse livelihood activities similar to the first commune.

5.5.4. Organisational arrangements for agriculture

Organisational arrangements for agriculture in the XB commune are very similar to those of the XA commune. As for the XA commune, the XB Commune People's Committee is an important organisation for the commune and under the authority of the CPC, there are agricultural cooperatives. These organisations work as supporting organisations for the CPC to implement plans and policies relevant to agricultural development. In 2016, there were two agricultural cooperatives operating at the XB commune with almost 99% commune households were members of the two cooperatives (XB Commune People's Committee, 2016), which is slightly higher than the XA commune (96%). Similar to the XA commune, these agricultural cooperatives assisted farmers through providing services such as labour for soil preparation and harvesting, provision of fertilisers, pesticides, fungicides, and herbicides (XB Commune People's Committee, 2016).

Similar to the XA commune, in addition to the agricultural cooperatives, there are private firms (enterprises) operating at the XB commune (XB Commune People's Committee, 2016). These include private input supply enterprises and small-scale agribusiness enterprises and they have provided agricultural services for farmers. These include, but are not limited to, agricultural input supply and marketing. The most recent report shows that there were six private registered firms operating at the commune in 2016 (XB Commune People's Committee, 2016), which is slightly higher than the XA commune (four private registered firms). They have provided services for farmers that contribute to social and economic development in general and for agriculture development in particular (XB Commune People's Committee, 2016). As such, they play an important role for agricultural development in the commune. The next section provides a summary of the nature of farmers and farms in both XA and XB communes.

5.6. Nature of farmers and farms in both communes

The nature of farmers and farms in the two communes is very similar. According to key informants in both communes, the majority of farmers were in school up to 4th to 6th grades and a relatively small proportion of farmers (<5%) did not go to school. The farmers in both communes are experienced in cropping rice and vegetables. The farmers in this study have farmed the same land for the last two to three generations and the majority of farmers have been growing vegetables for about 20 years and are second or third generation farmers.

Farmers in both communes have traditionally cropped rice and vegetables on both their dry and wetland (in dry seasons when rice is harvested) and in their gardens. The types of vegetables grown by the farmers include, but are not limited to, cabbage (bắp cải), cauliflower (súp ló), green onion (hành lá), celery (cần tây), coriander (rau mùi),

cilantro (ngò), bok choy (cải bẹ trắng), ceylon spinach (mồng tơi), coleslaw (xà lách), Vietnamese balm (hung chanh), saw-leaf herb (ngò gai), cucumber, lettuce (xà lách búp), centella (rau má) and bitter melon (mướp đắng). However, the types of vegetables that are grown by a farmer will depend upon their experience and vary with season, weather conditions and market demand. Basically, there were no significant differences in terms of types of vegetables grown in both communes, except centella (rau má) is cropped by more farmers in the XB commune than the XA commune.

Farms in both communes are family farms. Given the total agricultural production land (X District Statistical Office, 2017), each household owns around 0.25 ha of agricultural production on average in the XA commune and 0.30 ha in the XB commune (both wetland and dryland). Each household owned several rice and vegetable production land plots and they are located in several areas within the commune. Generally, each agricultural land plot ranges from 225 to 550 m² (0.0225 to 0.055 ha).

Family labour is primarily used for cropping rice and vegetables in both communes. The husband and wife are the main labourers in the household while the children provide some labour for certain periods of the year. Sometimes, they hire other people in the commune to help them with the planting of the crop or the harvest.

The majority of rice is grown for family consumption while a large proportion of the vegetables are sold to generate household income. Only about 1% of the vegetables are retained for household consumption with the other 99% sold. Most farmers in both communes traditionally sell all, or a majority of their vegetables they produced through local collectors who live in the commune.

The bulk of a household's income comes from agricultural activities. Rice, vegetables and livestock activities are the main income sources. However, cash income earned

throughout the year is mainly from the sale of vegetables and livestock, given rice is mainly produced for family consumption. In the next section, the implementation of VietGAP for vegetables in both communes is described.

5.7. VietGAP and its implementation in the two communes

This section describes the process of implementation of VietGAP and vegetables grown conforming to VietGAP in both communes.

5.7.1. The process of VietGAP implementation in the two communes

VietGAP was developed and introduced to farmers across the country in 2008. Several VietGAP programmes for vegetables were implemented across the country at this point in time (Cultivation Department, 2015). The VietGAP programme for vegetables was introduced to the farmers in the two communes in 2009. Like other farmers in other communes in other districts, farmers in the XA and XB communes within the X district were supported by both the central and local government to grow vegetables conforming to VietGAP since 2009. To help farmers to grow vegetables conforming to VietGAP, the CPC in each commune worked with other organisations to organise and implement a number of activities, such as training about VietGAP for commune farmers.

Funds for implementing these activities are covered by both the central and local government. This fund is from the budget of the local and central government. However, it is not clear how much of the fund in the budget of the local government is allocated for the VietGAP programme for vegetables in the commune annually. Currently, the budget system of Vietnam operates under a nested budgeting model (ADB, 2017). Basically, this budgeting system comprises local budgets and central budget. The local budget includes provincial, district, and commune budgets. However,

the local budgets are “subordinate to the upper-tier budgets”, which means that “commune budgets are included in district budgets, district budgets are included in provincial budgets, and provincial budgets are included in the State Budget²⁹” (ADB, 2017, p. 8). Financial allocation and use in the budgets are abided by the 2002 revised State Budget Law. The budget of the commune is built based on collecting money such as fees and taxes from activities within the commune and receiving budgets allocated to the commune (through province and district) by the central government. The level of subsidy for implementing social and economic activities, including subsidies on VietGAP programmes for vegetables can depend on the budget of the commune available annually, and it can vary from year to year, according to key informants interviewed.

In general, the implementation process carried out in both communes was similar as described as follows. First, the CPC in each commune worked with the DSAE and the PDARD to hire a specialist organisation who was able to conduct tests for soil and water quality. The soils and water in both communes were then tested by the organisation to ensure agricultural production land in the communes met the requirements of VietGAP as stated in the VietGAP document. The CPC paid for this activity. The risk that chemical, biological, or physical hazards at the site could contaminate vegetables produced by the communes was investigated and assessed. If the land was found to be unsuitable for the production of fresh produce, remedial action was taken by the organisation to manage the risk as stated on Decision No. 379/QĐ-BNN, dated January 28, 2008 on promulgating VietGAP for safe vegetable and fruit production (MARD, 2008a). The result of testing soil and water in the two communes

²⁹ : See the ADB (2017) for an overview of the State Budget and the Vietnam’s budget system

were met with all requirements of the requirements of VietGAP as stated in the VietGAP document.

Second, technical training courses about VietGAP were organised for farmers in the communes. Scientists from the Hue University of Agriculture and Forestry (HUAF), a university located in the center of the Thua Thien Hue province, were invited to collaborate with the agricultural extension officers who were from the DSAE, the PCAE and other organisations to deliver training courses. The training covered a wide range of VietGAP vegetable production aspects. These included, but were not limited to, the correctness and safety of use of fertilisers, pesticides, keeping a farm diary and pest management to improve vegetables yields (not necessary limited to VietGAP vegetable only). On-farm practical demonstrations about VietGAP were also conducted in the communes to demonstrate the applicability of VietGAP for vegetables.

Third, input suppliers were assigned by the CPC to provide free input to farmers who registered to grow vegetables conforming to VietGAP in the communes. One local agricultural cooperative operating under the authority of the CPC in each commune was assigned to provide free fertilisers, pesticides, and vegetable seed for farmers in each commune. Finance for these inputs was subsidised by the CPC. Farmers who had registered to grow vegetables conforming to VietGAP were provided free notebooks to use as farm diaries by the CPC.

Fourth, the CPC worked with agricultural extension officers to find and sign a contract with a VietGAP certifying organisation. The VietGAP certifying organisation was then responsible for monitoring farm diaries, collecting and testing samples of vegetables and certifying the vegetables that were grown by farmers at each commune. Currently, the activity of certifying VietGAP is done according to '*Decision No. 48/2012/TT-*

BNNPTNT: Regulations on certifying agricultural products produced under VietGAP' (MARD, 2012). According to the latest government regulations (MARD, MOF, & MPI, 2013), certification costs are only subsidised by the government for the first certification. However, this cost was still covered by the CPC at each commune in the case study area.

Fifth, the CPC at each commune assigned VietGAP vegetable collectors to purchase VietGAP vegetables and on-sell them to supermarkets. In the XA commune, the XAHC enterprise, a local private agribusiness firm was assigned to collect vegetables grown by the farmers in the commune. This firm was chosen because it has a good relationship with the local government. In the XB commune, the XBQT agricultural cooperative, a local agricultural cooperative that operates under the authority of the XB Commune People's Committee, was assigned to collect VietGAP-compliant vegetables grown by farmers in the commune. As with the XA commune, this agricultural cooperative was chosen because it has a good relationship with the local government and operates under the authority of the XB Commune People's Committee. Both of these collectors were subsidised by the respective CPC to buy VietGAP vegetables from farmers and provide a price premium. Their business was conducted in collaboration with the respective CPC. However, it is not clear about profit distribution mechanisms between the VietGAP vegetable collectors and the respective CPC.

The original plan was for VietGAP to be based on formal written contracts between farmers who grew VietGAP-compliant vegetables and supermarkets. However, there was no official collaboration (such as formal contract) in relation to trading VietGAP-certified vegetables between the CPC or appointed VietGAP vegetable collectors and

farmers and between the collectors and supermarkets within or beyond the province of Thua Thien Hue.

5.7.2. Vegetables grown conforming to VietGAP in both communes

Since 2009, farmers in both XA and XB communes, who belong to the X district of the Thua Thien Hue province, have been supported by the local government to grow vegetables conforming to VietGAP. In total, 1.6 ha in the XA commune and 3.4 ha in the XB commune were cropped VietGAP-compliant vegetables in 2016 (XA Commune People's Committee, 2016; XB Commune People's Committee, 2016). Table 5.7 is the breakdown of the quantity and percentage of farmers that have adopted VietGAP in both communes for the period 2014 to 2016. It can be seen that a small number of farmers in both communes have adopted VietGAP. In 2016, only 33 (1.2%) farmers in XA commune and 164 (9.8%) in the XB commune adopted VietGAP (XA Commune People's Committee, 2016; XB Commune People's Committee, 2016). However, it is noted that a number of farmers adopted VietGAP in the XB commune before 2014 is less than 164. The reason for this is that in 2014, several farmers who adopted VietGAP separated their households into new households and that made a total number of farmers who adopted VietGAP in this commune increased up to 164, but total area in cropping vegetables conforming to VietGAP was unchanged, according to a key informant from the XB commune. In addition, two farmers in the XA commune dis-adopted VietGAP in 2014 (XA Commune People's Committee, 2014).

Table 5. 7: Quantity and percentage of farmers who adopted VietGAP

Years Communes	2014		2015		2016	
	Quantity	%	Quantity	%	Quantity	%
XA	35	1.3	33	1.2	33	1.2
XB	164	9.8	164	9.8	164	9.8

Source: The XA Commune People's Committee (2016) and the XB Commune People's Committee (2016).

The crops grown complying with VietGAP in the XA commune were bok choy (cải bẹ trắn), coriander (rau mùi), lettuce (xà lách búp), and crown daisy (cải cúc/tầng o).

According to the key informant, these vegetables were selected because they were common vegetables in this commune. The choice of vegetables was made by the XA Commune People's Committee. In contrast to the XA commune, the XB commune only selected two types of vegetables to grow as VietGAP vegetables. These were centella (rau má) and bitter melon (mướp đắng). They were also selected because they are common vegetables in this commune, according to the key informant in the XB commune. As with XA commune, the decision on the choice of vegetables was made by the XB Commune People's Committee.

5.8. Summary

Thua Thien Hue is a province in Vietnam where more than 50% of the total population are engaged in agricultural activities. X district is one of eight districts of the province and agriculture is a significant contributor to the district's economy. XA and XB are two communes within the district in which the VietGAP programme for vegetables is implemented. Both are predominantly agricultural communes and agriculture plays a key role in the livelihood of most people. The CPC is a key organisation that is responsible for governing all issues within the communes.

The nature of farmers and farms in the two communes are similar. Farmers in both communes have traditionally cropped rice and vegetables on their land, and family labour is primarily used for cropping rice and vegetables in both communes. The majority of rice is grown for family consumption, while a large proportion of the vegetables are sold to generate household income.

The vegetables grown complying with VietGAP in the XA commune were bok choy, coriander, lettuce, and crown daisy. In contrast, in the XB commune, vegetables cropped complying with VietGAP were centella and bitter melon. To help farmers to grow vegetables conforming to VietGAP, the CPC in each commune works with other organisations to organise and implement a number of activities. Funds for implementing these activities are covered by the local government. In 2016, only 33 (1.2%) farmers in XA commune and 164 (9.8%) in the XB commune adopted VietGAP.

CHAPTER SIX: RESULTS

6.1. Introduction

The research question of this study is ‘What is shaping farmers’ responses to VietGAP?’ This chapter describes the main results from the study. Following the introduction, Section 6.2 describes the impact of VietGAP on the local value chain for vegetables in both communes; Section 6.3 outlines characteristics of value chain actors, their roles and functions and interactions between them within the interlinked VietGAP and traditional vegetable value chain system and how these influence farmers’ responses to VietGAP; Section 6.4 describes support actors associated with the interlinked value chain system for vegetables. In the final section 6.5, a summary of the chapter is provided.

6.2. The impact of VietGAP on the local value chain for vegetables

The introduction of VietGAP has resulted in some changes to the local value chain for vegetables in the two communes. First, there has been a change in the marketing channels within the local value chain for vegetables. Second, there have been changes in relation to the actors involved in the value chain. The introduction of VietGAP has seen changes in the roles and activities of existing actors within the value chain. As a result of these changes, a new value chain for VietGAP-compliant vegetables emerged and a new system of an interlinked value chain including the traditional vegetable value chain and VietGAP vegetable value chain exists in both communes (Figure 6.1). The following sections discussed impacts of introduction of VietGAP on the local value chain for vegetables.

6.2.1. The impact of VietGAP on the marketing channels of the local value chain

Prior to the VietGAP programme, farmers in both communes operated under a local value chain for vegetables. The traditional marketing channels dominated the value chain in both communes with the supermarket channel playing a minor role. The structures of the value chain across both communes were very similar (Figure 6.1 – blue arrows).

In this value chain for vegetables, input suppliers including the communes' cooperatives and private family-owned stores provided farmers with fertilizer, seeds, and pesticides. Farmers used these inputs to produce vegetables. Extension agents from the Department of the district and province provided the farmers with advice on how to grow vegetables conventionally. The farmers then sold the vegetables produced through three main marketing channels. First, a small number of vegetables (3-5%) are sold directly to consumers at the traditional markets (Figure 6.1-blue arrow-1). Second, a relatively small number of vegetables (5-7%) are sold indirectly to consumers at the traditional markets through retailers at traditional markets (Figure 6.1-blue arrow-2). Third, a majority of vegetables (90%) are sold indirectly to consumers at the traditional markets through traditional collectors (Figure 6.1-blue arrow-3). In this indirect marketing channel, there are four sub-marketing channels including:

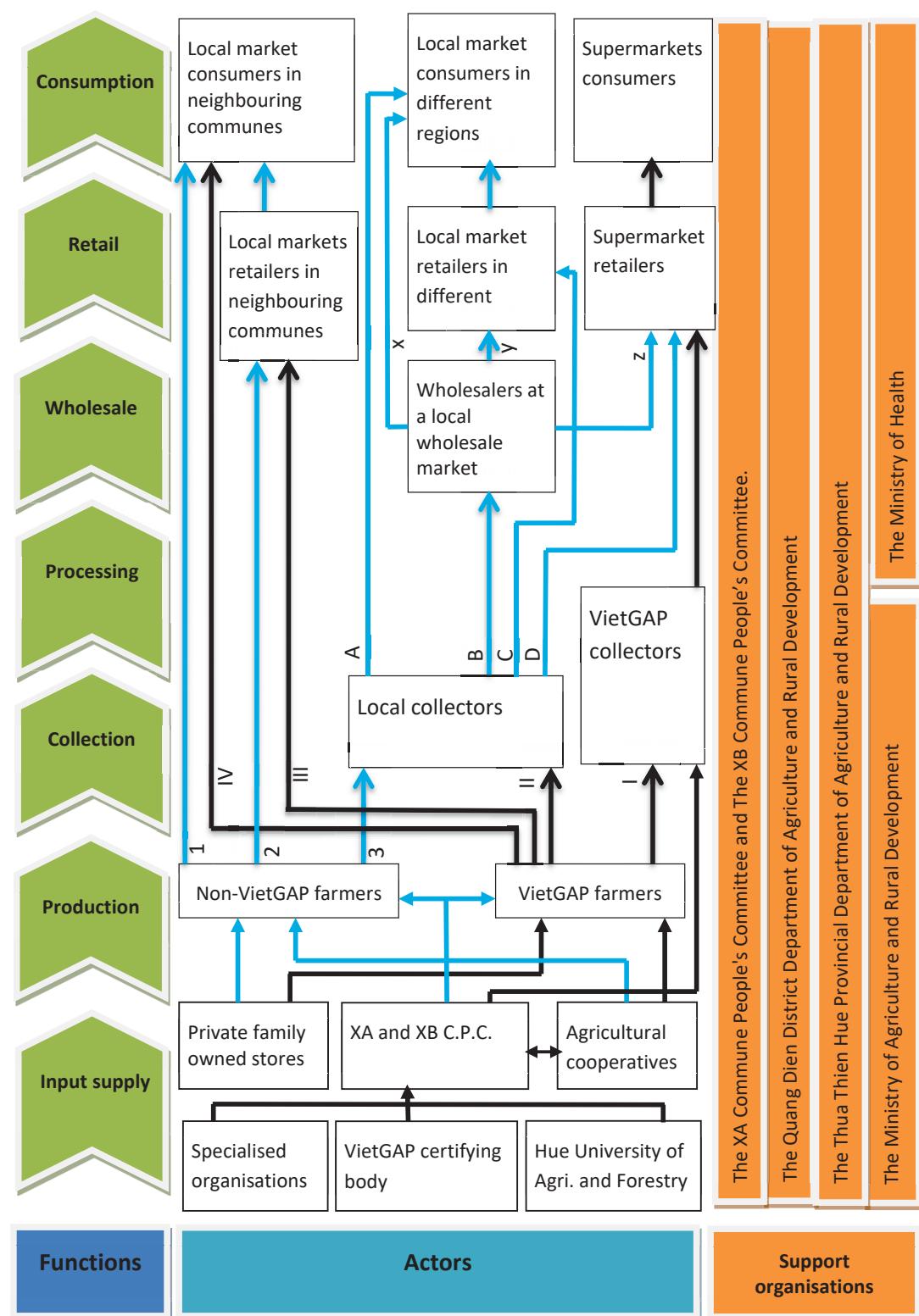


Figure 6. 1: A map of the interlinked value chain system for vegetables

- 1) a small number of vegetables (5%) were sold to consumers at the traditional markets (Figure 6.1-blue arrow-3-A);
- 2) the majority of vegetables (85%) were sold to wholesalers at the wholesale market (Figure 6.1-blue arrow-3-B). Within this sub-channel, a small number of vegetables (5%) were sold to consumers at the traditional markets (Figure 6.1-blue arrow-3-B-x) the majority of vegetables (90%) were sold to consumers at the traditional market through traditional retailers (Figure 6.1-blue arrow-3-B-y). A small number of vegetables (5%) were sold to consumers at the supermarkets through supermarket retailers (Figure 6.1-blue arrow-3-B-z).
- 3) a small number of vegetables (5%) were sold to consumers at traditional markets through retailers at the traditional markets (Figure 6.1-blue arrow-3-C).
- 4) a small number of vegetables (5%) were sold to consumers at the supermarkets through retailers at the supermarkets (Figure 6.1-blue arrow-3-D).

Since the introduction of VietGAP, a new value chain for VietGAP-compliant vegetables (VietGAP value chain) has emerged (Figure 6.1-black arrow). However, it overlapped with the value chain for conventional (traditional) vegetables (traditional vegetable value chain). It involves input suppliers who provide free certified fertilizers and pesticides and free certified seed for the production of VietGAP-compliant vegetables.

The farmers in the VietGAP vegetable value chain grow VietGAP-compliant vegetables for the supermarket and a new VietGAP value chain emerged (Figure 6.1 – black arrow). In this VietGAP vegetable value chain, there are four marketing channels. The first is the VietGAP vegetable marketing channel (Figure 6.1 – the black arrows-I). The VietGAP-compliant vegetables produced by the farmers are purchased by VietGAP

vegetable collectors who on-sell to supermarkets who then sell them to consumers at the supermarkets (Figure 6.1- the black arrows - I).

The second, third and fourth marketing channels (Figure 6 - black arrow-II; Figure 6.1 - black arrow-III; and Figure 6.1 - black arrow - IV, respectively) are similar to the marketing channels used in the value chain for conventional vegetables (traditional vegetable value chain). They were used to sell surplus VietGAP-compliant vegetables that the VietGAP farmers could not sell through the first marketing channel, the VietGAP marketing channel. It was found that 85% of the VietGAP-compliant vegetables produced by farmers were sold in these channels because of this lack of demand. VietGAP-compliant vegetables sold through these channels are not labelled and not differentiated in any way. They are essentially sold as traditional vegetables.

6.2.2. The impact of VietGAP on the actors within the value chain for vegetables

The introduction of VietGAP has resulted in: 1) the emergence of some new actors, and 2) a change in the roles and activities of the existing actors within the value chain for vegetables. The new value chain actors that emerged as a result of VietGAP were new consumers who purchased VietGAP-compliant vegetables at the supermarket. There were also new actors within the horizontal vegetable value chain network that emerged because of the introduction of VietGAP. An example of a new actor in the horizontal value chain network was the VietGAP certifying organisation which certified that the vegetables produced by the VietGAP farmers in the two communes. The specialized organisation which conducted soil and water tests for farmers in both communes was also a new actor in the horizontal vegetable value chain network.

VietGAP also caused a number of actors to change their roles and or the activities they undertake in some way. For example, VietGAP input suppliers who were appointed by

the CPC had to stock and supply certified inputs to farmers. The farmers that adopted the programme had to grow vegetables conforming to VietGAP, take withholding before harvest after the use of pesticides and keep detailed records of their production methods in order to obtain a certification. The VietGAP vegetable collectors who were existing actors within the local traditional value chain for vegetables changed their role and activities. Supermarkets also began selling VietGAP labelled vegetables where previously they had just sold vegetables without VietGAP labels that guaranteed food safety and quality.

The previous paragraph describes the actors in the vertical vegetable value chain network that have changed their roles as a result of VietGAP. However, there were also actors within the horizontal vegetable value chain network that changed their roles because of the introduction of VietGAP. Extension organisations, the CPC, the X District Department of Agriculture and Rural Development (DDARD), the Provincial Department of Agriculture and Rural Development (PDARD), and universities that had to improve farmer capability in terms of VietGAP practices for vegetables are examples.

6.3. The characteristics, roles, functions of the actors and their interactions

The following sections describe characteristics, roles, functions, and interactions between actors with the interlinked VietGAP and traditional vegetable value chain system and how these characteristics, roles, functions, and interactions shape the farmers' responses to VietGAP.

6.3.1. Input suppliers: a wide range of actors supplying inputs for farmers

A wide range of actors supply inputs to farmers within the value chain for vegetables prior to the introduction of VietGAP. These actors include local agricultural

cooperatives and privately owned family stores (private suppliers). The inputs they provide farmers include seed, fertilisers and pesticides for vegetables and other crop production. Farmers who required new inputs (e.g. new varieties of seed, new types of fertilizers and pesticides) from the agricultural cooperative had to make a ‘verbal agreement’ with the cooperative to purchase these and then the cooperative would organize for them to be supplied. This was not required for common inputs that were normally stocked at the cooperative.

Members and non-members can purchase inputs from the cooperatives. However, some farmers tended to buy inputs from private input suppliers because they had more flexible payment schemes than the cooperative. A drawback with buying inputs from private suppliers was that they may not be regulated. As such, the inputs they may not be certified for use in vegetable production and others may have been banned. A district agricultural extension officer explains how physical inputs were traded:

Different pesticides and weedicides are now selling at various shops here. Whatever pesticides you want is available there, but I am sure that some of those pesticides do not have a clear source. No one knows where some of those pesticides come from. No organisation checks and regulates what shops sell. I think some of those pesticides may be banned but they are still selling at some shops (a senior officer at the district Station of Agricultural Extention, number 1).

In Vietnamese: Các loại thuốc hóa học trừ sâu và trừ cỏ bây giờ bán tràn lan ngoài các quầy và chợ. Anh mua thứ gì cũng có. Tuy nhiên tôi chắc là một số loại đang bán ở đó không có nguồn gốc rõ ràng. Khó mà biết được thuốc đó mua từ đâu về. Một vài loại có thể đã bị cấm nhưng vẫn bán tại một số nơi. Không ai kiểm tra, kiểm soát hết (cán bộ khuyến nông huyện, số 1).

Since the introduction of the VietGAP programme for vegetables, changes have occurred in terms of the roles and activities of some of the input suppliers. Some local private input suppliers began selling new inputs such as organic fertilisers and bio-

pesticides (that are recommended for use when growing VietGAP-compliant vegetables) to farmers who were growing VietGAP-compliant vegetables. Two local agricultural cooperatives in the two communes have also been financed by the local government (through the Communes People' Committees) to provide free certified inputs for commune farmers who grow vegetables conforming to VietGAP since 2009. The inputs they provide are certified vegetable seed, certified fertilizers and pesticides. The cooperatives financed by the local government (through CPC) were the XAKT agricultural cooperative located in the XA commune and the XBQT agricultural cooperative situated in the XB commune. However, because of budget limitations, the local government only subsidized some 50-60% of the total fertilizer and pesticide costs and 100% of total seed, required to produce VietGAP-compliant vegetables. This was the case for both communes. A key informant (and also a member of the XA Commune People's Committee) explains how they provided physical inputs for VietGAP farmers:

To encourage farmers to grow vegetables conforming to VietGAP in their farms we [Communes People's Committee] provide free inputs for VietGAP vegetable production, but we could not provide all inputs. We just only support vegetable seeds, some fertilizers and pesticides [some 50-60%] for farmers who have participated in VietGAP programme in this commune. You may know, the annual commune's budget is small and therefore it does not allow us to support all inputs for farmers (a key informant in the XA commune, number 1).

In Vietnamese: Để khuyến khích và tạo điều kiện cho nông dân tham gia trồng rau VietGAP, chính quyền địa phương đã hỗ trợ đầu vào như phân bón, thuốc trừ sâu và các loại giống rau mới. Tuy nhiên chúng tôi chỉ có thể hỗ trợ được một phần đầu vào thôi như phân bón và thuốc trừ sâu, và các loại giống rau miễn phí. Thầy cũng biết rồi, kinh phí của xã hàng năm cũng không nhiều nên chúng tôi cũng không thể hỗ trợ hoàn toàn đầu vào được (cán bộ xã XA, số 1).

Farmers then had to purchase the remaining inputs (40-50%) from either the cooperatives or private input suppliers located at the commune markets. The farmers had no difficulty sourcing sufficient inputs to grow VietGAP-compliant vegetables. However, when growing VietGAP-compliant vegetables, farmers were recommended to use bio-pesticides and organic fertilizers, but this was not compulsory. Some private input suppliers were selling bio-pesticides and organic fertilizers after the introduction of VietGAP. However, these input suppliers, according to two farmers that were interviewed, have limited stocks of bio-pesticides and organic fertilizers. For example, a farmer who is growing VietGAP-compliant vegetables in the XB commune outlines this:

The Commune People's Committee [through the cooperatives] provides me some fertilisers and pesticides free of charge, about 60% of what we need. I also buy fertilisers and pesticides from stores at markets when I need them. However, there are not many stores providing bio-pesticides and organic fertilizers that are recommended to use when applying VietGAP (a VietGAP farmer at the XB commune, number 2).

In Vietnamese: Tôi có nhận được trợ cấp phân bón và thuốc trừ sâu từ xã trong chương trình VietGAP này, khoảng 60%, nhưng tôi cũng mua thêm phân bón và thuốc trừ sâu khi cần từ các quầy bán các loại này tại đại phuông. Ở đó bán nhiều thứ, nhưng các loại thuốc trừ sâu được khuyến dùng khi sử dụng VietGAP thì hiếm, chẳng hạn thuốc trừ sâu sinh học thì rất ít bán (nông dân trồng rau VietGAP tại xã XB, số 2).

The reason why private input suppliers had limited stocks of bio-pesticides and organic fertilisers was because of the lack of demand by local farmers for such inputs. In addition, the stores located in the provincial capital that the owners of private input supply stores buy their stock from, have limited stocks of bio-pesticides and organic fertilisers due to low demand for these products. A private input supplier in the XA

commune explains the current situation, and reasons why stocks of bio-pesticides and organic fertilisers are limited:

At the present time, we also sell some organic fertilisers and bio-pesticides here. These kinds of fertilisers/pesticides are not yet popular. There are farmers asking to buy organic fertilisers and bio-pesticides in this commune, but not many. These type of organic fertilisers and bio-pesticides are only recently recommended for use. Most people [farmers] still prefer to use chemical fertilisers and chemical pesticides. Generally, demand for these types of organic fertilisers and bio-pesticides is not much [high], so stores at the province do not stock these types of inputs very much. We often buy fertilisers and pesticides [including bio-pesticides and organic fertilisers] from those stores located at provincial centre or other regions and then re-sell them to farmers here [in this commune] (a key private input supply owner in the XA commune, number 5).

In Vietnamese: Hiện tại thì các loại phân bón vi sinh và thuốc trừ sâu sinh học cũng có bán tại quầy nhưng không nhiều. Do các loại này cũng chưa được dùng phổ biến tại địa phương, nên họ chưa sản xuất nhiều và hiện tại thì người mua ở địa phương đây chủ yếu mua các loại hóa học thôi. Phân vi sinh và thuốc trừ sâu bệnh bằng sinh học thì ít người mua. Họ mới khuyến cáo dung gần đây nên chưa phổ biến lắm tại các cửa hàng trên tỉnh. Mình thường mua hàng ở đó, sau đó bán lại cho dân ở đây (cán bộ bán vật tư nông nghiệp tư nhân tại xã XA, số 5).

The local government (the Commune People's Committee) provides free agricultural extension advice (service input) on vegetable production as well as other crops. It is provided through collaboration between the CPC, DSAE and PCAE. The agricultural extension activities provided by the CPC include:

- 1) the provision of forecasting information about pests and diseases development during the year;
- 2) recommendations on seasonal calendars for cropping annually. For example, the CPC, the DSAE and the PCAE organizes a meeting and inform commune farmers when is the best time to start cropping rice in the year.
- 3) establishing practical on-farm demonstrations. For example, the CPC, the DSAE and the PCAE work together to choose some farmers and encourage the farmers to apply a new variety of cassava in their farms to convince commune farmers about productivity and applicability of a new variety of cassava.
- 4) carrying out technical training courses for vegetable production and other crops.

Some organisations such as universities, agricultural research institutes and non-government organisations (NGOs) occasionally collaborate with the CPC, the agricultural cooperatives, the DSAE and the PCAE to carry out agricultural extension activities for the communes' farmers at no cost. The focus of these agricultural extension activities is often to establish practical on-farm demonstrations or carry out technical training courses for new crops including vegetables.

Since the introduction of the VietGAP programme for vegetables, changes have occurred in terms of the roles and activities undertaken by some of these suppliers. For example, the CPC is now working with the DSAE and the PCAE to find and sign a contract with a VietGAP certifying organisation to certify vegetables for farmers who adopted VietGAP. The CPC is also working with the DSAE and the PCAE to find and contract with a specialized organisation that conducts soil and water tests in the communes before farmers grow VietGAP-compliant vegetables. District agricultural extension officers are sometimes visiting farmers who are growing vegetables complying

with VietGAP and help these farmers to write a farm diary. The next section describes farmers and their activities of producing and marketing vegetables under the value chain system for vegetables.

6.3.2. Farmers and their activities of producing and marketing vegetables

This section describes three types of farmers and their activities of producing and marketing vegetables in both communes. First, farmers who are producing conventional (traditional) vegetables, their activities for producing and marketing vegetables and the reasons why they did not adopt VietGAP are described. Second, farmers who are producing VietGAP-compliant vegetables, their activities for producing and marketing vegetables and the reasons why they adopted VietGAP are explained. Third, the reasons why some farmers dis-adopted VietGAP or reduced their area in VietGAP-compliant vegetables are described.

6.3.2.1. Farmers who have not adopted VietGAP

The following sections describe the farmers and their activities for producing and marketing vegetables conventionally (traditionally) and the reasons why they have not adopted VietGAP.

The activities used by the farmers to produce and market conventional vegetables

In both communes, the farmers who have not adopted VietGAP had grown a wide range of vegetables which they supply to local traditional markets. Farmers grow vegetables based on their experience. Normally, farmers did not take a withholding period before harvest after the use of pesticides, nor did keep a farm diary for vegetable production.

Some farmers operate as vegetable collectors and supply these vegetables to the wholesale market. Other farmers are also retailers and sell their produce at traditional

markets located in neighbouring communes, and/or in Hue city - the provincial capital of Thue Thien Hue. The farmers in the study region do not produce or market vegetables collectively. No evidence of collective farming or marketing was found in either commune.

These farmers sell the majority of their vegetables (>95%) to traditional collectors. Farmers have a preferred collector (môi) who buys all the vegetables that they produce and then on-sells these vegetables into the wholesale market. The relationship between a farmer and their preferred collector tends to have developed over a long period of time. As a consequence, a high level of trust and loyalty has been established between the two parties.

The marketing of the farmer's vegetables is dependent upon a trust-based verbal agreement between the farmer and their preferred collector. As part of this verbal agreement, the preferred collector guarantees to take all the vegetables and all types of vegetables the farmer produces. The verbal agreement does not specify a specific amount of vegetables or a date for purchase. The price of vegetables is based on the local market price. The other part of the deal with a preferred collector is that the farmer sells all his vegetables through this individual collector (this preferred collector) rather than selling to other collectors.

Farmers' reasons for not growing VietGAP-compliant vegetables: uncertain benefits

The majority of farmers in both communes (98.8% in the XA commune and 90.2% in the XB commune) did not adopt VietGAP and continued to grow vegetables in the conventional way. This is because the overall benefits from VietGAP-compliant vegetable production were not high enough or certain, and there were disadvantages in

growing vegetables conforming to VietGAP compared with vegetables traditionally grown. A key reason given by the farmers was that there was no certainty that they would capture the extra benefit from adopting VietGAP from both a short term and longer-term perspective. The farmers from both communes reported that the VietGAP vegetable collectors only purchased about 10-15% of the VietGAP-compliant vegetables grown by farmers who adopted this approach. This was because of limited market demand from the supermarkets, and their associated consumers, to whom they sold the produce. Those farmers then still had to sell their remaining VietGAP-compliant vegetables (85-90% of their VietGAP-compliant vegetables) through their traditional collectors. As VietGAP labels were not recognised by the majority of actors (collectors, wholesalers, retailers and consumers) within the value chain, the farmers did not obtain a price premium for these vegetables from their traditional collectors.

The lack of financial benefits from the adoption of VietGAP was also observed by two farmers interviewed at the communes. The farmers said that they did not adopt VietGAP because they had not observed any evidence that local farmers who had adopted VietGAP were better off. For example, a farmer in the XB commune who was producing vegetables in the conventional way explains why he did not grow VietGAP-compliant vegetables:

I observed and saw that not all of VietGAP-compliant vegetables sell well. Surely, in this commune, VietGAP-compliant vegetables were bought by XBQT agricultural cooperative with a price that is higher than others [traditional vegetables], but reality is that they [the cooperative] cannot buy all. In fact, over some years, I saw they [the cooperative] just buy some, the remaining VietGAP-compliant vegetables [people in this commune] have to sell to others as traditional vegetables. I saw that situation over some years and VietGAP

farmers did not do better than me, so I did not adopt VietGAP (a non-VietGAP farmer in XB commune, number 8).

In Vietnamese: nếu rau VietGAP thì hợp tác xã nông nghiệp II Quang Thọ thu mua với giá cao hơn rau thường. Tuy nhiên, mấy năm nay họ không mua hết. Họ chỉ mua một số lượng nhất định thôi. Tôi thấy phần rau còn lại mọi người phải bán cho thương lái như rau thường. Nhiều năm rồi mà tôi vẫn thấy vậy, không có tiến triển gì. Họ mua không hết. Mình thấy vậy nên không trồng rau VietGAP làm gì (nông dân trồng rau thường tại xã XB, số 8).

However, these farmers claimed that if they had observed that these farmers had gained significant benefits from adopting VietGAP, then they would have adopted it on their vegetable farms. This farmer's perspective that the adoption of VietGAP did not result in significant financial benefits for those that adopted it, was also reiterated by one agricultural extension officer. He claimed that one of the possible reasons farmers were reluctant to adopt VietGAP was because the benefits from growing VietGAP-compliant vegetables were not high. In part, he attributed this to the scale of the farmers' vegetable production system. Because of the small scale, the amount of extra financial benefit they could generate from adopting VietGAP was insignificant compared to what they did traditionally and, as such, they had little incentive to change. He believed that if the farmers had had greater scale, the benefits of adopting VietGAP would have been greater and the adoption of VietGAP would have been more likely. He outlines this:

I think farmers do not like to apply VietGAP because they may see the profit they gain from selling VietGAP is not as much [compared with what they did traditionally]. The possible reason for this is because each farmer now only produces a small amount of each type of vegetables due to having a small area of land. Therefore, if they apply VietGAP they can only earn a small amount of extra money. For example, currently, if a farmer applies VietGAP she may earn 100,000 dongs more compared with what she did traditionally. If she does not apply VietGAP, she just loses 100,000 dongs. This amount of money may

be not significant for some farmers I think. Because of this, they hesitate to adopt VietGAP (a district agricultural extension worker, number 1).

In Vietnamese: do mỗi hộ dân chỉ sở hữu một diện tích nhỏ do vậy có làm theo VietGAP thì lợi ích tăng lên cũng không bao nhiêu nên họ không thích áp dụng. Ví dụ, làm một sào chỉ lời 100 ngàn trên mảnh ruộng của họ nên không làm VietGAP họ mất đi 100 ngàn cũng chẳng sao. Do vậy quy mô sản xuất có ảnh hưởng đến sự tham gia áp dụng VietGAP của các hộ dân. Giả sử họ làm trên 1 ha, thì họ lời 2 triệu, khi đó họ thấy có lợi nhiều nên sẽ thích làm hơn. Họ thấy làm cái mới hơn cái cũ 2 triệu thì họ làm, chứ bây giờ làm cái mới hơn cái cũ chỉ có 100 ngàn thì họ không muốn làm (cán bộ khuyến nông huyện, số 1).

However, no other non-VietGAP farmers, key informants and other interviewees mentioned about scale of vegetable production system make farmers reluctant to adopt VietGAP.

The second important reason given by the farmers for not adopting VietGAP was that they did not want to damage the good relationship they had with their preferred collector. A strong relationship exists between the farmers and their preferred collectors in the value chain system for vegetables. They believed that if they sold VietGAP-compliant vegetables to a different collector, their preferred collector would refuse to take their vegetables. The farmers believed that if this happened, they would then have to sell their vegetables to another local collector. As they would not have a strong relationship with a new collector, they believed that they would be given a much lower price than if they had stayed loyal to their preferred collector. The farmers believed that the risk of damaging their relationship with their preferred collector was not worth the small increase in income they might obtain from selling VietGAP-compliant. Owing to the farmers having a strong relationship with their preferred collectors with a high degree of trust and loyalty, they did not want to jeopardise this relationship by selling

vegetables to a third party. A farmer who had been growing conventional vegetables at the XB commune, describes the importance of maintaining this relationship with his preferred collector:

Here in this commune, [farmers] often have preferred collectors and we always sell vegetables to our preferred collectors. [Preferred collectors] guarantee to take all our vegetables and we have been doing this together for a long time. We trust each other. If I now sell mine to others, then [preferred collectors] will not take my vegetables anymore (a not VietGAP farmer at XB commune, number 9).

In Vietnamese: Ở đây thì ai cũng có mối hét. Hầu hết là có mối và chủ yếu là bán rau cho các mối thôi. Họ đảm bảo mua hét, có ít mua ít, có nhiều mua nhiều. Mình có quan hệ làm ăn với mối lâu rồi, tin tưởng nhau lắm. Giờ mà nếu bán rau cho người khác thì mình mất mối. Họ không mua rau mình nữa (nông dân trồng rau thường tại xã XB, số 9).

Two farmers who had not adopted VietGAP (non-VietGAP farmers) indicated that growing vegetables that conform to VietGAP requirements puts them at a disadvantage compared to growing vegetables in the traditional way. Therefore, they did want not to adopt VietGAP. Farmers grow a wide range of vegetables to meet market demand. As such, they tend to grow small areas of different vegetable crops. They adjust the area and timing of different vegetable crops to ensure that they are selling different types of vegetables when they are in demand to ensure they get a high price. In contrast, VietGAP requires them to grow a small number of types of vegetables throughout the year to ensure continuity of supply. Because of these constraints on the farmers' crop rotation, they believed that they would struggle to meet market demand and obtain high prices throughout the year. A farmer who was producing conventional (traditional) vegetables explains these disadvantages in his terms:

Normally, I grow many types of vegetables at a time and I change different types of vegetables cropped based on market demand changed. This time is to crop bok choy, coriander, cabbage and so on. Another time [next months] in the year is to crop lettuce, crown daisy, malabar nightshade, green onion and so on. Because of that time, people have high demand for those vegetables and hence high price. Market also demands many types of vegetables at a time, so each type of vegetable should be grown some [a few beds of vegetables]. Doing like that [changing and growing many types of vegetables based on market demand] is easy to sell [meet market demand and get good prices]. Doing like that is effective [gain good profit]. If following VietGAP, only four types of vegetables are allowed to crop and keep these types of vegetables through a year. This is not effective [because it does not meet demand some time in a year] (a non-VietGAP farmer in the XA commune, number 9)

In Vietnamese: Thông thường thì tôi trồng nhiều loại rau khác nhau và cũng thay đổi theo nhu cầu của thị trường. Khi thì trồng cải, tàng ơ, xà lách,...khi thì trồng ngò, rau mùi, mồng tai,... Phải thay đổi theo nhu cầu thị trường và thời tiết nữa mới có hiệu quả được. Mỗi thứ trồng một ít dễ bán hơn, có hiệu quả hơn. Nếu theo VietGAP chỉ trồng 4 thứ thôi và trồng mãi vậy không có hiệu quả (nông dân trồng rau thường tại xã XA, số 9).

In the next section, farmers who were producing VietGAP-compliant vegetables and their activities of producing and marketing VietGAP-compliant vegetables are described.

6.3.2.2. Farmers who have adopted VietGAP

The following sections describe the activities undertaken by VietGAP farmers to produce and market VietGAP-compliant vegetables. They also set out their reasons for adopting VietGAP.

Activities of producing and marketing VietGAP-compliant vegetables

Since the introduction of the VietGAP programme for vegetables, farmers in both the XA and XB communes have been encouraged to grow VietGAP-compliant vegetables. VietGAP-compliant vegetables were collected by VietGAP vegetable collectors. These collectors were appointed by the local government and were not experienced collectors prior to the introduction of VietGAP (more detail about the VietGAP vegetable collectors are described in section 6.3.3).

A price premium, at least 10% higher than the price offered by the market for traditional vegetables, was set up for VietGAP-compliant vegetables by the VietGAP vegetable collectors. A small number of commune farmers (1.2% in the XA commune and 9.8% in the XB commune) were found to be growing vegetables conforming to VietGAP. As was reported with traditional vegetable production, there was no collaboration between farmers producing VietGAP-compliant vegetables in terms of either vegetable production or marketing.

Farmers who were producing VietGAP-compliant vegetables marketed them through the VietGAP vegetable collectors. In the original plan for the implementation of VietGAP, the central government wanted a formal contract to be set up between farmers and the collectors in terms of the supply of VietGAP-compliant vegetables for sale. However, there was no official written contract between the collectors and farmers who registered to produce VietGAP-compliant vegetables. According to farmers that were interviewed, they registered with the CPC to produce VietGAP-compliant vegetables and they received a verbal agreement (a promise) from the VietGAP vegetable collectors and the CPC that the collectors would collect all the VietGAP-compliant vegetables that they produced and pay a premium price.

The farmers' reasons for growing VietGAP-compliant vegetables: financial benefits and loyalty

Farmers participated in the VietGAP programme for vegetables because of the initial financial benefits that they obtained from the programme and their sense of loyalty to the local government. The farmers obtained financial benefits from the input subsidies and price premium they received for the VietGAP-compliant vegetables they grew. They also obtained indirect financial benefits from the technical training in VietGAP vegetable production that they were given as part of the programme. This training allowed them to increase their vegetable yields for both their traditional and VietGAP-compliant vegetables. These findings supported the views of the commune staff who believed that this technical training would help farmers to improve the productivity of their vegetables crops and therefore enhance their profitability. The training was provided by scientists from the Hue University of Agriculture and Forestry (HUAFF) - a university located in the centre of the Thua Thien Hue province. The training covered a wide range of topics on vegetable production including soil preparation, proper use of fertilizers, compost making, correct and safe use of pesticides, pest management, harvesting techniques and the use of a farm diary to record VietGAP practices.

All the VietGAP farmers that were interviewed found that the knowledge and skills they learnt during the training programme met their expectations and enabled them to improve their vegetable management practices and increase the productivity of both VietGAP and conventional vegetables. For example, a farmer who was growing vegetables conforming to VietGAP in the XA commune outlined the advantages he gained from the training:

If we follow the technical training instructed under the VietGAP programme, vegetable productivity is a bit higher than what we achieved before. This is because the technical training helps us fertilize properly [than we did before]. For example, we are now reducing the use of chemical fertilisers and putting on more organic fertilisers. We use pesticides in a timely manner. I see less pests and diseases on vegetables that are cropped conforming to VietGAP than before (a VietGAP farmer in the XA commune, number 1).

In Vietnamese: Nếu làm theo đúng quy trình VietGAP được tập huấn thì năng suất không thua rau thường, thậm chí cao hơn do sử dụng phân bón và thuốc trừ sâu hợp lý hơn. Ví dụ, mình bón ít phân hóa học nhưng tăng phân chuồng, sử dụng thuốc đúng thời điểm. Do đó tôi thấy ít sâu bệnh hơn, cây phát triển tốt hơn (nông dân trồng rau VietGAP tại xã XA, số 1).

The farmers stated that the premium price paid for VietGAP-compliant vegetables encouraged them to adopt the programme. In addition, in the XB commune, the price for one type of VietGAP vegetable called “Rau Ma” fluctuated dramatically. To overcome this problem, and provide a further incentive for farmers to adopt VietGAP, a minimum price (4000 dongs/kg) was established for VietGAP-compliant Rau Ma. This incentive was important for the farmers who did adopt VietGAP. This was a possible reason that attracted more farmers in the XB commune where Rau Ma was one of the two vegetables grown complying with VietGAP. For example, a farmer who was growing VietGAP-compliant vegetables in the XB commune outlined the cooperatives’ commitment and emphasised the importance of price premium in relation to the adoption of VietGAP:

The XBQT cooperative committed [by mouth] to buy our vegetables with a price of at least 10% higher than that of local collectors and local markets do. For example, if local collectors bought our vegetables with 7000 VND per kg, then the cooperative would buy some 8000 VND per kg or higher. If the price of vegetables (Rau Ma) dropped too low, the XB cooperative also committed to

buy our vegetables (rau ma) that are VietGAP-compliant with a minimum price 4000 VND per kg of vegetables.... This is good for people [farmers]. This is good because you know, price of vegetables here fluctuates dramatically, very often (a VietGAP farmer at XB commune, number 3)

In Vietnamese: Hợp tác xã cam kết mua rau VietGAP với giá cao hơn giá thương lái một đơn vị (cao hơn 10%/kg). Ví dụ, nếu thương lai mua giá 7000 đồng trên một kg thì hợp tác xã sẵn sàng mua 8 ngàn đồng trên một kg hoặc hơn. Nếu giá rau thấp thì hợp tác xã cũng cam kết mua tối thiểu 4000 đồng trên một kg.cam kết mua giá tối thiểu như vậy thì tốt cho dân. Đây là điều tốt, vì như Thầy biết đó, giá cả bây giờ thay đổi thường xuyên à. (nông dân trồng rau VietGAP tại xã XB, số 3).

Another reason given by all the farmers as to why they adopted VietGAP was the subsidy they received on inputs. VietGAP farmers received a subsidy of 50-60% on fertilisers and pesticides and 100% on vegetable seeds from the cooperatives under the VietGAP programme. This input subsidy allowed the farmers to make cost savings, which improved the profitability of their vegetable operations. A farmer who was growing VietGAP-compliant vegetables from the XA commune, outlined the advantages of growing VietGAP-compliant vegetables:

If we crop vegetables conforming to VietGAP, then they [XA commune through the Kim Thanh agricultural cooperative] give us a number of fertilisers. They also give us pesticides when vegetables are needed to be treated. This is good because we save a lot of money. Previously, cropping vegetables in this area, we used fertilisers and we also used pesticides to prevent pests, so it was costly, now when participating in the VietGAP programme, it is less costly. (a VietGAP farmer at the XA commune, number 6).

In Vietnamese: Khi chúng tôi tham gia trồng rau theo VietGAP thì xã họ cho phân bón, khá nhiều. Họ cũng cho thêm thuốc trừ sâu. Ví dụ, như thuốc trừ sâu sinh học cho rau khi cần. Nhận được phân bón và thuốc từ sâu trợ cấp này chúng tôi cũng tiết kiệm được một số tiền vì trước đây trồng rau phải cần phân

bón nhiều và thỉnh thoảng phải sử dụng thuốc trừ sâu bệnh nên cũng tốn kém lắm. Khi tham gia VietGAP thì đỡ hơn nên tham gia (nông dân trồng rau VietGAP tại xã XA, số 6).

Loyalty to the local government also influenced several farmers to participate in growing vegetables conforming to VietGAP. Several VietGAP farmers that were interviewed stated that they were growing vegetables complying with VietGAP to support the local government in implementing the programme successfully. For example, a VietGAP farmer in the XB commune stated:

When the VietGAP programme was conducted here, the State [local government] said that participating in growing vegetables conforming to VietGAP would have higher prices and have many benefits. As you know, the state [local government] always helps farmers and makes farmers benefit. Therefore, when the State [local government] appeals to us to grow VietGAP-compliant vegetables, we follow the State and grow VietGAP-compliant vegetables (a VietGAP farmer in the XB commune, number 3)

In Vietnamese: Khi bắt đầu chương trình VietGAP thì nhà nước bảo là tham gia sản xuất rau theo VietGAP thì giá thành sẽ cao, có nhiều lợi ích. Cái gì mà nhà nước yêu cầu thì dân hưởng ứng. Nhà nước luôn và muốn làm lợi cho dân. Các chương tình của nhà nước đều nhằm giúp dân hết. Minh là dân nên mình hưởng ứng và tham gia VietGAP. Khi tham gia chúng tôi được tập huấn và hiểu biết VietGAP có những lợi ích (nông dân trồng rau VietGAP tại xã XB, số 3).

Some other farmers considered the participation in growing VietGAP-compliant vegetables as their duty and responsibility to support the government in implementing the programme successfully. These farmers are people who were in leadership positions. They felt that they had to show leadership and support the VietGAP programme by adopting it. For example, a VietGAP farmer who was a village head

explained his responsibility to the local government in relation to his participation in producing VietGAP-compliant vegetables:

The yearly Resolution of the Committee of the Commune's Party puts [implementing VietGAP] as a focus, a task, and requires all organisations, unions and associations at the local area mobilise and encourage people [farmers] to participate in the VietGAP programme. I am a village head, so I should participate in the programme in order to encourage other people to follow [participating in the VietGAP programme] (a VietGAP farmer at the XA commune, number 1).

In Vietnamese: Trong nghị quyết của Đảng hàng năm vẫn rất quan tâm về việc áp dụng VietGAP để sản xuất rau. Nghị quyết của Đảng đề ra yêu cầu các cơ quan đoàn thể vận động người dân tham gia chương trình này. Đảng uỷ vẫn quan tâm nhiều. Minh là trưởng thôn nên phải tham gia chương trình để vận động mọi người khác tham gia (nông dân trồng rau VietGAP tại xã XA, số 1).

6.3.2.3. Farmers' reasons for dis-adopting VietGAP

Two farmers in the XA commune who were VietGAP-compliant have stopped producing VietGAP-compliant vegetables and returned to their traditional methods. The farmers have made this decision because of disadvantages that have emerged in relation to producing and marketing VietGAP-compliant vegetables which is consequence of limited market for VietGAP-certified produce. The first disadvantage that caused farmers to dis-adopt VietGAP was the impact of VietGAP on the farmers marketing practices. The two farmers who disadopted VietGAP explained that if they cropped vegetables conforming to VietGAP, they had to adhere to a specified withholding period before harvest after the application of prescribed pesticides, a key requirement of VietGAP. However, this withholding period reduced their flexibility in marketing, as the harvesting of produce would often have to be delayed. At times, this meant that the farmers could not sell their produce when prices were high and, as a result, they often

received a lower price than if they had not had adhered to the specified withholding period. A farmer who was VietGAP-compliant, but is now producing conventional vegetables from the XA commune explains this:

Cropping vegetables conforming to VietGAP is affected by time of harvesting and selling compared with cropping vegetables not conforming to VietGAP. For example, when cropping non-VietGAP-compliant vegetables you can harvest and sell whenever you want or when you see price of vegetables increasing. However, if you crop VietGAP-compliant vegetables, you have to take a withholding period if you pesticided your vegetables as required. This takes you about five, seven or ten days. And when you have completed the withholding and start harvesting, the price may be lower than before because the price of vegetables here often changes unpredictably (a dis-adopted VietGAP farmer in XA commune, number 7).

In Vietnamese: Làm theo VietGAP thường bị gò bó hơn so với không theo VietGAP khi nhổ rau bán. Ví dụ, khi anh trồng rau thường không theo VietGAP, anh có thể nhổ bán bất cứ khí nào hoặc khi thấy giá cao. Nhưng nếu làm theo VietGAP thì anh phải có thời gian cách ly theo quy định. Ví dụ cách ly 5 ngày, bảy ngày, hoặc 10 ngày. Khi đủ thời gian cách ly thì giá rau có thể thấp hơn, ví giá rau thay đổi thường xuyên mình không biết được (nông dân trồng rau thường sau khi từ bỏ rau VietGAP tại xã XA, số 7).

The second disadvantage was that there was extra work involved in keeping a diary and growing VietGAP-compliant vegetables, but the benefit is not very much. Keeping a diary takes time for them and this was not worth it compared with what they did traditionally due to the price given to these vegetables in traditional markets. A farmer who was VietGAP-compliant, but now growing vegetables in a conventional way at the XA commune, explains why he had given up growing VietGAP-compliant vegetables and his thoughts about other farmers' reasons for not adopting VietGAP:

We have to keep a farm diary when growing vegetables conforming to VietGAP. This work takes a lot of time and writing a farm diary. In general, cropping vegetables conforming to VietGAP needs more work than what we did traditionally [not VietGAP], but the price [of VietGAP-compliant vegetables sold to traditional collectors] is same or lower sold to the [traditional] collectors. Because of this, I did not continue to grow vegetables conforming to VietGAP and I think other farmers do not like to apply VietGAP in their farms because of this issue (a dis-adopted VietGAP farmer in XA commune, number 8).

In Vietnamese: Làm theo VietGAP phải ghi chép sổ sách mất công lắm, nhiều việc hơn so với trước đây nhưng giá bán cũng vậy nên không làm nữa. Không áp dụng VietGAP vì làm theo VietGAP tốn công hơn nhưng giá thì cũng như không áp dụng VietGAP (nông dân trồng rau thường sau khi từ bỏ rau VietGAP tại xã XA, số 8).

The study also found that a few farmers in the XB commune were reducing the area of land in VietGAP-compliant vegetables at the time of the research. The farmer made this decision because the VietGAP collector did not collect all VietGAP-compliant vegetables, which is a result of a lack of market for VietGAP-compliant vegetables. A farmer who has participated in the VietGAP programme for vegetables since 2009, but was reducing the area of land in VietGAP-compliant vegetables in the XB commune describes this:

Presently, selling VietGAP-compliant vegetables is facing difficulties. They [the VietGAP collector] could not buy all vegetables produced. The Commune People's Committee and the cooperative do not have solutions to solve this problem. When starting the VietGAP programme for vegetables, the cooperative [the VietGAP collector] promised to take all our vegetables, but now they could not take all vegetables because they faced difficulties in selling VietGAP-compliant vegetables. The cooperative just takes a small amount of vegetables (about 15%) we produced. In general, the situation is that a large volume of VietGAP-compliant vegetables is produced, but a small proportion

of such vegetables are bought. If this situation continues, then I must change [this land] to grow other crops in some years. Last year, I changed ‘one sao’ [500m²] of Rau Ma to growing sugarcane. You know, when we see doing with this vegetable [VietGAP-compliant vegetables] not effective, we have to change (a VietGAP farmer in the XB commune, number 1).

In Vietnamese: Hiện tại khâu tiêu thụ rau VietGAP gặp khó khăn và chính quyền địa phương và hợp tác xã chưa có được hoạt động gì để cải thiện điều này..... Khi thực hiện trồng rau má theo VietGAP thì hợp tác xã có đảm nhận khâu thu gom và chuyển đi bán nhưng hợp tác xã cũng đang khó khăn. Nói chung tôi thấy người làm thì nhiều mà người mua thì ít. Nếu tình trạng này tiếp diễn chắc vài năm nữa tôi cũng chuyển đổi cây trồng. Vừa rồi tôi cũng mới chuyển một sào rau má sang trồng cây mía. Khi làm mà thấy không hiệu quả thì mình phải tìm cách thay đổi sao có hiệu quả hơn thôi (nông dân trồng rau VietGAP tại xã XB, số 1).

The next section describes collectors and their activities of collecting and marketing vegetables under the interlinked VietGAP and traditional vegetable value chain system.

6.3.3. Collectors and their activities of marketing vegetables

Prior to the introduction of VietGAP, traditional collectors were the main vegetable buyers for farmers in the study region. Since the introduction of VietGAP, new actors were introduced into the value chain for vegetables, the VietGAP vegetable collectors who were appointed by the CPC to collect and market VietGAP-compliant vegetables in the study region. These individuals were responsible for opening a new marketing channel within the value chain for VietGAP-compliant vegetables. In this section, the traditional collectors and their activities of collecting and marketing conventional (traditional) vegetables are described first, and then the VietGAP vegetable collectors and their activities of collecting and marketing VietGAP-compliant vegetables are

described. Finally, the impact of VietGAP implementation on the traditional collectors are discussed.

The role of traditional collectors and the trust-based interactions between them and other actors in the value chain

Traditional collectors (preferred collectors) were the main vegetable buyers for the commune farmers in this study region prior to the introduction of VietGAP. More than 90% of the vegetables produced in the local area are bought by traditional collectors, according to the farmers, collectors and commune officers that were interviewed. Each collector operates their independent private business. There was no collaboration between traditional collectors within the commune or beyond the commune boundary. In most cases, the traditional collectors came to the farmers' properties to purchase their vegetables. In some cases, farmers brought their vegetables to the home of their preferred collectors for sale.

Traditionally, some 80-85% of the vegetables collected by traditional collectors are sold to wholesalers at the wholesale market in the province of Thua Thien Hue. Around 5-7% of vegetables collected by the traditional collectors were sold to local market retailers in different regions. Another 3-5% of the vegetables were sold directly to consumers at traditional markets in different regions. In this case, some of the traditional collectors also play the role of retailers for a small proportion of the produce they collect. A small proportion of the vegetables (<5%) collected by traditional collectors were sold to supermarket retailers, as claimed by a member of the CPC.

Collectors traditionally buy vegetables from farmers and sell those vegetables to wholesalers. The traditional collectors tended to buy vegetables from their preferred farmers. These were farmers with whom they had built a long-term trust-based

relationship. The majority of traditional collectors dealt with their own preferred traders (preferred wholesalers) and they had built up a long-term trust-based relationship with these wholesalers. There was a verbal agreement between traditional collectors and wholesalers, and this verbal agreement was based on trust and loyalty. In this verbal agreement, the collector sells his vegetables to his preferred wholesalers. In return for this loyalty, the preferred wholesalers take all, or a majority of, the vegetables the collector supplies.

Trust and loyalty is the key in doing vegetable business with preferred traders in the wholesale market. A key local collector in the XA commune explains the importance of having a preferred trader:

If you do not have a preferred buyer [in the wholesaler market], it is very difficult for you to trade there. No one buys your products. Doing business with vegetables and fruit at the wholesale market requires you to have a preferred trader (a local collector in XA commune, number 1).

In Vietnamese: Nếu anh không có mối, không có bạn hàng ở chợ đầu mối. Anh không thể buôn hàng ở đó được. Không ai mua của anh hết. Làm ăn ở đó phải có bạn hàng, phải có mối (người thu gom rau địa phương tại xã Quảng Thành, số 1).

A formal written contract, quality standards and certification processes were not used by any of the vegetable traders in the local area.

VietGAP vegetable collectors: Government appointed and inexperienced

With the introduction of VietGAP, some changes occurred in relation to the vegetable collectors within the vegetable value chain. Some actors were put in place as the local government appointed official VietGAP vegetable collectors who had not previously operated as experienced collectors within the value chain system for vegetables and are discussed as follows.

When VietGAP was introduced to the region, VietGAP vegetable collectors were appointed by the PCP to help farmers to market VietGAP-certified vegetables. The entities appointed were the XBQT agricultural cooperative situated in the XB commune and the XAHC enterprise located in the XA commune. The CPC at each commune was responsible for choosing a suitable VietGAP collector at each commune. According to staff of the XB Commune People's Committee (also a key informant), the commune contacted some private firms (private family-owned shops/stores) operating in the commune, and discussed if they would be interested in participating in the collecting and marketing of VietGAP-certified vegetables. However, none of these private firms were interested in taking on this role. Consequently, the XB Commune People's Committee had to assign the XBQT agricultural cooperative as the VietGAP collector at the commune. It was chosen because one of its roles is to assist the Commune People's Committee to implement social and economic development plans in the commune. A member of the XB Commune People's Committee explains why the cooperative was chosen as a VietGAP collector and outlines the relationship between the CPC and the agricultural cooperative:

Our commune has two agricultural cooperatives and they are under the mandate of the Commune People's Committee. Directors of agricultural cooperatives (now called the directors) are designated by the Commune People's Committee. The main responsibility of the cooperatives is to assist the Commune People's Committee to organise and implement annually approved social and economic development plans of the commune. So, we assign the XBQT agricultural cooperative to implement this [assist farmers adopt VietGAP] (a key informant and also a XB commune staff, number 1).

In Vietnamese: Xã này có hai hợp tác xã hoạt động dưới quyền của ủy ban nhân dân xã. Chủ nhiệm hợp tác xã, bây giờ gọi là giám đốc theo luật mới, được ủy ban xã bổ nhiệm. Nhiệm vụ chính của hợp tác xã là giúp xã thực hiện

tốt các kế hoạch phát triển kinh tế xã hội hàng năm. Chúng tôi giao cho một hợp tác xã đảm nhận nhiệm vụ thu gom rau VietGAP giúp bà con nông dân (cán bộ xã XB, số 1).

As with the XB commune, the XA Commune People's Committee contacted several private firms operating in the commune and asked if they would be interested in taking on the role as a VietGAP vegetable collector. A small private firm, the XAHC enterprise, that had been trading vegetables at the commune for some years, agreed to be a VietGAP vegetable collector. According to the senior manager of the XAHC enterprise, the firm decided to participate in collecting and marketing VietGAP-compliant vegetables because they wanted to continue collaboration with the CPC as they had previously participated in other agricultural development projects in the commune. The firm also has a good relationship with the XA Commune People's Committee. A member of the XA Commune People's Committee (also a key informant) explains the relationships between the commune and the firm:

We had been working with XAHC enterprise for some years in other projects such as vegetable development projects. We have worked together well in some projects, so we continue to work together in this VietGAP programme. We support finance for XAHC enterprise to collect VietGAP-compliant vegetables in this commune and then sell to others (a key informant and also staff of XA commune, number 1)

In Vietnamese: Trước đây chúng tôi đã làm việc với anh doanh nghiệp XAHC rồi. Trong các chương trình về rau sạch và rau an toàn. Chúng tôi có quan hệ tốt với anh XAHC, vì vậy chúng tôi cộng tác với nhau trong chương trình VietGAP này (cán bộ xã XA, số 1).

The cooperative had no previous experience in trading vegetables while the XAHC enterprise had two years of experience in trading vegetables before participating in marketing VietGAP-compliant vegetables. Both had no experience in trading certified

vegetables such as VietGAP certified vegetables, and they also had no relationship with supermarkets to whom they would on-sell the VietGAP produce. The cooperative had been an input supplier in the XB commune for many years. They had been trading physical inputs such as fertiliser, pesticides and new crop varieties, but had not traded vegetables. In contrast, the XAHC enterprise is a private vegetable trading enterprise in the XA commune. The enterprise has operated in the commune since 2007, two years before the VietGAP programme for vegetables was implemented in the commune. Prior to the VietGAP programme for vegetables, the enterprise mainly purchased a small number of vegetables in the commune and then on-sold those vegetables to restaurants, hotels and schools in the city of Hue.

The CPC provided financial support to the VietGAP vegetable collectors so that they could pay a premium price for VietGAP-compliant vegetables. In the first year, the VietGAP vegetable collectors were financed to pay a premium price for all VietGAP-compliant vegetables produced by the communes. As the supermarkets took only 10-15% of the total at that year, the VietGAP vegetable collectors had to sell the remaining vegetables collected to other buyers including shops and stores in the city, wholsalers at the wholesale market, restaurants, hotels and schools in different regions. From year two onwards, an amount of money the CPC provided to VietGAP vegetable collectors, depending on amount of the VietGAP-certified vegetables were collected and traded. This amount of money ensured the VietGAP vegetable collectors to pay a premium price for vegetables they collected from farmers. The collectors report to the CPC about their activities and the profit they made from VietGAP vegetable trading.

The VietGAP vegetable collectors collected VietGAP-compliant vegetables, labelled them and sold them to the supermarkets. The VietGAP vegetable collectors were meant

to use formal written contracts with the farmers when purchasing their vegetables. However, only a verbal agreement between farmers who produced VietGAP-compliant vegetables and the collectors was in place. In this verbal agreement, the farmers agreed to crop vegetables conforming to VietGAP and sell VietGAP-compliant vegetables to the collectors. The collectors agreed to take VietGAP-compliant vegetables from farmers if the vegetables produced were certified. However, the collectors did not guarantee to take all VietGAP-certified vegetables.

Only 10-15% of the VietGAP-compliant vegetables that were produced were collected by the VietGAP vegetable collectors and on-sold to the supermarkets. The reason for this, according to the managers of both VietGAP vegetable collectors was that the supermarkets that retail VietGAP-labelled vegetables only purchased this amount because of limited demand by consumers for the product. The VietGAP vegetable collectors did not have other VietGAP-certified vegetable buyers (customers) to whom they could sell the surplus VietGAP-compliant vegetables. In addition, the collectors did not have a previous business relationship with the supermarkets. As a consequence, their business relationships with the supermarkets were not good. In the original VietGAP plan, it was intended that the VietGAP vegetable collectors would use formal written contracts to coordinate their trading activities with the supermarkets. In this contract, the government wanted the VietGAP vegetable collectors to establish a permanent and formal business contract with the supermarkets. The collectors had to agree to supply the required quantity of VietGAP-compliant vegetables to the supermarkets and the supermarkets had to agree to buy VietGAP-compliant vegetables from the collectors at an agreed price. However, no formal supply contracts for VietGAP produce were in place between the supermarkets and the VietGAP vegetable collectors. Rather, they had only a ‘verbal agreement’ that set out: 1) the types of

vegetables supplied, 2) the quantity supplied, 3) the date of supply and 4) the price paid. Despite this verbal agreement, the VietGAP vegetable collectors struggled to deliver according to the terms of the verbal agreement. A retail supermarket manager describes this:

We request an identified amount of vegetables supplied every day. We also request different types of vegetables with different sizes. However, many times they [VietGAP vegetable collectors] could not meet these requirements (a BigC retailing manager, number 3).

In Vietnamese: Chúng tôi chỉ mua rau theo một số lượng nhất định và phải cung cấp đều, ngày nào cũng có chừng đó. Chúng tôi cũng yêu cầu nhiều loại rau khác nhau với những cỡ khác nhau để dễ bán trong siêu thị. Tuy nhiên nhiều khi họ không đáp ứng được số lượng, chủng loại và kích cỡ theo yêu cầu (cán bộ quản lý siêu thị BigC, số 3).

The supermarkets indicated that the reason they had not drawn up a formal written contract with the government appointed VietGAP vegetable collectors was due to the collector's inability to ensure a consistent supply of the required size and amount of vegetables. A retail manager of the supermarket outlines the reasons for not having a contract:

We just buy vegetables that have a certain size. We also require a certain amount of vegetables such as 50 kg each day, and 30 days a month. However, they [vegetable VietGAP vegetable collectors] cannot guarantee these. Therefore, we cannot sign a contract with them and have to find other VietGAP vegetable providers to ensure our business can continue (a Coopmart retailing manager, number 1).

In Vietnamese: theo yêu cầu của siêu thị thì chúng tôi phải mua rau có cùng kích cỡ nhất định và phải có một số lượng rau nhất định theo ngày. Ngày nào cũng vậy. ví dụ ngày nào cũng có 50 kg, 30 ngày trên tháng. Nhưng khách hàng của chúng tôi không đảm bảo được như vậy nên chúng tôi phải tìm nơi

khác để đảm bảo hàng hóa của chúng tôi theo yêu cầu của siêu thị (cán bộ quản lý siêu thị Coopmart, số 1).

Similarly, the VietGAP vegetable collectors found that because they did not have a formal contract with the supermarkets, there were times when they would not purchase their produce. The manager of the XAHC enterprise describes this problem in the following quote:

It is difficult to trade VietGAP vegetables because we are just a small and intermediate enterprise. We just collect, label VietGAP-compliant vegetables and then make a wholesale of those VietGAP-compliant vegetables to supermarkets. We do not have a permanent contract with supermarkets, just agree by mouth about quantity, type of vegetables and price. Because of that, sometimes, they do not buy our vegetables. We are very much relying on them. We do not have other customers [VietGAP certified buyers] (the senior manager of the XAHC enterprise, number 3).

In Vietnamese: Việc buôn bán rau VietGAP bây giờ còn khó khăn lắm vì mình chỉ là một doanh nghiệp nhỏ, làm trung gian thôi. Mình chỉ thu gom rau VietGAP rồi dán nhãn mác, sau đó bán buôn lại cho các siêu thị. Khách hàng mình cũng không ổn định và không có nhiều. Lúc họ mua, lúc không. Mình bị phụ thuộc vào họ. Mình không có hợp đồng gì với họ hết, chỉ giao dịch ve số lượng, thời gian, chủng loại rau, giá cả bằng miệng thôi. Hiện tại mình chưa có nhiều khách hàng khác để bán rau VietGAP (cán bộ quản lý doanh nghiệp XAHC tại xã XA, số 3).

The poor relationship between the VietGAP vegetable collectors and the supermarkets was attributed by a manager of the XBQT agricultural cooperative to the fact that they had not had a long-term working relationship with the supermarkets. They only started working with the supermarkets in 2009. He outlines this:

The commune has supported us [the cooperative] to collect VietGAP-certified compliant vegetables from farmers with a premium price. To be honest, we are a new firm; we have just started doing our business in relation to VietGAP-

compliant vegetables since 2009, so we have not had much business relationships with other customers yet. This [lack of business relationships and customers] is a difficult issue for us [in trading VietGAP certified vegetables].” (the senior manager of the XBQT agricultural co-operative, number 2).

In Vietnamese: Xã hỗ trợ chúng tôi thu mua rau VietGAP từ nông dân với giá cao hơn giá thương lái thu mua của người dân. Thực ra, nói thật là chúng tôi chỉ bắt đầu thu mua rau của dân từ năm 2009 nên cũng chưa có nhiều mối làm ăn và bạn hàng nhiều. Đây là một khó khăn mà chúng tôi đang gặp phải (cán bộ hợp tác xã XBQT, số 2).

Ensuring continuity supply in terms of quantity, size and quality, as requested by the supermarkets, was a challenge for farmers, according to commune staff interviewed. They believed that this was mainly because of the existing norms around vegetable marketing where in the traditional markets vegetables and fruit are traditionally traded with little or no formal specification for quantity, size, quality or the timing of delivery. They also attributed the problem to the small-scale of the farmer's operation and fragmented nature of their farms. The next section describes the impact of VietGAP implementation on the traditional collectors.

The impact of VietGAP implementation on the traditional collectors

No local collectors in either commune sought to collect VietGAP-certified vegetables for sale. The decision by traditional collectors not to be involved with marketing VietGAP produce was a business one. The traditional collectors noted that they did not observe any real demand for VietGAP-certified vegetables from their customers and, as such, did not seek to develop this area in terms of a marketing strategy. A key local collector at the XA commune explains:

I have preferred wholesalers and retailers in different areas. However, I have not heard anyone talking about vegetables cropped conforming to VietGAP or require any about VietGAP-certified vegetables (a local vegetable collector at XA commune, number 4).

In Vietnamese: Tôi có nhiều khác hàng rau ở đây. Tuy nhiên tôi chưa nghe ai nói về rau VietGAP gì hết. Cũng không thấy ai đòi hỏi gì về rau VietGAP hết (người thu gom rau địa phương tại xã XA, số 4)

The traditional collectors often refused to buy vegetables from farmers who sold their vegetables to VietGAP vegetable collectors and the relationship between them and the farmers stopped. The farmers had to find new collectors to sell vegetables or they had to bring their vegetables to traditional markets to retail. In some cases, when there was a shortage or lack of vegetable supply sources, some traditional collectors still bought vegetables from the farmers, but treated these vegetables as traditional vegetables. However, they forced the farmers to sell their vegetables at a lower price than market price. The next section describes wholesalers and their activities in relation to the marketing of vegetables in the local vegetable value chain.

6.3.4. Wholesalers: trust-based interactions

Wholesalers play an important role in vegetable marketing in the local area. They are the main vegetable buyers for vegetables traded by the traditional collectors. The wholesalers then on-sell the majority of these vegetables to retailers at different traditional markets located in the district centres, the provincial capital and in other regions. Some wholesalers also sell 5-10% of their vegetables directly to consumers at the local markets in different regions. These wholesalers may also be retailers who own their own vegetable stores through which they directly sell vegetables to consumers. Similar to the traditional collectors, an unknown proportion of the vegetables purchased

by wholesalers are sold to supermarkets, and this occurs without a formal contract, as claimed by commune staff.

Wholesalers primarily interact with their traders (collectors and retailers) based on personal relationships of trust and these relationships have been developed over a long period of time. According to the wholesalers that were interviewed, trust and loyalty are key elements for trading vegetables with the other actors in the value chain (collectors and retailers) at the wholesale market. The trust and loyalty built a verbal agreement between wholesalers and their traders. Normally, the verbal agreement did not set out any specifications such as the types of vegetables supplied, the quantity supplied, or the date of supply. A key wholesaler at the wholesale market outlines their relationships with his traders.

Whoever trades [in the wholesale markets] has preferred traders. Sometimes, when we need vegetables soon, we just inform [the collectors by telephone] about types, quantity. They bring all to us. We trust our preferred traders. We re-sell those vegetables to our preferred traders and they take those vegetables and fruits to other places to sell (a wholesaler, number 4).

In Vietnamese: Ai mua bán ở đây đều có mối hét. Mình chỉ gọi điện báo trước số lượng và chủng loại, đến giờ bạn hàng mang đến. Mình bán lại cho các bạn hàng khác và họ mang đi các chợ nói khác để bán (người bán buôn tại chợ đầu mối, số 4).

Since the introduction of the VietGAP programme, wholesalers have been sourcing vegetables that have been cropped both in accordance with VietGAP protocols (but have not certified and labelled as VietGAP-compliant vegetables) and grown conventionally. However, no wholesaler was specifically trading VietGAP-certified vegetables because there was no market demand for these. In addition, wholesalers did not differentiate in any way between VietGAP-compliant and conventionally produced

vegetables when they traded vegetables. A wholesaler outlines the current situation with trading vegetables in the wholesale market and describes his understanding of VietGAP-certified vegetables:

We have traded vegetables and fruit in this market for a long time. Here we traded many types of vegetables and fruit and we sourced from different suppliers [from collectors] within and outside the province. However, we did not know about vegetables you mentioned [VietGAP certified vegetables] and never heard any say about those vegetables in this market (a wholesaler, number 5).

In Vietnamese: Chúng tôi buôn bán rau ở đây lâu rồi. Ngay nào cũng bán, bán nhiều loại rau của quả lăm. Chúng tôi lấy hàng từ nhiều nguồn khác nhau, trong tỉnh cũng có, ngoài tỉnh cũng có, từ các người thu gom tại các đại phuơng. Nhưng không ai biết về rau giống như anh nói (rau VietGAP), chưa nghe nói về ráu đó bao giờ (người bán buôn ở chợ đầu mối, số 5).

The next section describes retailers and their activities in the vegetable retail trade within the value chain.

6.3.5. Retailers: the dominance of the traditional markets

Vegetable retailers are primarily small-scale shop owners who sell produce at traditional markets located in the communes in the study, in neighbouring communes, in the district centre, in Hue city, or in other regions. These shop owners source vegetables from wholesalers at the wholesale markets and some source produce from collectors. Some collectors, wholesalers and individual farmers are also vegetable retailers who also retail vegetables at the traditional markets. This means that a variety of small-scale vegetable retailers are participating in retailing vegetables produced locally and the vegetable retailing activities are scattered.

Traditional markets play an important role in vegetable retailing. The majority of vegetables (90-95%) produced locally are sold through traditional markets which are located in the district centres, in the provincial capital and in other regions. No official certification scheme is used to guarantee food safety and quality in the traditional markets.

According to the supermarkets' retailing managers that were interviewed, the supermarkets have been operating for 8-9 years in the local area (Coop-mart - 2007 and BigC - 2008 in Hue city centre), but few people use the supermarkets. There are no official statistics on the number of people using the supermarkets at the time of writing. However, an estimate made by a supermarketretailing manager on the percentage of people who used the supermarkets to purchase vegetables in Hue city, was that less than 5% of the total population of the province would purchase through supermarkets. The people who purchase vegetables in the supermarkets tend to be the wealthy and they live in the Hue city, according to this retailing manager.

The supermarkets procure vegetables from different sources. The retailing supermarket managers that were interviewed claimed that they have contracts with different suppliers from different regions such as from Da Lat city - a region located in the Lam Dong province of Vietnam, about several hundred kilometres away from Thua Thien Hue province. The supermarkets also source vegetables from wholesalers and collectors without an official contract, as claimed by key informants that were interviewed. There was no official data available about what percentage of the vegetables produced locally is sold through the supermarkets. However, a supermarket retailing manager of the Coopmart that was interviewed outlines the amount of vegetables traded at the supermarket:

In general, vegetables and fruit are mainly sold through traditional markets. Only, a very small amount of vegetables and fruit are selling at supermarkets compared with traditional markets (a retailing manager at the Coopmart supermarket, number 1).

In Vietnamese: Nói chung, chủ yếu rau và các loại củ quả bán tại các chợ địa phương là chính. Ở siêu thị thì chỉ buôn bán một lượng nhỏ các loại rau củ quả thôi (cán bộ quản lý siêu thị Coopmart, số 1).

Since the introduction of the VietGAP programme, only two supermarkets, namely BigC and Coopmart located in the Hue city - the provincial capital – have been trading VietGAP-certified vegetables. The supermarkets were sourcing VietGAP-certified vegetables from different sources including the XAHC enterprise and the XBQT agricultural cooperative. However, they only purchased a limited amount of VietGAP-certified vegetables because there was limited demand from supermarket customers. A supermarket retail manager of the BigC outlines the reality of the consumption of VietGAP-certified vegetables:

We have traded VietGAP-certified vegetables for years [about 5 years, since 2009], but few consumers bought vegetables with a VietGAP label. With the information I have, in not only this supermarket, but also other supermarkets in other regions in Vietnam, not many consumers bought certified vegetables such as VietGAP-certified vegetables. (a retailing manager at a BigC supermarket, number 3).

In Vietnamese: Chúng tôi có bán rau VietGAP, khoảng 5 năm rồi nhưng thấy người mua rau VietGAP còn ít lắm. Theo những thông tin tôi có được thì không chỉ siêu thị của chúng tôi mà các siêu thị khác cũng có bán các loại rau sản xuất và chứng nhận VietGAP nhưng khách hàng mua các loại rau này cũng còn ít lắm (cán bộ quản lý siêu thị BigC, số 3).

The next section describes vegetable consumers and their vegetable purchasing activities in the value chain system for vegetables.

6.3.6. Consumers: limited demand for certified produce

Traditionally, most consumers are buying vegetables from traditional markets. These are local markets located in communes, in district centres and in the provincial capital. Consumers preferred to buy vegetables at the traditional markets because they have advantages over supermarkets in term of convenience, price, and the variety of vegetables that are for sale. Consumers are also familiar with buying vegetables at the traditional markets rather than supermarkets. For example, a local collector who was also retailing vegetables at the traditional market located in the provincial capital of Thua Thien Hue, describes the habits of most consumers when buying vegetables:

Most of our people prefer to go to local markets. They are used to doing this. Few people go to supermarkets in order to buy some bundles of vegetables or some bananas. They prefer to go to local markets to do that because local markets are more convenient for them: near their place, more types of vegetables and fruits there, free to choose, price is cheap [low]. All types of vegetables with different quantity are in local markets. Easy to buy and easy to sell any quantity (a local collector in the XA commune, number 1).

In Vietnamese: Nói chung là phần lớn người dân mình thích đi chợ thôi. Họ quen thé rồi. Ít người đi siêu thị để mua vài bó rau hay vài trái chuối lăm. Họ thích đi chợ hơn vì đi chợ tiện hơn, rau nhiều, lựa chọn thỏa mái. Rau chi cũng có, giá rẻ. Để mua và để bán (người thu gom rau địa phương tại xã XA, số 1).

When consumers purchase vegetables, their selection is primarily based on a visual assessment of the vegetable. The appearance of produce is the key indicator that is used by consumers to assess vegetable quality. As such, they pay attention to the surface features of the produce when choosing vegetables in the traditional markets. For example, a local collector in the XB commune explains:

Often, vegetables will be bought with high price if they have a good outside look. Vegetables that look good on the outside are easy to sell. We do not care

about those vegetables cropped conforming to VietGAP or not. When I said vegetables that have a good outside look, I meant they are green, young and smooth ones (a local vegetable collector, number 2).

In Vietnamese: Thường thì quan sát thấy rau đẹp là mua giá cao thôi. Không quan trọng là rau VietGAP hay không. Rau đẹp dễ bán và giá cao. Rau xấu giá thấp và khó bán. Rau đẹp là lá rau xanh non, láng, không bị đà, không bị chấm (người thu gom rau tại xã XB, số 2).

The majority of consumers are not familiar with branding. In addition, most consumers are not familiar with the concept of certified labels such as VietGAP or GlobalGAP and what these labels mean.

Some interviewees were aware of the impact a lack of consumer demand for VietGAP-compliant vegetables had on the adoption of VietGAP by farmers and the development of VietGAP vegetable value chain. For example, a provincial extension officer, who was still involved in the VietGAP programme, described consumers' lack of knowledge about VietGAP-certified produce and he gave his opinion about the importance of consumers in facilitating the adoption of VietGAP:

The most important thing is consumers. Now, vegetable consumers do not know much about VietGAP-certified vegetables, therefore they do not buy VietGAP-compliant vegetables. Only when vegetable consumers clearly know, understand and trust these vegetables, will they start to buy and consume them. At that time, VietGAP vegetable production will be easy [farmers will grow VietGAP-compliant vegetables]. Now, [consumers] do not know about VietGAP-compliant vegetables. Therefore, you can produce VietGAP-compliant vegetables now, but who do you sell VietGAP-compliant vegetables to? (an agricultural extension officer at provincial level, number 4).

In Vietnamese: Quan trọng nhất là người tiêu dùng. Người tiêu dùng bây giờ không biết gì trong cái VietGAP này hết. Do vậy xây dựng lòng tin cho người tiêu dùng đối với rau VietGAP này là quan trọng nhất. Khi họ tin tưởng anh sẽ

sản xuất để. Còn họ chưa tin hoặc không tin thì anh sản xuất ra bán cho ai (cán bộ khuyến nông tỉnh, số 4).

The role of consumers as important actors in encouraging the production of VietGAP-compliant vegetables was also raised by local government officers. A key informant (and also a member of the XA Commune People's Committee) highlights the importance of consumers in relation to the adoption of VietGAP by farmers:

So, increasing awareness and understanding for consumers about VietGAP-compliant vegetables are important. The crucial thing is consumers. Only when consumers demand and accept VietGAP-certified produce, then producers will have to produce vegetables conforming to VietGAP (a key informant and staff of the XA Commune People's Committee, number 1).

In Vietnamese: Do vậy khâu tuyên truyền để nâng cao nhận thức và ý thức sản xuất VietGAP là quan trọng. Do vậy máu chót vẫn nằm ở người tiêu dùng. Khi người tiêu dùng yêu cầu và chấp nhận sản phẩm VietGAP khi đó người sản xuất buộc phải sản xuất theo đúng quy trình (cán bộ xã XA, số 1).

In the next section, support organisations and their activities associated with the vegetable value chain are described.

6.4. Support actors in horizontal networks of the value chain system

There are some important actors in the horizontal networks of the interlined VietGAP and traditional vegetable value chain system in relation to VietGAP implementation. These actors are mainly public (government) organisations and they have attempted to create enabling environments for the implementation of VietGAP in the province. The Ministry of Agriculture and Rural Development (MARD) and the Ministry of Health (MOH) influence the operation of the vegetable value chain, including VietGAP, through agricultural development related policy nation-wide. The Departments at the provincial and district levels influence the operation of the vegetable value chain and

VietGAP through specific plans for agriculture and rural development within the province, districts and communes. According to a Ministry staff that was interviewed, the State has issued decrees and regulations that guided relevant organisations across the country to assist farmers to grow vegetables conforming to VietGAP. These organisations must work together, based on those policy documents, to assist farmers to adopt VietGAP. A list of key decrees and regulations that relate to VietGAP is provided in the Appendix B of the dissertation.

The relationships between the support organisations influenced the operation of the vegetable value chain and the effectiveness of VietGAP within this value chain system. The support organisations have a hierarchical structure with national (central) organisations at the top, under which sit local (provincial, district and commune) organisations. Policy documents developed at the national level then dictate how the lower level organisations operate in relation to the VietGAP programme. Lower level public organisations must follow the lead and guidance of higher-level public organisations. A number of decrees were made by the MARD about VietGAP and this was then assigned to lower level organisation to implement. For example, Article 3 in Decree No 379/QD-BNN-KHCN (MARD, 2008a, p. 1) stated:

Article 3: Heads of units attached to the Ministry of Agriculture and Rural Development, directors of provincial-level Department of Agriculture and Rural Development, and concerned organisations and individuals shall abide by the Decision.

In Vietnamese: Điều 3: Trưởng các đơn vị thuộc Bộ, giám đốc sở nông nghiệp và phát triển nông thôn và các cán bộ, nhân viên và tổ chức liên quan chịu trách nhiệm thi hành quyết định này.

However, the implementation of policy documents including decrees, directives, resolutions, decisions and regulations sent from higher organisations to provincial and

lower levels do not work as expected. This is because there are not enough resources, including human and financial resources, to implement and monitor those policies. In addition, policy documents do not remain the same for long periods of time and are frequently changed. A senior staff member at the PDARD comments:

The State [central government] has issued many documents to implement VietGAP and the State [central government] has also policies to support farmers to implement VietGAP. There are many policies. However, to be honest with you, it is very hard to put those policies into use as expected. We do not have enough staff, we do not have enough finance to implement. You know, we have only some people in this Division, but we have to work with many organisations within this province and then districts and communes. And many decrees and regulations changed just only few months after we received them (a key staff at the provincial Department of Agriculture and Rural Development, number 3).

In Vietnamese: *Liên quan đến VietGAP thì nhà nước đã ban hành nhiều quy định thực hiện và cũng có nhiều chính sách hỗ trợ nông dân áp dụng VietGAP. Thực ra thì có nhiều chính sách và chính sách thì khá. Tuy nhiên, nói thật với Thầy chư thật khó để triển khai thực hiện tốt các chính sách đó. Minh ít người, không đủ cán bộ, kinh phí thì ít nên khó làm tốt được. Như Thầy biết đó, phòng này chỉ có mấy người nhưng phải phụ trách nhiều lĩnh vực, làm việc với nhiều cơ quan trong tỉnh, xuống huyện, xã. Và thêm nữa là nhiều chính sách thay đổi xoành xoạch. Mới ban hành mấy tháng lại có cái mới thay thế rồi (cán bộ sở nông nghiệp và phát triển nông thôn tỉnh, số 3).*

The formal institutions used by government organisations limited collaboration between the public and private organisation during the implementation of VietGAP. According to the commune staff interviewed, the legal documents provided by higher level public organisations decreed that specify public organisations at the lower levels, such as the commune level, needed to cooperate during the implementation of VietGAP for vegetables. However, these documents did not decree that public organisations should

also collaborate (and how to collaborate) with private firms and organisations within the vegetable value chain such as the vegetable traders or supermarkets. A member of the XB Commune People's Committee describes this:

We often work with public organisations such as the district Station of Agricultural Extension and local cooperatives and we work together well. However, it is very hard to work with others such as supermarkets, private firms.... They do business privately and independently and they do not relate to us. We are a commune; we cannot intervene in their business. Actually, we do not have enough authority to intervene in their business (a key informant and member of CPC at the XB commune, number 1).

In Vietnamese: Chúng tôi hay làm việc với khuyến nông và hợp tác xã và việc này thì phối hợp nhịp nhàng. Tuy nhiên phối hợp với các đối tác khác như siêu thị và các công ty tư nhân thì chưa tốt lắm. Họ làm ăn tư nhân và ít liên quan đến mình. Mình không thể can thiệp công việc kinh doanh của họ được. Nói thực là mình cũng không có quyền can thiệp vào công việc kinh doanh của họ (cán bộ xã XB, số 1).

The hierarchical structure, which influenced the relationships between government organisations prevented these organisations from working with non-government organisations (private firms). The lower level government organisations do not have enough authority or power and they must follow the lead of the higher-level government organisations. A member of XA Commune People's Committee (a key informant) describes this:

I really wanted to comment about how we were doing with VietGAP because I saw what we were doing is not effective.... I saw supporting the XAHC enterprise to collect VietGAP vegetables was not effective because this enterprise is not a key one in trading vegetables. It heavily depends on other ones who control vegetable market. I think we need to support the key one who can control the vegetable market. However, we could not do that. We are at the commune level. Therefore, we must abide by the [lead and guidance of] district

and province, we do not have authority to do otherwise (a key staff of the XA Commune People's Committee, number 1).

In Vietnamese: Tôi rất muốn đóng góp ý kiến về việc chúng tôi đang làm với chương trình VietGAP hiện tại. Tôi nhận thấy mình đã hỗ trợ cho doanh nghiệp Hóa Châu để thu gom rau VietGAP là không hiệu quả vì đây chỉ là một doanh nghiệp nhỏ, làm trung gian thô, không phải doanh nghiệp lớn có vai trò quan trọng trong thị trường rau. Tôi cho rằng mình cần phải hỗ trợ doanh nghiệp lớn, những doanh nghiệp có thể ảnh hưởng đến thị trường rau. Khi đó mới hiệu quả được. Tuy nhiên không thể làm khác được vì mình là cấp xã, không có quyền. Cái này thuộc quyền của cấp trên (cán bộ xã XA, số 1).

Several communes' annual reports in both the XA and XB communes (e.g. XA Commune People's Committee, 2014, 2015; XB Commune People's Committee, 2015) showed a general goal of facilitating commune farmers to grow VietGAP-compliant vegetables in the communes. For example, in the 2015 XA Commune's annual report, it was written: "...the XA Commune People's Committee continue to lead and support commune famers to grow vegetables conforming to VietGAP" (XA Commune People's Committee, 2014, p. 14). However, no specific targets were set for cropping and using VietGAP-certified vegetables in the report. The reason for this, according to commune staff interviewed, was because of the commune's lack of resources, power and authority. Setting specific targets for using VietGAP-certified vegetables such as product prices, tax policies, and regulatory pressures regarding the utilization of VietGAP-certified vegetables, were not under its (commune) authority. They are beyond the commune's authority. A key informant in the XA commune and also a member of the XA Commune People's Committee describes this:

As a commune, we are only able to work with micro projects and programmes with short-term scale due to lack of resources, power and authority. Commune

[we] just works to propagandize and mobilize commune farmers participating in production [producing VietGAP-compliant vegetables]. If possible [have enough financial resources], we support commune farmers' part of inputs to encourage them to apply VietGAP within some first years. Commune only does such short-term and small-scale projects. For vegetable and fruit trading and consuming strategies, they are belonging to responsibility of higher authority organisations such as Ministries (a key staff of XA Commune People's Committee, number 1).

In Vietnamese: Còn ở xã thì hoạch định chính sách vi mô thô i, không có nguồn lực và quyền, phạm vi hoạt động hẹp. Xã chỉ làm tốt công tác tuyên truyền và vận động người dân tham gia sản xuất thô i. Nếu có thì hỗ trợ cho dân một phần thô i để động viên giai đoạn đầu khi sản xuất rau VietGAP. Xã chỉ có được những hoạt động ngắn hạn và quy mô hẹp thế thô i, còn chiến lược tiêu thụ rau VietGAP thì phải tầm các cơ quan cao hơn (cán bộ xã XA, số 1).

6.5. Summary

The introduction of VietGAP has impacted on the local value chain for vegetables and a new value chain for VietGAP-certified vegetables has emerged. A new system of the interlinked VietGAP and traditional vegetable value chain exists in the local area. The characteristics, roles, funtions of value chain actors within the interlinked VietGAP and traditional vegetable value chain system and the interactions between them significantly defined the nature of farmers' responses to VietGAP. The majority of farmers did not adopt VietGAP because: (1) a lack of market demand for VietGAP-certified vegetables; (2) a risk of breaking informal institutions between farmers and preferred collectors within the traditional vegetable value chain; and (3) a lack of capability of actors within the VietGAP vegetable value chain and lack of linkages with supermarkets. In contrast, government support given to farmers under the VietGAP programme and farmers' political aspirations and loyalty to the local government influenced the decision of a small number of farmers to adopt VietGAP in the study region.

The decree to encourage farmers to adopt VietGAP was issued at the central government level. Limited financial or other support was provided to communes to assist implement the VietGAP programme or to encourage farmers to adopt VietGAP production. The policy and programme was recognized as ineffective at the commune and district levels. However, the hierarchical structure of the Vietnamese government/administrative system means communes have little power or resources to challenge the higher level organisations.

CHAPTER SEVEN: DISCUSSION

7.1. Introduction

This chapter presents an analysis and interpretation of the main results reported in the previous chapters based on the relevant literature, and information provided in Chapter Two (Research Context) and Chapter Five (Case Description). It draws key insights with regard to the research question outlined in Chapter One (General Introduction) which is ‘What is shaping farmers’ responses to VietGAP?’ It connects the insights with the broader relevant literature. The chapter is structured into eight sections. Following the Introduction, Section 7.2 describes the important theoretical characteristics of the case; Section 7.3 discusses VietGAP as a policy mechanism for transforming the agri-food system in Vietnam; and Section 7.4 discusses farmers’ response to VietGAP and its association with the technological transition from a traditional agri-food system to a modern agri-food system in Vietnam. Specific elements that influence farmers’ decision not to adopt, adopt and dis-adopt VietGAP are discussed in Sections 7.5, 7.6 and 7.7, respectively. In the final section, a summary of the chapter is provided.

7.2. The important theoretical characteristics of the case

The theoretically important characteristics of the case provide the context in which the results can be interpreted comprehensively (Orum, Feagin, & Sjoberg, 1991; Ragin, 1992). The key theoretical characteristics of this case are as follows. First, Vietnam is a developing country. The majority (some 66%) of the population lived and worked in rural areas in 2016 (GSO, 2017a). This means that agriculture plays an important role in

the social and economic development of Vietnam (Dao & Nguyen, 2013). This is also the case in the study region.

Second, Vietnam is in a technological transition from a centrally planned to a more market-led system (Cervantes-Godoy & Dewbre, 2010). Aligned with this transition, the agri-food system in Vietnam is also in the early stages of transition from a traditional to a modern agri-food system (Cadilhon et al., 2006; Maruyama & Le, 2012). The VietGAP programme is one of a suite of policy instruments introduced by the Government of Vietnam to facilitate a shift from a traditional to a modern agri-food system. The policy has been rolled out nationally, however, the extent to which it has been adopted varies across regions (Information and Research Centre, 2015). According to the Cultivation Department (2015), there were only 7,557 ha of vegetables that complied with VietGAP requirements in Vietnam in 2014, accounting for 0.08% of the total area in vegetable production (Cultivation Department, 2015). This indicates that a small number of farmers have adopted VietGAP for vegetables since its introduction in 2008 nation-wide.

Third, land in Vietnam is state-owned, but Vietnamese farmers are allocated twenty-year land use rights and these rights are renewable (Dao & Nguyen, 2015; Vietnamese National Assembly, 2013). The Government of Vietnam also has a policy that regulates the amount of agricultural land allocated to each household nation-wide. The maximum area of land a household can farm is 3.0 ha (Dao & Nguyen, 2015; Vietnamese National Assembly, 2013). This policy prevents the aggregation of land in Vietnam and this means that Vietnamese farms remain small. This is the case in the study region. On average, given the agricultural land area of the communes, the total area of the agricultural land per household in the study region was some 0.40 ha in the XA

commune and some 0.57 ha in the XB commune in 2016 (X District Statistical Office, 2017). Owing to having small plots of land and growing different types of vegetables in that land, farmers in this region produce small amounts of different products. Consequently, they rely on collectors to make their marketing of vegetables more effective.

Fifth, Vietnam has a socialist government that continues to play a significant role in directing agriculture (GOV, 2016). The Ministry of Agriculture and Rural Development (MARD) is responsible for governing agriculture nation-wide, while provincial/cities, district, and Commune People's Committees are responsible for managing agriculture at the provincial, district and commune level, respectively (GOV, 2008, 2016). The Commune People's Committee (CPC) is a key organisation, responsible for developing and implementing plans for social and economic development for the whole commune (XA Commune People's Committee, 2015; XB Commune People's Committee, 2016). As such, the CPC influences how agricultural development programmes are implemented, including the VietGAP programme that operates in the commune. One example of this is that the CPC holds the authority to assign participating actors for agricultural development programmes conducted at the commune level such as assigning VietGAP-certified input suppliers or appointing VietGAP vegetable collectors in the VietGAP programme. However, since the 'Doi Moi' policy was introduced in the 1980s, Vietnam has been implementing broad-scale changes that have changed the extent of the level of intervention of the government in agriculture. The local government still now has a significant role in governing agriculture. However, this is changing, and farmers now can choose what they grow and market much more freely. This is the case in the study region. Although the central government initiated the

VietGAP programme, it is up to the Commune Peoples' Committee (the local government) to implement and to allocate a percentage of their annual budget to the programme. For example, the amount of money available for subsidies on inputs, certification costs and price premiums for VietGAP-certified produce, was defined by the commune budget. There is no specific budget provided by the central government to support the programme implementation in the commune.

Sixth, a traditional market system that is characterised by spot markets is the dominant marketing system in Vietnam for vegetables and other fresh produce (Maruyama & Trung, 2007; USDA, 2013, 2017) and this is the case in the study region. The primary markets for farmers are traditional markets and these markets play a key role in the retail trade for vegetables. In contrast, modern food marketing systems, such as supermarkets, play a minor role in retail trade for agricultural products in Vietnam (Mergenthaler, Qaim, & Weinberger, 2008; USDA, 2013), including in the study region.

Seventh, the traditional markets in this study region rely heavily on informal institutions rather than formal written contracts and quality measures. There is no traditional market in the study region that is selling certified vegetables including VietGAP-certified vegetables. Only supermarkets trade in certified vegetables including VietGAP-certified vegetables. However, the supermarkets play a minor role in the retail trade, and VietGAP-certified vegetables as well as other GAP-certified produce make up a minor component of the vegetables sold in supermarkets in the study region, as is the case throughout Vietnam.

Eighth, the vast majority of value chain actors, including consumers in this study region, use the visual appearance of vegetables as the primary criteria by which to assess vegetable safety and quality when making decisions about the purchase of vegetables. There was no evidence that consumers had concerns about food safety in the study region. The majority of farmers also had little awareness of production practices linked to food safety. Formal certification systems were not used by the value chain actors in the traditional markets that dominated in this study region.

Ninth, VietGAP is a public GAP programme as opposed to a private GAP programme. The local government (through Commune People's Committee) subsidies on inputs, certification costs, training and the provision of price premiums for VietGAP-certified produce were used to support the farmers' uptake of VietGAP (MARD et al., 2013). This is the case in the study region. In addition, a minimum price for one type of VietGAP-compliant vegetable in one commune within the study region has been established since 2009 under the VietGAP programme to encourage farmers to adopt VietGAP.

Tenth, vegetables produced under the VietGAP programme in this study region are only sold on the local domestic market. This is a different context compared with the previous studies into VietGAP for lychees (Loan et al., 2016; Vu Thi et al., 2016) and other GAP programmes in other developing countries (Holzapfel & Wollni, 2014; Krause et al., 2016; Muriithi et al., 2011), where produce from these schemes are sold mainly into high value export markets where modern agri-food systems operate and supermarkets dominate the retail trade in fresh produce. In these markets, food safety is paramount, and supermarkets only purchase certified produce. In the next section,

VietGAP as a policy mechanism for transforming the agri-food system in Vietnam is discussed.

7.3. VietGAP as a policy mechanism for transforming the agri-food system

In this study, VietGAP can be meaningfully understood as a policy mechanism designed to help shift the traditional agri-food system into a more modern agri-food system. This is a broader perspective than the view that is predominantly used in previous studies (e.g. Ha, 2014; Loan et al., 2016; Vu Thi et al., 2016), where VietGAP is conceptualised purely as a food safety and quality assurance scheme. This is also the case with previous studies into other public GAP schemes such as Q-GAP in Thailand (e.g. Krause et al., 2016; Pongvinyoo, Yamao, & Hosono, 2014; Srisopaporn et al., 2015), PhilGAP in the Philippines (Banzon et al., 2013) and MyGAP in Malaysia (Islam, Arshad, Radam, & Alias, 2012). These public GAP schemes tend to be viewed only as market instruments for governing food safety and quality to assist farmers to access export markets (Banzon et al., 2013; Islam et al., 2012; Krause et al., 2016).

The view of VietGAP, as a policy mechanism for transforming the traditional agri-food system, is also different from the perspective used in previous studies into private GAP schemes such as GlobalGAP (e.g. Asfaw et al., 2010; Hatanaka et al., 2005; Henson & Jaffee, 2006), where these are often interpreted as a mode of market governance. However, recently, some scholars (e.g. Amekawa, 2013; Nicetic et al., 2010) have acknowledged that public GAP programmes, including VietGAP, are more than just food safety and quality assurance schemes or market-based governance mechanisms. For example, in a case study of GAP for citrus production in the Mekong Delta of Vietnam, Nicetic et al. (2010, p. 1894) recognised the potential of VietGAP as a “framework for sustainable production” and a catalyst for the “transformation” of

production from small-scale farmers operating independently to ‘large-scale cooperative farming’ where farmers work together. Similarly, Amekawa (2013, p. 793) investigated the implementation of public Q-GAP for pummelo citrus production in the Chaiyaphum province of Thailand and identified Q-GAP as a “public policy” instrument for the development of “sustainable agriculture”.

What clearly emerged from this research is that the implementation of the VietGAP programme for vegetables is aimed at facilitating changes in the food value chain with a shift to a modern agri-food system. Farmers who participate in the VietGAP programme for vegetables in the study region are required to change their farming practices. They are required to: 1) use certified fertilisers, pesticides and seed; 2) keep a farming diary (to record all activities of vegetable production from seeding to harvesting); and 3) ensure an appropriate withholding period before harvest after the use of pesticides. These reflect the expected changes VietGAP is designed to bring about in the traditional agri-food system, targeted first at the farmer and farm level. Further, farmers who participate in the VietGAP programme for vegetables in the study region were required to change their marketing practices and use formal institutions in relation to marketing vegetables. They were required to:

- 1) use an official certification process and associated labels, in this case, the VietGAP certified label, to trade vegetables;
- 2) use formal contracts when selling produce in the value chain; and
- 3) sell their VietGAP-certified produce through supermarkets.

Previous studies into public GAP schemes including VietGAP (e.g. Banzon et al., 2013; Krause et al., 2016; Loan et al., 2016; Suwanmaneepong, Kullachai, & Fakkhong, 2016)

have not discussed these broader changes in relation to farmers' responses to public GAP schemes.

Under the VietGAP programme for vegetables, collectors and supermarkets in the region were also required to change their marketing practices and use formal institutions in relation to marketing vegetables, including the use of formal written contracts and the use of certified labels in trading vegetables. Input suppliers were also required to change their trading practices, such as only sell certified inputs to farmers. These points set out the expected changes VietGAP is designed to bring about in the agri-food system in the study region as well as in Vietnam. Such changes relate to technical, institutional and organisational changes in the agri-food system (Bitzer & Bijman, 2015). However, little has been written in the GAP literature about such changes in relation to VietGAP and other similar public GAP programmes, nor considered these broader aspects of change and their impact on farmers' responses to such GAP schemes and programmes.

The results from this research provides empirical support for the normative view of Premier and Ledger (2006, p. 555), that the main drivers for introducing and implementing GAP programmes are "different from country to country." It highlights that a principal driver for the Government to introduce VietGAP was to catalyse a shift in the agri-food system from a traditional to a modern agri-food system. However, what is highlighted is the extent of broad changes required for VietGAP to be adopted by farmers. These changes include:

- 1) farming methods undertaken by farmers such as taking a withholding before harvesting after the use of pesticides and keeping a farm diary;
- 2) relationships and nature of the relationship between value chain actors such as the relationships between farmers and traders;

- 3) marketing practices undertaken by value chain actors and institutions used by these actors such as changing from verbal trust-based agreements to formal written contracts and;
- 4) food regulations in the markets such as using official labels certified by an authorised organisation to ensure food safety and quality of produce sold in the supermarkets.

These broad changes reflect a development of a new value chain (Kaplinsky, 2000; Trienekens, 2011), in this case a new value chain for VietGAP-certified vegetables, in order to facilitate the transformation of the traditional agri-food system. These broad changes go beyond the farmer and farm boundary. The farmers' responses to VietGAP thus depend not only on the farmers themselves, but importantly on other actors within the vegetable value chain and the market system in which farmers operate. In the next section, farmers' responses to VietGAP and its association with the technological transition from a traditional to a modern agri-food system in Vietnam are discussed.

7.4. Farmers' responses to VietGAP and its association with the technological transition in Vietnam

Vietnam is a country in transition. As stated earlier, the transition includes broad-scale changes in the agricultural sector and in the relationship between the government and farmers. VietGAP is a policy introduced by the central government to drive change in the agri-food system. However, across the range of produce the programme has been applied, the extent of adoption by farmers nation-wide has been low. A recent calculation by Cultivation Department (2015) has shown that the area in VietGAP vegetable production accounted for 0.08% of total land area in vegetable production, nationally.

In contrast to the majority of previous studies (e.g. Kersting & Wollni, 2012; Krause et al., 2016; Lippe & Grote, 2016; Loan et al., 2016) that take a narrow and non-systemic approach, this study has taken a broader systemic perspective to investigate the implementation of the VietGAP programme for vegetables in a province of Vietnam and to explore what has shaped farmers' responses to VietGAP. This study found that the social, cultural, and institutional dimensions that define the dominant traditional agri-food system in the study region and, more broadly, in Vietnam determined farmers' responses to VietGAP. This was expressed in this research in:

- 1) a lack of concern with food safety among actors in the vegetable value chain system including consumers and producers;
- 2) a predominant market for vegetables where the quality of which is assured solely through visual and non-formal means;
- 3) a reliance and confidence in informal trust-based relationships between farmers and other actors in the value chain system including collectors, retailers and consumers;

In the mainstream GAP literature (e.g. Holzapfel & Wollni, 2014; Krause et al., 2016; Lemeilleur, 2013; Loan et al., 2016; Muriithi et al., 2011; Nicetic et al., 2010; Vu Thi et al., 2016), little has been written about the importance and impact of these social, cultural, and institutional aspects of the traditional agri-food system on farmers' responses to GAP. However, recently, in a paper of '*Private food standards, trade and institutions in Vietnam*' Tennent and Lockie (2013) have emphasised the importance of taking into account social, cultural and historical aspects that influence Vietnamese farmer participation into markets. They argue that "in addition to typical market entry barriers, additional obstacles existed that prevented smallholders from market

participation. These were socially, culturally and historically situated and rooted in informal institutions" (Tennent & Lockie, 2013, p. 163).

Although, the Vietnamese agri-food system is in transition, data from this case study suggests that it is in the early phase of a transition (Rotmans et al., 2001; Rotmans & Loorbach, 2010) to a modern agri-food system. Data from the case study also suggests the current phase of transition evident in this research does not conform neatly to transition phases defined by Rotmans et al. (2001) and Rotmans and Loorbach (2010). The authors define four consecutive phases including the first two: 'pre-development' and 'take-off'. However, although the presence of supermarkets and the existence of VietGAP-certified vegetables would suggest a shift in the traditional agri-food system has begun, there is no evidence of experimentation, or innovation, or an awareness of shifting societal goals, as argued by scholars (e.g. Van Lente et al., 2003) to indicate a pre-development phase. As yet, in the study region and more broadly in Vietnam, concern with food safety in form of vegetables have not become widespread, and traditional market system continues to dominate. VietGAP as a programme was not originally developed in Vietnam, but rather adopted from GlobalGAP, the nascence of which is the developed country, modern agri-food system context of Europe. In the Europe and developed countries, the agri-food system is largely already at much later stable phases of transition, whereas, VietGAP's introduction is an indication of a pending broader transition in the Vietnamese traditional agri-food system sought by the Government of Vietnam.

'Take-off' phase is described as occurring when changes in the system are underway and new technologies compete with established ones (Rotmans et al., 2001; Rotmans & Loorbach, 2010). Although, in the larger cities in Vietnam supermarkets do cater to

consumers' demand for certified safety food, the overall demand for certified produce is very small and, in no way, can this be argued to constitute 'take-off' and certainly not in the study region. The local government has created a 'protected space' for VietGAP-certified vegetables by providing subsidies on inputs, certification costs and price premium. Some new actors were also put in place by the local government to facilitate the uptake of VietGAP. However, these actors were appointed and did not take on this role by choice, nor saw it a new opportunity for doing business with VietGAP-certified vegetables in the region. Some VietGAP-certified vegetables were traded in the supermarkets and a small number of consumers purchased VietGAP-certified vegetables. However, no evidence showing any competition between the modern food distribution system and the traditional food distribution system was found in the study region of Thua Thien Hue province. This does not align with Cadilhon et al. (2006, p. 31) who argues that modern food distribution systems such as supermarkets were "competing fiercely with traditional traders for wholesale and retail customers" in Ho Chi Minh City of Vietnam. This suggests that a phase at which the system is in transition from a traditional to a modern agri-food system (Rotmans et al., 2001; Rotmans & Loorbach, 2010) differs across Vietnam.

From a technological transition perspective, it can be seen that some changes have occurred, but the changes in the niche, socio-technical regime and social-technical landscape levels are not aligned with and supported by each other. The local government provided incentives and appointed entities as VietGAP collectors in the region to create a 'protected space' for VietGAP-certified vegetables which constitutes a 'niche for VietGAP-certified vegetables', according to the concept of a niche (Geels, 2011). Some new actors have put in place (e.g. certification organisation) and some existing actors have changed their roles and functions (e.g. VietGAP farmers, extension

officers, private input suppliers). Some existing input suppliers have stocked biopesticides and organic fertilisers that are recommended for use when growing VietGAP-compliant vegetables, but the amount they stock has been limited because of low demand for such input. However, other important changes to the socio-technical regime and landscape that the Government of Vietnam had expected, would occur as a result of VietGAP in terms of institutions, have not eventuated. Formal written contracts that set out product specifications such as quantity, size, quality and date of sale have not replaced verbal trust-based agreements as the coordinating mechanisms within the value chain for vegetables. The majority of consumers are also not using certified food safety labels in their purchasing decisions in relation to vegetables in the region.

This study highlights that farmers' uptake of VietGAP is constrained by the dominance of the socio-technical regime of the traditional agri-food system within Vietnam. For greater adoption, further changes will need to occur at the socio-technical regime level. In the mainstream GAP literature (e.g. Holzapfel & Wollni, 2014; Krause et al., 2016; Lemeilleur, 2013; Loan et al., 2016; Muriithi et al., 2011; Nicetic et al., 2010; Vu Thi et al., 2016), broader contextual aspects beyond the farm boundary that influence GAP adoption are rarely discussed. This study found that changes to the socio-technical regime of the agri-food system in the region were required to support greater farmer participation in VietGAP. The current case reflects a 'lock-in' situation (Bail et al., 2014; Geels & Schot, 2010) within the traditional agri-food system in Vietnam. Elements of the socio-technical regime, particularly the informal rules and norms within the existing traditional agri-food system, have inhibited change and a shift towards a VietGAP-dominated vegetable value chain. This reflects a lack of overall development of a new value chain for VietGAP-certified vegetables and is explained as follows. First, informal institutions (e.g. using visual cues to assess quality of produce) for

quality assurance dominate in this study region. In addition, food safety in relation to vegetables was not a main concern to value chain actors in this region.

Second, verbal agreements based on relationships of trust dominate in vegetable marketing in the region. The Government of Vietnam has officially promoted the use of formal written contracts between producers and agribusiness enterprises since 2002, through promulgating the Decision No. 80/QĐ-Ttg, dated June 24, 2002 issued by the Government of Vietnam, on policies to encourage the contractual sale of commodity farm produce (GOV, 2002). There were no formal written contracts between farmers and VietGAP collectors in the study region. There were also no formal written contracts between VietGAP collectors and supermarkets. Several studies (e.g. Le, Nguyen, Nguyen, Hoang, & Le, 2011; Nguyen, 2014) reported that formal written contracts have not worked well in several regions of Vietnam. Lack of enforcement mechanisms for formal written contracts, have been argued as the main reason for this failure (Nguyen, 2014). However, in this research, a number of interrelated factors contributed to formal written contracts being not used, reflecting, as yet, an immature value chain for VietGAP-certified vegetables. These factors include, but are not limited to: 1) farmers are not familiar with formal written contracts, nor do they need them because they operate differently through local trust-based relationships with collectors, 2) local domestic markets for vegetables do not require formal written contracts, 3) limited benefit for farmers to enter into a formal commitment for supply, and 4) a lack of capability of the VietGAP collectors who were appointed by the local government to trade VietGAP-certified produce.

Third, modern agri-food infrastructure that supports farmer participation in the VietGAP programme is still in the early stage of development in the region as well as in Vietnam. For example, supermarkets which are viewed by the Government of Vietnam as a vehicle for shifting Vietnam from a traditional to a modern agri-food system, are lacking in the study region and play a minor role in the vegetable retail trade. This is also the case for the country where the market share (for vegetables and fruit) of supermarkets was only 4% in 2013 (USDA, 2013). In addition, supermarkets tend to be situated in major cities such as Hanoi, Ho Chi Minh City, Da Nang, Can Tho and Hai Phong (USDA, 2017). In contrast, traditional markets play a strong role in the retail trade in Vietnam and are the major marketing channels for fresh vegetables and fruit in Vietnam (Cadilhon et al., 2006; Maruyama & Trung, 2007; Wertheim-Heck, Spaargaren, & Vellema, 2014). As such, there are few favourable conditions and limited benefits for farmers and other value chain actors to participate in the VietGAP programme.

This study highlights the value of exploring farmers' responses to the introduction of a programme like VietGAP at a systemic level, particularly when the scheme being introduced is not supported by the agri-food system and a broader administrative context. This research argues that a systemic perspective is more likely to provide useful insights into what is shaping farmers' responses to a GAP programme when the programme is a public one introduced by the government, rather than a private scheme where market demand for GAP-certified produce already exists. In the next section, farmers' reasons for not adopting VietGAP are discussed.

7.5. Farmers' reasons for not adopting VietGAP

The majority of farmers (95%) in this study region did not adopt VietGAP regardless of the support provided by the local government under the VietGAP programme. The non-adoption of VietGAP by farmers was influenced by a combination of three main elements that are rooted in the immature value chain for VietGAP-certified vegetables.

These include:

- 1) a lack of market demand for the VietGAP-certified vegetables,
- 2) a risk of breaking informal institutions between farmers and preferred collectors within the traditional vegetable value chain; and
- 3) a lack of actor capability within the VietGAP vegetable value chain.

These elements reflect a continued dominance of the traditional agri-food system in the study region. The lack of a broader policy and administrative context supporting the long-term success of VietGAP further compounded the non-adoption of VietGAP. Previously, VietGAP and other public GAP studies have not explored these aspects and their impact on farmers' responses to such GAP schemes. The results from this study highlight that, in the context where the market for certified produce was not secure and certain, although some farmers indicate difficulties when practising VietGAP, the non-adoption of VietGAP by farmers was not just due to farmer's lack of access to human, physical, financial, informational resources as is often argued in previous studies on VietGAP (e.g. Loan et al., 2016), other public GAP schemes (e.g. Krause et al., 2016) and private GlobalGAP schemes (e.g. Asfaw et al., 2010; Hatanaka et al., 2005; Henson & Jaffee, 2006; Vorley & Fox, 2004). Rather, it is the result of a combination of elements within the vegetable value chain system in which farmers operate. Farmers' decisions to not adopt VietGAP were significantly influenced by these elements within

the vegetable value chain system. Each of these elements and how they influenced farmers' decisions are discussed in detail in the following sections.

7.5.1. A lack of market demand for VietGAP-certified produce

One of the elements that influenced the farmers' decisions not to participate in the VietGAP programme was that there was a lack of demand for VietGAP-certified vegetables in the local domestic market. In contrast to the majority of previous GAP studies (e.g. Annor et al., 2016; Kersting & Wollni, 2012; Krause et al., 2016; Lemeilleur, 2013; Lippe & Grote, 2016), the VietGAP programme for vegetables was not for an established or developing export market, but for a local domestic market. Previous GAP studies (e.g. Annor et al., 2016; Kersting & Wollni, 2012; Krause et al., 2016; Lemeilleur, 2013; Lippe & Grote, 2016) have focused on GAP programmes that have been developed for export markets where produce is sold overseas into modern agri-food systems dominated by supermarkets that require GAP labels demanded by consumers. In most of these markets, demand for GAP-certified produce already exists (e.g. Kersting & Wollni, 2012; Lemeilleur, 2013; Lippe & Grote, 2016), unlike the case as for this study. It may be for these reasons that market demand for GAP-certified produce is rarely discussed in the majority of previous GAP literature. Other studies that have investigated farmer adoption of VietGAP for lychee production by Loan et al. (2016) and Vu Thi et al. (2016) did not mention market demand as an important factor that influenced farmer uptake.

There are some studies (e.g. Banzon et al., 2013; Pongvinyoo et al., 2014; Srisopaporn et al., 2015) that have linked market demand to the adoption of public GAP programmes in developing countries. Banzon et al. (2013) who investigated the adoption of PhilGAP and claimed that market demand was an important driver for the

adoption of PhilGAP by banana growers in the Philippines. Similarly, Srisopaporn et al. (2015) and Pongvinyoo et al. (2014) investigated the adoption of public Q-GAP by Thai rice and coffee farmers, respectively and identified the adoption of Q-GAP, was influenced by market price for Q-GAP-certified produce. They found that because Q-GAP-certified produce did not command a premium over non-certified produce, this did not encourage farmers to adopt Q-GAP.

From a value chain perspective, the lack of market demand for VietGAP-certified vegetables is because of an immature value chain for VietGAP-certified vegetables. Lack of market demand for VietGAP-certified vegetables was associated with a lack of awareness of food safety among vegetable consumers. Because of this, there is no need for a requirement for a formal food safety assurance and branding in the markets. The majority of consumers in this region are unaware of food safety for vegetables and tend to assess the quality of their vegetables on the basis of visual and olfactory cues, rather than using official labels guaranteeing that the vegetables are safe to consume.

Owing to this lack of demand, the other actors in the value chain have maintained the status quo and use visual and olfactory cues to assess vegetable safety and quality. To further compound this issue, there were no demand side incentives (e.g. price subsidies for consumers) provided by the local government to stimulate demand for VietGAP-certified vegetables in the region. As such, consumers in the region had no financial incentive to purchase VietGAP-certified vegetables in preference to non-VietGAP compliant vegetables. Demand side incentives for GAP-certified produce have not been previously discussed in the GAP studies. However, some studies in the field of organic farming (e.g. Daugbjerg, 2010; Thapa & Rattanasuteerakul, 2011) have emphasised the importance of creating market demand for organic products to facilitate farmers in

adopting organic farming practices in a developed country context. For example, according to Daugbjerg (2010, p. 4), one measure to create market demand for Danish organic produce is a policy that can provide “funding for organic market research and development, marketing, information and food innovation”. The next section discusses the second element, which is the risk of breaking informal institutions between farmers and preferred collectors in the traditional value chain that influenced the farmers’ decisions not to adopt VietGAP in the region.

7.5.2. A risk of breaking informal institutions between farmers and collectors

Along with a lack of market demand for VietGAP-certified vegetables, many farmers in this region did not participate in the VietGAP programme for vegetables because they did not want to put at risk the relationships they had with their preferred collectors who traditionally purchased their vegetables. These relationships were based on trust and loyalty that have been built up over a considerable number of years. The risk of breaking trust-based relationships and loyalty which constitute an ‘informal institutional risk’ has not been reported as a factor that influenced farmers’ responses to GAP schemes in previous GAP literature. However, it is the ‘informal institutional’ risk that determined farmers’ decision-making in relation to non-adoption of VietGAP in this study and is interpreted as follows.

Farmers in this region traditionally rely on local collectors to market their vegetables and they often have preferred collectors. These preferred collectors purchased all a farmer’s vegetable crop and the sale of produce was based on a verbal agreement. In this verbal agreement, the preferred collectors guaranteed to take all vegetables from farmers and the price was based on market price. However, there were no specifications for quantity, size, quality or the timing of collection. As such, the sale and purchase of

vegetables was based on an informal agreement as opposed to a formal written contract. Each party had a certain loyalty to the others and was expected to meet the obligations of their verbal agreement. The farmers were concerned that if they adopted VietGAP vegetables and sold these vegetables to another vegetable collector, trust between themselves and their preferred collector would be broken.

This loss of trust would then have implications for their ability to sell their vegetables and the price they received for them. The majority of previous studies into other public (e.g. Krause et al., 2016; Srisopaporn et al., 2015; Suwanmaneepong et al., 2016) and private GAP programmes (e.g. Kersting & Wollni, 2012; Lemeilleur, 2013; Lippe & Grote, 2016) have failed to highlight the risk of compromising informal institutions as an important element that influenced farmers' responses to such GAP schemes. It is also likely that the risk appeared greater because of the lack of market demand for certified produce and the lack of certainty of long-term benefit from forming a new market relationship with the 'new' VietGAP vegetable collectors appointed by the Commune Peoples' Committee.

A number of previous studies (e.g. Augier et al., 2005; Martinez & Poole, 2004; Mausch et al., 2006; Okello, 2005) have suggested that the application of private food safety and quality standards can result in the exclusion of small-scale farmers in developing countries from modern agri-food markets. In contrast to these studies, from a value chain perspective, this research found that farmers believed that adopting VietGAP could result in their partial exclusion from traditional markets. This is because adopting VietGAP means to change to a new business relationship that is not familiar with farmers and that is likely to damage the current marketing relationships. This study highlights the importance of trust-based institutions and loyalty between farmers and

preferred collectors in influencing farmers' decision not to participate in public GAP programmes like VietGAP that requires building new relationships with other actors. It shows the importance of being able to ensure secure, long-term trust-based relationship in a new agri-food market channel for farmers to change. In the next section, the third element which is the lack of actor capability within the VietGAP value chain that influenced farmers' decisions not to adopt VietGAP in the study region, is discussed.

7.5.3. A lack of actor capability within the VietGAP vegetable value chain

Along with a lack of market demand for VietGAP-certified vegetables and the risk of compromising relationship based on informal institutions, many farmers in this region did not participate in the VietGAP programme for vegetables because a key actor within the VietGAP vegetable value chain lacked capability. Some studies have highlighted the importance of exporters as intermediaries (e.g. Kersting & Wollni, 2012; Lemeilleur, 2013) in relation to the producers' adoption of private food safety and quality standards. However, in the mainstream GAP literature (e.g. Asfaw et al., 2010; Handschuch, Wollni, & Villalobos, 2013; Herzfeld et al., 2011; Jin & Zhou, 2011; Muriithi et al., 2011), little has been written about the capability of collectors and their influence on producers' adoption of GAP programmes. This reflects the immature stage of development of the value chain for VietGAP-certified vegetables in the region.

In this study region, one VietGAP collector had no experience with vegetable trading while the other VietGAP collector was a small firm that had two years' experience supplying a small quantity of vegetables to restaurants, hotels, and schools. Neither firm had experience in supplying vegetables to supermarkets in the region. The supermarket did not give the collectors a formal written contract for the provision of VietGAP-

certified vegetables because they knew the collectors were incapable of meeting their specifications.

The collector could not get VietGAP farmers to produce to the required specifications. Farmers in the region were not used to producing formal written contracts in terms of the timing, number, size and quality of vegetables. They are used to working within a traditional market system where their preferred collectors purchase all vegetables they produce as discussed earlier. Consequently, the supply side of the VietGAP vegetable value chain did not coordinate well, hence farmers were reluctant to adopt VietGAP. In contrast, traders for GAP-certified produce in the previous studies into VietGAP (e.g. Loan et al., 2016; Vu Thi et al., 2016), other public GAP schemes (e.g. Banzon et al., 2013; Krause et al., 2016) and the private schemes such as GlobalGAP (e.g. Kersting & Wollni, 2012; Kleemann, Abdulai, & Buss, 2014; Lippe & Grote, 2016), were experienced existing traders that were used to using formal written contracts as the primary coordinating mechanism for their value chains.

In a paper '*Global value chains and agri-food standards: Challenges and possibilities for smallholders in developing countries*' Lee et al. (2012) used the value chain approach to explain the relationship between value chain structure and safety and quality standards. According to Lee et al. (2012), different value chain types, including 'buyer-driven chains', 'producer-driven chains', 'bilateral oligopolies' and 'traditional markets' required different levels of food standards. For example, a buyer-driven chain requires a high level of food safety and quality, whereas a traditional market often has limited safety and quality requirements. Based on this typology, Lee et al. (2012) argue that producers' adoption of food standards was influenced by the structure of their value chains. The findings from this study support the view of Lee et al. (2012), but also

highlights that the structure of value chains is only one of several elements that influences farmers' decisions in relation to non-adoption of food standards.

An interesting finding from this study was that despite the lack of market demand and several other conditions that inhibited farmers' participation in the VietGAP programme as discussed above, a small number of farmers in this study region adopted VietGAP. In the next section, the specific elements that shaped farmers' decisions to adopt VietGAP are discussed.

7.6. Farmers' reasons for adopting VietGAP

A small number of farmers (<5%) in this study region participated in the VietGAP programme. The adoption decision by these farmers was the result of two elements. These were: 1) the benefits of the local government support given to farmers under the VietGAP programme; and 2) the farmers' political aspirations and loyalty to the government. In the mainstream GAP adoption literature (e.g. Asfaw et al., 2010; Handschuch et al., 2013; Herzfeld et al., 2011; Jin & Zhou, 2011; Krause et al., 2016; Loan et al., 2016; Muriithi et al., 2011), several authors have shown that technical and financial incentives given to farmers under GAP programmes are important in influencing the adoption of GAP programmes. However, this has not been linked to political aspirations and loyalty to the government as factors that result in farmers' adoption of GAP programmes as highlighted in this research. This is likely to reflect the existing socio-political context in Vietnam and the continued role of the commune (through the Commune People's Committee) in governing.

A majority of farmers in this region are not responding to the Government's decrees. They are now responding increasingly to the demand and preference of consumers in light of the opportunity that now exists for them in farming. The results from this

research highlights that farmers' decisions in relation to the adoption of VietGAP was, very much context-dependent and shaped by the particular socio-political dynamics that exists in Vietnam and in the region at the time of the study. These contextual aspects include the changing nature of the influence of role of the State and communes in farmers' lives and in production and marketing decisions. Vietnamese farmers are changing their responses to the central government policy compared to what they did before the 'Doi Moi' policy was introduced.

Normative literature on the context-specific nature of GAP programmes (e.g. Premier & Ledger, 2006) recognised that GAP programmes will be different in different countries. This research illustrates how the specific socio-political context and the stages in technological transition to a modern agri-food system in Vietnam shaped farmers' responses to a public VietGAP - a market-driven policy mechanism associated with modern agri-food systems. From a systemic perspective, this research illustrates that where a public GAP scheme is introduced to facilitate the transformation of an agri-food system, and where a socialist government operates (GOV, 2016), the farmers' decisions to adopt the scheme is shaped by a wide range of factors that go beyond technical and financial benefits. Each of the elements and how they influenced the farmers' decision to adopt VietGAP is discussed in the following sections.

7.6.1. The benefit of government support and its influence on farmers' decisions to adopt VietGAP

One of the elements that influenced farmers' decisions to participate in the VietGAP programme was that the local government provided farmers in this region with a range of support. This included subsidies on inputs and the certification costs, the provision of training and a price premium for VietGAP-certified vegetables and, in the case of

commune two (XB commune), a minimum price for one vegetable variety. Previous studies have investigated farmer adoption of public GAP programmes (e.g. Srisopaporn et al., 2015) and the private GlobalGAP schemes (e.g. Kersting & Wollni, 2012; Muriithi et al., 2011) and found that in the context where demand for certified produce exists, support including free technical training and subsidies on certification costs have a positive impact on the adoption of GAP schemes by farmers. Only a small number of farmers decided to become involved in the VietGAP programme for vegetables in the study region which illustrates that support in terms of input subsidies, training, certification costs, and price premium was, however, not enough to ensure adoption when market demand is limited and uncertain.

In addition to input subsidies, training, certification costs and price premiums, the study also found that the minimum price that was established by the VietGAP collectors for one vegetable variety encouraged a small number of farmers to adopt VietGAP. This was because the minimum price which constitutes ‘financial infrastructure’, according to the concept of financial infrastructure (Wieczorek & Hekkert, 2012), helped farmers to overcome the problem of volatile price fluctuations that occurred with a vegetable called ‘Rau Ma’ that could be grown within the VietGAP programme for vegetables. Previous studies that investigated VietGAP (e.g. Loan et al., 2016; Vu Thi et al., 2016), other public GAP schemes (e.g. Banzon et al., 2013; Krause et al., 2016) and the private schemes such as GlobalGAP (e.g. Kersting & Wollni, 2012; Kleemann et al., 2014; Lippe & Grote, 2016) have not reported the use of a minimum price to encourage farmers to adopt GAP schemes. However, in the innovation system literature (e.g. Wieczorek & Hekkert, 2012; World Bank, 2007, 2012), financial infrastructure has been argued as one factor that influences the farmers’ adoption of new technologies. The results from this research show that in a context where the price for produce

fluctuates dramatically and the market demand is low, establishment of a minimum price, together with providing other favourable conditions could be one factor that is likely to facilitate the adoption of public GAP schemes by farmers. The next section discusses the second, which is how farmer's political aspiration and loyalty to the local government influenced their decision to adopt VietGAP.

7.6.2. The influence of political aspirations and loyalty on farmers' decisions to adopt VietGAP

Along with the local government support, a small number of farmers in this case study adopted VietGAP because of their political aspirations and loyalty to the local government. Previous studies that investigated VietGAP schemes (e.g. Loan et al., 2016; Vu Thi et al., 2016) and other public GAP schemes (e.g. Banzon et al., 2013; Krause et al., 2016; Pongvinyoo et al., 2014; Suwanmaneepong et al., 2016) have not reported political aspirations and loyalty to the local government and their impact on farmers' responses to such GAP programmes. However, it is the political aspirations and loyalty to the local government that contributed to farmers' decisions to adopt VietGAP in this study and it can be interpreted as follows.

Under a socialist government system, as stated in Chapter Two (GOV, 2016), several farmers aspired to, or held political positions and these farmers were expected to follow the Communist Party decrees and resolutions and adopt VietGAP. These farmers include members of the CPC, managers of agricultural cooperatives, village leaders or leaders/former leaders of local unions such as Farmers' Union, Veteran Union and Women's Union. These farmers have worked for the local government and, in this case, some had been in these positions for a long time. They are often a member of the

Communist Party and they tend to support government programmes and hence adopted VietGAP in the study region.

Loyalty to the local government is shown by farmers who do not hold a political position or aspire to a political position. These farmers often work with the local government (CPC) on several agriculture and rural development programmes, including agricultural extension programmes operating in the commune. The local government provide free extension service for farmers, and also offer practical demonstrations for new crop varieties. The VietGAP programme for vegetables is a government policy, and as a result, these farmers want to support the governmental programme and hence adopted VietGAP.

As stated in Chapter Two, Vietnam has undergone a range of broad scale changes since the introduction of the ‘Doi Moi’ policy in the 1980s (Cervantes-Godoy & Dewbre, 2010; Nguyen & Grote, 2004; Wescott, 2003). These changes are evident in agriculture, and also in terms of a stepping back by the State for directing through the hierarchical administrative structure through the commune to rural communities. Vietnam’s transformation has also changed the relationship and role of the State in farmers’ lives and the farming sector. For most farmers in this study, their decision to not adopt VietGAP was based on market-based considerations. For those who did adopt VietGAP, a few also based their decisions on financial and market considerations, however a few were influenced by broader non-financial and market considerations. The next section discusses elements that shaped farmers’ decisions to dis-adopt VietGAP.

7.7. Farmers’ decisions to dis-adopt VietGAP: limited market demand

The initial benefits obtained from the VietGAP programme, including technical training, input subsidies, certification cost, price premium, minimum price, and the

sense of loyalty to the local government, have driven a small number of farmers to adopt VietGAP, as discussed earlier. However, two farmers in one commune, who were VietGAP-compliant, dis-adopted VietGAP at the time of the research. Similarly, a few farmers in the other commune were reducing their area in VietGAP-compliant vegetables. These farmers changed because of the limited market demand for VietGAP-certified vegetables in the region. This suggests that initial expectations by farmers from adopting VietGAP had not materialised. The result from this research partly supports the argument set out by Srisopaporn et al. (2015, p. 251), that “dis-adoption of the Q-GAP standards in the Central Plains is most likely more related to the lack of available differentiated market and the absence of price differences for Q-GAP labelled rice”. However, from a systemic perspective, this research highlights that dis-adoption of VietGAP by farmers, and reducing the area in VietGAP vegetable production, reflects a lack of overall development of a new value chain for VietGAP-certified vegetables, and a lack of a broader policy and administrative context supporting the long-term success of VietGAP as discussed earlier.

7.8. Summary

Vietnamese agri-food system is in the early stage of a transition from a traditional to a modern system. VietGAP is a policy mechanism used by the Government of Vietnam to facilitate the change in the traditional agri-food system by initially targeting farmers and production stage. Farmers’ responses to VietGAP were determined by the dominance of the traditional agri-food system and the lack of development and hence risk associated with the new immature value chain for VietGAP-certified vegetables. Owing to an immature value chain for VietGAP-certified vegetables, which is reflected in 1) a lack of market demand for VietGAP-certified vegetables, 2) a risk of breaking informal

institutions between farmers and preferred collectors; and 3) a lack of capability of actors within the VietGAP vegetable value chain, a majority of farmers (>95%) did not adopt VietGAP. Only a small number of farmers (<5%) participated in VietGAP and this is because of 1) the local government support given to farmers under the VietGAP programme and 2) farmers' political aspirations and loyalty to the local government. The results from this research illustrate that the broader context and value chain system characteristics shaped farmers' responses to VietGAP. However, not all farmers respond in the same way. The results also illustrate that farmers' decisions in relation to adoption of VietGAP are influenced by a number of elements in the system of which they are a part, including the market system and the socio-political system.

CHAPTER EIGHT: CONCLUSIONS

8.1. Introduction

This thesis set out to explore farmers' responses to VietGAP, a policy mechanism that consists of a suite of technologies associated with an emerging socio-technical regime in an early transitional stage to a modern agri-food system. The research question of this doctoral study is 'What is shaping farmers' responses to VietGAP?' This thesis deals with and answers the research question from a systemic view, which is drawn from the theories of technological transitions, innovation systems and value chains. As shown in this thesis, the systemic approach has provided useful insights into the implementation of the VietGAP programme and farmers' responses to it. This final chapter first provides important conclusions to the research question and then highlights the main theoretical contributions of this doctoral research. Subsequently, the chapter discusses practical implications and research limitations. Finally, future research is proposed.

8.2. Key conclusions to the research question

The VietGAP programme is one of a suite of policies used by the Vietnamese Government to transform the country into a more market-led economy. It was implemented in 2009 to help foster the development of a modern agri-food system in Vietnam. However, it has had limited success with small number of farmers adopting the programme. Little is known about how the programme was implemented or why it was not adopted by the majority of farmers. To understand how the programme was implemented and why VietGAP has not been adopted by the majority of farmers, an

investigation of the VietGAP programme for vegetables has been undertaken. The key conclusions drawn from this study are as follows:

Firstly, in order to answer the research question comprehensively, VietGAP needs to be viewed as a policy mechanism designed to help shift the agri-food system from a traditional to a modern agri-food system. Although, reconceptualising VietGAP was not initially in the scope of this study, it emerged as important for addressing the research question. Participating in VietGAP requires not only farmers to change farming and marketing practices, but also requires other value chain actors in the agri-food system to alter their marketing practices and adopt new formal institutions. These changes reflect a combination of technical, institutional and organisational aspects in the agri-food system. These aspects and their impacts on farmers' responses to public GAP schemes have not been highlighted in any previous GAP literature.

Secondly, the social, cultural, and institutional dimensions that define the dominant traditional agri-food system in the study region and more broadly in Vietnam determined farmers' responses to VietGAP. These were expressed in: 1) a lack of concern with food safety among value chain actors, 2) a predominant market for vegetables where the quality and safety of which is assured solely through visual and non-formal measures, 3) a high reliance and confidence in informal trust-based relationships between value chain actors. This study highlights that farmers' uptake of VietGAP depends on the development and changes in the socio-technical regime of the traditional agri-food system in the region as well as within Vietnam.

Thirdly, in addition to social, cultural, and institutional aspects of the traditional agri-food system, farmers' responses to a policy mechanism that is associated with market-driven principles introduced by the central government to catalyse technological

changes like VietGAP, are also influenced by broader socio-political and socio-economic transitions occurring in the country. For example, the roles and nature of relationships between actors, such as between farmers and the Government of Vietnam, are changing, as a result of the introduction of the ‘Doi Moi’ policy, and these changes also influenced how Vietnamese farmers responded to VietGAP. This research highlights how a complexity of drivers for change are existing in developing countries like Vietnam where there are technological transitions that occur, not only in agri-food systems, but also in social, political and economic systems.

Fourthly, this research highlights that farmers’ decision-making in relation to adopt or not adopt public GAP schemes like VietGAP, is based on a combination of several factors rooted in the system in which they operate. In general, to decide to adopt a public GAP schemes or not, farmers consider potential benefits and certainty of long-term benefits from entering a new value chain for VietGAP-certified produce. They also consider impact of entering to a new value chain for VietGAP-certified produce on their overall production system and existing market relationships. These have not mentioned in any other previous GAP literature.

Fifthly, public GAP schemes should be viewed not separately, but as an integral component of broader development policies and programmes that are currently used by the government in the country. As such, farmers’ responses to such GAP schemes need to be understood within this context. Effectiveness of such public GAP programmes thus cannot measure based simply on rate of adoption/non-adoption of public GAP schemes by farmers as often reported in the existing GAP adoption literature.

Sixthly, farmers’ responses to VietGAP in this case study are indicative of, not only the phases in a technological transition to a modern agri-food system, but also the changing

socio-political context and role of the State in Vietnam. The implementation of public GAP programmes that focuses on targeting farmers as a strategy for catalysing broader system change is unlikely to be successful when the dominant agri-food system is not aligned with that system change. This has not highlighted in any other previous GAP literature.

Seventhly, the context-specific nature of transition, its speed and the particular trajectory that emerges, are dependent on the socio-political context, as well as the extent of alignment between socio-technical landscape, socio-technical regime and niche. This research illustrates that when a government seeks to stimulate a technological transition in an agri-food system, strategies targeted at the niche level are unlikely to be successful if there is not alignment across socio-technical regime and landscape.

Finally, when a technological transition in agri-food system is driven not by a niche development and landscape pressure, but by the central government, the transition is unlikely to follow the same trajectory or phases evident in transition literature stimulated from niche development and socio-technical landscapes. The theoretical contributions of this doctoral research are presented in the next section.

8.3. Theoretical contributions to the literature

This study makes a number of significant contributions to knowledge and the literature, and these are presented as follows. First, the research re-conceptualises the concept of VietGAP. The study argues that VietGAP is meaningfully understood as a policy mechanism for transforming the agri-food system from a traditional to a modern agri-food system. This conceptualisation significantly expands the view that is predominantly used in previous studies into public GAP programmes including

VietGAP (e.g. Banzon et al., 2013; Ha, 2014; Krause et al., 2016; Loan et al., 2016; Srisopaporn et al., 2015; Vu Thi et al., 2016), where such GAPs are viewed purely as instruments for governing food safety in the countries and helping the farmer access export markets.

Second, this study elaborates the main drivers for the introduction of public GAP programmes like VietGAP. The main drivers for public GAP programmes are often argued for dealing with food safety concerns by consumers, improving value chain management or facilitating access export markets (Amekawa et al., 2017; Banzon et al., 2013; Krause et al., 2016; Pongvinyoo et al., 2014). However, VietGAP is used by the Government of Vietnam as a part of broader plans that facilitate transforming the traditional agri-food system in Vietnam. This research provides empirical support for the normative view of Premier and Ledger (2006, p. 555), that the main drivers for introducing and implementing GAP programmes are “different from country to country”. The results from this study highlight that a principal driver for introducing and implementing VietGAP is for change in the agri-food system from a traditional to a modern agri-food system in Vietnam.

Third, this study significantly expands and elaborates the determinants of GAP adoption by producers that have been predominantly observed in the mainstream GAP literature (Annor et al., 2016; Krause et al., 2016; Lemeilleur, 2013; Lippe & Grote, 2016; Loan et al., 2016; Muriithi et al., 2011; Srisopaporn et al., 2015; Vu Thi et al., 2016). The research highlights that the non-adoption of GAP schemes by producers was not only because of a producer’s lack of access to human, physical, financial, and informational resources, as often argued in the mainstream GAP literature, but also the risk of breaking trust-based relationships between producers and preferred traders, lack of

human capital of other value chain actors and lack of demand for certified vegetables. In addition, this study highlights the non-adoption of GAP schemes by farmers was because of non-alignment between development and changes in the niche, socio-technical regime and social-technical landscape levels.

Fourth, this research provides empirical evidence to support the view observed in the normative literature (e.g. Lee et al., 2012), that producers' adoption of private food standard adoption could be influenced by the structure of value chains. The study highlights that the adoption of public VietGAP by farmers was influenced by the structure of an immature value chain for VietGAP-certified vegetables. Importantly, this study highlights that the structure of the value chains is only one of several elements that influences farmers' decisions in relation to the adoption/non-adoption of VietGAP.

Fifth, this study highlights the importance of considering informal relationships between farmers, local collectors and other value chain actors when introducing GAP schemes. The majority of previous studies into GAP programmes including VietGAP (e.g. Amekawa et al., 2017; Kersting & Wollni, 2012; Lemeilleur, 2013; Loan et al., 2016; Srisopaporn et al., 2015; Suwanmaneepong et al., 2016) have failed to highlight these informal institutions as important elements that have influenced farmer uptake. It is argued that if the informal institutions that govern the relationships between farmers and collectors do not take into account, the adoption of public GAP schemes by farmers in developing countries like Vietnam is not likely to occur on a large scale when developing and introducing public GAP schemes.

Finally, this research highlights that phases of technological transitions articulated in the transition literature (e.g. Elzen et al., 2012; Grin et al., 2010; Rotmans et al., 2001) do not fully capture the nature of the transitions that are occurring in developing countries

when the transitions are top-down driven by the central government, and not supported by the socio-technical landscape and socio-technical regime. The practical implications of this research are discussed in the next section.

8.4. Practical implications

Farmers' decisions are context-specific and are influenced by a combination of various elements embedded in the system in which they operate. A better understanding of how and why the farmers respond to a policy mechanism as they were, a more appropriate design of policy interventions will be designed and put in place to facilitate the changes as expected. Drawing from the findings of this research, and based on current knowledge in the existing literature, there are some aspects the Government of Vietnam could focus on to improve the farmers' uptake of VietGAP and bring about changes in a agri-food system. These are outlined as follows. First, farmers responded to VietGAP by viewing it as a new value chain for VietGAP-certified produce. Therefore, in order to facilitate the uptake of VietGAP, it is not only targeting farmers, but all actors associated with the local value chain system for vegetables. The implementation of the VietGAP programme for vegetables should be developed and implemented as coordinated efforts along the value chain actors.

Second, to help enhance the uptake of VietGAP by farmers, this research suggests that there is a need to raise the awareness of the need assurance of food safety among consumers and retailers in traditional markets. This increased awareness would then lead to a greater demand for certified produce. Voluntary campaigns about food safety and the use of certified produce targeted at the traditional markets in conjunction with training for farmers in pesticide use and on farm practices and their impact on food safety is likely to lead to a greater acceptance of VietGAP as a legitimate quality

assurance programme. Creating market demand for certified products to facilitate farmers in adopting VietGAP will follow.

Third, fostering development and changes at the socio-technical regime of the traditional agri-food system is required. Modern food marketing systems, formal institutional framework and policy for using formal certifications, food system regulations and an agricultural land policy are some of the aspects that are needed to deal with to facilitate farmers' participation in the VietGAP programme. As illustrated in this research, several elements of the agri-food system in the study region such as infrastructure, technology, agricultural policy (agricultural governance practices), and food market/user practices (food consumption practices) do not align with VietGAP.

The next section discusses the limitations of this research

8.5. Research limitations

It is acknowledged that this research has limitations. The research has provided an important understanding of farmers' responses to a public GAP programme from a systemic view. However, it employed a case study approach to understand the farmers' responses to VietGAP for vegetables. The research has only focused on a local Vietnamese value chain for fresh vegetables in a specific region - Thua Thien Hue province of Vietnam. Food safety concern, the role of supermarkets and capability of collectors in other regions of Vietnam may be different from this region. The findings of this research cannot generalise to the whole country and other produce. However, generalisations were not the main purpose of this study. The next section discusses implications for future research.

8.6. Future research

This study was conducted in only one region of Vietnam. Therefore, future research could be replicated in other regions across the country, especially the regions that are close to large cities where modern marketing systems such as supermarkets and convenience stores are more developed than are those of rural areas. The present research focused on a value chain for fresh vegetables only. Further research could be conducted to assess if similar problems exist with other value chains such as fresh fruits, rice, tea, and coffee. Different contexts could help to capture full insights into farmers' responses to VietGAP.

The research was exploratory in nature and involved a number of participants. Therefore, future research could follow the findings from this study to design a questionnaire for conducting a survey into value chain actors and their responses to VietGAP. Future research could also follow the findings from this research to investigate informal institutions around farmers and preferred traders and their impact on producers' adoption of GAP schemes.

The present study focuses on VietGAP, a model of value chain system based on importing a model of value chain system from Europe and shows that an imported model of value chain system may not be appropriate for Vietnam because of a different social and cultural context. Thus, future research could focus on developing a model of value chain system that considers the prevailing social and cultural norms that exist in the country that are clearly different from those that are in Europe.

This study investigates a public GAP scheme as a policy mechanism for transformation in the agri-food system. Future research could focus on exploring in-depth, other public GAP schemes as policy mechanisms. Future research could also examine other types of

policy mechanisms that governments in developing countries, like the Government of Vietnam, can use to try to stimulate changes toward a modern agri-food system.

The present research considers the characteristics of technological transition occurring in Vietnam when investigating farmers' responses to a policy mechanism and highlights that the nature of technological transition in developing countries like Vietnam is not the same as those in developed countries. The nature of technological transition in a developing country and its impact on farmers' responses to policy mechanisms used in the developing countries is a future promising research topic.

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APPENDICES

APPENDIX A

I: Interview guideline for key informants in the commune

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

My name is Hung Gia Hoang. Thank you for agreeing to participate in my research. Did you read the information sheet outlining the purpose of the research and your participation? (*I then go through the information sheet and highlight some key points for the participants*). Is there any question you want to ask me before we start? (*I then ask the interviewees to sign the consent form and describe briefly my background to them*). I will begin by asking you some general questions about yourself and the VietGAP programme. As we go along, I will keep asking you specific questions about the VietGAP programme based on your responses. This interview is more like a discussion about the VietGAP programme between us, so please feel free to share with me any ideas you have about the VietGAP programme and remember that you are free to decline to answer any question that you do not want to answer.

Asked topic areas and purposes	Some guided questions
1. To understand contextual information: - Position, Responsibilities	What is your position in this organisation? How long have you held this position? What are your main responsibilities?
2. To understand the context (background) that led to introducing VietGAP: - purposes of developing/applying VietGAP - importance of applying	What do you know about VietGAP? What is your role in the development and implementation? Any changes in that role over time? What can you tell me about the reasons for setting up VietGAP? When was VietGAP introduced? Can you take me through how VietGAP was developed, diffused, implemented and evaluated?

VietGAP	
<p>3. To understand how the VietGAP programme is implemented, why it was implemented as it is, and how to improve the performance of VietGAP programme</p> <ul style="list-style-type: none"> - actors participated in the VietGAP programme and reasons they participated - relationships between these actors and reasons - formal and informal institutions influence the VietGAP programme - other conditions that influence the VietGAP programme - activities actors have undertaken and reasons they do those activities - performance of those activities and reasons for that performance - improvement of those activities 	<p>Who are involved in the VietGAP programme and why are they involved? When and what activities were undertaken?</p> <p>How do these actors work with each other?</p> <p>What are the conditions that influence VietGAP's implementation and why?</p> <p>What do these actors do in VietGAP's programme?</p> <p>How do they undertake these activities?</p> <p>What other activities related to VietGAP?</p> <p>What are the purposes of these activities?</p> <p>How do you think performance of those activities? and why?</p> <p>Who or what are responsible for the current performance of those activities?</p> <p>What would help to improve current performance of the VietGAP programme?</p> <p>What is your view on the development, diffusion and implementation of VietGAP? What works/not works well? Why?</p> <p>What needs to change to change to improve VietGAP? What do farmers have to do when they apply VietGAP? What do you know about why some farmers apply/not apply VietGAP? What else do you want to talk about VietGAP programme?</p> <p>Who else should I interview?</p>

II. Interview guideline for government, semi-government officers and academics

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
<p>1. To understand contextual information:</p> <ul style="list-style-type: none"> - Position, Responsibilities 	<p>What is your position in this organisation?</p> <p>How long have you held this position?</p> <p>What are your main responsibilities?</p>
<p>2. To understand the context (background) that led to introducing VietGAP:</p> <ul style="list-style-type: none"> - purposes of developing/applying VietGAP - importance of applying VietGAP 	<p>What do you know about VietGAP? What is your role in the development and implementation? Any changes in that role over time?</p> <p>What can you tell me about the reasons for setting up VietGAP? When was VietGAP introduced?</p> <p>Can you take me through how VietGAP was developed and implemented?</p>
<p>3. To understand how the VietGAP programme is implemented, why it was implemented as it is, and how to improve the performance of VietGAP programme</p> <ul style="list-style-type: none"> - actors participated in the VietGAP programme and reasons they participated - relationships between these actors and reasons - formal and informal institutions influence the VietGAP programme - other conditions that 	<p>Who are involved in the VietGAP programme and why are they involved? When and what activities were undertaken?</p> <p>How do these actors work with each other?</p> <p>What are conditions that influence to VietGAP implementation and why? What do these actors do in VietGAP programme?</p> <p>How do they undertake these activities? What other activities are related to VietGAP?</p> <p>What are the purposes of these activities? What do you think of the performance of the activities? and why?</p> <p>Who or what are responsible for the current performance of those activities? What would help</p>

influence the VietGAP programme - activities actors undertake and reasons they do those activities - performance of those activities and reasons for that performance - improvement of those activities	to improve the current performance of the VietGAP programme? What is your view on the development, diffusion and implementation of VietGAP? What work/not work well? Why? What need to change to improve VietGAP? What do farmers have to do when they apply to VietGAP? What do you know about why some farmers apply/not apply to VietGAP? What else do you want to talk about VietGAP programme? Who else should I interview?
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III: Interview guideline for key value chain actors

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
1. To understand contextual information - Position, - Responsibility	What is your position? How long have you held this position? What are your main responsibilities?
2. To understand the context that leads to introducing agricultural products with VietGAP label	What do you know about agricultural products? (description of value chain) What agricultural products are you working on? What do consumers pay attention to when they choose to buy agricultural products? What do you know about agricultural products with the VietGAP label? Is your firm involved in VietGAP or the sale of products with the VietGAP

	<p>label? If not, why not? If so, what products?</p> <p>Can you tell me why your firm is involved in the sale of VietGAP products? When were agricultural products with the VietGAP label introduced to your business? in what way?</p>
3. To understand how supermarkets and agribusiness firms work with agricultural products with the VietGAP label, and how to improve this situation	<p>What types of agricultural products with VietGAP label are you working with? Can you tell us how VietGAP products are sourced and who is involved? Can you tell us how you sell VietGAP products and who is involved in this process?</p> <p>Who do you work with when you are buying and selling agricultural products with the VietGAP label?</p> <p>How do you work with these people? How do you think about the performance of these activities?</p> <p>What do you know about difficulties when working with agricultural products with the VietGAP label? and why?</p> <p>Who or what are responsible for those difficulties?</p> <p>What would help to remove these difficulties? and how?</p> <p>What are your customers' views of VietGAP products? How do you ensure the quality of your VietGAP products? How do you promote these products?</p> <p>How do you monitor and evaluate the VietGAP products range? Do you source all VietGAP produce or only some product types? If so, why?</p> <p>How well is VietGAP working for your firm?</p> <p>What do you know about why some farmers</p>

	<p>apply/not apply VietGAP? What do you see about roles of other actors related to VietGAP? and why? What else do you want to talk about agricultural products with VietGAP?</p> <p>Who else should I interview?</p>
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IV: Interview guideline for collectors and wholesalers (modified one for value chain actors)

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
1. To understand contextual information - Position, Responsibility	<p>What are you marketing? How long have you been in this position?</p> <p>What are your main responsibilities?</p>
2. To understand the context that lead to introducing agricultural products with VietGAP label	<p>What do you know about agricultural products? (description of value chain) What agricultural products are you working on? What do consumers pay attention to when they choose to buy agricultural products?</p> <p>What do you know about agricultural products with the VietGAP label? Are you involved in VietGAP or the sale of products with the VietGAP label? If not, why not? If so, what products?</p> <p>Can you tell me why you are involved in the sale of VietGAP products? When were the agricultural products with the VietGAP label introduced to your business? what way?</p>
3. To understand how supermarkets and	What types of agricultural products with the VietGAP label are you working with? Can you tell

<p>agribusiness firms work with agricultural products with VietGAP label, and how to improve this situation</p>	<p>us how VietGAP products are sourced and who is involved? Can you tell us how you sell VietGAP products and who is involved in this process?</p> <p>Who do you work with when you are buying and selling agricultural products with the VietGAP label?</p> <p>How do you work with these people? What do you think about the performance of these activities?</p> <p>What do you know about difficulties when working with agricultural products with the VietGAP label? and why?</p> <p>Who or what are responsible for those difficulties?</p> <p>What would help to remove these difficulties? and how?</p> <p>What are your customers' views of VietGAP products? How do you ensure the quality of your VietGAP products? How do you promote these products?</p> <p>How do you monitor and evaluate the VietGAP products range? Do you source all VietGAP produce or only some products types? If so, why?</p> <p>How well is VietGAP working for your firm?</p> <p>What do you know about why some farmers apply/not apply VietGAP? What do you see about roles of other actors related to VietGAP? and why? What else do you want to talk about agricultural products with VietGAP?</p> <p>Who else should I interview?</p>
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V: Interview guideline for input suppliers (modified one for value chain actors)

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
1. To understand contextual information - Position - Responsibility	What are you supplying? How long have you been in this position? What are your main responsibilities?
2. To understand the context that lead to introducing inputs with VietGAP	What do you know about agricultural inputs? What type of agricultural inputs are you selling? What do you know about VietGAP? Are you involved in VietGAP or the sale of inputs for farmers who are growing VietGAP compliant vegetables? If not, why not? If so, what inputs? When did you start supplying inputs for VietGAP farmers? in what way?
3. To understand how firms work with VietGAP-related inputs	Can you tell us how you buy and sell VietGAP-related inputs? Who do you work with when you are buying and selling VietGAP-related inputs? How do you think about the VietGAP-related inputs? What do you know about difficulties when buying and selling VietGAP-related inputs? and why? Can you tell me what do farmers have to do when they apply to VietGAP? What do you know about why some farmers apply/not apply VietGAP? What do you see about

	<p>the roles of other actors related to VietGAP? and why? What else do you want to talk about VietGAP-related inputs?</p> <p>Who else should I interview?</p>
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VI: Interview guideline for VietGAP farmers

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
1. To understand contextual information	<p>What are you farming?</p> <p>How long have you been operating your farming?</p> <p>Farming system? And main crops? Marketing system? Key products?</p> <p>How do you think about your farming? What agricultural products do you have? What do you do with these products?</p> <p>What would help you get more benefits from these products?</p>
2. To understand the context that lead to applying VietGAP	<p>Are you involved on producing VietGAP products? Why? Which products?</p> <p>When does VietGAP introduce to you?</p> <p>What do you farm before VietGAP introducing to you?</p> <p>What do you think you have changed after you apply VietGAP? and why? What changes have you had to make to your system to produce VietGAP products? and why? who and what was</p>

	<p>important in helping you make this change?</p> <p>What are you asked to do when you apply VietGAP?</p>
3. To understand status of adopting VietGAP how current situation of adoption of VietGAP can be improved	<p>What could have been improved to make this change easier for you? Has the way you market/sell your produce changed as a result of developing VietGAP? How/why? Who/what has been important in helping you make this change?</p> <p>Are you happy with your change to VietGAP products? What are reasons that make you apply VietGAP?</p> <p>What activities are you following when applying VietGAP? Who do you work with when applying VietGAP in your farming? and why?</p> <p>How do you work with these people? How do you think about your work with those people?</p> <p>What do you think about benefits and drawback when applying VietGAP? What do you think about difficulties when applying VietGAP? Who or what are responsible for those difficulties? and why?</p> <p>What would help you better adopt VietGAP?</p> <p>What do you think about why some farmers apply/not apply VietGAP? What else do you want to talk about adopting VietGAP?</p> <p>Who else should I interview?</p>

VII: Interview guideline for dis-adopted VietGAP farmers

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
<p>1. To understand contextual information of interviewees</p> <ul style="list-style-type: none"> - type of farming - experience of farming practices 	<p>What are you farming? How long have you been operating your farming? How do you think about your farming? What agricultural products do you have? What do you do with these products? What would help you get more benefits from these products?</p>
<p>2. To understand the context that lead to applying and giving up VietGAP</p>	<p>When does VietGAP introduce to you? What did you farm before VietGAP was introduced to you? What do you think you have changed after you applied VietGAP? and why?</p>
<p>3. To understand the status of adopting VietGAP, reasons for not giving up VietGAP, and how current situation of adoption of VietGAP can be improved</p>	<p>What activities had you followed when applying VietGAP? Who did you work with when applying VietGAP in your farming? and why? How did you work with these people? How do you think about your work with those people? What do you think about benefits and drawbacks when applying VietGAP? Why do you not continue applying VietGAP? Who or what are responsible for those reasons? and why? What would help to make you to apply VietGAP again? What do you think about why some</p>

	<p>apply/not apply VietGAP?</p> <p>What else do you want to talk about not adopting VietGAP? Who else should I interview?</p>
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VIII: Interview guideline for non-VietGAP farmers

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

Asked topic areas and purposes	Some guided questions
1. To understand contextual information - type of farming, - experience of farming practices	<p>What are you farming?</p> <p>How long have you been operating your farming?</p> <p>How do you think about your farming?</p> <p>What agricultural products do you have?</p> <p>What do you do with these products?</p> <p>What would help you get more benefits from these products?</p>
2. To understand the context that lead to not applying VietGAP and how to improve this situation	<p>What do you know about agricultural products with VietGAP label?</p> <p>What are the reasons that make you not apply VietGAP in your farming?</p> <p>Who or what are responsible for those reasons?</p> <p>What would help you to apply VietGAP?</p> <p>What else do you want to talk about VietGAP?</p> <p>Who else should I interview?</p>

APPENDIX B

List of key VietGAP-related documents

No.	Document	Year	Name of documents
1	Decision	28/1/2008	Decision No. 379/QĐ-BNN-KHCN: Promulgating Vietnamese Good Agricultural Practices (VietGAP) for vegetables and fruit.
2	Decision	28/7/2008	Decision No.84/QĐ-BNN: Promulgating regulations on certifying Vietnamese Good Agricultural Practices (VietGAP) for vegetables and fruit.
3	Decision	15/10/2008	Decision No. 99/QD-BNN: Promulgating the regulations on the management of safe vegetables, fruit, and tea production and trading.
4	Decision	9/1/2012	Decision No. 01/QĐ-TTg: Promulgating policies on supporting the application of Vietnamese Good Agricultural Practices (VietGAP) in agricultural production.
5	Circular	26/9/2012	Circular No. 48/TT-BNNPTNT: Guidance on implementing certifying agricultural products complying with Vietnamese Good Agricultural Practices (VietGAP).
6	Inter-circular	16/10/2013	Inter-circular No. 42/TTLT-BNNPTNT-BTC-BKHĐT. Guidance on implementing decision No. 01/2012/QĐ-TTg, dated January 09, 2012 of Prime Minister on policies on supporting the application of Vietnamese Good Agricultural Practices (VietGAP) in agricultural production.

APPENDIX C

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME INFORMATION SHEET

Researcher Introduction

My name is Hung Gia Hoang. I am conducting research for my PhD on how to improve the performance of Vietnamese Good Agricultural Practices (VietGAP) programme in Vietnam. This research seeks to identify and document answers to achieve the insights into improving the performance of the VietGAP programme. A case study of the VietGAP programme for vegetable and fruits will be conducted in Thua Thien Hue province, Vietnam. A documents analysis and semi-structured interview will be used to collect data. A number of research participants will be interviewed that are involved in the VietGAP programme. Three group interviews will be conducted with farmers who can provide potential insights into the performance of the VietGAP programme. Data collection for the research will be undertaken during 2015 and 2017.

The supervisors for my PhD are Dr Janet Reid and Dr David Gray. Both are at the Institute of Agriculture and Environment, College of Sciences, Massey University, Palmerston North, New Zealand.

Our contact details are as follows

Hung Hoang

Phone number: 022 0975875

Email: h.hoang@massey.ac.nz

Dr Janet Reid

Phone number: 06 350 5268

Email: J.I.Reid@massey.ac.nz

Dr David Gray

Phone number: 06 3569099

Email: D.I.Gray@massey.ac.nz

Participant Identification and Recruitment

You are invited to participate in this research because you are identified by me or other participants as someone with knowledge, experience and information about the VietGAP programme likely to be of value to the research. Participants will include individuals involved with VietGAP programme at provincial, district and commune levels.

Project Procedures

With your agreement the interview will be tape recorded to ensure accuracy in data collection and to assist the data analysis process. Interviews and documents will be analysed by using a qualitative data analysis method. Your name and identity will not be stated explicitly in the research. However, your position or official roles may be identified and given the small number of people in certain position in this province, full confidentiality may not be guaranteed. Interviews will be undertaken at a time and location that is agreed to by you. Each interview will be a maximum of 1.5 hours.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- *decline to answer any particular question;*
- *withdraw from the study (specify timeframe);*
- *ask any questions about the study at any time during participation;*
- *provide information on the understanding that your name will not be used unless you give permission to the researcher;*
- *be given access to a summary of the project findings when it is concluded.*
- *ask for the recorder to be turned off at any time during the interview*

Project Contacts

If you have any concerns, please contact me as Hung Gia Hoang or my supervisors: Dr Janet Reid and Dr David Gray

Research Ethic

“This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University’s Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research.

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Professor John O’Neill, Director, Research Ethics, telephone 06 350 5249, email humanethics@massey.ac.nz”.

APPENDIX D

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

PARTICIPANT CONSENT FORM

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to the interview being sound recorded.

I agree/do not agree to the interview being image recorded.

I wish/do not wish to have my recordings returned to me.

I wish/do not wish to have data placed in an official archive.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature:

Date:

Full Name - printed

APPENDIX E

IMPROVING THE PERFORMANCE OF THE VIETGAP PROGRAMME

CONFIDENTIALITY AGREEMENT

I Hung Gia Hoang, agree to keep confidential all information concerning the project: Improving the performance of Vietnamese Good Agricultural Practices from agricultural innovations system perspectives: A case study in Thua Thien Hue province, Vietnam.

I will not retain or copy any information involving the project.

Signature:

Date: