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Contract Farming in Mekong Countries: Best Practices and Lessons Learned

Edited By: Lonn Pichdara *and* Chem Phalla

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Abbreviations

AC	Agricultural Cooperative
AFD	French Agency for Development
AKR	Angkor Kasekam Roongroueng
BAAC	Bank for Agriculture and Agricultural Cooperatives
CACC	Cambodian Agriculture Cooperative Cooperation
CAU	China Agricultural University
CDRI	Cambodia Development Resource Institute
CF	Contract Farming
CIRD	Cambodian Institute for Research and Rural Development
COrAA	Cambodia Organic Agriculture Association
DAI	Department of Agro-Industry
DARD	Department of Agriculture and Rural Development
DOA	Department of Agriculture
DOAE	Department of Agricultural Extension
FGDs	Focus Group Discussions
GDP	Gross Domestic Product
IPSARD	Institute of Policy and Strategy for Agriculture and Rural Development
KIIs	Key Informant Interviews
LMR	Lower Mekong Region
MAFF	Ministry of Agriculture, Forestry and Fisheries
MARD	Ministry of Agriculture and Rural Development
MFA&IC	Ministry of Foreign Affairs and International Cooperation
MLC	Mekong-Lancang Cooperation
MOU	Memorandum of Understanding
MRL	Maximum Residue Limit
NGOs	Non-governmental organisations
PDAFF	Provincial Department of Agriculture Forestry and Fishery
PMUAC	Preah Vihear Meanchey Union of Agricultural Cooperatives
SNEC	Supreme National Economic Council
SRP	Sustainable Rice Platform

Currency Exchange March 2021

CNY (RMB):	1 United States Dollar (USD) = 6.51 Chinese Yuans (or ReMinBi)
KHR:	1 USD = 4058 Khmer Riels
THB	1 USD = 30.72 Thai Bahts
VD:	I USD = 23,053 Vietnamese Dong

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Foreword

CDRI celebrated its 30th anniversary in 2020. It has steadfastly maintained its status as a leading independent development policy research institute in Cambodia, in the region, and beyond. Since its establishment, CDRI has earned a well-deserved reputation from academics, policymakers and development practitioners for high standards of rigour and integrity in its research.

CDRI is deeply grateful for the outstanding support and collaboration of our research and resource partners, especially the Mekong-Lancang Cooperation Special Fund and the Ministry of Foreign Affairs and International Cooperation. Cambodia as a country strongly supports MLC, along with the "Sanya Declaration of the First Mekong- Lancang Cooperation (MLC) Leaders' Meeting" and the "Phnom Penh Declaration of the Second Mekong-Lancang (MLC) Leaders' Meeting" which share the same vision of peacebuilding and sustainable development. The declarations emphasise the importance of promoting dialogue and endorse the practical cooperation with the five key priority areas of the MLC countries: connectivity; production capacity; cross-border economic cooperation; water resources; agriculture; and poverty reduction. This research output responds to the MLC's focus on the connectivity of people to people, capacity building, and poverty reduction in the region.

This book is the major output of a two-year research project titled "Enhancing Research and Dialogue on Contract Farming in Mekong-Lancang Countries". It is the result of close collaboration between the Cambodia Development Resource Institute (CDRI) and project partners: China Agricultural University (CAU); Kasetsart University (Thailand); and the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD) (Vietnam).

After these two years, it gives me great pleasure to present this publication. It is a collection of original research papers and is an output of the Mekong-Lancang Cooperation Special Fund through Cambodia's Ministry of Foreign Affairs and International Cooperation.

The research project explored and documented best practices, successes, failure factors, and lessons learned from each country and provides policy suggestions to improve contract farming in selected crops such as rice, pepper, cashew nut, and fruit. The governments of the four countries - Cambodia, China, Thailand and Vietnam - have promoted contract farming for selling the products of agriculture to the domestic and foreign markets. Contract farming has presented many benefits for farmers, agriculture cooperatives and companies. For instance, access to markets, stable set-prices, and better inputs

such as good quality seeds, and access to credit are some of the main factors and advantages that have led to success in contract farming.

Implementing this collaborative research has allowed researchers to take part in exchange visits across the region. They have learned about contract farming policy and practice through field visits, conferences and workshops. They have also joined together in editing and reviewing publications.

In sum, I am confident that the research results presented in this book deliver insights into some of the most important lessons learned and practices in the region. I am also optimistic that this output will be an asset to attract more interest and perhaps opportunities for a new multi-stakeholder approach to research funding in the region.

Dr Eng Netra
Executive Director, CDRI

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Dr Chem Phalla is currently a Vice President of the National Institute of Diplomacy and International Relations at the Ministry of Foreign Affairs and International Cooperation of the Royal Government of Cambodia. His recent research interests include a significant project investigating livelihoods, climate change adaptation and policy dialogue, and seminar series on water governance. More recently, he led and advised a regional project management programme on water diplomacy, contract farming, the impacts of the climate-change adaption investment programme, as well as training for Southeast Asia and China.

Dr Phalla taught fourth year students undertaking water resources and ecological engineering studies at the Institute of Technology of Cambodia, as well as second year students in research science, and third year students on development theory at the Royal University of Law and Economics. Dr Phalla is also one of the certified regional trainers on Sustaining River Basin Ecosystems in the Context of Hydropower Development. He was a lead trainer for many training courses on the Physical and Social Aspects of Sustaining the River Basin Ecosystems of the Hydropower Development in the Southeast Asia region. He has published more than 20 policy and academic-related papers in Cambodia.

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Dr Lonn Pichdara was the Director of the Centre for Natural Resources and Environment at Cambodia Development Resource Institute (CDRI). Dr Pichdara recently led a regional research project on water diplomacy supported by the Mekong-Lancang Cooperation and conducted a three-year impact evaluation study on climate change programmes relating to poverty, vulnerability and gender with Cambodia's Ministry of Rural Development and the UNDP Bangkok regional hub.

Dr Pichdara obtained his Master's and Ph.D. degrees in Forest Management from Kyushu University, Japan, in 2012 and 2018. His areas of research interest are mainly agriculture, forests, community-based natural resource management, forest dependents, fishery resource dependents, water governance, climate change, clean energy, green development, and other environmental and natural resource issues in Cambodia and the wider region. He has published research articles in many international journals covering ecological economics, forests, water and sustainability.

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Dr Nguyen Anh Phong, Director of the Centre for Agriculture and Rural Development Information, Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD)

Dr Nguyen Anh Phong has a Ph.D. in Agricultural Economics, from Tamil Nadu Agricultural University, India, and a Master's degree in Rural Development Management from Khon Kean University, Thailand. He has 24 years of experience in agricultural research, taking a leadership role as the project manager and team leader for various projects and research funded by the Vietnamese government and international organisations, such as the World Bank, the United Nations Development Programme, the Asian Development Bank, the International Food Policy Research Institute, and the Food and Agriculture Organization of the United Nations. He has expertise in conducting policy analysis and policy development in agriculture and rural development. Recently he has focused on public-private partnerships, investment promotion, agribusiness development, hi-tech application agriculture and e-agriculture, among other topics. Acting as the team leader in this study, Dr Phong was responsible for managing and monitoring the research activities as well as for finalising the report.

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Dr Pham Thi Ngoc Linh is the Director of the Scientific Management and International Cooperation Division of IPSARD. She holds a Bachelor's degree in agricultural economics from Hanoi Agricultural University; a Master's degree in Development Economics from the Vietnam-Netherlands Programme for MA (National Economics University – Hanoi, Vietnam, and the Institute of Social Studies - The Hague, the Netherlands); and a Ph.D. in agricultural economics from the University of Western Australia. She has more than 20 years' experience in research and consultancy in agricultural policy. She has specialised in development and agricultural economics, including economic modelling, agricultural trade and integration analysis, and economic institutions in the agriculture sector. In this study, Dr Linh reviewed the application of contract farming and support policies in Vietnam.

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Ms Le Ngoc Minh is an expert in public policy analysis with nearly 20 years of experience in the agricultural and rural sector. She graduated with a Master's degree from the Institute of Social Studies in the Netherlands, specialising

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Ms Ta Thu Trang has a Master's degree in Public Policy and Management from the Institution of Social Studies in The Nertherlands and she has more than 12 years' working experience in agriculture and rural development. Ms. Trang has engaged in many development projects with key positions as team leader and key researcher. She has expertise in in conducting policy analysis and policy development in agriculture and rural development, dealing with issues of public-private partnership, investment promotion, agribusiness development, hi-tech application agriculture, e-agriculture, etc. In this study, Ms. Trang focused on analysing contract farming application in the vegetable sector to contribute to the final report.

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Ms Nguyen Thi Hong Thanh completed her Master's degree in International and Development Economics at the Australian National University in 2015. With more than 10 years of experience in agricultural research, she has been involved in several projects and research exercises funded by the World Bank, the Asian Development Bank and the Food and Agriculture Organization of the United Nations. She has outstanding expertise in trade and market analyses of agricultural products as well as logistics services for agriculture development. Additionally, specialises in advanced data analysis techniques (Excel and Stata) and has skills in research fieldwork to investigate problems and propose policy recommendations. In this study, Ms. Thanh conducted data analysis and wrote the report on the successes and failures of contract farming application in the rice sector.

Chapter 1
Overall Introduction

Lonn Pichdara and Chem Phalla

1.1. Background

Despite the growth in the industrial and manufacturing, services and tourism sectors, agriculture remains the backbone of the national and rural economy, especially for poor households. However, the agricultural value chain is fragmented, and the markets for agricultural produce and inputs are still unreliable in terms of demand, price, quality and terms of payment, etc. It was believed that smallholders should have benefited more from agriculture and contract farming. But those benefits were highly sensitive to the specific products, firms, communities and contractual specifications involved (Bijman 2008).

When it comes to a global pandemic, food security, and the inclusive development of smallholder farmers, we must learn and adapt to the best practice in building market connections, smallholder effort for building bargaining power, and economy of scale (Gerda Verburg 2015).[1] We have to understand what does work and what does not, and how contract farming and smallholders can secure sufficient food for the future and more inclusive development.

With the financial support from MLC's special fund, administered by the National Secretariat of the Mekong-Lancang Cooperation and the Ministry of Foreign Affairs and International Cooperation (MoFAIC), Cambodia, the Cambodia Development Resource Institute (CDRI) collaborated with research organisations and their researchers from four countries - Cambodia, China, Thailand, and Vietnam - along with the Department of Agro-Industry (DAI) and the Ministry of Agriculture, Forestry and Fisheries (MAFF), Cambodia, to conduct four case studies and relevant policy dialogue and dissemination from 2018-2020.

The research partners included the China Agriculture University, Thailand's Kasetsart University, and the Institute of Policy and Strategy for Agriculture and Rural Development of the Ministry of Agriculture and Rural Development (MARD), Vietnam.

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1 Gerda Verburg 2015. How we can help smallholders feed the world, *Committee on World Food Security (CFS)*.

Contract farming (CF) has been defined as a sales arrangement between a farmer and a firm, agreed upon before production begins, which provides the farmer with resources and services (Ton *et al*. 2018). The FAO (2012) has identified CF as "an agricultural production system carried out according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product or products. Typically, the farmer commits to provide agreed quantities of a specific agricultural product" (FAO 2012, 1). However, "agreements are made on volume, quality, timing of delivery of the product, use of inputs, and price or pricing formula, which account for future market prices" (Otsuka, Nakano, and Takahashi 2016, 354).

1.2. Introducing countries' case studies

The research project on "Contract Farming in Mekong Countries: Best Practices and Lessons Learned" aims to identify the factors determining success and failure by assessing the existing policies and practices in supporting contract farming in Cambodia, China, Thailand and Vietnam.

The research design relied on a comparative case study with multiple stakeholders and levels because contract farming is a complex process involving numerous dimensions, so it is difficult to look at one in isolation (Jordaan, Grové and Backeberg 2014). In addition, this approach allowed the study team to conduct an in-depth observation, because contextualisation through qualitative analysis enables a research team to talk directly to people and observe their activities within their specific context, thus identifying the complex interactions in areas of interest (Creswell 2012).

Each country's case study asked the same questions to gain an insight into the issues and lessons learned relating to contract farming:

- What are the different types of contract farming?
- What are the lessons learned about conflict resolutions from practical experiences in contract farming?
- Why do some specific contract arrangements provide more benefits to farmers than others?
- What are the factors that determine the success or failure of contract farming implementation?

All four case studies focused on diverse crops and locations as presented in the Table below:

Table 1.1: Types of crops and study locations

Countries	Types of crop	Province
Cambodia	Rice	• Preah Vihear, Kampong Thom, and Kompong Speu
	Pepper	• Kampot, Mondulkiri, Preah Vihear
	Cashew nut	• Preah Vihear, and Kompong Thom
China	High-quality rice	Guangxi Zhuang Autonomous Region: • Lingshan County and Qinzhou City
	Vegetables	Guangxi Zhuang Autonomous Region: • Lingshan County and Qinzhou City
	Fruits	Guangxi Zhuang Autonomous Region: • Bangliang trademark and Shili Industrial Park (Lingshan County)
Thailand	Rice	• Chiang-Rai, Phayao, Ubon Ratchathani, Sisaket, and Surin provinces
	Banana	• Phetchaburi, Pathum Thani, and Nakhon Ratchasima provinces
	Asparagus/baby corn	• Nakhon Pathom and, Ratchaburi provinces
Vietnam	Rice	An Giang province
	Mango	Dong Thap province
	Vegetables	Lam Dong province

Each case study team reviewed relevant literature related to their country's contract farming by focusing on the associated arrangements, implementation, challenges, conflict resolution mechanisms, and best practices. The government law and policies related to agriculture, specifically contract farming, were also extensively reviewed.

Each study team collected primary data using key informant interviews (KIIs) and focus group discussions (FGDs). KIIs were conducted with the companies at their offices and at field level, while FGDs were conducted with representatives from the local authority and agricultural cooperatives (ACs), or with association committee members and farmers.

Tools for the case study were semi-structured questionnaires. The research team integrated all qualitative data into NVivo (qualitative analysis software), gleaned from both KIIs and FGDs, for analysis according to specific themes.

The study has some limitations. Each country's case study was based on the official database, which included only formal contract farming agreements (certified and recorded by government officials); so researchers relied on government authorities to select study sites or to choose agriculture cooperatives.

1.3. Structure of the book

The book synthesises a large volume of data and findings collected from a comprehensive literature review, a series of empirical studies, and participatory research activities at local, subnational and national levels. Following this introduction, the book is divided into four main parts:

Chapter 1 is this current chapter introducing the background, objectives and methodologies applied in all four case studies.

Chapter 2 provides the case study by the Cambodian team, Chapter 3 covers the case study in China, Chapter 4 focuses on Thailand and, finally, Chapter 5 provides the case study of Vietnam.

Finally, Chapter 6 provides a regional synthesis of key findings, lessons learned and recommendations.

Chapter 2

Contract Farming in Cambodia

Chhim Chhun, Keo Socheat, Roth Vathana, Lonn Pichdara
and Chaing Marong

Abstract

Although Cambodia has gradually transformed its economy from an agriculture base to focus more on manufacturing and service, agriculture remains a resilient sector, especially in absorbing shocks such as the past financial crisis of 2008 and the recent Covid-19 pandemic in 2020. Among 15.3 million Cambodians, 75 percent live and work in rural areas, with agriculture as their primary source of income, producing enough to support food security, with surplus production for export to international markets. The government of Cambodia is active in policy intervention in two directions. First, it aims to increase productivity by introducing new technology, farm inputs and post-harvest support. Second, the government expands international markets for exporting surplus products. Both farmers and private companies welcome such policy intervention. Ideally, contract farming is a mechanism that helps to resolve market-related problems. For this study, the research team selected the crops of rice, pepper and cashew nut to analyse contract farming practice.

Types of contract farming

There are two types of contracts: a production contract and a market contract. However, this study focuses primarily on a production contract, which is an agreement between farmers and private companies, and enables the latter to contribute to the production in terms of land provision, farm inputs and technology, to produce an agreed amount and quality of the product.

As defined in the previous Chapter, contract farming is an agricultural production system carried out according to an agreement between buyers and farmers, which establishes conditions for production and marketing of a farm product or products: Cambodia has been implementing contract farming arrangements since the 1950s. However, in those days it was very modest, and such an agreement was mainly verbal. Until after the first election in 1993, the government encouraged private companies to participate in agricultural production and exports.

Rice, pepper and cashew nut are some of the major export commodities from Cambodia to international markets. The rice export companies have played a crucial role in providing production and export facilities such as research and extension, rice mills, and quality assurance through state-of-the-art technology.

The second export commodity for contract farming is pepper from Kampot, Tbaung Khmum, and Mondulkiri provinces. Similar to rice commodities, the contract farming companies who bought pepper from farmers focused on the quality suitable for export. The third commodity for contract farming is cashew nut from Kompong Thom and Preah Vihear provinces. The private companies arrange contract farming with farmers through agricultural cooperatives without the involvement of a third party.

A formal contract farming arrangement, which involves a third party, is needed. Both parties in the agreement need such a formal contract, with a third party witnessing the implementation. They need the local authority and the provincial agricultural department to create a formal contractual arrangement. In many instances of conflict, the companies negotiated with farmers to resolve disagreements. However, when both parties cannot resolve a dispute by themselves, the matter is taken to higher levels of authority, including district, provincial, and national levels.

Factors that support success include precise contractual arrangements, trust, and the involvement of a third party. Contractual agreements made directly between the companies and farmers, without a third party, are less effective.

Building trust between the companies and farmers through agricultural cooperatives or associations is the key to a favourable outcome. Fair price negotiation and on-time payment also contribute. Other factors include financial support for inputs, and technical support for growth that would help farmers to produce a good yield to meet the supply demand.

This research found evidence suggesting how future policy relating to contract farming, and its implementation in Cambodia, could be improved:

- Contract farming helps to increase a farmer's income and living conditions. To sustain this development, MAFF, as a policymaker and regulator, has to assist in the process of formal or informal contract arrangements between farmers and companies. The assistance of MAFF and its local departments helps to ensure that each party, transparently and amicably, sets the terms and conditions of the contract; it also

intervenes in the monitoring of the contract implementation and conflict resolution.

- A formal contract farming arrangement is ideal. But it is not enough; the government agencies should introduce incentive mechanisms to encourage companies to support farmers to adopt contract farming.
- The government has limited technical and financial resources. However, it can fill these resource gaps by promoting more public-private partnerships. Such a partnership would deliver benefits to all parties: the government; companies; and farmers.
- Agriculture cooperatives play a crucial role in the arrangement of contract farming. But members of an agricultural cooperative can have limited capacity. The government needs to strengthen capacities so that agricultural cooperatives can contribute more effectively to contracting farming.
- MAFF's Department of Agro-Industry takes a lead role in contract farming management. It plays a crucial role in policymaking and facilitates the contract farming arrangements. The government should allocate more financial resources to this department at both national and provincial levels so that they can carry out their tasks effectively.
- While implementing contract farming, there is a need for a conflict resolution mechanism.
- Although the companies have been providing some technical support, farmers need a clear standard or instructions in how to apply fertilisers and pesticides to the field.

2.1. Introduction

Agriculture is an important sector, or represents a comparative advantage of developing and low-income countries, and its first contribution to sustainable economic growth is that it ensures food security (World Bank 2008). In Cambodia, there has been a significant transformation in the country's economic structure during the last three decades: it has moved from an agrarian economy in the early 1990s to one that is labour-intensive, manufacturing- and service-based in 2020. The share of agriculture as an employment sector decreased from 74.8 percent in 1998 to around 30.4 percent in 2018, according to the World Development Indicators in 2019.

The Cambodia population is around 15.3 million (RGC 2019a), of whom 25 percent live in urban, and 75 percent in rural areas (RGC 2019b). Most rural populations rely on agriculture for their livelihoods, and agriculture is still a vital sector in the Cambodian economy. The agricultural sector constituted a quarter of the economy, even though this figure decreased a little during the five-year period from 2014 to 2018 - from 30.7 percent to 23.5 percent, respectively (MAFF 2019).

Relatively, for the whole agricultural sector, the crop subsector was responsible for the highest proportion of distributable production: 59.4 percent in 2014 and 58.1 percent in 2018. And it is the leading food provider for most Cambodians. In the previous decade (2010 to 2020) rice farming accounted for 75 percent of the total cultivated area of agriculture land, while that of other crops and vegetables was only 25 percent (ibid.).

The paddy yield of Cambodian farmers is on average 3 tonnes per hectare per year. For the last ten years, the country produced a surplus of paddy: around 4.72 million tonnes, equal to 3.02 million tonnes of milled rice, per year. The exportation of milled rice increased from 387,061 tonnes in 2014 to 626,225 tonnes in 2018 (MAFF 2019). However, a considerable amount of remaining paddy has been traded informally to neighbouring countries, especially to Vietnam (Chhim, Theng, and Nou 2020).

Cambodia's agriculture thus remains instrumental to development, mainly in rural livelihood improvements because the majority of rural livelihoods rely on this sector, which is predominantly characterised by small-scale subsistence crop farming (Rigg, Salamanca, and Thompson 2016). Hence, for Cambodia to achieve the goal of self-sustainable and inclusive growth, there is a need for a shift from subsistence farming to a more productive and commercialised agricultural sector – agricultural transformation (Timmer 1988).

2.1.1. Problem statement

From a policy point of view, to enhance the livelihood-improvement effects of agricultural development, the government should encourage employment generation and market access to rural smallholder farmers (Christilansen and Devarajan 2013; Ravallion 2001). Then, smallholders should be consolidated and become more entrepreneurial through the adoption of improved farm technology, including input use and post-harvest technology, to meet the standards set by agribusiness as well as the requirements of exporters or processors (Reardon *et al*. 2019). For example, farmers should be well aware of business ethics, and seek more technical and financial support (e.g., to cover inputs, appropriate technology and credit) to comply with the companies' requirements. To this end, contract farming (CF) is a mechanism that could help to resolve the market-related problems facing farmers, and overcome bottlenecks in the agricultural value chain especially in production and collection/processing.

Cambodia's contract farming remains in its infancy. The country's agricultural value chain is fragmented, and the markets for agricultural produce are still unreliable – in terms of price and demand

2.1.2. Significance and potential contribution of the study

The arrangements for CF in Cambodia are conducted on a formal and informal basis. The stakeholders include private companies, rice millers, middlemen and farmer organisations (Sokchea and Culas 2015). Despite having a positive effect on farm productivity and local income, Cambodia's CF has yet to be widespread and inclusive, and this requires more effort from all parties concerned (Cai *et al.* 2008). The government of Cambodia considers CF essential for rural livelihood improvements through agricultural development (e.g., the sub-decree on CF in 2011). However, it is hard to identify the modalities of CF that would work best in Cambodia. Some studies have estimated the impact of contract farming, but they focus on only one crop and use small-scoped case studies (Cai *et al*. 2008a; Social Action for Change 2011; Sum and Khiev 2015; Sok 2018; Phat 2018; Meaning and Brun 2018; Nou and Heng 2020). Thus, in an attempt to contribute to agricultural development policies for rural livelihood improvement through contract farming, this study intends to address various essential questions that are spelled out in Section 1.2. Some specific information about the methodology and approach are provided below:

Desk review

This research reviews the literature covering previous studies related to contract farming in Cambodia, which focus on the arrangement, implementation, challenges, conflict resolution mechanisms, and best practices. Cambodian government policies related to agriculture, specifically contract farming, have also been reviewed. The desk review helped to formulate the design of the primary data collection plan and tools.

Data collection, tools and analysis

Data was collected using key informant interviews (KIIs) and focus group discussions (FGDs). KIIs were conducted with the company at management and field level, while FGDs were conducted with AC committee members and farmers. The period of data collection was November 2018 until July 2019. (For details, see section 1.2.)

Expert consultation

Consultation meetings were conducted with various stakeholders who had work related to contract farming, including government ministries, representatives from private companies, development partners and NGOs, both at the national and sub-national levels.

The research team conducted three consultation workshops to seek inputs and to consult about the study findings and policy discussions. The first workshop took place in Siem Reap town in June 2018 to gather inputs from agricultural experts (about 40 participants). The second consultation workshop was held in Phnom Penh in January 2019 with about 150 participants, including the provincial departments of agriculture from 25 provinces, ministries, and representatives from the private sector, development partners and NGOs. The objective was to discuss the current status of contract farming in Cambodia, and to identify central issues and challenges in terms of the regulatory and business environment when CFs are implemented. The third workshop was conducted in Phnom Penh in February 2020, with about 30 participants from ministries, the private sector and NGOs, as well as members of agricultural cooperatives. The main objective of the workshop was to bring policymakers, practitioners, scholars and academics, and relevant stakeholders together to discuss research findings, issues and challenges as well as to find ways to improve contract farming in Cambodia.

The final dissemination and consultation workshop was organised on 24 August 2020 at CDRI with participants from the four regional research partners and distinguished academic and policy makers in their respective countries.

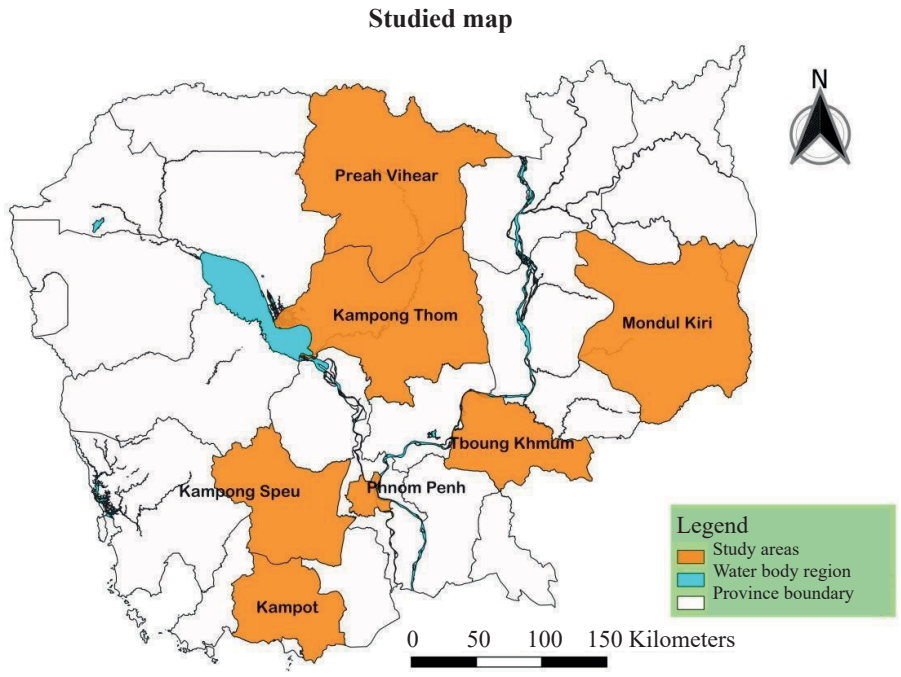
2.1.3. Crops and sites selection

A case study is the primary research method for this research. According to the administrative data from DAI-MAFF 2018, crops - rice, pepper and cashew nut – tend to be those covered by contract farming arrangements implemented in the country; that is why these three crops were selected for the in-depth case studies. The Table below shows the chosen crops, companies, and sites studied.

Table 2.1: Crops, companies and provinces studied

Studied crop	Name of company	Province
Rice	Amru Rice	Preah Vihear, and Kampong Thom
Rice	Kasekam Rung Roeung	Kampong Speu
Pepper	Farmlink	Kampot
Pepper	FUCHS	Tbong Khmom
Pepper	Signatures of Asia	Mondul Kiri
Cashew nut	IVY /CACC	Preah Vihear
Cashew nut	En Layhour	Kampong Thom

Figure 2.1: Map showing areas for data collection



2.1.4. Typology of CF in Cambodia

There are several types of contract arrangements in agriculture, but these are currently divided into two broad categories: Production Contracts (PC) and Market Contracts (MC). In the former, "farmers typically provide land, labour and equipment, whereas the contractor provides key inputs in terms of credit and technical assistance in return for the delivery of an agreed-upon quantity and quality of the product, usually at a predetermined price. Thus, the contractors strictly control the production and farm management decisions under the agreement".

The latter stipulates that, "the autonomy of production is largely left to the growers, and the contract terms specify the quantity and quality of the delivered commodity at a future date, at either a predetermined price or using a pricing formula" (Otsuka, Nakano, and Takahashi 2016, 354). Since our primary purpose is to investigate how CF could help smallholder farmers to improve production efficiency and income, we have excluded MC because the arrangement does not specify material inputs and technological transfers to contracted farmers. We have also excluded contracts involving forward sales and price hedging and those that contain no, or little, service-provision from production to harvest and delivery. Likewise, we follow Ton *et al*. (2018, 48) in excluding contracts involving certification and fair trade.

The following points characterise smallholder farmers.

- They produce relatively small yields on a relatively small plot of farmland.
- They lack material inputs and technological know-how.
- They are generally less commercially oriented.
- They tend to rely mainly on family labour, even though they might occasionally hire workers.
- They generally lack market information, making them vulnerable in the supply chain.

In our study, we define smallholder farmers as households who own farmland that is less than 5 hectares in size. Lowder, Skoet and Raney (2016) distinguish between "small farms" and "family farms", defining the former based mainly on farm size and the latter on other characteristics. We, however, use the two interchangeably.

2.1.5. History of contract farming in Cambodia and the rationale behind the study

CF was practised in Cambodia in the 1950s through informal arrangements – verbal agreements or without official or legal documents signed by the firms and the farmers or farmer associations (Sreymom and Khiev 2015). Later, during the dark period of 1975-1979, all economic infrastructure, formal associations, and markets were demolished. The country was still unstable after the collapse of the regime between 1979-1989 (SAC 2011). The government established a sub-decree number 36 on CF in 2011. Yet, since then, there have been few activities or formal practices relating to CF because it requires many complicated legal steps and procedures (Cheng 2016; RGC 2011). However, a new policy covering Cambodia's 1-million tonne exports of milled rice, issued in 2015, has helped to increase the number of CF arrangements. This new policy is a useful tool in guaranteeing the market and price for the small- and medium-farmers, which has ultimately helped to provide higher incomes and to reduce poverty (Sreymom and Khiev 2015).

Between 2013 and 2018, 80 formal CF agreements (mostly relating to rice) were reached between farmer organisations (SNEC 2018c) that were mainly agricultural cooperatives (ACs), and a few Farmer Water User Communities (FWUCs) and rice millers or exporters (SNEC 2018a). There are no recorded numbers of informal CF agreements in Cambodia.

Two different CF models - informal and formal - are practised at the community level (SAC 2011; Sum and Khiev 2015). "Informal" CFs comprise verbal agreements between individual farmers and individual contractors. The "formal" cover agreements involving three parties namely the: 1) farmers/ACs/FWUCs; 2) government representatives e.g., the Department of Agricultural Industry (DAI); and 3) firms/contractors.

In the case of Cambodia, a study on CF agreements covering rice showed that CF might be able to help subsistence farmers in remote areas - where land is less contaminated – to develop into independent commercial farmers (J. Cai *et al*. 2008).

Cambodia faces constraints because of a lack of documents on best practices and lessons learned in the CF to share among relevant stakeholders and farmers. This study aims to cover other types of crops and reveal why certain kinds are more successful than others for formal CF agreements in Cambodia.

2.1.6. Some main constraints and solutions relating to contract farming in Cambodia

From the literature review, the following have emerged as key constraints to CF in Cambodia.

2.1.6.1 Access to finance and credit

Accessing finance is the main hindrance for the rural poor in general and for CF in Cambodia in particular due to lack of collateral. The Rural Development Bank of Cambodia (RDB) provides a credit package for CF that still presents a high-interest rate (SNEC 2018c). Payments from contractors to farmers/ACs have also been slow, which has made it difficult for farmers to access capital to invest back into their farms (CDRI 2020). Improving access to finance and more timely payment for the farmers/ACs is one of the strategies suggested for improving CF in Cambodia.

2.1.6.2 Quality seed

The better the seed, the better the product. High-quality seed is the primary element in producing a high-quality product for the CF collaborators and the firms. But quality seed is costly. There are grades of products, and the price points reflect those grades. The contractors usually provide poor seeds that result in low germination (CDRI 2020; Sum, Sreymom; Khiev 2015). The Royal Government of Cambodia and other relevant stakeholders should invest more in R&D with the aim to produce high-quality seeds for farmers at a more competitive price.

2.1.6.3 Complicated legal steps and procedures

A formal CF agreement is very encouraging, but it faces many constraints such as legal, knowledge-intensive document preparation between the parties (farmers, firms and the government) (Cheng 2016). Simplifying the legal procedures in completing a CF agreement is urgently required, and the RGC should train local authorities, e.g., commune councils or members of the AC/FO, in the right procedures in forming and operating CF. Making lawyers accessible to local communities for CF consultation is a high priority.

2.1.6.4 Lack of knowledge among key players

CF agreements are all about law, regulations and procedures. There is a need for more dissemination of relevant technology (knowledge and tools) and capacity building relating to CF. The Department of Agro-Industry (DAI), MAFF and their provincial departments and offices, or relevant NGOs, should increase their support in building the capacity of local farmers, firms

and governmental institutions themselves, so that everyone understands the concept and the procedure of CF and all have a common understanding about it and its practices.

2.1.7. Contract farming law and policies in Cambodia

The agricultural sector has been the Cambodian government's main priority during all of its mandates since the first election in 1993, in both the development agenda and strategies (Theng and Koy 2010). Table 2.2 below shows the development plans and development strategies of the Cambodian government according to its mandates.

The government has planned to formulate a contract farming law during its sixth mandate - 2018-2023 - and has committed to this in RS-IV and NDSP-IV (RGC 2019b).

Table 2.2: Mandate, development plans and strategies of the Cambodian government

Mandates	Development agenda	Development strategies
First: (1993-1998)	National Programme to Rehabilitate and Develop Cambodia (NPRD) in 1994-95	First Socio-Economic Development Plan (SEDP-I) 1996-2000
Second: (1998-2003)	Triangular Strategy adopted in 1998	Second Socio-Economic Development Plan (SEDP-II) 2001-2005
Third: (2003-2008)	The Rectangular Strategy (RS-I)	First National Strategic Development Plan (NSDP-I) 2006-2010
Fourth: (2008-2013)	The Rectangular Strategy (RS-II)	Second National Strategic Development Plan (NSDP-II) updated 2009-2013
Fifth: (2013-2018)	The Rectangular Strategy (RS-III)	Third National Strategic Development Plan (NSDP-III) 2014-2018
Sixth: (2018-2023)	The Rectangular Strategy (RS-IV)	Fourth National Strategic Development Plan (NSDP-IV) 2019-2023

The Royal Government of Cambodia promotes CF as one of the strategies to increase the export of milled rice produced by Cambodian farmers, and, in 2010, it published a policy document on the promotion of paddy rice production and export of milled rice (RGC 2010).

In 2011, a sub-decree (No.36) was signed by the Prime Minister of Cambodia, with four objectives: 1) to strengthen the responsibility and trust between producers and buyers based on the principles of equality and fairness; 2) to ensure the reliability of price, product collection, and the supply of agricultural production, in both quantity and quality; 3) to increase the purchasing, processing, and exporting of agricultural products; and 4) to contribute to national economic development and poverty reduction according to the Royal Government's policies. MAFF has taken responsibility to lead the implementation of the sub-decree, which required another sub-decree (No.78) in 2017 creating a "Coordination Committee for Contract Farming". This is the inter-ministerial collaboration mechanism, consisting of 19 members from 19 ministries and institutions of the government. In 2017, MAFF established a new secretariat for contract farming within the Department of Agro-Industry (under Decision No. 560) and also issued a Circular (No.196) as a guide to implementing CF activities. It has assigned the department of agro-industry to coordinate, facilitate and record all CF implementation in Cambodia. At the sub-national level, all 25 provinces have created a CF sub-committee, of which the provincial government is the head, and all the leaders of departments are the members.

2.2. Results and discussion

This section describes the current situation of contract farming in Cambodia by looking at three crops: rice, pepper and cashew nut. Discussions relating to each type of crop will focus on contract farming arrangements, implementation terms, conflict resolution, the benefit to farmers/enterprise, the factors of success/failure, and the lessons learned.

2.2.1. Contract farming in the rice sector

Angkor Kasekam Roongroueng (AKR) was the first agribusiness firm to implement contract farming in the rice sector in Cambodia, starting in the 1990s (Nou and Heng 2020). According to the founder of the company Mr Chieu Hieng, the company was successful in implementing contract farming between the 2000s and 2010s, during which the number of CF farmers increased from 2,000 to 37,000 farmers (TVK 2010). In 2008, a study was conducted and found that the CF of AKR was a particularly successful case (Cai *et al*. 2008). However, the company's CF ceased to operate in 2017. Another company, named Amru Rice, has been applying CF since 2013. Amru Rice has attracted the highest number of contract farming arrangements in the country (DAI 2018), and was cited as one of

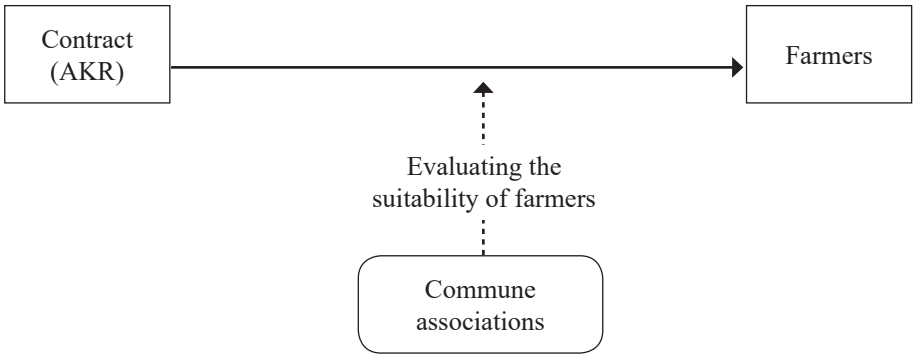
the most successful by the Supreme National Economic Council (SNEC) in 2015[1].

2.2.1.1 Arrangements relating to contract farming in the rice sector

During its early stage, the Angkor Kasekam Roongroueng (AKR) worked directly with farmers, but later realised that it was challenging to gain farmers' trust and to change their attitudes and practices; therefore, the company changed its strategy by seeking support from local authorities at commune and village levels (to assume the role of the third party). To gain farmers' trust, and as a more efficient way to manage contract farming, AKR established "commune associations", comprising the chief and deputy chief of the commune and the village chiefs. The associations had various roles, beginning with helping AKR to persuade and recruit the contract farmers. Commune associations then assisted AKR in evaluating the suitability of farmers in terms of their agronomic conditions and commitment.

The company delivered quality seeds and technical advice to contracted farmers through these associations. During the production stage, commune associations monitor their recruited members and report to AKR on the production process, progress and challenges. In exchange for the services of the commune associations, AKR provided incentives for the commune and village heads (at the rate of KHR30 and 40, respectively, for each kilogram of rice sold by members of their association) (Nou and Heng 2020). Although farmers signed or fingerprinted the contract, the FGDs conducted with former CF farmers, suggested that they had not had possession of the agreement; the company recorded it and kept at their headquarters, i.e., the farmers did not their own copy of the signed contract.

Figure 2.2: Contract Farming AKR and Farmers in Kompong Thom Province



1 SNEC (2015), the project examining support for the commercialisation of Cambodian rice-Presentation Note (p.6)

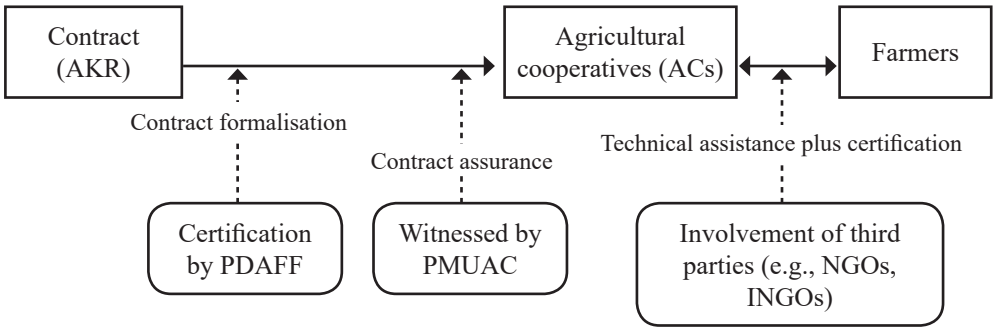
In the case of Amru Rice, from 2013 the company started arranging contract farming with farmers in Preah Vihear province with the support of an initiative called "Support for the commercialisation of Cambodia Rice project" (SCCRP)[2]. According to Meang and Brun (2018), the SCCRP project team has been supporting and coordinating the contract farming arrangements since then. During the first stage of the project intervention, the project team brought together five ACs (with 550 producers) in Preah Vihear province to discuss CF arrangements and implementation with the Amru Rice. They agreed a contract covering local organic varieties of rice, and were supported by the Cambodia Organic Agriculture Association (COrAA) to produce to organic standards (COrAA standards) for the first year.

In 2013, CF farmers produced 600 tonnes of organic rice; however, because of inefficient logistics and poor coordination, only 100 tonnes were bought by the company. Learning from that failure, the CF arrangement was improved and better organised from 2014 to 2017, with the involvement of the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF), Preah Vihear Meanchey Union of Agricultural Cooperatives (PMUAC), and ECOCERT (an organic certification and inspection body). The volume of organic rice and the number of farmers have increased. The quality control was improved and transferred from the COrAA management system to the PMUAC internal control system. ECOCERT verified the organic standard, and worked with PMUAC internal control. PDAFF certified all CF contracts of Amru Rice and ACs, witnessed by PMUAC, and sent documents for the record to the DAI, MAFF, in Phnom Penh. Therefore, it constituted a formal CF arrangement. The contracts clearly stated the terms and conditions of the arrangement.

Figure 2.2 shows the structure of the contract arrangement relating to Amru Rice in Preah Vihear province. First, the company agreed a contract with ACs as the representatives of the farmers. The ACs have a list of members who joined the CF arrangement of their own free will, and members have thumb-printed to commit to produce the rice, as agreed in the contract, with the company. Before signing, the ACs conducted consultation meetings with their members. Third parties involved in this process included PDAFF to certify the contract, PMUAC to witness it, and NGOs to provide technical assistance.

2 The project was financed from January 2013 to December 2017 by the French Agency for Development (AFD), and coordinated by the Supreme National Economic Council (SNEC). The main purpose of the project was to support the National Strategy of Promotion of Paddy Production and Rice Exports which was approved by the government in 2010 (SNEC 2018d).

Figure 2.3: The contract farming process - Amru Rice and ACs in Preah Vihear



Thus, there are differences in the contract arrangements between these two companies. The AKR first contracted directly with farmers and then changed to work with commune associations, using local authority administration; however, the arrangement seemed not to involve agricultural authorities like PDAFF and MAFF. For Amru Rice, third parties supported the process, especially the SCCRP initiative in the early stages. The arrangement seems to have operated smoothly in Preah Vihear province, which was a unique geographical area and had suitable social and political assets for contract farming.

2.2.1.2 Implementation of terms in the rice sector

The AKR company set the terms for implementation including, among other things, that the CF farmers had to purchase seed from them. After having registered with the commune association, the company's staff conducted a soil test to determine its suitability for growing the required rice varieties (fragrant rice), and decided which farmers should join the CF agreement. The AKR staff trained the CF farmers at the initial stage, and monitored and followed up with the farmers at least three times a year. The company bought high-quality rice, and farmers had to transport their paddy rice to them. The company set the price high above the actual market on the day the paddy was purchased from the farmers, and made payments for the individual farmer to pick up at the company warehouse in Angsnol district. During our FGDs, the farmers indicated that they were satisfied with the terms and conditions required by the company. They had learned and improved to the benefit of their rice production.

In the case of Amru Rice, the company, AC and PMUAC jointly set the terms and conditions in the contract. Third parties such as the PDAFF and NGOs, supported by SCCRP, were also involved in the contract arrangements,

and they played an essential role in setting up the terms and conditions of the contract, as well as the roles and responsibilities of the parties concerned. As for the farmers, they were required to produce organic fragrant rice using production inputs that complied with European and US organic standards. They had to record all production activities, to use purified seed, and to sell all product outputs to the buyer in the agreed amount and at the agreed price. They were responsible for the payment of all internal control system management activities, through cooperation with the AC and PMUAC.

The members of the AC committees have played crucial roles in the contract farming arrangements, such as gathering CF members to join the training and also choosing the internal-quality inspectors for monitoring CF activities. Also, the members of AC are responsible for providing related documents from CF members to pass on to PMUAC and PMUAC for internal quality control, and to inform PMUAC if they have any problems. Another responsibility is to facilitate contract farming members to sell their products to the company and to check the quality of their production.

As for buyers (companies), they have to buy the production of CF farmers, as agreed in the agreement. Buyers also provide technical support for PMUAC, to provide bags before harvest, to pay for lodging and transportation from collection places to the company warehouse, to pay for organic application certificates, and also for the external quality control body (ECOCERT). They can complain about the producers (AC) if there are problems or violations.

In brief, the company has set terms and conditions in the case of AKR, and CF farmers have to follow; however, farmers have also agreed, and are satisfied with, set terms. For example, Amru Rice sets terms and conditions with the joint agreement of involved parties - the company, AC and PMUAC - certified by PDAFF. Thus the CF agreement is more formal and robust.

2.2.1.3 Conflict resolution mechanisms in the rice sector

In the case of AKR, there were no precise conflict resolution mechanisms. They stated that only when farmers violated the terms and conditions of the contract would they be punished: for example, they might have to pay back to the company twice the cost of the seed. If a problem emerged, commune and village chiefs were in charge of resolving that conflict. Amru Rice's contract states that conflicts should be resolved through negotiation and consultation. First, the issues had ideally to be resolved by both parties. Second, if both parties could not resolve the problem, they had to bring it to the PDAFF. Finally, if the PDAFF could not find a solution, the case would be brought

to the contract farming committee at the national level. Both parties had to accept the committee decision. The farmers (during the FGD) mentioned that "we don't have any big problem or conflict with the company except for the delay in their payments".

2.2.1.4 The benefit of contract farming to smallholder farmers and enterprises in the rice sector

As for the benefit of CF to farmers, in the case of AKR, they can access the new premium market. This demands a higher price for their paddy production, thanks to the latest market demand for the rice varieties that the company has introduced to the farmers. AKR has also delivered training and ongoing technical support to CF farmers. According to Nou and Heng (2020), in addition, AKR provides secondary benefits to its CF members including access to credit at a low-interest rate, the payment of fees for the services offered to the commune associations, as well as costs for the transportation of rice to the company's office. Farmers also have access to accurate scales to weigh their paddy. CF farmers who participated in the FGD confirmed that they had achieved benefits from CF, such as through increases in household income. Their standard of living was better than it was before they joined CF, their children could go to school, and they could buy items for their family, such as motorbikes and TVs. Some households had built a new house, and the yield per ha had increased.

In the case of Amru Rice, the benefit of CF to farmers included increased annual income per hectare, access to a secure market, access to credit, technical support and technology transfer, and improvements in productivity. FGD participants stressed that "before joining CF, we earned KHR9 million per ha, after joined CF we earned KHR19 million"; "the cost of rice cultivation per hectare is approximately KHR1,100,000, the income is approximately KHR2,400,000, so we earn more than before". On average, CF farmers achieved an annual profit per hectare of approximately KHR1,300,000. Commenting on their access to the market, FGD participants mentioned that "we don't need to worry about the market anymore, and there is no cheating". CF farmers can access MFIs or banks more easily than before. The capital of AC has also increased, so members can easily access and borrow without any collateral. Because of these enhancements, farmers were motivated to produce more and more.

As for the benefit of CF to the enterprises, both companies had been able to increase the volume of their exports, expand their facilities, access the international market, and boost their company brand. AKR had increased

its exports to global markets, especially in the 2000s and early 2010s, and the company has made substantial investments in facilities. Amru Rice had increased the volume it exported to the EU and US markets, especially in the late 2010s, and an increasing amount had been spent on facilities such as warehouses and milling machinery. It had built its brand on the international markets as an organic, milled rice export company from Cambodia, which had been verified by the global organic company (ECOCERT).

2.2.1.5 Factors determining the success or failure of contract farming in the rice sector

SNEC and MAFF have identified the Amru Rice company as an active body in implementing contract farming in rice (SNEC 2018b). Amru Rice reported that CF had helped to increase farmers' income, and that their living conditions were better than before (Amru 2020). Various factors had contributed to this success. First, both parties had followed the terms and conditions stated in the contract. Second, farmers had trust in the leadership of the AC committees, and, because of that, the number of CF members had increased every year. Third, the involvement and commitment of a third party had played a significant role in supporting CF in Preah Vihear province, including the SCCRP initiative, PMUAC, PDAFF, and MAFF - from the grassroots up to the national level. However, some challenges raised by the parties involved included climate change, delays in payment from the company, price fluctuations and speculation by middlemen, labour intensity and labour shortage. Furthermore, some farmers could not produce organic rice to the standard and quantity required, and road conditions could be difficult.

In the case of AKR, the company's CF scheme was also recognised as a success case in the early stages of its development; however, the company had stopped CF activities in the last few years. According to the interview with company's staff, one of the most important reasons was that the company declared bankruptcy in 2017. The staff explained that AKR had invested substantially in its facilities by borrowing from the banks, and the profit from CF was insufficient to cover the company's operation costs and loans. However, a study by Nou and Heng in 2020 found other factors behind the failure of AKR's CF scheme, including the high standard demanded for varietal purity, the strict requirements relating to moisture levels, limited access to high-quality seed, irregular payment for the transportation of paddy to the company, credit constraints and climate variability.

Both companies and farmers had requested the government for help in building infrastructure (especially rural roads) and irrigation systems.

2.2.1.6 Conclusions and lessons learned relating to contract farming in the rice sector

In conclusion, the arrangements relating to contract farming in the rice sector differed. AKR was contracted directly with farmers, working through the commune association without involvement from PDAFF and MAFF; therefore, AKR CF seems not to have worked well. In the case Amru Rice, this did work well because the third parties, including PDAFF, MAFF, NGOs and SCCRP, supported and were involved in the formal CF arrangements. The terms and conditions in the contract were set by the company in the case of AKR, while it was established by a joint agreement in the example of Amru Rice in Preah Vihear province; therefore, the CF of Amru Rice was able to work more smoothly. Negotiation and consultation were the only conflict resolution mechanisms that were set in the contracts in both case studies.

The bankruptcy of the company was the main reason for the failure of AKR's CF. In contrast, third party involvement in the CF process was a major factor in Amru Rice's success in Preah Vihear province.

Even though there are issues in CF implementation, farmers still want to continue CF activities. Both companies and farmers want the government to help in building infrastructure and irrigation systems.

2.2.2. Contract farming in the pepper sector

This case study relies on qualitative data on pepper contract farming collected during CDRI's fieldwork in June and July 2019 in three provinces – Kampot, Tbaung Khmum, and Mondulkiri – which are the significant provinces involved in pepper farming. It is worth noting that pepper is a crop of focus for Cambodia's research report in this regional programme. Data were collected from key informant interviews. The participants who joined in pepper research discussions included leaders of agricultural cooperatives, managers of contracting companies, government officials from the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF), and farmers who were involved in contract farming. This section briefly describes the overview and some of the main characteristics of contracting companies, farmers and agricultural cooperatives.

Dar-Memot Agricultural Development Cooperative is located in Tboung Khmum province. It was established in 2010 and registered in the same year with the Ministry of Agriculture, Forestry and Fisheries (MAFF) through the PDAFF. The Cooperative focuses only on pepper in the contract farming (CF)

scheme. Contract farming relating to pepper involves 100 percent of the 570 farming households. The companies agreed a contract with farmers and the AC without the involvement of the local authorities, thus making it "semi-formal" contract farming. In terms of pricing, there is no fixed price contract. The price varies according to the average market prices. We conducted two focus group discussions (FGDs) with contracted farmers, and key informant interviews (KIIs) with the head of the AC. Most of the farmers had a high school level of education, and the average age was 40 years. Their cultivated land size for CF ranged from 1.5 hectares to 5 hectares, with an average yield of 4,000kg/ha, and they had been involved in the CF scheme for nine years. FUCHS Cambodia is the contracting company that worked with that Cooperative. It is German-owned, and was established and registered in 2018. The company focuses on pepper exports to European countries.

Mondulkiri Organic Pepper Agricultural Cooperative was established and registered in 2017. It has 35 members who are all growing organic pepper for contract farming: this is also the focus of the Cooperative. We conducted an FGD with some member farmers whose average age was 40 years, and the average land size on which pepper for CF was cultivated was 1.7 hectares. The CF share of family income is around 30 percent, but only 60 hectares of pepper production is under contract farming, and this AC has the only CF mechanism in the province (according to the provincial department of agriculture). Farmers can freely participate in CF, but the contracting company will decide whether or not to buy the pepper based on the MRL (Maximum Residue Level) test results. The AC signed the contract with the contracting company to represent the members who sell pepper to the company. Signatures of Asia is the contracting company from America, which exports pepper to the EU market. The Cambodia Research Institute for Rural Development (CIRD) is an NGO that provides technical support for farmers.

Kampot Pepper Promotion Association was a source of information for our case study, and we also interviewed their leader. It was established and registered in 2009 at PDAFF. Two hundred and thirty-nine (239) pepper farming households are participating in this Association, and they are all involved in the CF scheme. The Association signed contracts with farmers to collectively sell the pepper to the contracting company. The total land size devoted to pepper production under this Association's CF is 240 hectares. We conducted an FGD with nine contracted farmers whose main occupation is pepper farming under CF. They were smallholders with less than one hectare of cultivated land for organic pepper, and their annual pepper yield ranged from 100kg to 600kg. Farmlink is one of the contracting companies of this Association. This French

company focuses on buying pepper from smallholders in Kampot, and the main selection criterion is the soil quality for organic pepper. However, it is difficult for the company to evaluate the soil of the large-scale farmers, and frequently those farmers plant their pepper in soil of a low quality.

2.2.2.1 The arrangements of contract farming (emergence and evolution) in the pepper sector

Based on the evidence we collected from our fieldwork, the common arrangements for CF are that the agricultural cooperatives or associations work, and sign the contract, with the companies. That is, given the criteria and guidelines from the contracting companies, the cooperatives select and sign contracts with farmers who are their members. Below are the key points from the arrangement of contract farming by province.

For Dar-Memot, the AC negotiated the deals with the contracting company (FUCHS), and it then signed contracts with farmers who are the members. Farmers who intended to participate in the CF scheme have to be the members of the AC, and the AC approves its members at an annual meeting – farmers must be shareholders of the AC and pay KHR10,000 per month for the membership fee. The AC acts as the facilitator and provides some technical training for farmers. It also assists the company in communicating with farmers if needed. The contracting company will buy pepper if a sample of pepper passes the MRL test. After receiving test results from a laboratory in Vietnam, cooperatives inform farmers whether their samples have passed or failed. The contract can be considered semi-formal by either the AC or the contracting company. The AC and the companies can arrange a semi-formal contract without any involvement from the local authority as the witness. Additionally, FUCHS signed purchase and sales contracts with the Dar-Memot Cooperative without providing substantial technical and financial support (e.g., in terms of improved farm technologies or agricultural equipment).

In Mondulkiri, there is only one contract farming scheme in which the contracting company (Signatures of Asia) signed a buying contract with Mondulkiri Organic Pepper Agricultural Cooperative. And the farmers signed sales contracts with the AC, which distributes the deposited cash to farmers based on the amount of the contracted sale. Also, the AC is the focal point for farmers when the company evaluates the pepper quality at the farm to ensure that farmers produce organic pepper in compliance with standard farm practices. The selection criteria for CF are not strict, according to the head of the AC, because farmers who were interested in, and were able to commit themselves and grew organic pepper, could participate in CF as soon

as AC announced the ideas of organic pepper. However, it is the farmers who are mainly responsible for managing the whole process of organic pepper production. Cambodia Research Institute for Rural Development (CIRD) – the supporting NGO – provided some technical assistance for farmers in producing the organic pepper, such as soil preparation, irrigation management and crop protection from external chemicals. The PDAFF witnessed the contract between the company and the Cooperative.

The Kampot Pepper Cooperative and Association fundamentally promotes Kampot pepper, well known for its premium quality and traditional farm practices. The information from the FGD with contracted farmers indicated that the company signed a purchase/sales contract with the Association with the involvement of the commune authority. The agreement between the Association and farmers was the responsibility of the village authority. Farmers can participate in the CF scheme if they are a member of the Association, which has helped the contracting companies in following-up on the farming practices employed by the farmers. Two contracting companies – Farmlink and La Plantation – are working with this Association to buy organic pepper. The essential requirement is that the contracted farmers have to adopt the traditional production practices of the Association. However, the contract was not formalised by the PDAFF because it was not involved in the contract arrangements.

Thus, our data shows that, in this case, the CF model is not very different in the examples of the Dar-Memot Cooperative and of the Mondulkiri Organic Pepper Agricultural Cooperative, in the sense that the contracting company did not provide much technical or financial support for the farmers. Furthermore, only the contract arrangement in Mondulkiri has achieved formalised certification from the PDAFF. The other two CF schemes have not. Meanwhile, there was significant involvement from the NGO (CIRD), which has played an essential role in monitoring and evaluating pepper farming, which has also helped to strengthen farmers' managerial and technical capacity at the farm level.

2.2.2.2 The terms of contracts in the pepper sector

Drawing on the data from the KIIs and FGDs, this section briefly describes and discusses the key terms of contracts, including conflict resolution mechanisms, by the provinces (or agricultural cooperatives).

The case of the Dar-Memot Cooperative reveals that farmers can choose to sell their pepper to the contracting company and *or choose not to*. The

company (FUCHS Cambodia) buys the pepper from the contracted farmers if the samples of pepper pass the MRL test, which is conducted by a certified laboratory in Vietnam. The cost of testing is USD200 per sample, and the company covers 50 percent of that. Farmers can sell their pepper to other buyers if their samples fail the test. However, if they pass, and do not sell the pepper to the company, they have to return the test fee to the contracting company.

Furthermore, every contracted farmer has to buy one share of the Cooperative, and the company pays the Cooperative KHR200 per kilogram of pepper to cover operational expenses. Farmers need to transport their pepper to the company (FUCHS Cambodia) by themselves, and the Cooperative facilitates the delivery. The Cooperative is in charge of monitoring farming practices by farmers to ensure that they are following the guidelines provided by the company so that the output will meet the standards (in terms of MRL). For instance, farmers have received instructions to spray pesticides below the recommended dosage or not to use too much chemical fertiliser. Additionally, the maximum moisture content of pepper should be 12 percent, and the density 550kg per bottle, which is checked by the AC. This is not a fixed price contract. It depends on the average prices of the pepper market, and the Cooperative is in charge of price setting. This exercise takes a premium of KHR650 plus the average price/kg, and price negotiation takes place typically over four days before a buying and selling transaction. In addition, it is worth noting that the contract does not specify a conflict resolution mechanism, and it relies on the negotiation and mutual understanding or trust between farmers and the contracting company.

Turning to Mondulkiri Organic Pepper Agricultural Cooperative, for that organisation, organic pepper production must strictly comply with the standards. For example, no chemical fertilisers or chemical pesticides are allowed, and farmers have to use the top variety of seed from Kampot Pepper Promotion Association. Also, post-harvest farm practices are rather demanding, because farmers have to pack the pepper properly, using clean bags, and the moisture content should be not exceed 12 percent. After farmers and the cooperative have checked the quality, the external evaluation of pepper quality is conducted by ECOCERT[3] to certify that the pepper is organic. The price is set by the Cooperative as the premium of KHR6,000/kg + the average price. The Cooperative helps to facilitate the buying and selling transaction

3 ECOCERT is an organic certification organisation, founded in France in 1991. It is based in Europe, https://www.ecocert.com/en/about-us

and sets the price for the contracted farmers based on the negotiations with both farmers and the company. If the contracted farmers lose out on the quality and quantity of the pepper as a result of weather shocks such as drought or heavy rainfall, the Cooperative negotiates with the contracting company accordingly.

Studying the terms of the contract for the Kampot Pepper Promotion Association, we find that contracted farmers need to produce pepper according to the company's instructions. The Cooperative signs the contract with the company, i.e., that the pepper is organic, so the farm practices of growing and harvesting the pepper are demanding – neat and clean. Plus, the contracted farmers have to use local pepper seed, which they buy from the Association. The pepper size is at least 3mm. The Cooperative and the buyers set the price based on the type of pepper. More specifically, the Cooperative sets three different prices for farmers working for Farmlink: (1) black pepper is bought at USD14 and sold to Farmlink at USD15/Kg; (2) red pepper is bought at USD24/kg and sold to Farmlink at USD25/Kg; and (3) white pepper is bought at USD27 and sold at USD28/Kg. The 50 cents from the margin of USD1/kg are given to the Association for supporting operations, such as spending on pepper bags. The price also covers the expense of transporting the pepper to the company.

Additionally, as in the case of the other two CF schemes, there is no proper mechanism if there is a conflict between the AC and farmer. For the contracting company, the Association simply informs the company in writing about the main reasons for the insufficient supply (e.g., drought or heavy rainfall). The Association – which acts as the facilitator between farmers and the buyer - does not want to incorporate a conflict resolution mechanism because they believe that this would make the contract complicated for the contracting company. The important terms of the contract for Kampot pepper are that, if the contracted farmers sell their pepper, which meets the organic standards, to another company, they have to pay the contracting company 50 percent of the contracted sale.

The terms of the contract, CF schemes for pepper indicate that farmers have to adopt a specific seed which they need to buy. In other words, the contracting companies buy just the product, but do not provide significant support to improve the product quality. Further, no precise conflict resolution mechanism is in place, other than mutual understanding and negotiation. Also, no fixed price is set in the contract because it is based on the average price of the market plus a premium (for the organic product). The agricultural

cooperative and association help to monitor the farming process to ensure that farmers can comply with the requirements of the contracting company, which conducts some occasional spot checks at the farms.

2.2.2.3 Contract implementation in the pepper sector

This section summarises and discusses how the respondents (i.e., the farmers, companies and agricultural cooperatives) find the process through which the contract is implemented. The cooperatives and farmers tend to prefer a non-obligatory contract in which no substantial penalty is incurred by farmers who sell their pepper to other buyers if the price is better. The reason is that some contracted farmers were concerned that setting a fixed amount of supply in the contract would put them at risk of stiff penalties if their crop yield were to be affected by weather shocks or severe crop disease. Furthermore, some farmers who had a low awareness about CF could keep searching for other buyers who were offering a better price than the contracting company. As a consequence, the cooperative, which is accountable to the buyers, finds it challenging to implement or enforce the contract, according to a critical informant interview with the leader Dar-Memot Cooperative.

Furthermore, we also found that ACs and the contracted farmers were unlikely to prefer a more systematic conflict resolution mechanism. However, some of them believed that the Law on Contract Farming should be in place soon. For example, the leader of the AC in Mondulkiri reported that the current mechanism satisfied him because it depended on negotiation among farmers and with the company. Though there had been no conflict, this cooperative had proper stages of conflict resolution, and it also involved the PDAFF. For example, if a case could not be resolved internally, it would be referred to the CF committee that would act as the arbitrator. In line with this, some companies wanted to rely on a flexible contract without strict terms so that it would not be tough to negotiate with farmers. There is, however, a problem. For example, the supply from the contracted farmers did not suffice, so FUCHS bought some pepper from other farmers and traders to bridge the supply shortfall. Most of the respondents acknowledged that the contract should involve the local authority and PDAFF as witnesses, which would be of help when there was a conflict.

Most of the farmers wished to receive payment for their product in stages so that they would be less likely to have a cash flow problem. Farmers who were cash-constrained in Kampot and Mondulkiri wanted the companies to buy their pepper in a few stages (e.g., 20 percent, 50 percent, and 30 percent). However, the MRL test of the pepper takes a few weeks or even a month,

so it takes this long for the contracting companies to decide whether or not they will buy the product. Hence, some farmers who are risk-averse and feel uncertain about the test results had sold their product to other buyers at a price that was a little lower. That is because the contracting company would not buy their pepper if their test results were negative.

2.2.2.4 Success factors (for successful cases) and failure factors (for failed cases) in the pepper sector

Literature helps to define the success of contract farming in terms of an increase in farmers' standard of living. This can be determined by an improvement in farm income, profits, and some other outcomes, and the contractor may intend to continue working with farmers who can deliver quality produce (Bellemare and Bloem 2018). Thus, with this as a necessary condition, if we want to know if CF is successful, we can ask both the farmers and contracting companies whether or not they can/or wish to continue to work together. And we can ask them the factors that are associated with further participation in CF. Based on the qualitative data we collected from the fieldwork, the factors that facilitate and impede[4] the success of contract farming for pepper are summarised as follows.

First, building trust among the key actors, i.e., farmers, agricultural cooperatives/or associations, and the contracting companies, is an essential determinant of CF success. It can be a pre-requisite for all of the key actors to continue working together for their mutual benefit. In addition, the lack of trust caused by unethical business practices would result in an unsustainable outcome. For example, the respondents from Dar-Memot and Mondulkiri cooperatives indicated that some farmers sold pepper to buyers who were not from the contracting company, and the cooperative had to deal with the company. In the Kampot case, some farmers provided the Association with low-quality pepper. Some of them did not even supply their product at all, despite having received a deposit from the Association. In this respect, product price fluctuation negatively influences the contract farming process because the business environment becomes very uncertain for every actor, thus lowering trust between contracting companies and farmers. For example, our qualitative data show that when the price of pepper declined by 40 percent, a company chose to delay their purchase because of concern about further prices decreases, which resulted in reduced profitability for the company.

4 The factors impeding success of CF mean that they are the factors contributing to failure of CF.

During the FGDs some farmers reported that unfair treatment by the company was also negatively associated with CF success. For example, some companies violated contract terms by not purchasing the pepper when the price was volatile, and sometimes the companies used a biased scale, which meant that farmers received less revenue than they were expecting. In some extreme cases, contracting companies went bankrupt, which severely affected the farmers' confidence in the CF scheme. In addition, farmers' awareness of, and commitment to CF implementation are essential to the success of CF. For instance, some farmers were not committed to the guidelines issued by the company or cooperatives. They participated in the AC and CF scheme to acquire some rotation loan from the AC (each member of AC can request loan from the AC in a rotation basis among all members), which is line with a previous study about farmer organisations in Cambodia by Theng *et al*. (2014).

Another critical determinant of CF success is sufficient technical and financial support for farmers during the planting/or growing process. The agricultural cooperatives and farmers seek technical support from the companies. However, the research did not find any evidence that contracting companies provided farmers with significant technical support such as improved seeds and loans, which would considerably enhance farmers' capacity and enable cash-constrained farmers to even-out farm expenditure. This factor is critical when farmers have to produce crops to match standards required by the contracting company. In other words, if the company only provides some instruction, and buys the product after the harvest, without adequate support during the on-farm process, farmers find it challenging to comply. For example, some farmers in Mondulkiri chose not to engage in CF because they were afraid that they would fail to produce a sufficient supply: this would create a problem between them and the contracting company. The initial investment in pepper production is quite high - the average amount is USD4,000/ha, excluding the land. Plus, the improved farm practices for producing organic pepper are much more demanding than those for growing the usual crops. Likewise, the case of Dar-Memot shows that some farmers whose sample pepper failed the MRL test would be reluctant to continue participating in a CF scheme. They would simply sell their product to other buyers who demanded a lower standard at a price that was comparable (or just a little lower).

Additionally, inadequate capital and limited physical infrastructure were also a constraint on CF success because the AC plays a vital role in the CF scheme. For example, some ACs do not have a proper warehouse, affecting the quality of the pepper which needs to be stored there for a while for the

contracting company. In line with this, some farmers and cooperative/or association leaders highlighted the importance of NGOs. Also, our data indicates that development partners play a significant role in CF success. For example, Agence Française de Developpement (AFD) spent EUR1million to promote Kampot pepper, which included the money needed to finance the trip of the AC board to Geneva and other countries. This finding is in line with a previous study in the sense that agricultural cooperatives fundamentally rely on a supporting agency, which is mainly an NGO (Theng *et al*., 2014).

It is worth noting that some respondents wished to have more involvement from the government, particularly in terms of technical and financial support. For example, they wanted MAFF or the local authority to witness their contract arrangements so that each of the parties would follow the contract, and that would help to reduce the potential for conflict.

2.2.2.5 The benefit of contract farming

When we want to examine if a contract farming project is successful, we should know whether or not CF has adequately performed its roles. For example, if CF can promote market access and ensure price certainty, which results in an improvement in productivity or farm income, it can, to a certain extent, be deemed to be a successful case of CF (Bellemare and Bloem 2018). Reardon *et al*. in 2019 highlighted two benefits of contract farming: it is a means to solve the problem of smallholders in accessing agricultural inputs when the state extension services are inadequate, and it is a hypothesis for a useful tool to deal with the price fluctuation of farming products. Below is a summary of the advantages and disadvantages of contract farming, based on our qualitative fieldwork. This section briefly discusses the pros and cons perceived and experienced by the respondents from the fieldwork.

Participating in the CF scheme gives farmers better market access for their pepper. For example, farmers from Dar-Memot Cooperative revealed that if their samples passed the MRL test, they could sell their pepper to the company (FUCHS Cambodia), which offers a price higher than the average market price by around KHR8,000. And they could sell the pepper to other buyers without the price premium (KHR8,000 to 8,600/Kg) if the test result was negative. However, pepper yield is compromised by the price premium of the organic product – organic pepper farmers get higher price but with lower yield. For example, farmers from the Dar-Memot Cooperative indicated that before becoming involved in CF, their yield was 7-8 tonnes/ha on average. They spent large sums of money on inputs (i.e., fertilisers and pesticides). Now, their yield was around 4 tonnes/ha, but

their input expenditure had decreased significantly. Non-organic pepper farmer could earn about KHR35 million from selling pepper to FUCHS Cambodia company. However, with the large sums of money spent on inputs (i.e., fertilisers and pesticides), their annual profit was only KHR14/ha with the gross revenue of KHR35 million.

Additionally, after engaging in the CF scheme, farmers of the Dar-Memot Cooperative reported that they had better awareness/or knowledge about food safety, which enabled them to comply with the standards required by the market with better prices. For instance, they had stopped using plastic fertiliser bags to store the pepper, and they were using pesticides in compliance with the recommended dosage so that their pepper would pass the MRL test. At the same time, they had received training in how to apply chemical fertilisers and how to produce pepper safely. Also, farmers from the Kampot pepper association acknowledged that their managerial skill has improved to some extent because they now knew how to prepare record books for their pepper according to its colour (e.g., black, red or white).

Frequently, however, a model farmer from the AC could participate in technical training given by the contracting company, and the other farmers could learn from him. Thus, the implication is that there is no systematic training for producing pepper that meets the standards demanded by the companies and international markets. The research found that farmers needed to devote more effort to producing organic pepper. However, if their product sample could not pass the MRL test, they had to turn to the buyers who were not the contracting company and to sell that product at a price that was lower than the one they had been expecting. This drawback tends to demotivate them and their peers from future participation in CF.

2.2.2.6 Lessons learned in the pepper sector

The most common CF modality is an arrangement in which contracting companies work with the agricultural cooperatives that directly deal with farmers. The contracting companies provide support such as technical training for AC that is related to the production requirements. Furthermore, NGOs and other international organisations play an important role in promoting contract farming through mainly strengthening farmers' capacity at the farm level and providing some financial support. For example, Cambodia Institute for Research and Rural Development (CIRD) offers technical training to help farmers to produce organic pepper in Mondulkiri, and Kampot Pepper Association received a grant of USD10,000 from AFD when it started.

However, our data reveals that there is still limited involvement from the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF) providing formal certification to the contracts among the key actors. The lack of formality tends to result from: (1) a lack of awareness among ACs and farmers, and even the contracting companies, about the legitimate role of the department of agro-industry and PDAFF in formal contract certification; and (2) a lack of promotion activities by the DAI-PDAFF to raise awareness. In line with this, some officials at PDAFF reported that they do not have enough resources (i.e., labour and budget), means of transportation, or cooperation from the companies. Farmers want more intervention from the government, such as training in how to produce pepper of the standard required by the companies, or signing an MoU with China to gain more market access, and improvements to rural infrastructure.

We also learned that the conflict resolution mechanisms are not clear in the contract, and it mainly relies on negotiation and consultation. In this regard, the contracting companies and the cooperative leaders would like the Law on Contract Farming to be in place soon. Even so, most of the farmers were reluctant to see the strict enforcement of the contracts or regulations related to CF because they are not confident that they would be able to fulfil the quantity and standards set out in the agreement. Nevertheless, they perceived that CF contributes to their livelihood improvements through some of the benefits mentioned above.

2.2.2.7 Conclusions in the pepper sector

The case of contract farming for pepper that we examined using the qualitative data collected during CDRI's fieldwork provides some concluding points as follows. CF has not reached its goals yet in terms of providing access to technical and financial support for smallholders and also cannot help them to deal with the price fluctuation of pepper because the contracted price varies in line with the market price. In other words, contract farming relating to sales of pepper is the common practice, which is affordable to the contracting companies, so that CF focuses mainly on the final product.

There are some recommendations based on the findings in this case study. First, farmers are better able to meet the quality, quantity and delivery requirements of the contracting companies when they have the appropriate technical and financial support (e.g., inputs, appropriate technology and regular monitoring). To this end, more participation is required from the companies and government through better incentive mechanisms to encourage companies to provide farmers with more support, besides focusing only on the purchase

of the agricultural commodities. For example, farmers should be familiar with standard technical guidelines on the relevant up-to-date farm practices for organic pepper production, and there should be a laboratory in Cambodia to test samples of pepper for MRL.

Second, to be economically sustainable, Cambodia's CF should be less reliant on the supporting agencies (NGOs). Self-reliance can be realised by enhancing the capacity of AC in the areas of management, marketing and communications because they play an important role in facilitating the sales and purchase contracts between farmers and buyers. Additionally, the enforcement of the Law on Contract Farming should soon be in place so that farmers and the companies have proper conflict resolution mechanisms in their contracts. Finally, more resources, including staff members, means of transportation, and budget, should be devoted to the Office of Agro-Industry at the PDAFF, which would enable them to have a better follow-up procedures.

2.2.3. Contract farming in the cashew nut sector

The cashew nut case study involved data collection in Kampong Thom and Preah Vihear provinces. In Kampong Thom, the team interviewed a cashew nut processing enterprise (En Layhout). In Preah Vihear, the team interviewed NGOs (International Volunteers of Yamagata-IVY) and a company (Cambodian Agriculture Cooperative Cooperation (CACC)), AC committee members, and also CF farmers.

2.2.3.1 Arrangements relating to CF in the cashew nut sector

Cashew nut contract farming has been arranged through various contract agreements. For the En Layhout enterprise, the CF arrangement has been conducted both directly with farmers and through AC, but without the involvement of any third parties (authorities and NGOs). It is a straightforward contract arrangement directly with farmers, clarifying buyer and seller, duration, and estimated amount of cashew nut that the company has to buy from farmers. The document is finger stamped by both parties. Another type of CF arrangement is through AC. In such instances, the AC has a verbal contract with farmers and plays an important role between enterprises and farmers. However, this arrangement is informal, which means that there is no involvement of any authorities. FGDs with CF farmers confirmed that they had understood the terms and criteria of the contract, and they had complied, accordingly. At the time of data collection, the enterprise had contracted to supply cashew nut to companies from Germany, Korea and Japan.

For cashew nuts in Preah Vihear, involving Cambodian Agriculture Cooperative Cooperation (CACC), the CF arrangement was passed by ACs with the support of NGOs, especially International Volunteers of Yamagata (IVY), and agricultural authorities – the PDAFF. It is a kind of formal contract arrangement using the template of Department of Agro-Industry - DAI CF in the rice sector (Amru Rice). The contract has been witnessed by IVY and certified by the PDAFF. CF farmers who joined FGDs mentioned that they understand some parts of the agreement, but rely on, and trust, AC and IVY for coordination and facilitation.

2.2.3.2 Implementation of terms in the cashew nut sector

The term "implementation" is not so different for the two companies. They buy good quality, organic cashew nut, and the price is higher than that of the market. The En Layhout enterprise has asked its CF farmers not to use chemical fertilisers and pesticides, and they have to follow the enterprise's instructions on what and how to apply these. The enterprise has asked CF farmers to use organic fertilisers and pesticides, which were introduced by the Harvest-2 programme. The degree of price fluctuation depends on the market regulations, but the enterprise always buys higher than the market price KHR100-200/kg. The enterprise has staff to follow up with CF farmers and has worked with AC committee members to ensure the quality and the proper use of organic fertilisers and pesticides. As for the case of CACC in Preah Vihear province, IVY and the AC have been playing an essential role in following up the terms of the contract, and training CF farmers in technical issues relating to cashew nut production. The company seeks a high-quality product for export, and if it is good enough, the company might give 10 percent to 20 percent higher than the market price. For example, the company bought pepper ranging from KHR700/kg to KHR1,000/kg. An average price was around KHR750 /kg. Besides the price, contract farming faces some challenges, which include a delay in buying products and in payment from the company. Other problems revolve around the use of fertilisers, a lack of technical assistance and a lack of inputs for production.

2.2.3.3 Conflict resolution mechanisms in the cashew nut sector

Negotiation and consultation are the main mechanisms to resolve conflict for both buying companies. For the En Layhout enterprise, the contract stated that in cases of conflict, both parties would deal with it bilaterally. If the case could not be resolved, it would be brought to local authorities (village and commune chief). In the case of CACC, conflict resolution was also based on negotiation and consultation, and the conflict resolution mechanism is laid out

in the contract. First, and ideally, cases have to be resolved by both parties, and second, if the case cannot be resolved, then it has to be brought to the PDAFF. Finally, if the PDAFF cannot find a solution, it will bring the matter to the contract framing committee at the national level. Both parties must accept the committee decision. However, FGD farmers mentioned that "we never have any big problems or conflicts with the company; when issues have cropped up, IVY has helped to resolve them".

2.2.3.4 The benefit of contract farming to farmers and enterprises in the cashew nut sector

For farmers, the main benefits of joining contract farming are an increasing yield per ha and being able to command a price higher than that of the market. In addition, their annual income has increased because they have applied organic farming, which means less expense on inputs, such as chemical fertilisers and pesticides. On average, farmers can earn KHR four million per ha. In terms of payment, the En Layhout enterprise pays immediately after buying the produce, while CACC pays one, two or more weeks later. In terms of market access, FGD participants mentioned that "we have many markets now, so it is a bit easier to sell our cashew nut production". Some farmers linked to the En Layhout enterprise can borrow money from them without interest, while the farmers of CACC can also borrow money from their respective AC, although they have to pay some interest, which is 2.5 percent per month. Farmers of both companies stressed that they had received technical knowledge for growing organic cashew nut from various NGOs working in their areas: in Kampong Thom province this came from the Harvest-2 project, and in Preah Vihear from IVY. Transportation was no problem because buyers came to buy at their farms.

As for enterprises/companies, they could access good quality cashew nut production, which benefited them through exporting that production abroad at a higher price. Also, they built their brand in the international market. Moreover, they gained technical knowledge from third parties like NGOs and development projects that promote organic agricultural production.

2.2.3.5 Factors determining the success or failure of contract farming relating to cashew nut

In the case of cashew nuts, the factors determining success are not so clearly identifiable for companies or enterprises. Below is a summary of the factors that were raised by companies and farmers. Participants in the interviews mentioned that the company and farmers have to respect each other as well as the terms laid out in the contract. Building trust is also an important factor that both sides (company and farmers) agreed to be

one of the most important factors for the success of CF implementation. It is also important for other parties to be involved in the process of CF arrangement and to provide technical assistance as well as to help to solve problems. These include support from NGOs, development partners and authorities. Excellent communications among the parties involved is also vital in successful CF implementation, especially between contractors and farmers. To comply with the standards of organic production, the location and land that is appropriate for growing cashew nut, a suitable climate, political stability and an international business market, are all factors that were mentioned by companies/enterprises and farmers that are needed to make a success of CF implementation.

Factors that can lead to the failure of CF implementation are that all parties did not obey the contract, and that there is no trust between buyers and sellers. Producers (farmers) cannot produce according to the requirements or standards of organic production; they rely only on nature. Delayed payment from the company is also a key factor that can reduce the confidence of farmers who need money to pay back their debts. Also, if the capacity of the AC committee members is limited in respect of management and marketing, the farmers will have little trust and confidence in them. Further negative factors are farmers who lack technical knowledge of growing cashew nut to the required standards, a lack of clarity in the CF contract and the fact that there was no involvement of state authorities.

2.2.3.6 Lesson learned from contract farming in the cashew nut sector

In the case of cashew nuts, we learned that the arrangements relating to CF were not so common, and varied according to the locations. Some CF had contracted directly with farmers, and some had gone through AC, but no arrangements involved any authorities. This kind of CF arrangement does not set out the terms clearly and comprehensively, and is likely to fail as each party can easily break the contract terms. On the other hand, other CF arrangements that went through AC and authorities, especially if they were agricultural, appeared to be more reliable and more organised: farmers seemed to be more confident about the CF implementation.

Building trust is an important factor in the success of CF. In Kampong Thom province, En Layhout Enterprise had trust in its farmers, so they produced good quality cashew nut and exported it to foreign countries like Japan and Germany. In Preah Vihear province, AC trusted their CF farmer members, so they achieved the required standard to supply to the company.

Another lesson learned is the importance of the involvement of a third party, who are particularly necessary in the initial stages in the CF process since they can support AC committee members and members with both management and technical skills. They can also help in facilitation between farmers, AC and the company.

2.2.3.7 Conclusions drawn from CF in cashew nut sector

The contract farming arrangements in the cashew nut sector is akin to a sales contract between producers and buyers. Some areas have contracted directly with farmers, while others have contracted with AC, and then AC have verbally contracted with farmers. Companies have not provided much in terms of inputs supply; they have provided some training about the required standards, and some financial loans. Farmers have had to use their own inputs and capital. Third parties, especially NGOs, play a vital role in promoting CF. NGOs provide both technical aspects and coordination between the parties involved - companies, AC, farmers and authorities.

The implementation terms differ. The CF that involved third parties, such as agricultural authorities and NGOs, seemed to function better than the one without the involvement of the third parties. Price is always set higher than that of the market. Negotiation and consultation are the mechanisms for settling conflict; the informal CF used local authorities in this process, and the formal CF used agricultural authorities from provincial up to national level. However, no significant conflict was reported; farmers and company staff confirmed that small issues were resolved locally.

The implementation of CF has improved the livelihood of CF farmers and made companies prosperous. Farmers have increased their income annually. They no longer need to worry about the market; more buyers come to their location. Companies/enterprises have increased production for exportation, and built their brand in international markets.

The main factors of success for CF in the cashew nut sector are building trust and excellent communication. Generating trust was the first factor raised by farmers and company staff, and excellent communication is also needed from both contracted sides to make CF work smoothly.

There are some suggestions from the case study. Farmers want to continue CF implementation, but the criteria set out in the contract need to be revised and improved. MAFF assists in providing technical knowledge, increasing market scope, and in helping to facilitate the CF process. Companies contribute to increasing the price, especially if they do not delay payment. MAFF and NGOs

help to improve the capacity of AC. Authorities should build and improve roads and MAFF can help in identifying good input supply companies.

2.3. Lessons learnt from contract farming in Cambodia

An analysis of case studies relating to contract farming in Cambodia, reveals some lessons learned. The most common CF modality is an arrangement in which contracting companies work with the agricultural cooperatives that directly deal with farmers. The contracting companies provide support for AC, such as technical training related to production requirements: NGOs and other international organisations play an essential role in promoting contract farming through mainly strengthening farmers' capacity at the farm level and providing some financial support.

On the other hand, our case studies reveal that there is still limited involvement of the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF), which could provide formal certification of the contracts among the key actors. The lack of formality tends to result from: (1) a lack of awareness among AC and farmers and even the contracting companies about the legitimate role of the department of agro-industry and PDAFF formal contract certification; and (2) a lack of promotion activities by DAI-PADAFF to raise awareness.

We also learned that the conflict resolution mechanisms are not mentioned in the contract, and rely on negotiation and consultation. In this regard, the contracting companies and the cooperative leaders would like the Law on Contract farming to be in place soon. However, most of the farmers were reluctant to see the strict enforcement of the contracts or regulations related to CF, because they were not confident that they would be able to fulfil the quantity and standards set in the agreement. After all, they perceived that CF contributes to their livelihood improvement.

2.4. Conclusion

Based on the results from the case studies that have been conducted on rice, pepper and cashew nut, and in responses to the research questions, we have reached the following conclusions.

The main characteristic of contract farming in Cambodia is that almost all are sales contracts, which differ from production contracts. In the former, companies sign purchase and sales agreements with agricultural cooperatives without providing much technical and financial support (e.g., fertilisers, seeds, agriculture equipment, monitoring and evaluation, finance, etc.). This indicates that production contract farming is not common in practice due

mainly to the high cost that would be incurred by the contracting companies. In the most common CF modality, contracting companies work with, and contract, agricultural cooperatives. Agricultural cooperatives then select and contract farmers. Contracting companies provide some training and other support for AC, and AC further disseminate this knowledge to farmers. Most of the training is related to the production requirements. The price is set based on the daily average price of the market + a premium. This means no fixed price is stated in advance in the contract. Contracting companies occasionally conduct spot checks at the farms. The contract needs to be certified by the Provincial Department of Agriculture, Fisheries and Forestry to be considered formal. However, most of the contracts we reviewed did not go through certification by PDAFF, rendering them informal. The lack of formality might be attributable to: (1) a lack of awareness among AC and farmers of what constitutes a formal contract; and (2) a lack of outreach awareness-raising activities from DAI-PDAFF. NGOs and other international organisations play important roles in promoting contract farming through technical and, to a lesser extent, financial support. As a third party, NGOs help to promote and link AC to companies. NGOs also help to strengthen farmers' capacity at the production level. Officials at the DAI-PDAFF stated that they do not have enough staff members and lack financial incentives, means of transportation, and cooperation from companies.

The study confirms that the implementation of contract farming in Cambodia has benefited directly from farmers as producers and companies as buyers. CF farmers can access a new premium market, from which they can glean a higher price for their production. The income of CF households has increased annually, and their living standards are better than they were before they joined CF: their children can go to school, and they can buy some agricultural and non-agricultural materials for their family. CF farmers can access MFIs or banks more easily than before. The capital of AC has increased enabling members to access capital with ease, and to borrow without any collateral. Because of these enhancements, farmers were motivated to produce more. Companies that work on CF could increase their export volumes, expand their facilities, access the international market, and build their company brand in the international market.

Various factors have contributed to the success of CF. First, both parties have followed the agreement terms, as stated in the contract, and they have respected each other. Second, farmers have trusted the leadership of AC committee members, and because of that, the number of CF members has increased. Third, the involvement and commitment of the third party

has played a significant role in supporting CF. These third parties include NGOs and state authorities, e.g., the CF in Preah Vihear province has benefited from the support of the SCCRP project, the PMUAC, the PDAFF and MAFF.

Factors that lead to the failure of CF implementation are that all parties did not comply with the terms of the contract, and there was no trust between buyers and sellers. Producers (farmers) could not produce organic products in line with the requirements or standards. Delayed payments from the company were also one of the factors that reduced the confidence of farmers. The capacity of the AC committee members in terms of management and marketing was very limited, which meant that farmers had no trust and confidence in them. Farmers lacked technical knowledge of the standards required, and the CF contract did not involve state authorities.

The study identified some lessons learned. The most common CF modality is an arrangement in which contracting companies work with the agricultural cooperatives that deal directly with farmers. The contracting companies provide support for the AC, such as technical training related to production requirements. NGOs and other international organisations play an essential role in promoting contract farming through mainly strengthening farmers' capacity at the farm level and providing some financial support. Conflict resolution mechanisms are not mentioned in the contract, and this relies mostly on negotiation and consultation.

The study found some challenges as follows:

- For the company: they lack the capital to buy all the farmers' produce and to support the quality of product.
- For farmers: a delay in payment from the company, and no systematic training for producing a product of good quality. Companies simply buy the product, but do not provide concrete training in how to produce the quality they need.
- Farmers do not know much about what MAFF, in general, and PDAFF, in particular, are doing regarding CF arrangements; however, they do need MAFF and PDAFF to play a role. Contracting companies are familiar with the role of MAFF-PDAFF and its line departments; nonetheless, no concrete involvement has been found. They want MAFF-PDAFF to be more active.
- Farmers need MAFF to provide training in how to produce good quality as needed by companies as well as by importing countries. They do not know how to use good or appropriate fertilisers or pesticides in their

production. They apply what they have learned from their peer farmers or sales people.
- Farmers and companies need clear mechanisms stated in their contracts. This might involve having a standard contract from MAFF-PDAFF for them to follow.
- Contracting companies would like to see a law on contract farming, but farmers and ACs seem to be reluctant about this for the time being because they are afraid that they would not be able to fulfil the quantity and standard requirements set out in the contract.

2.5. Recommendations

The following are the recommendations drawn from the study.

For the immediate- and short-term:
- More resources should be provided for the Office of Agro-Industry at PDAFF including staff, means of transportation, and finance. This would allow them to be more efficient and effective in monitoring.
- Financial capital should be made available for companies when they need to buy products from CF farmers.
- Farmers need to have standard technical guidelines on the use of fertilisers and pesticides. There should be a laboratory, at least at the provincial level, testing the quality of fertilisers and pesticides.
- The capacity of AC is limited: thus, more should be done to help them in the areas of leadership, management, marketing, communication and book-keeping, database creation and data analysis.
- A clear conflict resolution mechanism arising from contract implementation needs to be in place.
- Awareness raising about CF should reach more localities and farmers.

For the long-term:
- To achieve contract farming that is more long-term and sustainable, we will have to be less reliant on the supporting agencies (NGOs). That is, the companies and government will need to assume more roles than they do now. In other words, the government should establish incentive mechanisms to encourage companies to support farmers in contract farming arrangements. Deepening the Public-Private Partnership (PPP) initiative is recommended.

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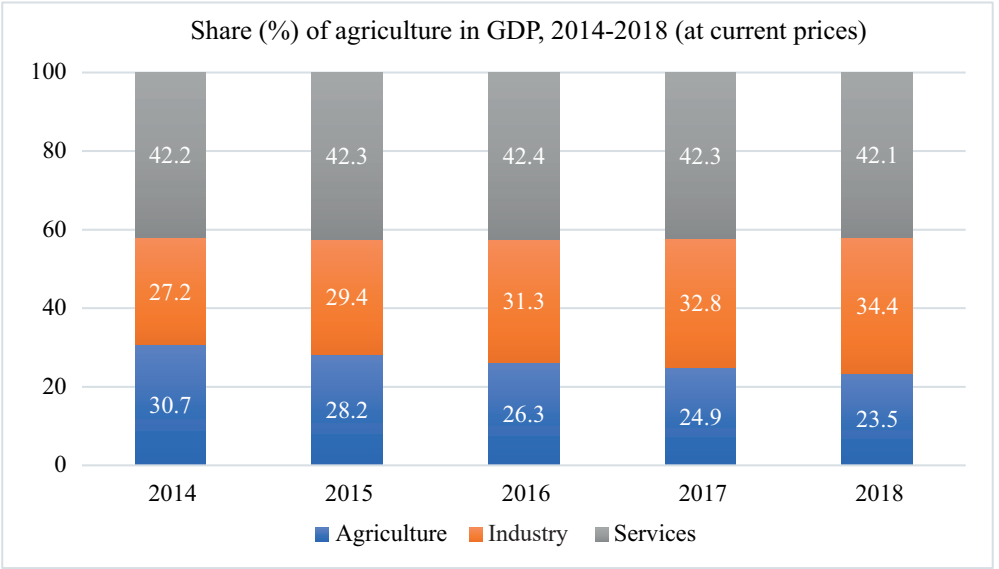
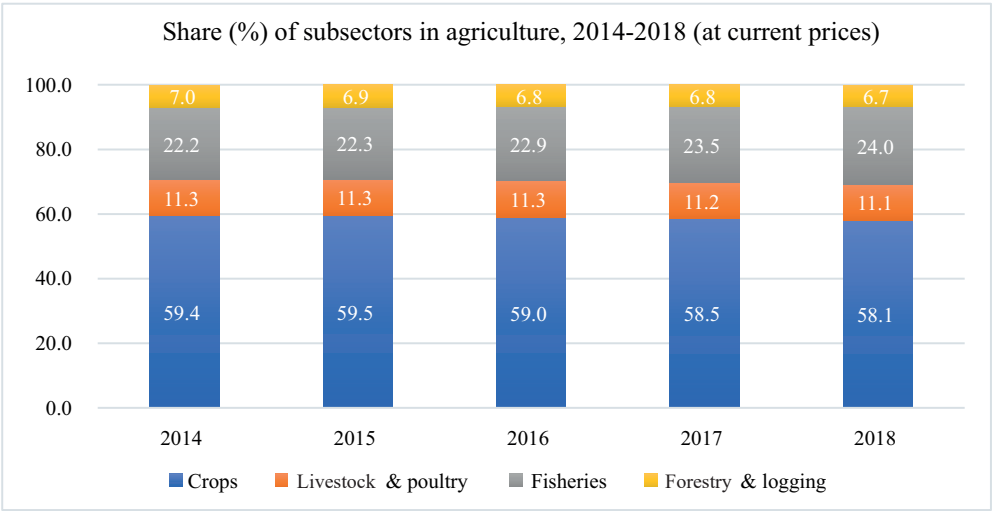
Annexes

Annex 2.1: Share of agriculture in GDP



Source: MAFF 2019



Source: MAFF 2019

Area of cultivated land (ha)

Crops	Cultivated land	Percent
Rice	3335929	75%
Other crops and vegetables	1091887	25%
Total	4427816	100%

Source: MAFF 2019

Annex 2.2: Angkor Kasekam Roongroueng Company

Angkor Kasekam Roongroueng (AKR) was established in 1999 and registered with the Ministry of Commerce. A decade ago is was the biggest rice export company. Their product was well known worldwide because of their establishment of a contract farming supply chain of organic and premium "Neang Malis" rice, Cambodian Fragrant rice, and Sen Kra Oub Fragrant rice[5]. In 2005, the company operated contract farming with farmers in four provinces—Kandal, Kampong Speu, Takeo and Kampot. However, the majority of contract farmers are located in Kampong Speu province which constituted more than 80 percent[6]. The company is equipped with facilities and processes including an agricultural promotion division and research division, a rice mill division - high-quality thanks to state-of-the-art technology - and a sales division[7]. To ensure a high quality and a sufficient amount of their products, AKR has been involved in every stage of rice production and marketing. AKR's roles include: 1) identifying areas suitable for growing fragrant paddy; 2) establishing farmer associations based on existing commune structures, and bringing this under its management; 3) using this association to recruit farmers; 4) delivering improved seeds and technical advice to contract farmers; 5) monitoring and solving production problems; 6) collecting and purchasing rice output at their gate; 7) a sorting mill and the ability to package paddy into different types; and 8) exporting rice to international markets including Europe, Australia and Hong Kong[8]. According to the founder of the company, interviewed by TVK in 2010, the company was successful in implementing contract farming (between the 2000s and 2010s, during which the number of CF farmers increased from 2,000 to 37,000 (TVK, 2010). However, during the last few years it has reduced and finally stopped implementing CF. To understand the issues, researchers in this study interviewed company staff, and former CF farmers in Oddong district, Kampong Speu province.

Annex 2.3: Amru Rice Company

Amru Rice Cambodia Co. Ltd. (original name: Amret Rungroeung Group Limited) is a local company owned by a Cambodian family. It is one of the major rice exporting companies in Cambodia. It is registered with the Ministry of Commerce and the Ministry of Agriculture, Forestry and Fisheries, and started rice trading activities in 2009. The company has exported various

5 http://angkorrice.com/products/
6 http://angkorrice.blogspot.com/2010/12/contact-farming-for-rice-in-cambodia.html
7 http://angkorrice.com/angkor-agriculture-association/
8 http://angkorrice.blogspot.com/2010/12/contact-farming-for-rice-in-cambodia.html

varieties of organic rice including jasmine rice, organic brown rice, organic black rice, and organic white rice, mostly to the EU and US markets. In 2017, Amru Rice invested USD3.5 million, buying approximately 13,000 tonnes of rice. The company has focused on rice, cashew nut and cassava; however, rice constitutes about 90 percent of its production, and 100 percent of this rice comes from contract farming (CF). The company has worked on organic rice in Preah Vihear, Kampong Chhnang and Siem Reap, covering over 12,000 ha with 5,000 smallholder farmers. In addition, the company has worked on sustainable fragrant rice in Battambang, Kampong Cham and Kampong Thom, covering over 3,000 ha with 1,500 smallholder farmer families. It has also worked on sustainable white rice in Kampong Cham and Kampong Thom covering over 1,500 ha with 1,500 smallholder farmer families. About 52 cooperatives have signed contract farming agreements with Amru Rice, which related to over 45,000 tonnes of paddy in 2018. The company has the capacity to dry 2,000 tonnes per day, and to store over 60,000 tonnes. The company plans to export 80,000 to 100,000 tonnes of organic rice by 2022 (Saran SONG 2019). According to administrative data from the department of agro-industry (DAI) in 2018, Amru Rice is the company with the highest number of contract farming agreements in the country (DAI 2018), and it was noted as the most successful case by the Supreme National Economic Council (SNEC) report in 2015[9]. To understand the issues and find the lessons learned, the study team conducted an in-depth case study with CF farmers, AC leaders and company staff. We conducted FGDs with farmers and agricultural cooperatives (ACs) and interviewed staff from the company as well as provincial agro-industry officers. We reviewed documents from the company and AC, including company profiles, AC status, and the contract between the AC and the company. Direct field observations were also undertaken. Preah Vihear province was chosen as the location for interviews in December 2018. Representing the Amru Rice company, we interviewed the company's senior staff at their headquarters (management level), and field staff at their Kampong Thom warehouse. At Preah Vihear, we conducted KIIs with two agricultural cooperatives, namely "Romdul Samaki Meanchey Mloprey Pi" and "Konkhmer Chumnunkroy", and we also conducted FGDs with contracted farmers, one from each AC. We met the Preah Vihear Meanchey Union of Agricultural Cooperatives (PMUAC), and the Preah Vihear provincial agro-industry officer. We also interviewed NGO staff from AVSF (Agronomes et Vétérinaires Sans Frontières) who had been involved, and were familiar,

9 SNEC (2015), support for the commercialisation of Cambodian rice project-Presentation Note (p.6)

with CF creation in the province. Below is an overview and some of the characteristics of agricultural cooperatives, AC unions, farmers groups, and some information about the provincial agro-industry.

Agricultural cooperative Romdul Samaki Meanchey Mloprey Pi is located in Bus village, Mluprey Pi commune, Cheb district, Preah Vihear province. The AC was established and registered with the provincial department of agriculture (PDAFF) in 2014, and it is under the management of a committee which has eight members. In 2018, there were 266 household members from two villages (Pres Kor Ouk and Bos); the total agricultural land area is about 800 ha, and 531 ha is under contract farming (about 45 percent). CF farmers produce local rice varieties and sell it to Amru Rice. The AC members produce only rice. The FGD has been conducted with farmers from this AC. The FGD took place in Bos village with 10 farmers, most of whom (eight) were female. On average, their age was 38 years (the age range was between 29 and 52). Their education, on average, had reached grade 2; they could read and write a little. The main family income came from rice farming, and their agricultural land size was 4.3 ha per household. Most of them had been engaged in CF since 2015 with Amru Rice.

Agricultural Cooperative Konkhmer Chumnunkroy is in Srolovdong village, Purthe commune, Tbeng Meanchey district, Preah Vihear province. It was established and registered with the PDAFF in 2014, and it is led by a management committee consisting of eight members. In 2017, this AC had 116 household members, and 90 households had implemented contract farming with Amru Rice. The total land area was about 350ha.

It has produced rice, cashew nut and cassava. However, about 85 percent of the land area is devoted to rice production. The average land area for each household is 3 ha (a minimum of 2 ha and a maximum of 7 ha). The members produce only local rice varieties. The AC has a warehouse measuring 63 square metres (7 x 9m). The FGD was conducted with seven farmers of the AC who were in the contract farming arrangement, all of them female. Their age on average was 38 years - which a minimum of 24 and a maximum of 52yrs. Educationally they had completed grade 4. Rice farming was their primary source of income, for which the land size was 3 ha per household. They have participated in CF since 2017.

Preah Vihear Meanchey Union of Agricultural Cooperatives (PMUAC) is the union for agricultural cooperatives in Preah Vihear province. It was registered with the Ministry of Agriculture, Forestry, and Fisheries (MAFF) in 2016 to take over the role of supervision in respect of the internal controls

implemented by the Cambodia Organic Agriculture Association (COrAA)[10]. It was established and supported by a SNEC-led initiative called the "Support for the commercialisation of Cambodia Rice Project" (SCCRP). So far, PMUAC has played a vital role in maintaining the organic certification from buyers, especially those in European countries and in the US. To keep organic certification, the union has built farmers' capacity in organic standards, and has trained AC inspectors in supervision/coaching techniques, verification data, and liaison with the Certification Body (ECOCERT[11]). In addition, PMUAC has supported the role of AC in management and CF agreements, and has collected reference prices. The union plans to develop other services including buying/selling agricultural inputs, agricultural services, and credit services (Meang and Brun 2018). The union has worked only in Preah Vihear province, and has 11 staff working for PMUAC. For 2019, it was working only in the rice sector with contract farming. PMUAC's scope covers CF land measuring 1,1000ha with 3,700 households. Farmers have contracts with Amru Rice and Signature of Asia. In 2018, there were 43 ACs in Preah Vihear province, and 24 are members of PMUAC. The union has a statute covering its operations, and the structure of the leadership is: general assembly; board of trustees; and the quality control committee.

Preah Vihear provincial agro-industry: there are four companies that have implemented contract farming in the province and they focus on rice and cassava. These companies are Amru Rice and Signatures of Asia (SoA), and Cambodia Agricultural Cooperative Cooperation (CACC). These companies have contracted 32 AC, out of which Amru Rice has contracted with 17. Contract farming of organic rice involves 5,152 households, the total land covered by this was 19,402 ha, and production was 26,946 tonnes. Organic cassava involved 577 households, working on land covering 788 ha and producing 10,748 tonnes.

10 COrAA is a nationwide private sector organisation working for the promotion of organic agriculture in Cambodia. It was contracted by SCCRP to provide technical training for ACs in the production of organic paddy.

11 ECOCERT is the international Certification Body. Its mission is to issue certificates of compliance with EU and USA organic standards.

Chapter 3
Contract Farming: China's Practice

Tang Lixia, Yu Lerong, Liu Qiming, Li Tongjie, Chang Ling,
Li Si and Zhang Yimuxue

Abstract

In the case study relating to China, contract farming can be understood as the secured lending of "inputs" - such as seed, fertilisers, credit or extension services - to a farmer in exchange for exclusive purchasing rights over a specified crop. It is a form of vertical integration within agricultural commodity chains so that the firm has greater control over the production process and final product. Contract farming, which has grown rapidly over the past 20 years, is one of the strategic choices to adapt to China's agricultural transformation (FAO 2018). Contract farming has been related to other areas of growth such as rapid income growth in Asia (which has led to a shift in consumption patterns) and growth in high-value agriculture (Minot and Roy 2006). Contract farming is attracting considerable academic and policy attention. For example, while academic work in the 1980s and 1990s offered a mixed assessment of the extent to which contract farming engaged with, and benefited, smallholders, recent literature provides a much more positive interpretation of smallholder participation.

The impact of contract farming on smallholders has been widely discussed in academic research. On the one hand, contract farming is seen as a form of exploitation of farmers by large agribusiness firms who take advantage of the farmers by using the contract to ensure cheap labour and also to avoid the risks related to production. It is also a form of marginalisation of smallholders due to their land size and significant firm preference for medium and large-scale farmers. On the other hand, the provision of farm inputs - such as fertilisers, and seed, coupled with technical assistance to the farmers – means that contract farming is seen as a solution to the constraints on productivity faced by the farmers.

Our research objective is to identify the existing contract farming arrangements in practice and to explore the impact of contract farming on smallholder farmers. Furthermore, we will demonstrate key factors determining the successes and failures of contract farming.

A qualitative research method is used in this research. We collected the data through focus group discussions (FGDs) and semi-structured interviews (SSIs) in six contract farming cases. Ten key informants, including government officials, managers of companies and leaders of farmers' professional associations, were interviewed. We also interviewed 45 farmers (26 contract farmers and 29 non-contract) to explore the impact of contract farming and smallholder farmers' perceptions and experiences.

The main findings from this research are as follows:

(1) There are several contract farming arrangements in practice, which are the centralised model, nucleus-estate model, intermediary model, and informal model.

(2) The findings presented by this study - from three "successful" cases, and three "failed" cases - would support the hypothesis that contract participants display significantly higher incomes than non-participants. The smallholders would benefit from a spill-over effect through participating in contract farming, such as acceptance of new agricultural technology.

(3) Factors that lead to the successful operation of contract farming include:
   a) Attributes of agricultural products: for seasonal farming products that are difficult to store, such as vegetables and fruits, farmers are willing to sign sales contracts to ensure sales and obtain a stable income. Agricultural products that are easy to store, such as rice, farmers tend to sell themselves.
   b) Characteristics of companies or cooperatives: according to the results of the field research, there is a base for mutual trust between local companies or cooperatives and farmers. As a result, companies or cooperatives can make the most of the network of acquaintances in their local society to realise the effective "embedding" of economic and social benefits, thus creating conditions for the development of contract farming. The management and control capabilities of companies or cooperatives are also one of the important factors determining the quality of agricultural products.
   c) Government support: government support for contract farming, especially in the construction of technology infrastructure, information generation, and in expanding the market environment, has promoted the development of contract farming.

(4) The reason for a company or a farmer to terminate a contract lies in the concerns of both parties regarding the risk of contract execution. From a smallholder farmer's point of view, standard contract text can

be regarded as too complicated because of their lack of education, and they are worried about being cheated. They are also worried that their income cannot be fully guaranteed during the execution of the contract. From the company's point of view, there is an unwillingness to bear the risk that farmers cannot effectively execute contracts as farmers often lack contractual awareness.

The research draws the following lessons for reference:

(1) The field research shows that the contract farming model, based on local agricultural practices and shaped by the market, has the characteristics of local practice in contract signing, contract execution, and the handling of breach of contract.

(2) Cultivating local leading agricultural companies and cooperatives is of great significance to the development of contract farming. This is because there is a basis for social trust between local companies or cooperatives and farmers, which creates good social conditions for contract signing and effective execution. Furthermore, compared with the use of foreign capital, the development of local companies is more in line with local agricultural cultivation traditions and market demand, and these companies tend to invest more benefits in the local society, thus promoting the development of the local agricultural economy.

(3) The government's supporting role in building the brand of agricultural products, information services, and the construction of the market environment, is very important. In the cases we studied, the market-oriented services provided by the government for companies and cooperatives have promoted the development of contract farming, along with such product categories as "green" or "organic". The awarding of pollution-free certification of agricultural products, or certification of a geographical indication of products (and where they originate), and cross-regional interconnection for agricultural product supply, as well as marketing information and agricultural product promotion, have also helped.

(4) Improving the ability of farmers to self-organise will help to promote the healthy development of contract farming. Smallholder farmers lack bargaining power when facing large companies. On the other hand, companies are willing to sign contracts with cooperatives or farmers, agreeing to a certain production scale, thereby reducing transaction costs. Therefore, improving the self-organisation ability of farmers, especially the ability of cooperatives, will help smallholder farmers to benefit from contract farming.

The research proposes two aspects of policy recommendations:

(1) The following work should be continuously carried out for the development of domestic contract farming: a) The construction of a rural social trust system still needs to be improved; b) New management subjects such as leading enterprises, farmers' professional cooperatives, and family farms should be further developed and strengthened; c) Farmers' ability for self-organisation should be enhanced; d) Rural land transfer should be further promoted; e) Construction of brands, and the enhancement of information and agricultural product logistics systems should be strengthened.

(2) For the development of contract farming in the Mekong-Lancang River Basin, it is recommended that a regional agricultural product market system is established to share market interests and achieve mutual benefit through means such as investment and cooperation.

3.1. Introduction

3.1.1. Background

In China, contract farming has grown rapidly over the past 20 years (FAO 2018). The Chinese government has supported contract farming since 1990 with dramatic results: by 2001, over 18 billion hectares had been planted under contract farming arrangements (an increase of around 40 percent from the previous year) (Guo *et al*. 2005, cited in Rehber 2007). According to the data from the Ministry of Agriculture and Rural Affairs, the percentage of smallholder farmers participating in contract farming increased from 10 percent in the year 1996 to 24 percent in the year 2017, and the number of institutions with links to contract farming, such as companies and farmers' professional cooperatives, increased almost sevenfold. The average land holding per farmer is now around 0.6 ha[1]. Studies by Guo (2005) and Zhu and Wang 2007 indicate that government efforts to encourage CF have been successful, highlighting the importance of government involvement. Contract farming has been related to other areas of growth such as rapid income growth in Asia (which led to a shift in consumption patterns) and a growth in high-value agriculture (Minot and Roy 2006).

3.1.2. Problem statement

China's agriculture is now facing a major opportunity for transformation and quality improvement. The goal of the No. 1 central document[2] for 2019 was to boost the development of high-quality agriculture, the aim of which is to accelerate the shift from production-oriented development to the quality-oriented development of agriculture. It stressed the need to develop industries with local characteristics, modern agricultural product processing and new rural services. The country will also push forward a digital countryside strategy. Specific measures include: 1) promoting "green" quality characteristics, and branded agriculture; 2) developing the multi-functionality of agriculture; 3) extending the industrial chain; 4) upgrading the value chain; 5) improving the profit chain; 6) achieving the effective interconnection and deep integration of smallholder farmers with the modern agricultural system; and 7) continuously increasing the supply of "green" quality agricultural products. Contract farming is the main organisation and operation mode for effectively improving the quality of agricultural products and for meeting these objectives.

1 Data resource: Ministry of Agriculture and Rural Affairs of the People's Republic of China, 1996, 1998, 2000; *Farmers' Daily*, 2017.

2 The No. 1 central document is the first policy statement released by central authorities each year.

For firms, the opportunities provided by contract farming are clear and convincing: (1) increased reliability in supply quantity and quality; (2) the off-loading of production risk in many cases onto farmers; (3) greater control over the production process and crop attributes to meet standards and credence factors; (4) reduced co-ordination costs, as a more regular and stable supply permits greater co-ordination with wider activities; (5) greater flexibility in expanding or reducing production (since there are fewer fixed assets, especially compared with full vertical integration); (6) economies of scale in procurement via the provision and packaging of inputs. In addition, lower direct-production risk can improve a firm's credit rating, and also allow a firm to maintain intellectual property protection.

For farms, the main opportunity from contract farming is the promise of higher incomes. But, while important, this is not the sole criterion: for example, both Masakure and Henson (2005) and Guo *et al*. (2006) point out that stability and technical knowledge were cited as the most important reasons why farmers join contract farming initiatives (quoted in Bijman 2008). Contract farming can also provide many additional benefits and opportunities: it can increase on-farm diversification; technical assistance and knowledge transfer can spill over onto adjacent fields and into nearby villages; by-products from contract farming can be used for other farming activities; it can simplify marketing decisions, thus improving efficiency; it can stimulate the broader commercialisation of smallholder farming; and, finally, contracts can be used as a form of collateral for credit.

There are some key factors affecting the effective operation of contract farming based on the existing literature.

(1) Performance risks

The compliance rate among the partners in contract farming has become an important indicator of its success. If buyers and sellers in the contract farming arrangement lack a contract and awareness of the need for long-term cooperation, one party might abandon the contract driven by the wish to maximise their interests. If the rate of compliance with the terms of contract farming is low, or contracts are unable to be fulfilled at all, contract farming not only cannot play its proper role, but will also cause a problem by making sales of agricultural products difficult. This will definitely damage the interests of farmers and their partners, and will also diminish any increase in farmers' income and the healthy growth of China's agriculture.

(2) Natural risks

Due to the nature of contract farming itself, production of the agricultural product supply will inevitably be affected by unfavourable weather, climate, seasonal factors and other uncontrollable natural factors. These mean that the buyers and sellers of agricultural contracts, as well as the farmers, take great risks, and may even lead to a breach of the contract terms. One international practice is to avoid risks through climate insurance. In recent years, the use of climate derivatives (climate options) to manage natural risks has been rapidly developed[3]. In China, the function of climate insurance in the agricultural production process has not yet been fully realised.

(3) Price fluctuations

The contract price of agricultural products directly determines agricultural production and the economic benefits of the supply subject under the contract farming mode, and is the core of agricultural contracts[4]. Under the market economy, the price of agricultural products inevitably fluctuates. When the buyer and seller sign the contract with farmers, they determine the contract price based merely on the local market conditions at the time, and by using their own decision-making ability. This leads to contract price deviation and results in final contract prices that are not the most reasonable. If the contract price is too low, farmers will be less motivated; if the contract price is too high, the buyer will need to take higher risks. In both cases, both the buyer and seller may suffer losses due to changes in market conditions when the contract expires, which increases the possibility of a breach of contract by the buyer and seller who want to maximise their profits.

(4) Changes in supply and demand

The yield of agricultural products not only depends on the care and management of farmers, but is also affected by environmental uncertainties. This leads to an uncertain yield of agricultural products produced by farmers upstream of the agricultural product supply chain under the contract farming mode. In addition, the demand for agricultural products also changes. Such uncertainty of yield and demand will increase the risks taken by buyers and farmers, thus increasing the possibility of breach of

3 Meng Yikun. A Review of Weather Derivatives Research [J]. *Chinese Review of Financial Studies*, 2015, 7 (04): 110-123+126.

4 Sun Le, Chen Shengwei. Key Points to the Design and Product Innovation Direction for Agricultural Product Price (Index) Insurance [J]. *Journal of Shandong Agricultural University* (Social Science Edition), 2018, 20 (02): 104-107.

contract by buyers and farmers in contract farming, and difficulties in managing the agricultural product supply chain[5].

Based on the framework of the international cooperation of this research, contract farming is taken as the starting point, and the development history of China's contract farming is reviewed. On the basis of field surveys, it also analyses specific issues such as the contract farming arrangements in practice, what factors determine the success of contract farming and why, and what factors might cause it to fail. Finally, this study summarises the main models and experience in China's contract farming, thus providing experience and references for agricultural development throughout the Mekong River Basin countries.

3.1.3. Research questions and hypotheses

The study explores three research issues, which are:

1. What are the various arrangements of contract farming in each country?
2. Why are certain contract arrangements more beneficial to smallholder farmers than others?
3. What are the factors that determine the success or failure of a contract?

3.1.4. Research objectives

The research objective is to identify the contract farming arrangements in practice and to explore the factors that influence success or failure in specific contract farming cases.

3.1.5. Significance and potential contribution of the study

The significance of the research is that it summarises the main models and development experience of contract farming in China, which provides a practice approach for the plan to boost the high-quality development of agriculture. The study highlights the role of the Chinese government in supporting the development of contract farming, which could provide guidance for other developing countries including those in the Lowe Mekong River Basin.

3.2. Literature review

3.2.1. Concept of contract farming

The literature contains numerous definitions of contract farming. For the purposes of this research, contract farming is defined as including: (1) resource-providing contracts; and (2) production-management contracts (and, of course, contracts that include both resources and production management);

5 Zhao Can. Research on the Key Issues of Market Risk for Agricultural Products in China [J]. *China Market*, 2017 (21): 169+173.

and (3) market specification contracts, which guarantee a farmer a marketing outlet and a time of sale. The incorporation of existing literature into the definition of contract farming suggests the following synthesis:

> *Contract farming is a contractual arrangement for a fixed term between a farmer and a firm, agreed verbally or in writing before production begins, which provides resources to the farmer and/or specifies one or more conditions of production, in addition to one or more marketing conditions, for agricultural production on land owned or controlled by the farmer, which is non-transferable and gives the firm, not the farmer, exclusive rights and legal title to the crop (Martin Prowse 2012[6]).*

The completeness of the content of the contract in contract farming is an important factor related to its performance in contract farming. A complete contract should include content addressing the following five aspects: (1) **The subjects of the contract**: this mainly refers to the buyer and seller within the contract who bear the rights and obligations. The subjects of China's contract farming include farmers, agriculture-related companies, the government, agricultural associations, and various intermediary organisations; (2) **The subject matter of the contract**: mainly refers to the agricultural products that the buyer requests the seller to produce according to certain standards and in line with the buyer's requirements; (3) **The guarantee clauses**: mainly refer to provisions relating to the quality and quantity of the subject matter, the penalties for breach of contract, the settlement mechanism in the event of disputes, and the reciprocal input of both parties. (4) **The price clauses**: of which, currently, there are three main kinds - price fluctuations in response to market conditions, a protection price and a fixed price. (5) **Other clauses**: mainly include the contract period, payment methods, delivery methods, etc.[7] If an agricultural contract is not set out in a standardised way and contains problems, such as indefinite contract content, unmatched relevant policies and regulations, unsound procedures, complicated legal proceedings, and high-cost litigation, it will inevitably increase the possibility of a breach by the signing parties[8].

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6 Martin Prowse. *Contract Farming in Developing Countries*-A Review. AFD research report. 2012.

7 Huang Jianhui. Research on Government Subsidy Mechanism in "Company + Farmer" Contract Farming Supply Chain Financing [D]. South China University of Technology, 2017.

8 Liu Fengqin, Li Jinning. Private Execution Capital and Contract Self-performance Mechanism – Taking Agricultural Product Contract as an Example [J]. *Research on Financial and Economic Issues*, 2018 (06): 11-19.

Contract farming has always attracted considerable policy and academic interest. While recognising the transfer of technology, higher income opportunities and improved access to inputs, much literature from the 1980s and 1990s focused on the risks to smallholders from contract farming (see Little and Watts 1994; Glover 1984, 1987 and 1990; and Porter and Phillips-Howard 1997). For example, how such arrangements can engender a loss of autonomy and increased indebtedness, how contracts have often been manipulated with late and partial payments, and how the intra-household distribution of labour/income has often been altered to the detriment of women's interests. Many of these findings were based on case studies written by sociologists, anthropologists and political economists (Grosh 1994), whose interest was as much in how the impact was distributed across social groups as demonstrated by the mean effect across the participants in the study.

Recently, a series of econometric studies using micro-level survey data (controlled for selection bias) offer a much more positive assessment of contract farming. This spate of studies focuses on two main issues: the participation of smallholders in vertically-integrated value chains; and the impact of participation, particularly on smallholders' incomes (for a summary of the broader debate on these two issues, see Reardon *et al.* 2009).

Regarding the first issue, the literature remains mixed. For example, a more pessimistic interpretation is offered by Kirsten and Sartorius (2002), Baumann (2000), Singh (2002), Delgado *et al.* (2008), Da Silva (2005) and Birthal *et al.* (2005), although many of these authors recognise that in certain circumstances smallholders do engage in contract-farming agreements.

In contrast, a more optimistic interpretation is offered by Reardon *et al.* (2009), who maintain that, although smallholders tend to be excluded in dualistic agrarian economies, there are numerous exceptions to this pattern. Moreover, the same study argues that where small farms are common, they frequently participate and perform well within vertically integrated chains (although wealthier smallholders, unsurprisingly, tend to dominate). In addition, Swinnen and Maertens (2007) posit that although theory suggests that transaction costs and investment constraints imply that smallholders should be excluded from taking part, empirical work suggests a much greater degree of participation.

The literature on the impact of participation shows a much more distinct shift in the last decade. The work from Birthal *et al.* (2008), Bolwig *et al.* (2009), Miyata *et al.* (2009), Minten *et al.* (2009) and Setboonsarng *et al.* (2008) shows significantly higher incomes for contract growers. The broader

agribusiness literature supports these findings, with Reardon *et al.* (2009, p. 1722) stating that "farmers participating in the modern food industry channels, compared to those only in the traditional channels, have greater net earnings per ha or per kg marketed".

In addition, contract farming has also attracted significant high-level policy attention. For example, the World Development Report 2008 on Agriculture for Development strikes an optimistic note on the potential for reducing poverty through contract farming, especially when linked to producer organisations.

3.2.2. Development status of contract farming in China

After nearly 30 years of development, contract farming in China has made great progress. So far, the development of contract farming has exhibited the following characteristics. First, the amount of agricultural products produced or sold in the form of contract farming has steadily increased. Agricultural products produced or sold under contract have been developed from small quantities of local specialty products (such as edible oils and vegetables) to bulk commodities (such as corn, beans, rice and wheat). Second, the area where contract farming is developed has also expanded rapidly. Contract farming initially began in the economically developed coastal provinces, and has so far expanded to the less developed regions of central and western China. Many companies not only sign contracts with local farmers but also with farmers in other provinces. Third, the scale of products produced under contract, the planted area, cash income, and the number of participating farmers have also increased. According to the Ministry of Agriculture and Rural Affairs of China, the planted area related to various contracts in 2016 exceeded 6,000 ha,[9] about five times more than in 2000. Finally, the number and complexity of contracts is also increasing. In addition to fairly standard production and marketing contracts, there are some new ones for food deals between major production regions and high-demand regions as well as seed supply between farmers and research institutions.

According to the latest survey by the Ministry of Agriculture and Rural Affairs of China, in 2017, the number of organisations involved in agricultural industrialisation in 31 provinces of China was seven times that of 1996, and the proportion of farmers participating in contract farming also rose from 10 percent to 24 percent.

9 Ministry of Agriculture and Rural Affairs 2017.

Table 3.1: Changes in the types of agricultural organisations participating in contract farming

Organisational form	1996	1998	2000	2017
Leading enterprises	5381 (45.51%)	15088 (49.93%)	27000 (41.0%)	87000 (44%)
Intermediaries	3384 (28.62%)	8024 (26.44%)	22000 (33.0%)	55000 (28%)
Government organisations	1450 (12.26%)	4848 (15.98%)	7600 (12.0%)	21000 (11%)
Other organisations	1600 (13.61%)	2384 (7.85%)	9600 (14.0%)	33000 (17%)

Data sources: Ministry of Agriculture and Rural Affairs of the People's Republic of China, 1996, 1998, 2000; Farmers' Daily, 2017

The investigation by the Research Group of the Rural Division of the State Council Research Office (2001) shows that there are roughly five modes of contract farming in China: main grain producing areas and sales areas signing grain purchase and sales contracts; farmers and agricultural companies signing agricultural product purchase and sales contracts; farmers and scientific research and production units signing contracts; farmers and professional markets signing contracts; and farmers and intermediary circulation organisations signing contracts. According to the differences in contract price, Guo Hongdong (2002) categorises agricultural contracts into four types: guaranteed price contracts (the contract price is fixed); market protection price contracts (the contract price cares about high not about low, and production and operation risks are completely borne by the companies); the market protection price plus preferential services; and the market protection price plus the type of rebate. The specific organisation and operation modes are:

(1) Centralised model

This model is a mode in which an enterprise, mainly engaged in the processing and sale of agricultural products, works with production bases and farmers organically with a focus on the production, processing, and sale of one or several products. Leading enterprises, as a bridge between farmers and the market, can gain a stable supply of raw materials (that guarantees production, price and quality), which reduces transaction costs. For farmers, this mode reduces the risk of blind production and transaction costs (by providing market information, production and sales information), and provides stable sales channels. Farmers also have access to technical support to improve the efficiency of production. However, enterprises and farmers are different

stakeholders in this mode. Each of them pursues their own maximisation of interests, leading to a dispersed relationship between them. This mode has key problems such as a high breach rate, and the unfair distribution of interests, and is unclear about who takes the market risks.

(2) Intermediary model

In this mode, companies no longer directly face scattered farmers, instead they encounter organised farmers – in a new type of professional, cooperative, economic organisation for farmers. Companies propose plans for demand in raw materials to cooperative organisations according to their sales orders, and sign supply contracts with these organisations. Similarly, farmers no longer make contact directly with companies, but sign contracts with the cooperative organisations.

(3) Informal model

In this mode, farmers sign contracts on a verbal basis with distribution companies, brokers and merchants and rely on these circulation organisations to develop contract farming. As intermediaries who have been active in the agricultural market for a long time, rural brokers serve an intermediary function through the internet, which plays an important role in promoting rural market circulation and transmitting information about market supply and demand.

The "e-commerce + farmer" type cooperation mechanism provides consumers with an instant consumption supply. E-commerce enterprises use an agricultural product business information management system to classify and manage numerous agricultural product orders to deal with orders simultaneously, if they are destined for locations that are geographically close, and that have the same or similar transportation performance requirements. They then integrate such orders into a centralised transportation system, thereby reducing the logistics and transportation costs and enhancing the price competitiveness of agricultural products.

The selection of contract farming cooperation modes is mainly based on the following factors: the willingness of the main subjects participating in contract farming; the market demand; the conditions relating to the production and sale of agricultural products; the advantages of contract farming over smallholder production; and the economic conditions and social demand. It should be noted that, regardless of the classification of cooperation modes of contract farming, at its core is the end result of the contractual relationship: to what extent it benefits the parties involved and its role in reducing transaction costs are key.

The Ministry of Agriculture and Rural Affairs of China has not formulated relevant policies relating to the development of contract farming. Yet in the process of promoting agricultural industrialisation and modernisation, some specific policies have been formulated to indirectly address this. For example, the Notice on Promoting the Implementation of Policies and Measures for the Integration and Development of Primary, Secondary and Tertiary Industry in Rural Areas, issued by the Ministry of Agriculture and Rural Affairs in 2016, specifically mentions that it is required to "develop contract farming in an innovative way to guide and support enterprises in signing purchase and sales contracts with farmers, family farms, and farm cooperatives on the basis of equality and mutual benefit". The Notice on Doing Well the Implementation of the Central Finance's Agricultural Production Development and Other Projects in 2017, emphasises that all kinds of new agricultural management subjects, which need financial funds, could establish a close binding mechanism with farmers – who share their interests - through forms of stock and other cooperation systems and shareholding processes, "guaranteeing a minimum income, and sharing profits according to stock", contract farming etc.

3.2.3. For and against the issues addressed in this report

In the last decades of the twentieth century, contract farming was widely applied in countries around the world. Different from traditional agriculture, which is responsible only for planting but not selling, contract farming can effectively connect farmers to the market and link the interests of both parties in a positive manner, thereby guiding farmers to the market and improving the quality of agricultural products. Glover (1987) believes that contract farming is an institutional arrangement that combines the advantages of large farms and smallholder farmers. If it can be carefully planned and implemented, contract farming can produce win-win results for farmers and companies[10]. It also allows processing plants or companies to gain a stable and long-lasting supply of raw materials at a lower cost and ensures a better connection between market demand and agricultural production (Pandit Arun, Pandey N K, et al.)[11]. The empirical research of Guo Hongdong (2005) shows that by participating in contract farming, enterprises can guarantee the quality of agricultural products, gain a stable supply of raw materials, stabilise agricultural product prices, and gain government support; likewise, farmers can also improve the

10 Glover D. Increasing the Benefits to Smallholders from Contract Farming: Problems for Farmers' Organizations and Policy Makers [J*]. World Development*, 1987, 15(4): 441-448.

11 Pandit Arun, Pandey N K, Rana Rajesh K, Lal Barsati. An Empirical Study of Gains from Potato Contract Farming [J]. *Indian Journal of Agricultural Economics*, 2009, 64(3): 497-508.

quality of their agricultural products, reduce sales costs, and stabilise the sales price of agricultural products[12].

However, contract farming has also exposed some problems while actively drawing on its strengths. Because of the exploitation that potentially exists within it, contract farming has been questioned by many scholars (Singh 2002)[13]. For example, it is clear that large companies have greater bargaining power than smallholder farmers, and farmers often encounter problems such as the manipulation of quality standards, a lack of technical support, deception and intentional breach of contract. In addition, if the parties to the contract cannot properly fulfil its terms,[14] the advantages of contract farming are gone.

3.2.4. Contribution of the current study to the knowledge gaps identified in the literature

The existing research constitutes a systematic analysis of the mechanism and effect of contract farming focusing on different types of agricultural products. It has also studied the influencing factors of the effects of contract farming. However, the results indicate that the research focuses more on the use empirical quantitative analysis to prove the impact of contract farming on the income of smallholder farmers, and lacks a discussion about the operational mechanisms and conditions of contract farming. That is, under what conditions smallholder farmers can benefit from contract farming, or what the main influencing factors are for smallholder farmers to successfully operate under contract terms. For the above reasons, this research will use qualitative research methods to produce a typical case study on contract farming related to high-quality rice, vegetables and fruits to explore why some cases are successful while others have failed. Furthermore, the impact of contract farming on smallholders is also discussed.

3.3. Research methodology and data

3.3.1. Theoretical and empirical models used in testing the stated hypotheses

This research is a qualitative study, which is carried out through field research. Data collection methods included literature searches, observation, key person

12 Guo Hongdong. Research on Agricultural Leading Enterprises and Farmers' Order Arrangements and Contract Performance Mechanisms – Based on the Analysis of Behavior of Enterprises and Farmers [D]. Hangzhou: Zhejiang University, 2005.

13 Singh S. Contracting Out Solutions: Political Economy of Contract Farming in Indian Punjab [J]. *World Development*, 2002, 30(9): 1621-1638.

14 Mi Jinchuan. A Re-understanding of "Company + Farmer" [J]. *Inquiry into Economic Issues*, 2003, (4): 116-118.

interviews, group interviews, and a farmer questionnaire survey. The data is used for case analysis.

3.3.2. Location of field research

The field research was carried out in Lingshan County, Qinzhou City, Guangxi Zhuang Autonomous Region. Lingshan County is located in the south of Guangxi Zhuang Autonomous Region between 21° latitude and 108° longitude. In 2017, the county's administrative area was 3,558 sq km, and the cultivated area was 80,000 ha. It administers more than 17 towns, two streets, 387 village committees, and 22 community neighbourhood committees, and has a total population of 1.673 million, of whom the Han population accounts for more than 97 percent. In 2017, the county achieved a regional GDP of CNY28.493 billion and fiscal revenue of CNY1.101 billion. The *per capita* disposable income of urban residents was CNY31,467, and farmers achieved a *per capita* disposable income of CNY11,777[15].

Lingshan County is rich in natural resources. It also has many famous local specialties, and its agricultural production is developing steadily. After reform and opening up, the Lingshan County Government has further optimised the agricultural industrial structure of the country, promoted standardised production of pollution-free agriculture, and implemented an "improvement project for characteristic agriculture" by establishing a number of agricultural and animal husbandry industrial bases. Those feature rice, sugar cane, lychees, vegetables, tea, watermelons and Lingshan chicken. The county has also developed various types of agricultural professional cooperative organisations, and has a number of leading enterprises engaged in the agricultural industrialisation of animal husbandry, vegetable processing, snack food processing, etc.

The main reason for choosing Lingshan County as the location for field research was that, first, the Guangxi Zhuang Autonomous Region is located on the southwestern border of China, bordering Vietnam and playing a central role in the construction of the China-ASEAN Free Trade Area; second, Lingshan County is a major agricultural county that meets the requirements of crop types in this research. It also has leading enterprises and cooperatives for the production, planting and processing of high-quality rice, vegetables and fruits.

3.3.3. Data collection

Field data collection and analysis and crop types are summarised in Section 1.2 in Chapter 1.

15 Statistical yearbook of Lingshan County, 2018.

(1) The number of companies/cooperatives selected

This research uses six cases for each crop type. Among the six cases, three represent the successful operation of the contract farming mode, and another three are unsuccessful or not very effective.

(2) The number of KIIs with policymakers and other relevant individuals

The researchers also interviewed eight key people who were local agricultural bureau officials and company/cooperative leaders.

(3) The number of FGDs with farmers and farmers' associations or organisations

The research included a questionnaire survey and group interviews with 45 farmers. Among them, 26 households were bound by contracts, and 29 households were not bound by any contracts or had not renewed the contracts they had signed. Eight group interviews were conducted.

3.4. Results and discussion

3.4.1. Development of contract farming in Lingshan County, Guangxi, and field research cases

(1) Lingshan County's policy on the development of contract farming

Lingshan County has not issued any policy document specifically relating to the development of contract farming. Yet the policy documents for cultivating and expanding new management subjects specifically emphasise that enterprises and farmers' professional cooperatives should be encouraged to sign production contracts with small farmers to develop contract farming, and that smallholder farmers should be helped to connect to large markets. It also stresses that, in their production, smallholders should be introduced to modern agricultural development, so as to increase the output value and added value of agricultural products[16].

(2) Development of contract farming in Lingshan County

Lingshan has 48 key leading enterprises focusing on agricultural industrialisation at or above county level, with an annual sales income of CNY3.1 billion and an order purchase amounting to CNY1.3 billion. This involves farmers from 106,000 households with an average household income of CNY12,664 a year. The main modes of contract farming are

16 Lingshan County Supply and Marketing Cooperatives Association's notice on the Implementation Plan of the Lingshan County Supply and Marketing Cooperatives Association on Vigorously Promoting Rural Revitalization [EB/OL]. Website of Lingshan County People's Government, http://www.qinzhou.gov.cn:9000/pub/root21/auto8590/zhxx/201811/t20181130_1859422.html.

"company + farmer", "company + cooperative + farmer", and "company + broker + farmer". Contract farming is found mostly in the industries of sugar cane, grain, tea, wood, fruits, milk buffalo, etc., among which the industries of sugar cane and milk buffalo make a significant contribution to the development of agricultural output value.

A survey on new management subjects in Lingshan County, carried out in August 2018, showed that among the 25 agricultural enterprises surveyed, 22 had signed contracts, accounting for 88 percent of all enterprises surveyed. Among the 22 enterprises, eight were contract-issuing parties. Their contracts were issued to farmers and cooperatives. The average proportion of the volume of contracts issued to the total business volume was 65.75 percent, and the average duration of the order mode was eight years. A total of 14 enterprises were contractors, accounting for 63.7 percent of the 22 enterprises. As contractors, they were interconnected mainly with other enterprises, wholesale markets, and large supermarkets. The volume contracted accounted for an average of 70 percent of the total business volume, and the average duration of the order mode was eight years. Among the enterprises involved in contract farming, 95.5 percent were willing to continue that involvement.

Table 3.2: Development of orders gained by agricultural enterprises in Lingshan County

Type of agricultural enterprise		Proportion	Main partners	Order volume as a percentage of business volume (average value)	Average duration of order mode (years)
	Contract-issuing parties	36.3%	Farmers and cooperatives	65.75%	8 years
	Contractors	63.7%	Other enterprises, wholesale markets and large supermarkets	70%	8 years
Willingness to continue with contract farming		95.5%			

Source: Data from the survey on management subjects of agricultural enterprises in Lingshan County, Guangxi, carried out in August 2018

Generally speaking, legal people representing agricultural enterprises have a certain accumulation of capital, knowledge and professional skills. The enterprises involved in contract farming had achieved remarkable results in driving the progress of smallholder farmers. Each enterprise had driven an average of 1,465 households to participate in contract farming, and the average, annual household income had increased by CNY17,228.

(3) Cases of contract farming in Lingshan County, Guangxi, from the field research

According to the current state of agricultural development in Lingshan County, and the requirements of contract farming research, six companies/cooperatives were selected for case research. The modes of contract farming mainly included "company + farmer", "company + cooperative", "company + base + farmer", "cooperative + farmer", and "e-commerce + farmer".

1) High-quality rice

Guangxi Lingshan County Ruilong Crop Planting Professional Cooperative (Case A) was founded in 2015 and currently has five board members and 400 member farmers. It mainly plants rice. Its key agricultural product for orders is organic indigenous rice, with a planting area of 800 mu (about 53.33 ha). The product is sold mainly to the middle- and high-end markets, and its operational mode is "cooperative + farmer". The cooperative provides the farmers with seeds, organic fertilisers and other products needed in the early stages of production. Farmers are not charged for the means of production, and the fees are deducted during the purchase phase. During the planting period, which includes transplanting, fertilising and harvesting, the cooperative organises and conducts the processes in a unified manner, and sends technicians to inspect and guide the production of farmers. The purchase price is the protection price + the market price. If the market price is higher than the protection price, the purchase price is the protection price plus 50 percent of that part of the market price that is higher than the protection price. If the market price is lower than the protection price, the purchase price is the protection price. If the farmer does not arrange production according to the agreed process or technical standards, the cooperative has the right to reject the rice, and the farmer must compensate the cooperative for the means of production provided by the cooperative at the market price. If the farmer produces passively, the Cooperative generally will not renew the contract. At present, this order mode has lasted for three years, and the annual yield of rice has been 480,000 jin (240,000 kg).

Guangxi Lingshan County Wansui Rice Industry Co., Ltd. (Case B) is located in Shili Industrial Park, Lingcheng Town, Lingshan County. It is a production and operation enterprise mainly engaged in the deep processing of rice. Its factory covers an area of 5,779 sq m. It currently has 30 employees, including nine management personnel, technical and inspection personnel, and 21 production workers. Founded in May 2005, the company uses locally grown rice as its main raw material. The varieties include high-quality late rice, fragrant glutinous rice, and more than 30 others. The company currently produces 5 tonnes of rice per day, and its production line has an annual processing capacity of 15,000 tonnes. Its registered trademark name is "Gongsui (贡穗)" rice, with an annual sales volume of 13,000 tonnes. In order to upgrade the brand, the company established a high-quality rice production base in 2015, and is now actively applying for selenium-enriched rice certification. In 2008, the company was recognised as a key leading enterprise of agricultural industrialisation in Lingshan County, among the third batch of such enterprises. In 2009, it passed the certification of "pollution-free" agricultural products. In 2010, it was recognised as a key leading enterprise of agricultural industrialisation in Qinzhou City. From 2015 to 2017, the company's total assets reached CNY13.1 million, including fixed assets of CNY7.28 million. In 2016, it achieved a sales revenue of CNY84.63 million, net profit of CNY1.02 million, and a sales profit rate of 1.2 percent. In 2017, the company tried to sign contracts with farmers for the purchase of rice. Due to many problems in practice, contracts were not renewed after only one year of trial. At present, the company has two sources of rice: base production and scattered purchase.

2) Vegetables

Guangxi Lingshan Jinsheng Agricultural Products Co., Ltd. (Case C) is a key leading enterprise in Qinzhou City engaged in the cultivation, purchase, R&D, deep processing and sale of vegetables. The company was founded in 2014, and its production has been on track since 2018. Its factory covers an area of more than 20 mu (about 1.33 ha), with a total investment of CNY45 million. The factory processes 8,000 tonnes of green leafy vegetables annually, and has a total of 30 workshop workers. The company has developed vegetable processing products for many years relying on its exclusive resources. It has developed four series of products represented by Lingshan *meigan cai* (a type of dry pickled mustard), *suan cai* (a traditional pickled Chinese cabbage), turnip and fragrant bamboo shoots. The company's current business mode is "company + farmer". In 2017, the company began to sign vegetable purchase and sale contracts with farmers and cooperatives. The contract signed with a local professional fruit and vegetable cooperative

involves more than 30 member farmers. There are also more than 30 farmers directly contracted with the company. The contracts were negotiated and signed on the basis of voluntary participation, and stipulate the variety and price of the purchased vegetables. In 2018, vegetables purchased by the company in the form of purchase and sale contracts accounted for 40 percent of the total purchases of the company, and the market purchases accounted for 60 percent of the total purchases.

3) Fruits

Guangxi Bangcai Guava Professional Cooperative (Case D) was founded in 2015, and has registered the "Bangliang" trademark. It mainly provides production and sale services, including organising purchase and ordering the means of production required by members, conducting technical exchanges and training, and organising the purchase and sale of agricultural products produced by members. Guava is a new variety introduced to the county. 1050 mu (70 ha) of guava is currently planted in Liangtian Village. The mode of operation is "cooperative + farmer". The cooperative signs long-term guava production and purchase contracts with farmers, unless the farmers voluntarily request to quit the cooperative. Once the farmers quit, they automatically abandon the order contracts. The cooperative provides members with free seedlings, production techniques and chemical fertilisers and pesticides (which the farmers purchase voluntarily), and the members are required to carry out standardised planting in accordance with the technical regulations for pollution-free fruits. The contracts make specific provisions in respect of fruit standards such as weight, colour, and size of fruit, and prohibit members from using the "Bangliang" trademark to sell unqualified fruits. In terms of purchase methods, in addition to the fruit-picking sales to tourists, the remaining fruit is purchased by the cooperative (including fruit supplied to authorised purchase stations). Members are not allowed to sell fruits to any form of third-party purchasers. If the cooperative breaches the contract, farmers can quit the cooperative unconditionally; if a farmer breaches the contract, such as violating production technical standards, selling unqualified fruits, or using packing boxes and bags that are not from the cooperative, that farmer's membership fee (CNY200) will be confiscated, and the membership will be cancelled. However, in practice, even if farmers breach contracts, the cooperative usually adopts the humane management method of persuasion or reasoning with the farmers without confiscating the membership fees. For fear that their reputation will be damaged, farmers do not commit breaches repeatedly. At present, the cooperative has a total of 400 members from two administrative villages. The earnings of the cooperative mainly come from the sale of fruits, packaging and chemical fertilisers and

pesticides. The cooperative takes an annual 10 percent of its profit to share with its members.

Guangxi Dingguagua Food Co., Ltd. (Case E) is a privately owned company located in Shili Industrial Park, Lingshan County. The company was incorporated in March 2010 with a registered capital of CNY57.5153 million. The company's main business interests are comprehensive - processing and sale of dried subtropical fruits, fermented fruit, fruit juice and other foods. The company represents three main types of suppliers for raw fruit materials, namely cooperatives, traders and individual farmers. The mode of contract farming the company uses is "company + cooperative (trader)". For large orders, the company signs paper contracts with cooperatives and distributors. The contract stipulates fruit quality, delivery method and time, penalties for breach of contract, and payment method. In addition to formal contracts, the company also makes contracts verbally with some cooperatives.

Guangxi Lingshan Tianyu E-Commerce Co., Ltd. (Case F) was incorporated in August 2017 with a registered capital of CNY5 million. Its business scope includes online trade agency, online business consulting services, domestic advertising design, production, distribution, agency, etc. "Clever Housewife Jiumei" is a brand programme of the company's "We Media" activities. At present, the programme has more than 2 million fans on Toutiao (an online content platform) and has achieved more than 200 million plays. The company entered the agricultural e-commerce industry in 2017 under the brand "Clever Housewife Jiumei". By leveraging the fan economy, it sold more than 3 million jin (1.5 million kg) of agricultural and sideline products such as emperor tangerine (皇帝柑), fertile tangerine (沃柑), and honey for farmer partners. At present, the company has signed a production and sale contract with Lingshan County Fuming Fruit and Vegetable Planting Professional Cooperative. The Cooperative organises farmers to produce agricultural products such as fertile tangerine, and the company purchases agricultural products through the cooperative. The order crops are mainly fruits. Farmers supply fruits through written or verbal contracts agreed with the cooperative.

3.4.2. Conflict resolution mechanisms

In the six cases covered by the field research, the provisions in each contract for the resolution of conflicts, such as breach of contract, are different. In practice, there are also cases in which one of the parties has failed to perform according to the provisions of the contracts. Thus, the binding force of contracts differs.

(1) Methods for the handling a breach of contract that is agreed in the contracts
Formal contracts in the research cases clearly stipulate methods for the

handling a breach of contract. The contracts Bangcai Guava Professional Cooperative (Case D) signed with farmers clearly stipulate how a breach of contract should be handled for both parties. If the cooperative breaches a contract with acts such as deliberately forcing the price down and deliberately rejecting fruits, farmers can quit the cooperative unconditionally. If a farmer breaches a contract with acts such as the misuse of chemical fertilisers and pesticides, continuously providing unqualified fruits during purchase, selling to third parties, forcing the price down for tourists, using packaging boxes and bags that are not from the cooperative, and purchasing fruits from places outside to pass them off as fruits from the base, the farmer's membership fee (CNY200) will be confiscated and his or her membership will be cancelled.

Ruilong Crop Planting Professional Cooperative (Case A) chooses to increase the cost of a breach of contract for both parties to reduce the occurrence of these offences when dividing the liabilities for breach. The contracts stipulate that if the farmer does not arrange production according to the agreed process or technical standards, the cooperative has the right to reject the rice, and the farmer must compensate the cooperative for the means of production (such as fertilisers and seeds), provided by the cooperative, at the market price; if the farmer produces only passively – making no efforts to improve or sell production, the cooperative generally will not renew the contract. The cooperative's liability for breach of contract is not specified in the contract. But as it invests heavily (including in the supply of organic fertilisers, seedlings, technical services, etc.) in the early stages, it is naturally bound to the contracts because of that input. If it does not purchase the agricultural products produced by farmers, its early-stage input will become a "sunk cost", thus damaging its interests.

The contracts of Wansui Rice Industry Co., Ltd. (Case B) were personally prepared by the person in charge of the company. After resigning from the local government's grain bureau in 1993, the company's person in charge first engaged in grain sales, and then founded Wansui Rice Factory in 2003. The contracts drafted by the company are standardised with the liability for breach of contract and the mechanism of accountability clearly defined. Provisions for the liability in respect of a breach of contract include the following: if Party B delays delivery or sells products without authorisation, Party B shall pay Party A the liquidated damages; if the agricultural products provided by Party B are unqualified, Party A may choose to reject them. The contracts also stipulate that, in case of *force majeure* such as natural disasters, Party B may be exempt from all or part of its liabilities. Judging from the content of the contracts, we believe that the contracts can not only ensure the quantity and

quality of the rice purchased by the company, but also protect the interests of farmers and greatly reduce the risk of depressed sale of agricultural products caused by the company's breach of contract.

(2) Actual handling of a breach of contract

The actual handling of a breach of contract is different from the identification and division of the liability for breach of contract described in the previous section. If an enterprise signs a contract with a cooperative and a breach of contract occurs, it is generally handled in accordance with the contract. But if an enterprise signs a contract with a farmer and a breach of contract occurs, it is handled in a flexible way.

In the actual execution of orders, Dingguagua Food Co., Ltd. (Case E) has fewer cases of breach of contract. This is because the company prepays 30 percent of the payment for goods as a deposit after signing the contract with a cooperative or a trader, and 3 percent of the payment for goods as the liquidated damages are agreed upon between the parties. Cooperatives or traders can receive 30 percent of the payment for goods at the beginning of the contract, which will greatly reduce the potential risk of breach in the later delivery of agricultural products. Breach of contract will also have an impact on the renewal of contracts. Cooperatives thus will not breach contracts easily, as this may cause them to lose opportunities for long-term cooperation with leading local agricultural enterprises.

In cases of breach of contract by farmers, the company has two ways of approach - imposing a light penalty, or not dealing with it at all. Although Gangcai Pomegranate Cooperative (Case D) clearly stipulates measures for the handling of breach of contract in contracts, it merely persuades or reasons with farmers without, in most cases, confiscating their membership fees. Directors of the cooperative are in charge of negotiating with the farmers who breach the contracts, thus managing the farmers' performance in respect of the contract terms. Wansui Rice Industry Co., Ltd. (Case B), in cases relating to high-quality rice, leaves a blank for the percentage of liquidated damages in the contract, but this is not filled when the company signs contracts with farmers. Jinsheng Agricultural Products Co., Ltd. (Case C) adopts a "joint liability" mechanism to handle the problem of breach of contract. For example, several farmers are bound together to sign a contract. If a farmer fails to deliver products according to the contract, but sells products secretly to other vendors or companies, the company will subsequently not only decline to sign future contracts with the offending farmer, but also with all of the other farmers bound in with

the offender. The "joint liability" approach can establish a supervisory relationship between farmers. It mainly manages farmers' performance of the contract from a moral perspective.

(3) Reasons for failure to enforce the clause of breach of contract
Moral constraints often play an important role in the performance of contracts. Bangcai Guava Professional Cooperative, merely persuades or reasons with farmers without confiscating their membership fees, should they breach the terms of their contracts. Fearing damage to their reputation, farmers will not repeatedly offend. The person in charge of the cooperative is a local native whose family have lived in the county for generations. Fear of damaging his reputation and his relations with neighbours, means that he will not breach contract terms either. The contracts' flexible stipulation relating to price, that is, the stipulation of purchasing agricultural products at the protection price, or the prices fluctuating in response to market conditions, also helps to reduce the probability of breach.

Some contracts lack clauses regarding the handling of breach of contract. Because the contractual stipulation is not standardised, and the contracts lack clauses regarding the liability and handling of breach of contract, the contracts lack binding force and details of how a breach of contract will be handled. In addition, because of the lack of understanding and trust relating to the complicated clauses of contracts, there is a clear disagreement between companies and farmers about contracts during the contract signing process. As farmers are worried that their own interests might potentially be damaged due to the signing of contracts, they are very sensitive about the clauses regarding breach of contract, which also, to a certain extent, influences the contracts' stipulations regarding breach of contract.

3.4.3. Benefit of CF to smallholder farmers

The crop production of CF farmers is higher than it is for non-contract farmers and this leads directly lead to the former enjoying a higher income than the latter. We interviewed 26 contract farming farmers and 29 non-contract ones. Table 3.4 below shows that there is no significant difference between the two groups in terms of personal characteristics. For example, the average age of CF farmers is 49.8 and non-CF farmers is 48.2. The average educational level is also similar for these two groups. However, for crop production, there is a significant difference. The average production of vegetables and fruit of contract farming farmers is much higher than it is for non-contract farming farmers. But the rice production shows no significant difference.

Table 3.3: The farmers characteristics for contract farming farmers and non-contract farming farmers

	CF farmers	Non-CF farmers
Average Age (years)	49.8	48.2
Educational Level	1.7	1.6
Rice (acre)	0.54	0.53
Vegetable (acre)	6.3	3.8
Fruit (acre)	41.8	3.4
Cash Income of 2018 (RMB)	129080	56706.9
Number of Households	26	29

(1) Reducing risks from the market by price protection measures
Smallholder farmers plant at a small scale and lack stable sales channels. Their yield is also low. This leads to very limited bargaining power in the market. Signing order contracts, however, can unblock sales channels. Agricultural products are often weaker in their ability to withstand market risks. If farmers are supported by price protection measures, they will suffer less from price fluctuations in the market. Farmers' voluntary enthusiasm for signing contracts is exactly based on this consideration. In the cases of farmers voluntarily signing contracts with Jinsheng Agricultural Products Co., Ltd., the main reason put forward by farmers was the compelling force of the market. In 2016, the price of turnip plunged in the market to CNY0.1-0.2 per kg, causing great losses to farmers. Later, when farmers knew that contract farming could provide price protection, they voluntarily signed contracts with the company.

(2) Trying new market-oriented products more proactively
Under the leadership of companies and cooperatives, farmers are willing to try planting market-oriented agricultural products that are different from traditional crops. For example, in Liangtian Village, where Bangcai Guava Professional Cooperative is located, farmers used to plant lychee and longan and had never planted guava. Under the leadership of the cooperative president, guava has now become the most important agricultural product in the village. The reason for this kind of change is mainly the support of cooperatives and companies. One kind of support is technical. Trying to plant new crops requires the learning of new planting techniques, which is too costly for smallholder farmers. But if cooperatives can provide long-term and stable technical guidance, the risk of failure in trying new crops is greatly reduced. Another kind of support is in

guaranteeing a minimum income. Since farmers have not been engaged in the production of guava before, they are not familiar with the market. By setting a protection price for fruit in contracts, the cooperative can eliminate farmers' concern of being unable to sell the products.

(3) Significantly increasing income by planting high-quality agricultural products

The mode of contract farming reduces the risks involved in selling agricultural products and raises the requirements for quality of agricultural products. Therefore, by selling high-quality agricultural products, farmers' income also increases. Take rice as an example. Selenium-rich rice is CNY25 per kg, and ecological fragrant rice is CNY7.2 per kg. The prices are relatively stable. The two kinds of rice also enjoy a stable market demand, and they have won strong loyalty among consumers. Once recognised by consumers, they will have a fixed customer base. In addition, as the order contracts stipulate a fixed purchase channel, farmers can achieve much higher income through contract farming than through just planting ordinary rice.

In addition to increasing income, contract farming can also reduce the costs to farmers of planting. The seeds and fertilisers provided by cooperatives and companies in a unified manner have lower prices, which reduces the production costs of farmers.

3.4.4. Factors determining the success of contract farming

(1) Contract form

The field research found that, at present, the modes of contract farming in Lingshan County are mainly the centralised model and the intermediary model. There are other models such as the informal model in which the firm purchases products from farmers directly on a verbal basis. Different order modes also have different parties. But in most cases, Party A is a company, and Party B is a farmer. There are two types of contracts, namely formal contracts and verbal agreements. The former is generally printed out. Whether or not contracts are in writing is not directly related to their binding force.

Table 3.4: List of basic information of the cases studied

S/N	**Company name**	**Type of agricultural product**	**Order mode**	**Parties to the contract**	**Contract form**	**Contract signing frequency**	**Contract content**	**Binding force of contract**
1.	Guangxi Lingshan County Ruilong Crop Planting Professional Cooperative (Case A)	High-quality rice	centralised model	Company and farmer	Formal	Annual renewal	Supply of means of production	Strong
2.	Guangxi Lingshan County Wansui Rice Industry Co. Ltd (Case B)	High-quality rice	Centralised model	Company and farmer	Formal	Annual renewal	Product type, time of purchase, handing of breach of contract, purchase price	Weak
3.	Guangxi Lingshan Jinsheng Agricultural Products Co. Ltd (Case C)	Vegetables	Nucleus-estate model	Company and farmer	Formal	Annual renewal	Product type, time of purchase and purchase price	Weak

4.	Guangxi Bangcai Guava Professional Cooperative (Case D)	Fruits	Nucleus-estate model but the contractor is a cooperative organisation	Cooperative and farmer	Formal	Once signed, the contract is valid for life	Planting management, fruit standard, order management, purchase price and handling of breach of contract	Strong
5.	Guangxi Dingguagua Food Co. Ltd (Case E)	Fruits	Intermediary model	Company and Cooperative	30% Formal+70% verbal	Annual renewal	Product type, protection price, location and time of purchase and handling of breach of contract	Weak
6.	"Clever Housewife Jiumei" (Guangxi Lingshan Tianyu E-Commerce Co. Ltd) (Case F)	Fruit, honey, etc	Intermediary model	Company and Cooperative	Formal + verbal	Annual renewal Automatic renewal default if no objection is received	Product type, supply mode, and handling of breach of contract	Average

Regarding the classification of order mode, we must not only judge from the type of participating subjects but also from the actual operation. For Guangxi Lingshan County Ruilong Crop Planting Professional Cooperative (Case A), although the Cooperative is a participating subject, we classified it into the centralised model. The reason is that the person in charge of the Cooperative turned to the agricultural industry after accumulating capital through business activity, and focused on the development of high-quality agricultural products. He established a Cooperative, and produces and purchases high-quality rice by means of contract farming. In addition, he set up another company and selected land with low soil pollution levels, which was suitable for "green" planting in Lingshan as production bases, and then negotiated with the farmers involved in the bases. Therefore, the actual mode of contract farming for the cooperative is still "company + farmer".

Different from the case of Ruilong Cooperative, Jinsheng Agricultural Products Co., Ltd. (Case C) has adopted a relatively standard centralised model. Since the vegetable planting season is in the second half of the year, the company signs contracts with farmers once each year, and the contract period is from 1 August to 1 February of the following year. After signing the vegetable purchase and sale contracts on 1 August, farmers start planting on 10 August. The company requires farmers to plant at a unified time to facilitate the unified purchase in the later period. At the time of harvest, the company calls farmers in advance to inform them about the time of purchase, and farmers later send the vegetables to the company. After a round of order purchases, the company has found, from practice, the quality of agricultural products gained from contract farming is generally higher than the quality of agricultural products purchased from the market. The reason is that, in contract farming, companies or cooperatives provide farmers with seeds and fertilisers in a unified manner, send technicians to conduct field management and technical guidance, and control quality when purchasing, thereby guaranteeing it.

Wansui Rice Industry Co., Ltd. (Case B) adopts the centralised model for the purpose of improving rice quality and reducing production costs. In 2015, the company established a 500-mu (about 33.33 ha) mechanised rice planting base in a nearby village. At present, 431.89 mu (about 28.79 ha) of land has been transferred to the company, which involves 248 households of farmers. The land rent is CNY600 per year per mu, and the total rent for the transferred land is CNY260,000 per year, which means each house can receive a rent of CNY1,045 each year. The duration of the land contract is five or 10 years. For the five-year contract, the rent is paid every year, and for the 10-year contract the rent is paid every two years. During the busy season (March), the company

employs 40-50 farmers to manage the fields at the base, who are paid a daily wage of CNY80-150. The company settles with farmers monthly in cash. At present, the annual yield of the land is about 1,000 kg of rice (two seasons a year, that is, early rice and late rice), and the annual yield of high-quality rice is 410 tonnes, which brings an annual revenue of more than CNY1.31 million.

For the companies that have a large number of orders, which the farmers' supply of agricultural products cannot meet, the companies also cooperate with cooperatives and even traders with large supplies and sign contracts with them. Dingguagua Food Co., Ltd. (Case E) adopts the intermediary model. The company has three types of raw fruit material suppliers, which are cooperatives, traders and individual farmers. In the specific operation process, the proportions of the three kinds of suppliers differ. At present, the company signs order contracts only with some cooperatives and distributors. The basic matters are listed in order contracts, such as the weight and maturity of individual fruit, the rejection of bad or wormy fruits, the liquidated damages (which is 2 percent of the total amount of the order), and the prepayment with the deposit of 30 percent of the total amount of the order. At present, the contracts signed with cooperatives are mostly verbal agreements. But for large orders, both parties are willing to sign paper contracts.

After the order mode with companies, as the subject, has been established, cooperatives have also become a participant in contract farming. Bangcai Guava Professional Cooperative (Case D) is a cooperative that adopts the nucleus-estate model. The founder, Liang Bangcai, established the cooperative and registered the "Bangliang" trademark. Farmers join the cooperative on a voluntary basis, and the membership fee is CNY200. If a farmer quits the cooperative (members are allowed to quit only after one year's membership), the fee will be refunded. After joining the cooperative, members need to abide by its management regulations, and any violation of the regulations will lead to confiscation of the membership fee. The cooperative has a total of 400 members. In addition to pre- and post-production services, such as production technical guidance and agricultural materials supplied to farmers, the cooperative also provides for the sale of agricultural products. The purchase of agricultural products (guava) is mainly carried out in the form of order contracts. The contracts stipulate the rights and obligations of both parties (cooperative and farmer), including planting management, fruit standard, order management, purchase price, and handling of breach of contract. Once signed, they are valid for a long time, unless farmers voluntarily request to quit the cooperative, which is regarded as abandonment of contract.

In addition to the traditional management subjects, developing contract farming through e-commerce has also become a fixed mode as this form of commerce has developed. In the case of "Clever Housewife Jiumei", the company signs production and sale contracts with cooperatives, and cooperatives organise the production of farmers and purchase agricultural products from farmers, thus forming a mode of "e-commerce + cooperative".

(2) Attributes of agricultural products and characteristics of the subjects involved in contract farming

1) Attributes of order-based agricultural products

There are many kinds of agricultural products, and different crops have their own attributes. The attributes of agricultural products can have a certain influence on the development of contract farming, order execution, and the level of participation of farmers. Specifically, for the three kinds of agricultural products of vegetables, fruits and rice, the following reasons such as shelf-life, maturation period, level of dependence on the purchase market, and requirements for planting techniques, will affect the signing and realisation of orders.

Vegetables are agricultural products with a short shelf-life, and their maturation period is also short. Except for the unified purchase of companies, farmers sell or consume only a limited amount themselves. Therefore, order contracts for vegetables are easier to sign from the perspective of product attributes. In the cases examined in this research, the planting period of turnip and cabbage is in August, which is the period of rotation from grain to vegetable. Farmers use their vacant land to grow vegetables, which not only improves land use efficiency, but also increases income. This is also an important driving factor for signing order contracts.

The case of fruits is similar to that of vegetables. Fruits also have a relatively short shelf-life, and require relatively strict storage and transportation conditions. Besides, different kinds of fruits appear on the market at different time in the year, resulting in fluctuating prices. Therefore, fruit orders provide a stable channel for sale, which can reduce market risk. In terms of variety, the selection of guava as order-based agricultural products made by Guangxi Bangcai Guava Professional Cooperative (Case D), is based on many considerations. First, the planting techniques of guava are easy to learn, and the fruit trees are easy to manage. The height of the tree is about 1 meter, which makes it easy to pick fruits. Even the elderly can plant and manage the trees. Second, guava can fruit all year round, which helps to achieve the goal of continuous production. Finally, guava planting also has the value of

sightseeing fruit-picking (by tourists), which can tap into the opportunity to develop leisure agriculture in the county.

For grain crops such as rice, the means of production required for planting them in contract farming are provided by enterprises, and there is no need for additional investment from farmers. In the key production process, cooperatives provide technical services and technical guidance. The planting of crops has no special requirements for production technology and the area for planting, and is in line with the livelihood capital of smallholder farmers. But different from fruits and vegetables, grain crops have a long shelf-life, and are easy to store. They also have a considerable potential for market demand. This provides space for farmers to bargain. Therefore, there are unstable factors in the execution of grain crop orders.

2) Characteristics of management subjects

As an emerging agricultural development mode, contract farming has certainly encountered obstacles in its introduction, promotion and implementation. Different from the direct introduction of order mode, the cases in this research are influenced by the characteristics of Chinese rural society, and their agricultural management subjects have certain endogenous characteristics, which play an important role in the sound development of contract farming.

In these cases, all of the founders of the companies and cooperatives are local natives. All of these subjects have previous experiences of leaving their hometown to conduct business and accumulate capital and then of returning to their hometowns to start a business when they have detected an opportunity for agricultural development. Endogenous management subjects generally have roots and are well trusted in local society, which lays a social foundation for their companies' development and contract signing. For example, Jinsheng Agricultural Products Co., Ltd. (Case C) originated in the idea of the father of the company's person-in-charge to return to his hometown. The father previously worked in the vegetable processing industry in Guangdong, and hoped to return to his hometown when he grew old. With the help of relatives and friends and the local agricultural bureau, he founded a company in his hometown to develop a vegetable processing industry. The person in charge of Wansui Rice Industry Co., Ltd. (Case B) was also inspired by her observation and study in other provinces, and decided to adopt the mode of contract farming. She believes that the mode can reduce risks for both parties, "making farmers and us both feel confident".

From the perspective of the operations of cooperatives and companies, the endogenous management subjects can make the most of the social network of

acquaintances, thus laying a solid foundation for the sound development of contract farming. In the process of conducting contract farming, cooperatives are mainly responsible for the sale and control of key production processes to ensure quality, and farmers are mainly responsible for production. The partnership between them is relatively stable. If the cooperative is founded by capital from outside of the place, the cooperative and farmers share no natural bond with fellow villagers and lack a basis for trust. The cooperative has to spend more on supervision and management in the production process. Therefore, a network of local acquaintances creates good conditions for the operation of contract farming. The person in charge of Bangcai Guava Professional Cooperative is a local native, and has close relations with the villagers. The cooperative and its members also have mutual trust which creates a firm foundation for contract signing between the two parties. In terms of conflict resolution, close social relations also help to solve problems such as breach of contract.

3) Management of production by companies/cooperatives
The management and control capabilities of cooperatives are one of the important factors determining the quality of agricultural products. Most companies/cooperatives provide seeds and fertilisers in a unified manner, and regularly send technicians to guide field management to ensure product quality.

As for production management, Bangcai Guava Professional Cooperative provides members with free seedlings and technical guidance on fertilisation, use of pesticides, fruit thinning, etc. in the key periods of agricultural production, and supervises fertilisation and use of pesticides by farmers. In contracts, the cooperative makes specific provisions on fruit standards such as weight, colour and size of fruit, and stipulates that members are required to carry out standardised planting in accordance with the technical regulations for pollution-free fruits. As for sales management, the cooperative uses a unified trademark logo and packaging materials, which are conducive to promoting the branding of agricultural products. It also stipulates in contracts that members' prices for tourists to pick and sell must not be lower than the price stipulated by the cooperative, so as to prevent vicious competition. The management of the above three links has effectively realised the quality control of agricultural products.

4) Basis for trust between farmers and companies
The early-stage operation of contract farming shows that many farmers are afraid to try new contracts or new crops, resulting in slow development of contract farming. But in the acquaintance society of rural areas, if the person in

charge of a company or cooperative and farmers shares a basis for social trust, farmers will trust the person in charge and take the initiative to participate in contract farming. In addition, companies and cooperatives tend to prefer farmers with whom they are familiar and have a basis for trust with.

In the case of Jinsheng Agricultural Products Co., Ltd. (Case C), the first batch of farmers who signed purchase contracts with the company share a good basis for social trust with the company. "I definitely want to select the farmers I can trust. It can also reduce my risk," said the person in charge of the company. The ratio for screening farmers is 1:1.2. The person in charge of Bangcai Guava Professional Cooperative (Case D) also emphasised the importance of selecting farmers in the early stage of contract farming development. The farmers selected should trust and be familiar with the person in charge of the cooperative. These farmers should also be familiar with each other, which facilitates the dissemination of production techniques and mutual supervision. The cooperative's key standard for selecting farmers is that they should have a good reputation and a sense of duty. The cooperative requires that the farmers have land that can be merged into a large block in order to facilitate production management and harvest of agricultural products.

5) Supportive role of the government

The government's contribution to contract farming lies mainly in the construction of technology and the external market environment. Government officers mentioned in interviews that although the local government had not issued any clear policy or measures to support contract farming, the agricultural and rural departments had been actively promoting the development of contract farming. First, in terms of technical support, the government had been helping companies to gain certification such as "green", "organic", and "pollution-free", and certification of geographical indication. Second, the government has been providing information services to enterprises. It had been helping enterprises to build brands by encouraging them to participate in exhibitions and evaluations. The booth fees were often borne by the government, which motivated the enterprises to take part. The government also organised various festivals for agricultural products to raise their profile. For example, Lingshan County holds the Lingshan Lychee Culture Festival every year. Third, the government had been providing economic support for enterprises. The government's agricultural and rural departments were mainly helping enterprises to obtain financial funds at all levels. For the storage of agricultural products, the Lingshan County Agriculture Bureau had won CNY15 million from financial funds to build various refrigerated storage facilities, cold chain cars, and drying rooms.

In addition to direct support, the government has also been taking measures of indirect support to drive the development of contract farming. Liangtian Village, where Guangxi Bangcai Guava Professional Cooperative is located, was previously a poor village. In recent years, the government has provided the village with aid in developing a demonstration park for leisure and sightseeing of ecological agriculture and with funds to improve the infrastructure in the village. Nearly all of the roads in the village are cement now, which provides convenient transportation for guava cooperatives in the village.

3.4.5. The causes of CF failure

(1) Reasons for farmers being unwilling to sign contracts

There are two reasons for farmers not participating in contract farming. The first is that, objectively, management subjects have not taken the initiative to negotiate with the farmers, and there is no channel for farmers to participate in orders. The second reason is that, subjectively, farmers have concerns about contract risks. Some farmers are worried that the order price is lower than their selling price, and they feel that the procedure is cumbersome. They are also worried that the purchaser is not able to purchase on time when the crops are mature. Even if contracts are signed, farmers still have worries about the agricultural products' failure to meet the requirements for quality and yield set in contracts, and the resulting damage to their income. In contrast to contract farming, selling agricultural products on their own is convenient and flexible, and the price can fluctuate in response to market conditions, thus guaranteeing income. Therefore, farmers generally have two requirements for contract farming: the first is a trustworthy and reputable enterprise (cooperative) that can cooperate with them over a long period, the second is a purchase price that can guarantee the basic income of farmers (the income cannot be lower than the average profit of the market).

(2) Reasons for companies terminating contracts

In the case of Wansui Rice Industry Co., Ltd. (Case B), the contracts signed between the company and farmers usually last for only one year. The main reasons are as follows.

First, farmers with low levels of education are resistant to signing formal contracts. Wansui's contracts are standardised, but a farmer who had signed a contract with Wansui said that "there are so many things (words) written on it. I can't read so I don't know if they are cheating on me". Farmers with a low education level are poorly motivated to sign contracts as they are resistant to, and have fears about, complicated terms and a large number of words.

Second, as farmers lack contractual awareness, the force of contractual binding is weak in such cases. There are rarely cases of breach of contract, and farmers seldom resell agricultural products to others because they are simple and honest, and are bound by the relationship of acquaintances. But the amount of rice which is purchased by the company from farmers during the purchase period is far less than the quantity stipulated, as the farmers want to keep more rice for themselves and for their children in the city. It is difficult to impose penalties on farmers for breach of contract in practice. Therefore, the contracts actually have no substantive binding force.

Third, as rice has a long production cycle, there are more unpredictable risks. Rice grows slowly, but is easy to store. Farmers are often worried that they might "want to stock up on rice or keep some for themselves" after signing the contract, and are not willing to be liable for breach of contract. Some farmers are worried that they have "no idea whether the company will purchase their agricultural products after such a long time. What if he (the company) won't purchase the rice I've kept for him (the company)?". Therefore, in view of the expected risks, both the company and the farmers have abandoned the order mode and re-adopted the trading mode of the temporary on-site purchase during the harvest season.

(3) Cases of verbal contracts and temporary purchase also exist in practice

In the practice of contract farming, there are also cases of paper contracts not being signed on orders, but being based on verbal agreements. In the case of Guangxi Dingguagua Food Co., Ltd. (Case E), both parties were willing to sign paper contracts for large orders at present, while the orders from cooperatives who purchased smaller amounts of products were being placed verbally. Wansui Rice Industry (Case B) had also adopted the order mode of making verbal agreements after abandoning the mode of signing formal contracts. During the rice planting season every year, farmers who are interested in planting high-quality rice go to Wansui to purchase high-quality seeds. During the harvest season, the company sends staff to learn the farmers' intention to sell and reaches verbal agreements with the farmers. During the purchase period, the company sends staff to the village to purchase rice. "As we have run this rice factory for many years and buy rice every year from the villagers, the villagers know us well. If they want to sell rice, they will wait to sell to us," said Ms. Chen, the person in charge of Wansui. It can be seen that the current purchase is based mainly on the long-established reputation of the company's person in charge in the village. It relies on customary habits and non-legally-binding verbal agreements.

3.5. Lessons learnt

From the results of field research in Guangxi, the following lessons can be learned.

First, contract farming is an organisation and management model that is based on practice and is used to organise production, service the market, and improve the quality of agricultural products. The field research shows that, unlike direct introduction, the contract farming mode, based on local agricultural practices and shaped by the market, has the characteristics of local practice in contract signing, contract execution, and handling of breach of contract.

Second, farmers' cooperative organisations are playing an important role in contract farming. Besides locally-based leading agricultural companies, farmer's cooperatives at village level are of great significance to the development of contract farming. This is because there is a basis for social trust between local companies or cooperatives and farmers. This creates good social conditions for contract signing and effective execution. In addition, compared with foreign capital, the development of local companies is more in line with local agricultural cultivation traditions and market demand, and these companies tend to invest more benefits in the local society, thus promoting the development of the local agricultural economy.

Third, the government's supporting role in building the brand of agricultural products, information services, and market environment construction is very important. In the cases we studied, the market-oriented services provided by the government for companies and cooperatives had promoted the development of contract farming, such as in the support for "green", "organic", and "pollution-free" certification of agricultural products, certification of geographical indication of products, cross-regional interconnection for agricultural product supply and marketing information, and agricultural product promotion.

Fourth, improving the self-organisation ability of farmers will help to promote the healthy development of contract farming. Smallholder farmers lack bargaining power when they face large companies. In contrast, companies are willing to sign contracts with cooperatives or farmers with a certain production scale, thereby reducing transaction costs. Therefore, improving the self-organisation ability of farmers, especially the ability of cooperatives, will help smallholder farmers to benefit from contract farming.

3.6. Policy recommendations

3.6.1. The construction of trust-oriented social relationships between big companies and small farmers still needs to be improved

The realistic basis for the effective operation of contract farming is that companies, cooperatives and farmers share a good basis for social trust. However, the field research results show that farmers are not willing to sign long-term contracts with companies. One reason is that farmers lack the ability to understand and sign a formal contract due to their low level of education. Another reason is that there is a lack of social trust between big companies and small farmers. In contrast to formal contracts led by big companies, farmers are much more willing to trust acquaintances in rural society. This is a characteristic of the rural community, in which farmers build up social relationships and share a rural culture on the basis of geo-relation and kinship. So when companies and small farmers lack the confidence to participate in the future market, both of them are likely to make short-term deals rather than long-term ones, even if they fail to enter into a contractual relationship. Therefore, in the initial stages of cooperation between the parties, the grassroots government, including village committees, can act as a "bridge" between companies and farmers. The government could consider intervening in an appropriate way to promote the establishment of social relationships between big companies and small farmers.

3.6.2. Farmers' ability to self-organise should be enhanced

Smallholder farmers often lack marketing and bargaining power when working with large companies. Even if a third party is placed between the company and the farmer, the interests of the farmer may not be guaranteed. Thus, improving the organisational level of small farmers can strengthen their power in product standards, pricing and other aspects, enhancing their ability to acquire value in the value chain. Farmers need organisations that can negotiate equally with enterprises. Otherwise, it is difficult to guarantee the interests of farmers, and the relationship between the two parties is unlikely to be stable and sustainable. Therefore, it is necessary for local government, particularly the Bureau of Agriculture and Rural Development, to increase the cultivation of, and support for, rural cooperative organisations. To support cooperation among small farmers in the same areas and growing the same crops, local government could encourage and support the establishment of farmers' cooperatives and industrial associations or federations according to the law. For example, financial support and tax incentives could be provided for these organisations. In this process, the cultivation of local talents in rural

areas is particularly important. The government could give a hand to rural entrepreneurs to start their own businesses.

3.6.3. Market-oriented public services provided by local government should be strengthened

Local government could provide more market-oriented public services for smallholders and new business entities. (1) At the production level, they could provide policy support for production facilities, technical equipment, small loans, agricultural insurance and other guarantees. (2) At the market service level, they could offer guidance and assistance for market entities in the aspects of brand building, quality certification, and industrial integration of regional agriculture. (3) At the training level, they could integrate training resources, innovate training methods, and emphasise training for rural digital industries. For example, training could be conducted in e-commerce sales, brand building and promotion, online live broadcasting, and other aspects to encourage the cultivation of new forms of rural business.

In addition, in order to promote the development of contract farming in the Mekong-Lancang River Basin, the government could establish a regional agricultural product market system, share market interests and achieve mutual benefit through means such as investment and cooperation.

3.7. Conclusion

3.7.1. Summary of the main findings

Based on the results of field research in Guangxi, we have drawn the following main conclusions.

First, the current main models of contract farming comprise the centralised model, the nucleus-estate model, the informal model and the intermediary model. The field research shows that, unlike the case with direct introduction, the contract farming mode, based on local agricultural practices and shaped by the market, has the characteristics of local practice in contract signing, contract execution, and the handling of breaches of contract. For example, both formal and informal ways of contract signing appear in rural communities. In some cases, verbal agreements are effective. Compared with centralised models, small farmers can achieve more benefits in the intermediary model, especially when the intermediary organisation is organised by the farmers themselves. It is hard for both companies and farmers to deal with breaches of contract in a formal way, such as taking the matter to court. For a company, this is due to the high cost of pursuing a lawsuit. For farmers, they lack of ability and experience to handle the associated cases.

Second, farmers' cooperative organisations are playing important roles in contract farming. Farmers' cooperatives at village level are of great significance to the development of contract farming. This is because that there is a basis for social trust between local companies or cooperatives and farmers, which creates good social conditions for contract signing and effective execution.

Third, both formal and informal models of dealing with breach of contract are found in this study. Formal means include deducting the deposit according to the contract or requesting farmers to repay the company's early expenses of seed, fertilisers and other agricultural materials according to the market price. Informal means include verbal warnings, acquaintance persuasion, or leaving the issue unaddressed.

Fourth, smallholder farmers can gain benefits - such as an increased income, resistance to risks from the market, and acceptance of new technologies - by participating in contract farming.

Fifth, factors that lead to the successful operation of contract farming include: a) **The attributes of order-based agricultural products.** For seasonal agricultural products that are difficult to store, such as vegetables and fruits, farmers are willing to sign sales contracts to ensure sales and obtain a stable income. Agricultural products that are easy to store, such as rice, farmers tend to sell themselves; b) **The characteristics of companies or cooperatives**. According to the field research results, there is a base for mutual trust between local companies or cooperatives and farmers. As a result, companies or cooperatives can integrate social resources to realise the effective "embedding" of economic and social benefits, thus creating conditions for the healthy development of contract farming. The management and control capabilities of companies or cooperatives are also among the important factors determining the quality of agricultural products. c) **Government support**. Government support for contract farming, especially support in the construction of technology, information, and the market environment, has promoted the development of contract farming.

Sixth, the reason for a company and a farmer to terminate a contract lies in the concerns of both parties regarding the risk of contract execution. Smallholder farmers often regard standard contract text as too complicated because of their lack of education, and they are worried about being cheated. They are also concerned that their income cannot be fully guaranteed during the execution of the contract. From their standpoint, companies are not willing to bear the risk that farmers cannot effectively execute contracts, given that they often lack contractual awareness.

3.7.2. Limitations of the study

The research is limited to case studies of rice, vegetables and fruits. Whether the conclusions are applicable to other crops is a subject for discussion. In addition, the field research is limited to Guangxi, China, and does not cover the contract farming mode in the more developed regions of eastern China. Therefore, it cannot reflect the overall development of contract farming in China.

3.7.3. Future research direction and topics

Researchers can formulate hypotheses on the basis of qualitative research on the current situation of contract farming in China, and confirm the hypotheses by conducting a quantitative study of the development mode of contract farming of a certain crop, the participation of smallholder farmers, and the influencing factors. Researchers can also explore effective ways for farmers to integrate into modern agricultural development, and their influence, by conducting comparative research based on the agricultural development in other countries in the Mekong-Lancang River Basin.

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Chapter 4
Contract Farming Arrangements with Thailand's Smallholder Farmers: Linking Small-Scale Farmers to Strengthen Production and Market Opportunities

Prapinwadee Sirisupluxana and Isriya Nitithanprapas Bunyasiri

Abstract

Although Thailand is one of the top ten exporters of agricultural and food products, most Thai farmers are small-scale and have limited capability to meet high and stringent food safety standards for exports to the markets of developed countries. Previous studies have shown that contract farming (CF) is one of mechanisms to assist small-scale farmers to access the modern supply chain market and help to stabilise their income. However, there is no comprehensive study of best practices under different contract arrangements and factors contributing to success in linking small-scale farmers to strengthen production and the market.

This research aims to study various CF arrangements implemented in Thailand, to explore factors explaining why certain contract arrangements are more beneficial to smallholder farmers than others and to identify the factors that determine the successes and failures of CF. The research focused on CF relating to three crops: rice; asparagus/baby corn; and Hom Thong banana.

The qualitative data collection methods of Key Informant Interviews (KII) and Focus Group Discussions (FGDs) were conducted. KIIs covering the three crops comprised 64 respondents, including farmers, processors/exporters, cooperatives, brokers, NGOs, government officers and academic experts. The six FGDs were composed of two FGDs in Ubon Ratchani province (for rice), two FGDs in Phetchaburi province (for banana), and two FGDs in Ratchaburi province (for asparagus/baby corn). This research will present a successful and a failed case for each crop.

Summary of findings:

From the KIIs, it emerged that CF arrangements in Thailand varied from verbal agreements to written ones. The verbal agreements relied on trust and long-term relationships between buyers and growers. The written agreements

were found in different forms, ranging from "Membership agreement under the production promotion programme" initiated by private companies, NGOs or cooperatives/community enterprises, "Memoranda of Understanding" (MOUs), and "legal contracts".

The typology of the CF model for organic rice included an informal model, a multipartite model, an intermediary model and a centralised model. Asparagus had a multipartite model and an intermediary model. Baby corn presented an intermediary model and a centralised model. The CF for Hom Thong banana ranged from an intermediary model, a centralised model and a nucleus estate model, to a combination between a nucleus estate model and an intermediary model.

Contracted buyers are likely to choose growers with suitable sites. In the case of organic rice, the land must be suitable for organic requirements. In the case of asparagus/baby corn and banana, the sites chosen had to have easy access to irrigation and the land was of a suitable size for year-round crop rotation (from the interview with contracted buyers).

From the interview with small-scale farmers, a major benefit of CF for them was access to a reliable market - CF can particularly help to integrate small farmers into the modern supply chain and provide opportunities to reach wider markets, including modern trade and export markets. Farmers could access modern machinery and technology, and learn about the management of good production practice and new production techniques from the extension services provided by buyers. This led to improved productivity and quality of products that met the standard required by buyers. Farmers could receive guaranteed and fixed prices all year round, which are, on average, higher than the market price for higher quality so that they also enjoyed a stable income. In particular, the interview with CF farmers in the case of asparagus and Hom Thong banana reported that CF could substantially raise their income. Moreover, in some cases, farmers could access credit provided by buyers. In addition, in the case of organic rice, social capital in the community had been strengthened from activities supported by the contractors such as composting and the establishment of savings funds. Some strong groups were able to enhance activities related to processing/packing.

It was observed that the multipartite model is more suitable at the initial stage of CF, as companies (exporters/processors) collaborated with government agencies to work with farmers. The government plays a crucial role in coordinating and providing technical knowledge in production and farm management. The intermediary contract arrangements model, through

cooperatives or farmer groups, is needed for collecting products on a small scale, produced on marginal land, particularly for vegetables and fruits.

Cooperatives are relatively more beneficial to smallholder farmers than other types of CF model in terms of prompt cash payment. In addition, the cooperatives provided credits for production, as well as assistance in cases of natural disasters and pests. Nonetheless, that model was less beneficial to smallholders in providing technical assistance because cooperatives had a limited availability of extension staff who had expertise in production. Meanwhile, centralised and nucleus estate models are more beneficial to smallholder farmers than the models described above for improving the quality of products, due to the relatively higher degree of production control.

Factors underlying the performance of contract farming varied from case to case, depending on the crops, locations, and the level of mutual trust between buyers and farmers. Successful cases were selected based on the continuation of CF for more than 20 years. Farmers involved in successful cases were also able to gain from an increase in farm income from higher prices and yields. Factors determining the success of CF included:

i) A stable and diversified market for all grades of product of buyers's product
ii) Suitable locations for production
iii) Coordination within the integrated supply chain partners
iv) Buyers' willingness and commitment to enhance farmers' capability to improve yield or production quality and to strengthen communities to improve livelihoods
v) Farmers' willingness and commitment to produce high-quality products
vi) Technical expertise and the availability of extension staff for effective production and harvest planning, close monitoring and swift responsiveness to resolve problems
vii) The honesty of the firm and farmers
viii) Transparency in the production and buying system, standards and price setting
ix) Government support as a coordinator and a provider of technical knowledge relating to production, as well as cooperation with the private sector in research and development
x) Well-established and functional smallholder groups or organisations/ cooperatives.

Relatively less successful cases were selected among those from which farmers had dropped out of CF. Major reasons for this included the low profitability of organic white rice introduced by CF that faced relatively low yields during the initial stages of CF. Buyers provided delayed cash payments (found in the case of organic white rice) or offered delayed harvesting services due to less effective production and harvesting plans (found in the case of bananas). Diseases, particularly fungi disease, are key external risks that affected asparagus production. Farmers need to plan to grow and rest asparagus effectively as well as to conduct intensive farming to produce high-quality products that meet the standards required by buyers and to prevent fungi diseases. Farmers dropped out of CF as they had limited capability to provide intensive care to grow asparagus due to a lack of family labour, a small size of plot, or because they had no other sources of income and thus they could not rest asparagus effectively. In addition, small-scale farmers could not continue to join a CF scheme as the committee of the group had decided to drop them out of CF because they could not meet the standard requirements.

Lessons learned from Thailand's experience can be discussed in six dimensions as follows:

1. Land, irrigation, credit, and the policies of cooperatives/intermediary institutions are crucial to increase the involvement of small-scale farmers in CF. Government and universities play a key role in providing infrastructure, supporting R&D and transferring knowledge and technology. Moreover, they can act as coordinators to build trust between companies and farmers in CF practices.
2. Drawing from the key findings, contracted buyers are likely to choose growers with suitable sites who had access to sufficient family labour for intensive care to produce high-quality products. This might exclude small-scale farmers who had land of only a marginal size. Those who were unable to access irrigation, as well as having limited access to family labour for intensive care, were also excluded. Therefore, irrigation policy and land policy, i.e. land consolidation and credit policy to support land expansion and irrigation equipment, are crucial to increase the involvement of small-scale farmers in CF. In addition, the roles of cooperatives, or intermediary agents, in providing credit and collecting products, particularly in remote areas, are equally important. The successful cases relating to rice and asparagus showed that, at the initial stage of CF, the government played a key role in R&D and the transfer of knowledge and technology to farmers through agricultural extension services.

3. From the KIIs and FGDs, it emerged that contracted firms that established close and long-term relationships with farmers and modern retailers/ exporters, could maintain stable markets. In addition, in the case of asparagus, baby corn and banana, firms that diversified market outlets for different grades could guarantee that firms could buy all grades of products. The stable markets allowed firms to more effectively plan production and harvesting with farmers. With the guarantee that firms could buy all grades of products, farmers could develop trust with firms.
4. Price incentives towards high-quality grades can motivate farmers to produce high-quality products. From the KIIs and FGDs, it was found that sharing information about production, domestic and international demand, market prices, and competitors, and by providing extra price premiums during times when the market price was high, could help to reduce side-selling.
5. Findings from the KIIs and FGDs, also suggested that the major reasons for dropping out of CF included the limited scale of production due to disease (in cases of asparagus). In other cases, the contracted buyers could not provide harvesting services promptly (in cases of banana). Therefore, proper farm management, particularly disease management, and better harvest practices, could enhance the farmers' yield and quality, and reduce the cost of production.
6. From the KIIs and FGDs, we learned that the reasons for farmers dropping out, or for changing the contracted buyers, included delayed payments or buyers reducing the quantity or price when the market price was low. A firm's good reputation and strong financial performance results in on-time payments, as well as allowing such firms to absorb market risk instead of transferring the risks to farmers.

The key lessons learned from this study suggest that the government and universities should play key roles in providing infrastructure, supporting R&D and transferring knowledge and technology, as well as acting as a coordinating agency between firms and farmers. Firms should establish close and long-term relationships with integrated supply chain actors in order to achieve stable markets. Importantly, firms should provide technical advice about proper farm management and be swiftly responsive in resolving farmers' problems.

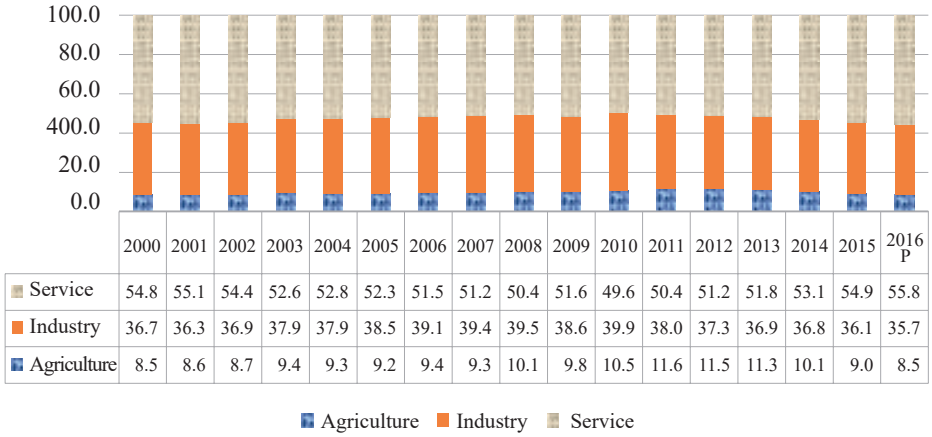
4.1. Introduction

4.1.1. Background information about the agricultural sector in Thailand

Economic structure and sectoral growth

As the Thai economy has developed, the manufacturing and service sectors have grown faster than that of agriculture, and labour has moved out of agriculture: Thailand has consequently experienced a declining share of agriculture as an element of its GDP. The proportion of Thais employed in this sector has also fallen (Figures 4.1 and 4.2). Particularly during the five years from 2012 to 2016, the shares of agricultural[1] in current GDP and employment have dropped, while that of the service sector[2] in current GDP and employment has increased. The share of the industry sector[3] has also declined as an element of GDP but has slightly increased in employment.

Figure 4.1: Structure of Thai GDP at current market prices (percent)



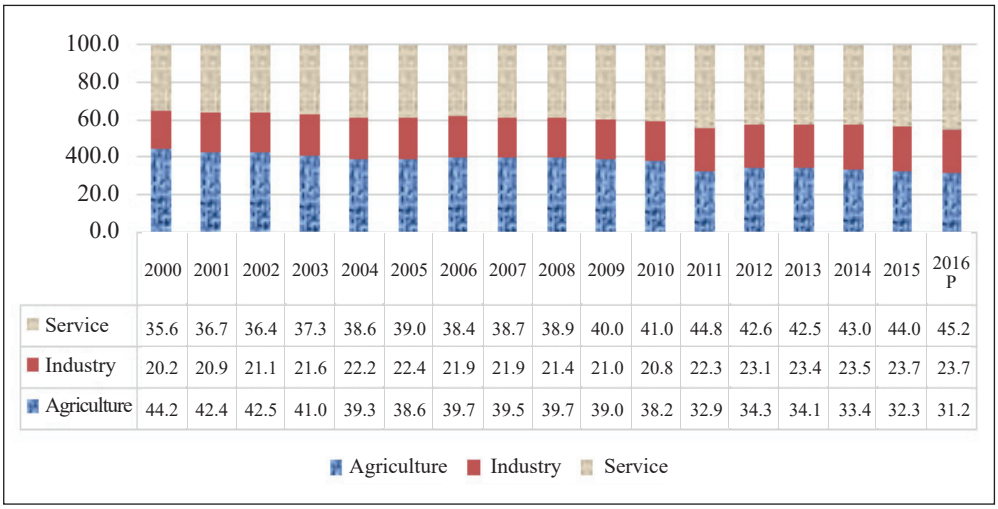
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 P
Service	54.8	55.1	54.4	52.6	52.8	52.3	51.5	51.2	50.4	51.6	49.6	50.4	51.2	51.8	53.1	54.9	55.8
Industry	36.7	36.3	36.9	37.9	37.9	38.5	39.1	39.4	39.5	38.6	39.9	38.0	37.3	36.9	36.8	36.1	35.7
Agriculture	8.5	8.6	8.7	9.4	9.3	9.2	9.4	9.3	10.1	9.8	10.5	11.6	11.5	11.3	10.1	9.0	8.5

Source: Calculated from the NESDB statistics database (2018)

During the ten years from 2007 to 2016, the Thai economy grew by an average of 4.0 percent annually. Comparing the average annual growth rate for the 2007-2016, the service sector grew fastest (4.3 percent) followed by the industry sector (4.0 percent) and the agricultural sector (2 percent) (Figure 4.3).

1 The agricultural sector includes agriculture, forestry and fishing.
2 Including wholesale and retail trade, transportation, accommodation and food service activities, information and communication, financial and insurance activities, real estate activities, professional and technical services, administrative activities, education, health and social services, art, entertainment and recreation services.
3 The industry sector includes manufacturing, mining, electricity, water supply and construction.

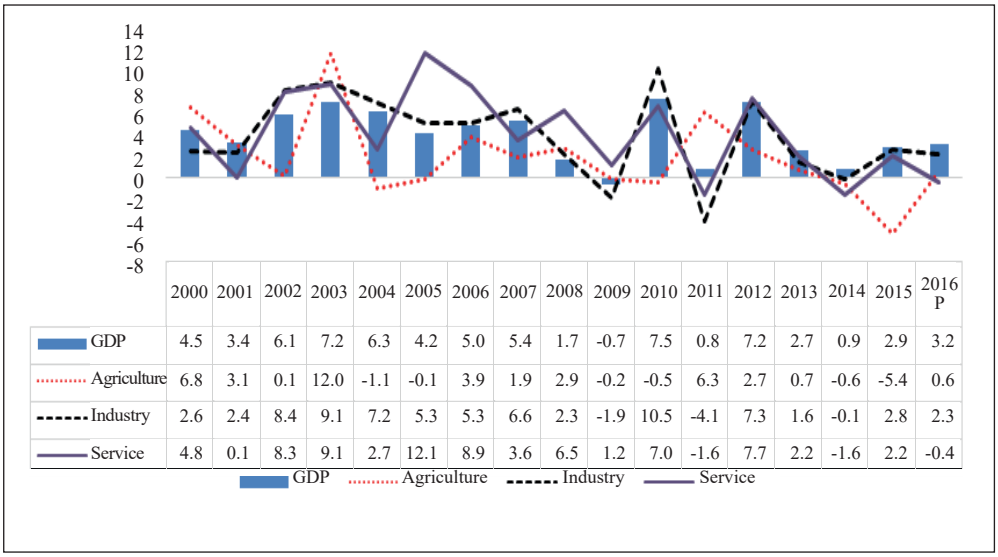
Figure 4.2: Structure of Thai employment (Percent)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 P
Service	35.6	36.7	36.4	37.3	38.6	39.0	38.4	38.7	38.9	40.0	41.0	44.8	42.6	42.5	43.0	44.0	45.2
Industry	20.2	20.9	21.1	21.6	22.2	22.4	21.9	21.9	21.4	21.0	20.8	22.3	23.1	23.4	23.5	23.7	23.7
Agriculture	44.2	42.4	42.5	41.0	39.3	38.6	39.7	39.5	39.7	39.0	38.2	32.9	34.3	34.1	33.4	32.3	31.2

Source: ADB statistics database (2018)

Figure 4.3: Sectoral GDP growth (%)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016 P
GDP	4.5	3.4	6.1	7.2	6.3	4.2	5.0	5.4	1.7	-0.7	7.5	0.8	7.2	2.7	0.9	2.9	3.2
Agriculture	6.8	3.1	0.1	12.0	-1.1	-0.1	3.9	1.9	2.9	-0.2	-0.5	6.3	2.7	0.7	-0.6	-5.4	0.6
Industry	2.6	2.4	8.4	9.1	7.2	5.3	5.3	6.6	2.3	-1.9	10.5	-4.1	7.3	1.6	-0.1	2.8	2.3
Service	4.8	0.1	8.3	9.1	2.7	12.1	8.9	3.6	6.5	1.2	7.0	-1.6	7.7	2.2	-1.6	2.2	-0.4

Source: ADB statistics database (2018)

Share of key agricultural crops to national production

The highest share of agricultural GDP in 2016 was found in crop sector (75.1 percent) followed by the livestock sector (12.5 percent), the fishery sector (9.2 percent), the agricultural services sector (2.1 percent) and the forestry sector (9.2 percent) (Table 4.1). Among major crops, paddy had the largest share of agricultural GDP (21.2 percent), followed by rubber (13.8 percent),

vegetables (13.2 percent), fruits (13.2 percent), oil palm (4.1 percent), cassava (2.9 percent) and maize (1.7 percent).

Table 4.1: Sectorial share of agricultural GDP (Percent)

Share (%)	2000	2007	2009	2011	2012	2013	2014	2015	2016
Agriculture, forestry and fishing	100	100	100	100	100	100	100	100	100
Crop	57.4	79.0	77.2	81.0	83.4	83.2	78.8	76.1	75.1
• Paddy	18.8	17.8	21.4	18.3	31.0	33.6	26.1	23.6	21.2
• Rubber	9.1	21.6	16.2	26.9	19.3	16.8	14.6	12.6	13.8
• Cassava	1.4	3.3	2.2	3.4	3.0	3.4	3.4	3.9	2.9
• Maize	2.2	1.9	1.4	1.9	2.0	1.8	1.9	1.9	1.7
• Sugarcane	3.8	3.2	4.1	5.2	4.8	4.6	5.3	5.1	3.9
• Vegetables, watermelon, chili	8.2	14.3	14.1	7.3	7.5	9.2	10.2	11.7	13.2
• Fruits	8.2	12.0	12.7	12.4	10.9	10.3	13.2	12.4	13.2
• Oil palm	1.2	2.4	2.6	3.4	3.3	2.3	2.5	3.6	4.1
Livestock and animal farming	10.6	6.7	9.3	8.5	6.5	7.5	10.4	12.6	12.5
Agricultural services	2.9	1.8	1.8	1.4	1.4	1.6	1.7	2.0	2.1
Forestry	1.7	1.0	0.8	0.7	0.7	0.7	0.8	0.9	1.0
Fisheries	27.5	11.6	10.8	8.4	8.0	7.0	8.2	8.3	9.2

Source: Compiled from the NESDB (2018)

Patterns and trends in land and labour productivity in the production of key agricultural crops

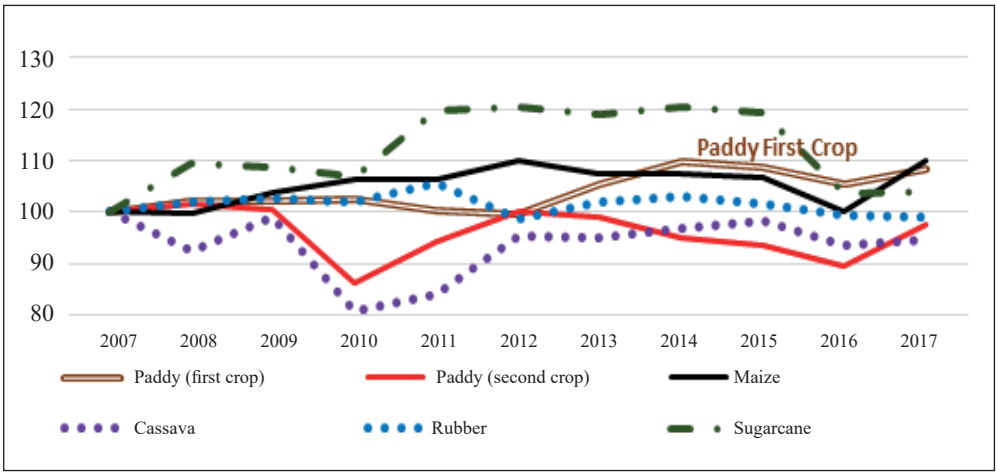
During the past ten years, yield growths of maize, paddy (first crop) and sugarcane improved at a faster rate than other crops (Table 4.2 and Figure 4.4).

Table 4.2: Yield of major crops (Tonne/Ha)

Yield (Ton/Ha)	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Paddy (First crop)	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.7	2.7	2.6	2.7
Paddy (Second crop)	4.2	4.3	4.2	3.6	4.0	4.2	4.2	4.0	4.0	3.8	4.1
Maize	3.8	3.8	4.0	4.1	4.1	4.2	4.1	4.1	4.1	3.8	4.2
Cassava	22.9	21.3	22.7	18.6	19.3	21.9	21.8	22.3	22.6	21.5	21.7
Rubber	1.5	1.5	1.5	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5
Sugarcane	63.7	69.8	69.3	68.1	76.2	76.8	75.8	76.6	75.9	66.1	66.3

Source: from the OAE - the authors converted the unit from kilogram per Rai to Tonne per Ha.

Figure 4.4: Indices of the yield of major crops (2007=100)



Due to the unavailability of the data, the figures for labour productivity were found only for rice. Table 4.3 shows that the labour productivity in rice production in Thailand slowed down during both the wet and dry seasons.

Table 4.3: Labour productivity (kilogram per person) in rice production

Issues	1996-2000	2001-2005	2006-2010	1989-2010
Wet Season	2129	2301	2402	1989
% Change	5.37	2.70	-1.08	1.48
Dry Season	5513	5534	6449	5395
% Change	5.30	0.17	0.96	1.01

Source: TDRI (2013)

Key constraints to agricultural development with a focus on contract farming

Most Thai farms are small-scale – 43 percent of them are smaller than 1.6 ha, and another 25 percent are between 1.6 and 3.2 ha. Farmers face higher costs of production because of the higher input prices of fertilisers, pesticides and labour. Labour costs have increased sharply due to the labour shortages resulting from a move out of agriculture and ageing. There are small-scale farmers with a lack of household labour, knowledge and technology, whose productivity is low. The cost of technology is still too high to justify the additional productivity gains of small farms. In addition, very few small-scale farmers or farmer groups can supply products that meet the high standards of the supermarkets (Poapongsakorn and Bunyasiri 2017). Furthermore, small-scale farmers are more vulnerable to the increasing incidence of natural disasters, pests and disease outbreaks.

Thailand's agricultural plan and reforms for long-term economic development

The current Thai government attaches great importance to agriculture, which is considered the core of Thailand's socioeconomic foundation, and the agriculture sector is important to the growth of the Thai economy. The government implemented Thailand's 20 Year Strategic Plan and Reforms for the agricultural sector to secure farmers' livelihoods, to help the agricultural sector to prosper, and to sustain agricultural resources (NESDB 2018). The key objectives of the strategic plan are: (i) to strengthen farmers to be self-reliant; (ii) to improve the efficiency of agricultural institutions, producing agricultural products to meet appropriate standards and to be safe; and (iii) to make use of innovation to increase agricultural growth and to manage agricultural zones (NESDB 2018). As part of the agricultural reforms, the current Thai government is accelerating the development of Thai farmers as "smart farmers", promoting the use of ICT and technology in production and marketing, and supporting farmers' groups to transition to large-scale farming to enhance the efficiency of agricultural production.

The role of contract farming in agricultural development

The Thai government agrees that contract farming has a significant role in agricultural development, particularly in increasing the production potential and promoting the value creation of agricultural products, and providing market and income stability for farmers. Contract farming has the potential to be a win-win situation, with companies acquiring a guaranteed quality and amount of product to sell, and farmers receiving a guaranteed income as well as access to raw materials paid for on credit. However, there are some cases where farmers have failed to meet the terms of their contracts after facing shocks such as natural disasters, outbreaks of disease and the poor quality of raw materials supplied by the contracting company. This was according to the interview with government officials who are involved in the Contract Farming Promotion and Development Act 2017.

The current Thai government recently issued that Act in order to regulate the contract farming system to be more equitable in line with international standards. The 2017 Act increases government regulation, aims to protect farmers against conglomerates and supports fairness for all parties in contract farming. This is designed to improve the country's economy in the long term as it encourages competitiveness among farmers and enterprises. Under this Act, the government has established a commission called the "Contract Farming Promotion and Development Commission" to propose a plan for the development of contract farming.

4.1.2. Problem statement

Although Thailand has been a world-class exporter of food and nutrition to serve the world population for many decades, as a group, Thai farmers are still facing the greatest income insecurity. Most Thai farmers have problems as their income is insufficient to cover their subsistence needs, and they have fallen into poverty. Around 40 percent of farming households are living below the poverty line (Bank of Thailand's Puey Ungphakorn Institute for Economic Research's (Pier) 2019). In addition, they are confronted with major problems in agricultural production in terms high production costs, high labour costs, and high input prices for fertilisers and chemical or organic substances. Approximately 50 percent of Thai farming households hold farmland covering less than 10 rais or 1.5 ha, and the size of farmland has continuously declined in every group of farmers (Witsanu Attavanich and *et.al*. 2018). Small-scale farmers have low bargaining power, and receive low farm-gate prices. They have limited market access to the modern retail trade or export market to receive better prices. Due to high marketing costs and limited access to technology and knowledge about good farm management practices, small farmers cannot produce consistent volumes and quality to meet quantity and quality requirements (Sriboonchitta and Wiboonpoongse 2008). Contract farming (CF) is one of mechanisms to assist small-scale farmers, providing technical advice about gaining access to particular markets, and helping to stabilise their income (Poapongsakorn and Bunyasiri 2017 and Poapongsakorn, Martin Ruhs and Sumana Tangjitwisuth 1998). Thailand has experienced a rapid expansion of CF due to the introduction of modern technology and increasing requirements for food safety. Recently, there have been a few studies that explore various CF arrangements involving small-scale farmers, and assessing the conditions under which CF works and is of benefit to small farmers. The research has focused on CF relating to three crops - rice, asparagus/baby corn and Hom Thong banana - as many small farmers who grow these crops have participated in CF.

4.1.3. Research objectives and research questions

The study has three main objectives and addresses the following research questions:

1. To study the types of contract farming arrangements that are implemented in Thailand - What are the various arrangements of contract farming in Thailand?
2. To identify the benefits to small farmers - Why are certain contract arrangements more beneficial to smallholder farmers than others?
3. To determine the success and failure factors of contract farming - What are the factors determining successes and failures in contract farming?

4.1.4. Significance and potential contribution of the study

The study provides a comprehensive analysis and insights into different types of CF arrangements and their benefits to smallholders. The study also explores factors that contribute to success or failure in linking Thai small-scale farmers in order to strengthen production and market opportunities in the case of rice, asparagus/baby corn and Hom Thong banana. The report urges key stakeholders in CF to address their role in promoting CF to strengthen the production and market opportunities of small-scale farmers.

4.1.5. Highlights of a few main research findings and policy implications

The results demonstrate that the CF arrangements for rice, asparagus/baby corn and Hom Thong banana, implemented in Thailand, represent six types: the nucleus estate model; the centralised model; the multipartite model; the intermediary model; the informal model; and a combination between the intermediary and nucleus estate models. Small-scale farmers gain benefits from CF in having access to a stable market and prices, securing their income. The involvement of cooperatives in CF is relatively more beneficial to smallholder farmers than other types of CF model in terms of prompt cash payment. In addition, the cooperatives provide credits for production, as well as providing assistance in cases of natural disasters and pests. Nonetheless, they are less beneficial to smallholders in providing technical assistance because cooperatives have only a limited availability of extension staff who have expertise in production. Meanwhile, centralised and nucleus estate models are more beneficial to smallholder farmers than the above model for improving the quality of products, due to the relatively higher degree of production control.

Stable and diversified markets for all grades of product, price setting mechanisms, the trust and commitment of buyers and farmers and technical expertise are key factors in successful contract farming arrangements. Producer organisations play an important role in linking agribusiness firms and small-scale farmers. Government support as a coordinator and provider of technical knowledge about production, and cooperation with the private sector in research and development, also contribute to success.

The policy implications from this study indicate that the government should play major roles in developing, enabling and regulating CF to ensure competition and fairness. Contracted buyers should establish close and long-term relationships with all stakeholders as well as building mutual trust with farmers. Buyers should also put a focus on the capacity building of extension staff with production expertise to give technical advice to farmers in order to be able to closely monitor and respond to problems. In terms of knowledge and technology transfer, buyers should seek collaboration with academia, such as local universities, to support R&D.

4.1.6. Organisation of the report

This report is organised as followed. A literature review is presented in the next section followed by a discussion of research methodology and data. Then the results of the CF arrangements, conflict resolution mechanisms, and the benefits of CF to smallholder farmers. The factors determining the success of CF and the causes of CF failure are also discussed, as are the lessons learned and policy recommendations. A conclusion summarises the report.

4.2. Literature review

In the case of Thailand, the government has advanced the contract farming concept, which is part of private-led integrated agricultural development, since 1987, and it was widely promoted during the implementation of Thailand's Sixth Economic and Social Development Plan (1986-1991). Sugarcane became the first cash crop in a contract farming system for the first stage, driven by the sugar cane industry. However, the role of contract farming has had more influence on other economic crops, such as jasmine rice and organic rice, and has been expanded in livestock (pigs and poultry), and fisheries (fish cage culture and shrimp), due to the focus of the government's export-oriented policies. During the period of 1986 to 1991, the government established a "four-coordinate project" in order to develop agriculture and agro-industry. Under this project, government agencies under the Ministry of Agriculture and Cooperatives, the Bank for Agriculture and Agricultural Cooperatives, as well as farmers and the private sector, worked together to implement CF.

Since the 1990s, there has been an increasing trend towards the adoption of contract farming. Due to the introduction of modern technology and increasingly stringent requirements for exports, food safety standards and modern farming techniques have been needed to control production to meet the required export standards (Poapongsakorn and Bunyasiri 2017). Agricultural transformation in Thailand has seen the spread of CF in the production and marketing of poultry and in the aquaculture sector. Other main cash crops commonly covered in contract farming include sugar cane, cassava, maize, organic rice, potato, soybean, vegetables and fruits such as sweetcorn, banana, baby corn, asparagus, tomatoes, chili and mangoes. CF in Thailand has been implemented and managed in different ways with various types of CF business models (Sriboonchitta and Wiboonpoongse 2008). In the intermediary model, for example, organic banana from Banlat district, Phetchaburi province, has been produced via Ban Lat Agricultural Cooperative. This cooperative has a socially motivated CF arrangement with a Japanese importer to promote sustainable production through a certification system in order to increase

the quality and quantity of banana produced by smallholders (Munjaiton *et al*. 2014). Sugarcane is produced under the centralised model. The nucleus estate model is found in livestock (poultry and pigs or hogs) under private-led contract farming or a commercial CF initiated by private agribusiness firms with a purely commercial orientation such as CP or Betagro. This type of CF is extensively used for the production of non-traditional and high-value agricultural products for export, which requires high technology such as an evaporation cooling system in the case of poultry, and enhances the vertical integration of the company.

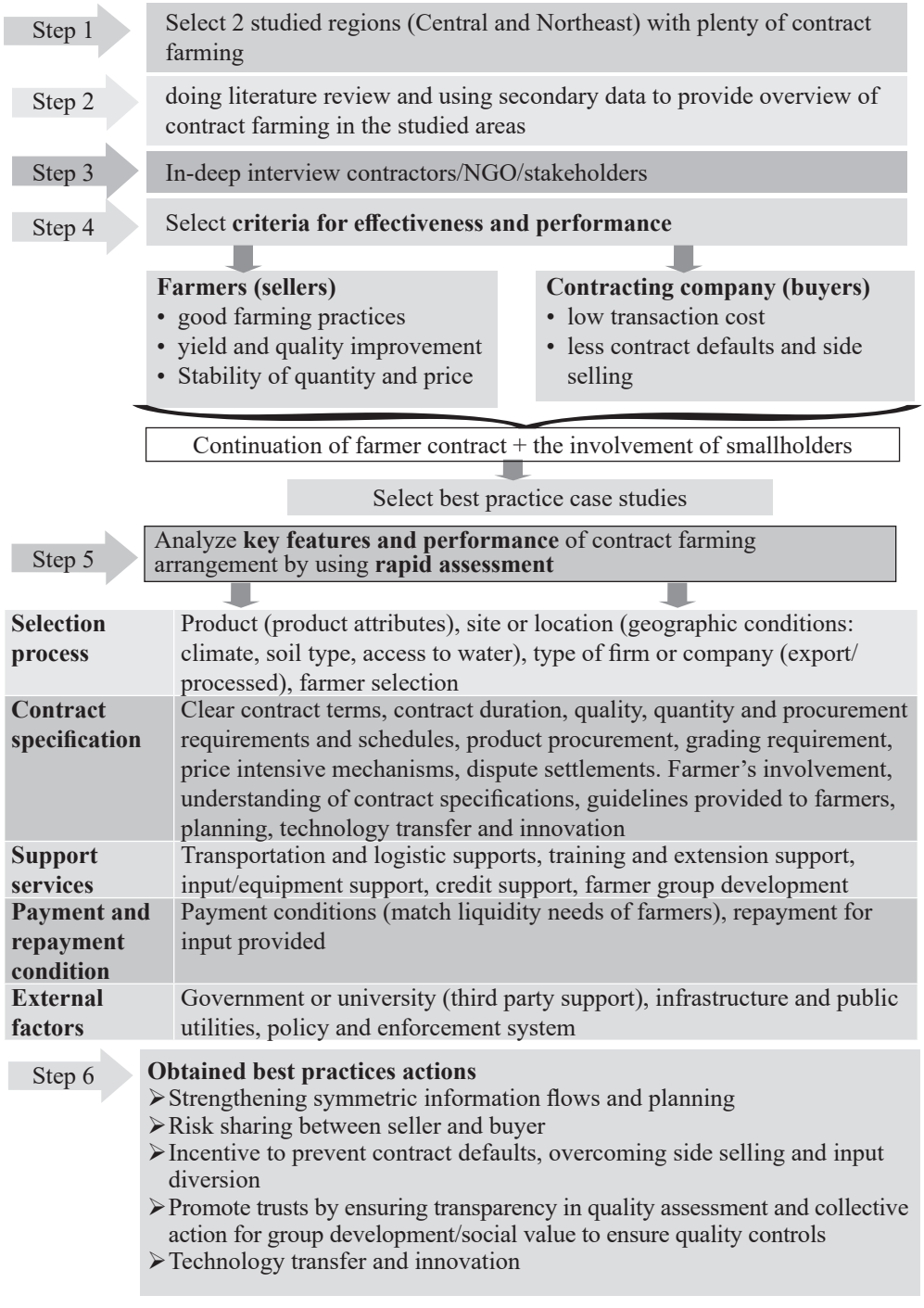
Most of the literature on CF in Thailand is focused on the net return to farmers in specific crops/livestock and provinces in Thailand. Some studies have found that contracted farmers have higher net incomes than the non-contracted farmers (Ekasing *et al*. 2014; Limboonchai and Kao Ian 2010; Sayun 1997; Setboonsang *et al*. 2006). Other benefits to farmers from CF are market access in the case of banana (Setboonsang 2008) and the gain in new technical knowledge from training programmes financed by the firms (Manarangsan and Suwanjindar 1992). Ekasing *et al*. (2014) discovered the negative impact of CF in some cases, such as the high risk of low profits caused by natural disasters and diseases, and high investment costs resulting in higher debt and a detrimental impact on the environment. Sriboonchitta and Wiboonpoongse (2008) found some successes and failures among cases of CF. They argued that the government has an important role in providing policy and infrastructure support to foster a favourable environment to increase agricultural productivity. They also provided some general guidelines for implementing CF drawn from case studies, focusing on the contract terms, the role of government, and the properly integrated key determinants of successful performance such as production technology pre- and post-harvest activity, technology transfer, the government or private sector, trust building, pricing policy, financial support and human resource development.

The previous literature focused on the positive and negative benefits of CF to farmers in specific areas and provided only some general guidelines for its implementation. However, Thai farmers are heterogeneous in terms of farm size, resource endowments and capabilities. The type of CF arrangement depends on the characteristics of farmers, types of crops and resources of buyers. Factors contributing to the success of, and lessons learned about, CF will also differ. Therefore, a comprehensive study is needed to analyse the various CF arrangements, the benefits to smallholders and the key factors determining success.

4.3. Research methodology and data

4.3.1. Research methodology

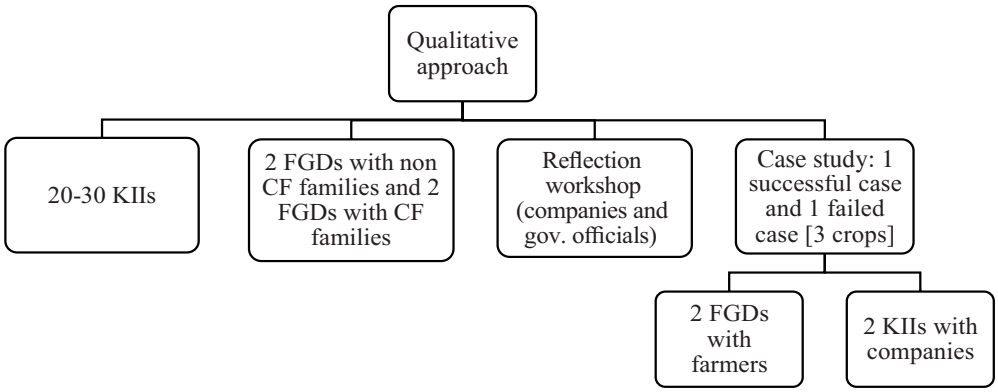
This study will follow the research process as indicated below.



4.3.2. Data collection procedures

This research will use qualitative data collection methods as follows:

1. Key Informants Interviews (KIIs) with government officials (technical), non-governmental organisations (NGOs), private companies, policy makers and development partners.
2. Focus Group Discussions (FGDs) with contract farming (CF) families and with non-CF families. (Optional for FGDs with farmers who have dropped out).
3. The qualitative approach for this study can be elaborated as following



This study uses qualitative data sources and includes comprehensive information obtained from interviews with all stakeholders and relevant individuals through KIIs and FDGs which are described in more detail in Table 4.4.

The generic questions can be described as the following:

1. What are the various arrangements for contract farming in Thailand?
2. Why are certain contract arrangements more beneficial to smallholder farmers than others?
3. What are the benefits and failures of CF?
4. What are the factors determining the successes and failures of contract farming?
5. What are the conflict resolution mechanisms?

Table 4.4: Methodology and sample size

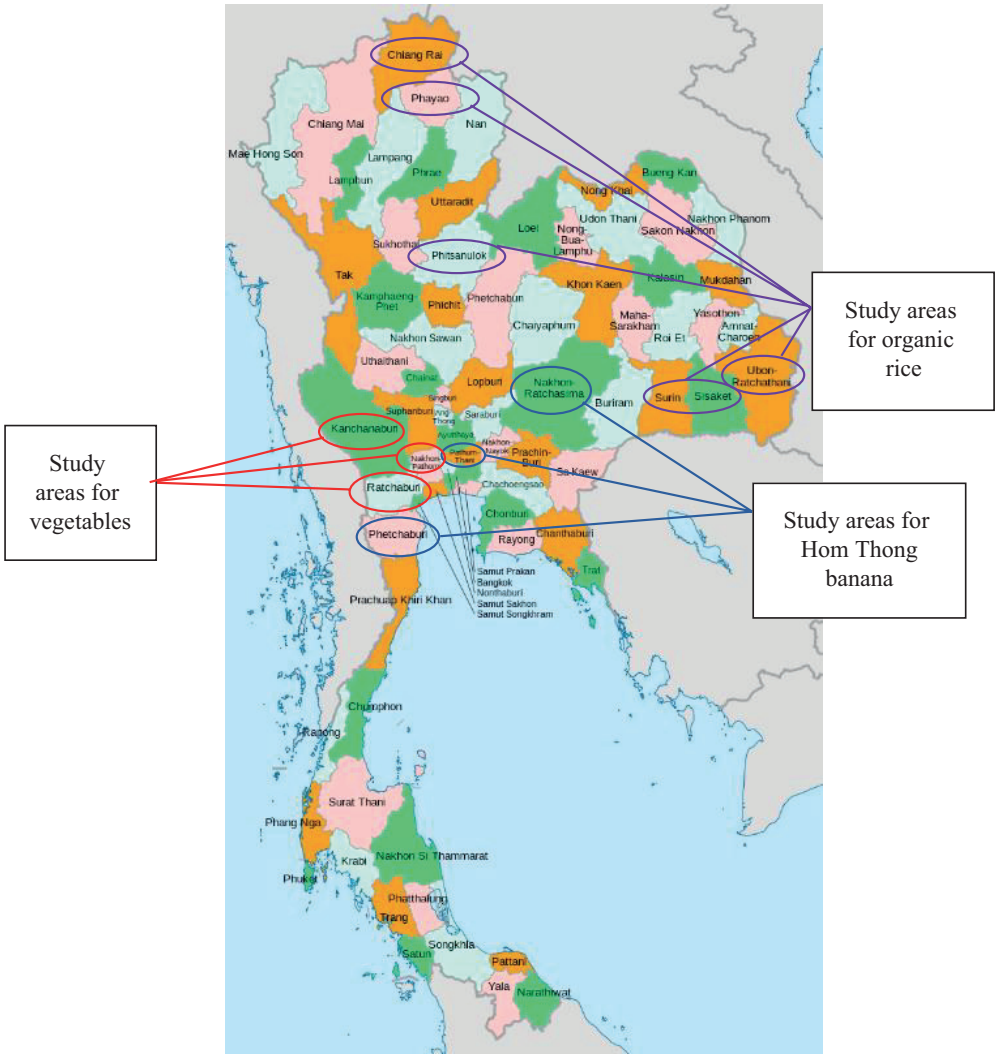
Data collection method	Sample size		
	Rice	**Banana**	**Asparagus or baby corn**
Key Informant Interviews (KIIs) The key informants are those who are involved in CF in our study. KIIs include all stakeholders who are involved in CF in the major production areas of different commodities. CF and non-CF farmers are selected randomly.	22 KIIs 3 private companies, 1 community enterprise, 6 farmers, 3 cooperatives, 1 NGO, 2 government officials (policymakers), 4 local government officials and extension staff and 2 university representatives	17 KIIs 2 private companies, 1 farmer group, 6 farmers, 2 cooperatives, 2 government officials (policy makers), 3 local government officials and extension staff and 1 university representative	25 KIIs 6 private companies, 6 farmers, 6 local brokers/collectors, 1 cooperative, 2 government officials (policymakers), 3 local government officials and extension staff and 1 university representative
Focus Group Discussion (FGDs) The FDGs include all the stakeholders who are involved in CF in the major production areas of different commodities. CF and non-CF farmers are selected randomly.	2 Focus Groups (in Ubon Ratchathani) with 12 rice contract farmers and with 2 leaders of farmers' organisations and members)	2 Focus Groups (in Phetchaburi) with 15 banana contract growers and 5 banana growers without contract farming, with 1 leader of a farmers' organisation and 5 members	2 Focus Groups (in Ratchaburi) with 10 contracted asparagus/ baby corn growers and 10 non-CF asparagus/baby corn growers and with 2 leaders of farmers' organisations and 5 members

4.3.3. Selected areas for each product studied

The study focuses on rice, vegetables and fruits. Organic rice, asparagus/baby corn and Hom Thong banana were selected as the products to be studied as they are high-value agricultural products that require smallholders to produce under intensive care. The study locations were chosen because they are major production areas.

The study areas chosen for organic rice were in the provinces of Chiang-Rai, Phayao, Ubon Ratchathani, Sisaket and Surin. The study areas chosen for asparagus/baby corn were in the Nakhon Pathom and Ratchaburi provinces. The study areas chosen for Hom Thong banana were in Phetchaburi, Pathum Thani and Nakhon Ratchasima provinces—see Figure 4.5.

Figure 4.5: Map of Thailand showing the location of the study areas for Hom Thong banana, organic rice and vegetables (asparagus or baby corn)



Source: https://www.google.com/search?q=google+maps+thailand, 19 October 2019

4.4. Results and discussion

4.4.1. Arrangements of Thai CF

Widely different contractual arrangements, from verbal to written agreements, were evident in respect of the products studied in Thailand. The verbal agreements relied on trust and long-term relationships between buyers and growers. The written agreements were found to take different forms, ranging from: "Membership agreement under the production promotion programme"

initiated by private companies, NGOs or cooperatives/community enterprises; "Memorandum of Understanding" (MOU); and "legal contract".

According to Eaton and Shepherd (2001), CF usually follows one of five broad models: the informal model; the multipartite model; the intermediary model; the centralised model; or the nucleus model. Following Eaton and Shepherd (2001), CF in Thailand for the products studied would be categorised as the informal model, the multipartite model, the intermediary model, the centralised model, the nucleus model, or a hybrid model between the intermediary and nucleus estate models. Figure 4.6 shows the classification of different CF models for the selected products in Thailand. The risk of unsecured supply is the highest under the informal model, whereas the nucleus model poses the lowest risk.

4.4.1.1 Informal model

The informal model is based on trust and long-term relationships between a buyer and growers. This type of CF model has been applied to organic rice. Individual entrepreneurs make informal contracts with members of farmer groups who have had CF experience with a company for a long period. The informal model has been implemented for those who have agreed to be a member under the "Organic Rice Production Promotion Programme" of a company. The membership agreement is written broadly, generally including input requirements such as organic seeds and biological substances complying with organic standards, the prohibition of chemical substances and chemical fertilisers. The company agrees to buy the organic rice at a premium price if the group's plots are certified according to European organic standards. In addition, in most cases, a company does not provide credit for farmers. Buyers typically provide limited technical advice as farmers have skills in production.

4.4.1.2 Intermediary model

In Thailand, the intermediary model is commonly found for the products studied in this report. Private companies usually purchase crops from intermediaries such as cooperatives, producer organisations, or individual "brokers" or "collectors" who have their own informal or formal arrangements with farmers. Most brokers or collectors are the leaders of farmers' groups. In most cases, particularly for baby corn, the companies will set agricultural product quotas for each broker or collector to collect, and pay the commission fees to that broker or collector. Companies also provide technical support through the brokers or collectors to their subcontracted farmers. This intermediary model is commonly applied in the case of small farmers in remote areas in order to achieve sufficient volumes for collecting the product and reducing the cost

of logistics. In the case of fresh vegetables (asparagus and baby corn), the companies will provide cool storage facilities at the collection outlet of the brokers.

4.4.1.3 Multipartite model

According to Eaton and Shepherd (2001), the multipartite model usually involves different organisations jointly participating with farmers. The initial stage of CF in Thailand fell under the typology of multipartite model in the government project "four-coordinate project". Agro-industrial firms, farmers, financial institutions (the Bank for Agriculture and Agricultural Cooperatives (BAAC)) and government agencies such as the Department of Agricultural Extension (DOAE), and the Department of Agriculture (DOA) worked together to implement CF. The government was heavily involved in facilitating and encouraging firms and farmers in contractual arrangements. The BAAC provided credit for farmers at the initial stages. The DOAE and DOA also provided technical support for farmers. This multipartite model was found in the cases of asparagus, baby corn and Hom Thong banana during the early stages of CF. Over time, the CF for these crops developed without government involvement. Today, there is only an asparagus case involving one company that signed contracts with groups of farmers in the presence of witnesses who were representatives from the DOAE at the provincial level.

4.4.1.4 Centralised model

According to Eaton and Shepherd (2001), the contracting company directly purchases crops from farmers or farmer groups. After that, companies process, package and market the products. In Thailand, the centralised model is found in the case of organic rice, asparagus, baby corn and Hom Thong banana. The company has its own extension staff to tightly control the volume and quality of the products.

The nucleus estate model was employed in respect of Hom Thong banana. Similar to the centralised model, the company manages its own large-scale plantation.

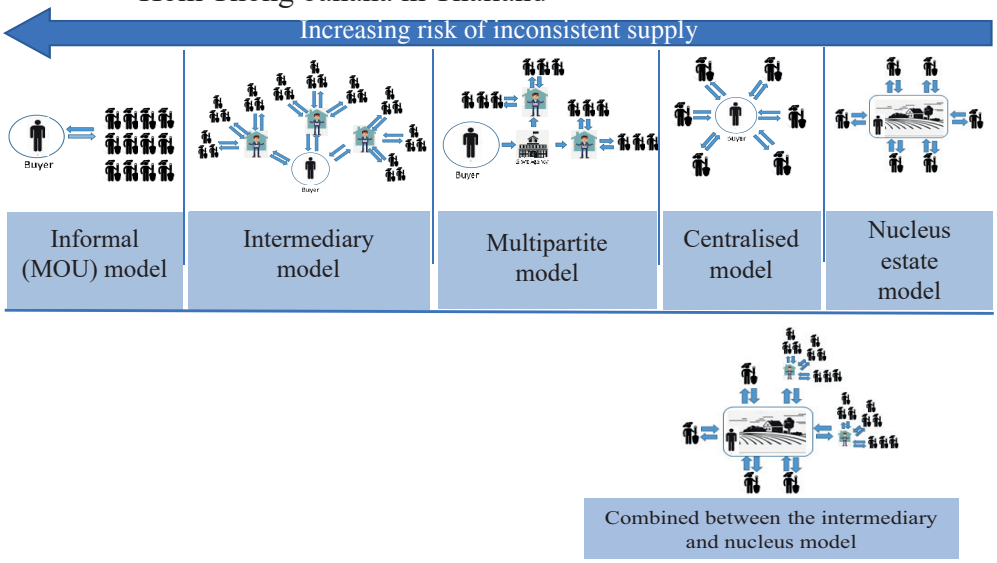
Hybrid between the intermediary and nucleus models

From the interview with a contracted company and a community enterprise in the study area, the former manages its own large banana growing plantation, located in the central area of Thailand. In order to secure the supply and expand the market to the north-eastern region, the private company agreed a contract with a community enterprise to purchase and collect bananas from growers who are members of the community enterprise. The company

requires growers to use the first banana shoots from the company and notify the company of all input uses. Growers have to produce bananas from sowing to harvesting according to the company's guidelines. The company also subcontracts the community enterprise to grade, wash, transport and deliver banana to the distribution centre of the "modern-trade" following the company's specifications.

From the characteristics of the CF model outlined in Eaton and Shepherd (2001), the study identified the CF model employed in this banana case as a hybrid between the intermediary model and the nucleus model. The hybrid has characteristics of the intermediary model in terms of a direct contract between a farmer organisation and a contracting company and also has characteristics of the nucleus estate model in terms of the management of the company's and the farmers' plantations. This hybrid model applied only in the case of Hom Thong banana as the contracting company owned a large plantation, whereas it did not have a plantation growing rice or vegetables. In addition, there is an increasing demand for fresh banana supplied to the modern-trade in the north-eastern part of Thailand. However, the logistics are too costly as the local supply is far from the company's collection outlets. As a result, a local supply from a group of small-scale farmers, sub-contracting the group to clean, pack and transport to the modern-trade outlets, is much less costly.

Figure 4.6: Classification of contract farming for agricultural products in respect of organic rice, vegetables (asparagus or baby corn) and Hom Thong banana in Thailand



Source: Modified from Margret Will in the Contract Farming Handbook, GIZ p.17

CF models classified by product type can be indicated in Figure 4.7 and Table 4.5. This study found evidence of the CF models that has been implemented for organic rice, vegetables (asparagus or baby corn) and Home Thong banana as the followings:

Rice

From the KIIs and FGDs, there was evidence to show that the informal model, the intermediary model, the multipartite model and the centralised model, categorised in the CF literature, had been applied in respect of rice CF in the study areas

1) Informal model

Organic rice CF in the study sites in the northern provinces of Thailand can be categorised as the informal model. A contracting company supports farmer groups under the "Organic Rice Production Promotion Programme" initiated by the company. Farmer groups have had CF experience with a company for a long period. The company agrees informal contracts with members of farmer groups.

The agreement generally specifies the production management and requires members to comply with organic rice production standards. The specifications for production management include input use such as organic seeds, the prohibition of chemical substances and chemical fertilisers and the use of biological substances. The agreement allows the buyer to inspect farmers' rice fields. In some cases, a buyer provides organic seed at a cheaper price. However, if farmers specialise in producing rice seeds, a company will allow farmers to use their own organic seed.

For market agreements, the company guarantees to buy the organic rice at a premium price if the group's plots are certified according to European organic standards. The company assists farmers within farmers groups to follow the European organic standards and pays for organic group certification. The company employs its own extension staff to work with the farmer organisation to support technical assistance. There is a verbal agreement that a buyer will be responsible for the costs of inspecting, certifying and transporting paddy from the farmer plots to the rice mills.

The company does not usually provide loans for farmers, but it does provide limited technical advice as farmers have skills in organic production. In addition, the company coordinates with the rice department to support the groups of farmers in training or field visits to learn about good organic practices.

This informal model is a special case in that individual farmers, who are members of farmer groups, have entered into a CF agreement with the company for a long period. Both parties - a company and farmers or farmer groups - have trust in each other.

From the company's point of view, they support the farmer groups by providing management fees (approximately THB200 per tonne) as working capital at the beginning of the crop year. The company is involved in supporting the farmer group to produce organic seeds and organic fertiliser. In addition, the company supports activities to improve livelihoods, such as organising training, field visits to other farmers to learn about better farming techniques, and supporting the establishment of farmer group savings funds. The company coordinates support from government agencies such as the Rice Department and the Rice Research and Development Centre, particularly for farmer training and extension. The company also coordinates with the community rice miller to provide milling services.

From the farmers' point of view, they are satisfied with this informal model of contract arrangement, and they still gain benefits from receiving premium prices and training programmes from the company.

In sum, the mutual trust, long-term relationships and coordination with government agencies and community rice millers, enable the company to pursue an informal agreement, without the need to invest in infrastructure and processing facilities.

2) Intermediary model

In the study sites, a contractor engages in a contract with a farmer organisation such as a cooperative, a farmer group, or a community enterprise to purchase and collect the paddy from farmers. Individual farmers then engage in CF arrangements with the farmer organisation. Both written and verbal agreements are found.

The contract arrangement between farmer organisation and contractor assigns to the farmer organisation the responsibility to collect, store and transport the dry paddy to the collection outlet. If the farmer organisation has a rice mill that meets organic standards, the contractor also assigns the farmer organisation to mill the rice and transport it to the collection outlet according to the contractor's instruction. If the farmer organisation does not have a rice mill, the paddy is milled or is subcontracted to be milled by the contractor.

Under the contract arrangement with the contractor, the farmer organisation buys the organic paddy from its members at the predetermined premium price, in consultation with the buyer. The farmer organisation is responsible for all field activities and for collecting products. The farmer organisation employs extension staff in disseminating information regarding organic rice production methods, and in setting up internal control systems necessary for organic certification according to the instructions from the contractor. The contractor also has extension officers who work with the farmer organisation to disseminate technical information.

If the farmer organisation is structured as a cooperative, it can provide credit, organic inputs, such as seed, fertilisers and herbicides, and aid in cases of natural disasters or for disease relief. If the farmer organisation is a community enterprise or a farmer group, its resources are limited to providing credit or relief funds.

This intermediary model is used in cases where a contractor needs sufficient volumes of organic rice for processing or trading. Therefore, the contractor subcontracts to the farmer organisation that has experience and technical knowledge in growing, monitoring and collecting organic rice.

According to the KIIs, this intermediary model is applied in cases where contractors are: (i) a trading company; (ii) a cooperative that exports organic rice to European countries; or (iii) a cooperative who has its own rice mill and sells organic rice domestically.

From the contractors' point of view, each contractor needs to collect paddy in sufficient volumes for milling, packing and distributing to the market outlets. However, they do not want to invest in resources for buying, collecting and monitoring the organic paddy from many small-scale farmers. The contractor, therefore, subcontracts an intermediary agent, such as a farmer group or community enterprise, that has experience and high capability in buying, collecting and monitoring organic paddy. The subcontract can reduce the contractor's logistic and transaction costs. However, the intermediary agent must have sufficient available funds to buy all the organic paddy from its members, which can be produced only once a year.

From the farmers' point of view, they have participated in a CF arrangement with intermediary agents as they are members of a farmer group or community enterprise. In addition, the intermediary's collection outlets are near to farmers' plots. As a result, transporting paddy from the paddy field to the intermediary's collection outlets is convenient. However,

if an intermediary agent has liquidity problem, the cash payment paid to farmers is delayed.

In sum, the competency and efficiency of a farmer organisation, particularly in controlling the system of organic production and/or in drying and milling, enables the company to use the intermediary model of CF arrangement.

3) Multipartite model

From the KIIs, it emerged that the characteristics of the multipartite model were used in the initial stages of CF in organic rice. During 1991-1992, when organic rice CF was first introduced, an exporting company, a rice miller and government agencies worked together to create a project to encourage farmers to participate in the project to produce organic rice for export to Italy. In this agreement, an exporting company provided credit for farmers who participated in the project. The company also organised training to educate farmers in production through government agencies under the Ministry of Agriculture and Cooperatives (MOAC). The miller was responsible for the production process of farming until the organic rice was milled. Government agencies under MOAC played an important role as a coordinator and provider of technical knowledge about production, and farm management for organic rice standardisation, and also cooperated with the private sector in research and development of the organic rice system. As CF in organic rice has been implemented in Thailand for many years, the multipartite model is not necessarily used.

4) Centralised model

In the study sites, a contractor agrees a formal written contract with an individual farmer. In the written contract, a contractor agrees to purchase the organic rice from the farmers, at a predetermined price and with the agreed product quality. The price is set before the planting date and is specified in the contract. The contractor pays a high guaranteed price, or pays a price premium of about THB1 to 4 per kilogram. The contractor has in-house technical and extension staff who can provide technical assistance, extension and advisory services for farmers. Under the centralised model, the contractor takes a high level of control over the farmer's production process. Farmers must follow the company's organic production guidelines, such as in the use of inputs and in organic production methods. The extension staff provide organic rice seed, organic fertiliser and herbicides for farmers at the cost price. The contractor's extension staff work closely with farmers to plan and monitor production. The contractor has an internal control for inspecting farmers' plots, and pays the inspection fee for international standard certification.

From the KIIs, it emerged that this centralised model is applied in organic rice cases where contractors are: (i) rice trading companies; (ii) NGOs; or (iii) a cooperative or community enterprise that purchases, processes and markets its members' organic rice.

From the contractors' point of view, the centralised model is adopted in order to control the quantity and quality of production. The contractor employs in-house technical and extension staff to control the quality of production. The written contract is used to guarantee to farmers that the contractor will buy the organic product at the predetermined high price stated in the contract. They all need a sufficient volume of paddy for milling, packing and distributing to the market outlets. A written contract is applied so that farmers must sell the organic rice to the company, enabling the contractor to secure a sufficient supply.

From the farmers' point of view, they have participated in a CF arrangement under the centralised model because the price premium is high, or because they are members of a cooperative or community enterprise. Farmers have also gained benefits from improving the quality of organic rice.

In sum, the centralised model can be applied in cases where the contractor would like control to ensure the quality of organic rice, and farmers can gain benefits from receiving technical assistance from contractors and from improved quality.

Asparagus

The intermediary and multipartite models, categorised in the CF literature, have been applied for asparagus CF in the study areas.

1) Intermediary model

The intermediary model is commonly applied in cases of asparagus CF. A contractor directly engages in a formal contract with intermediary agents, such as collectors/brokers or leaders of farmer groups. Intermediary agents are needed for collecting products from small-scale farmers with marginal land. In asparagus CF, contractors are usually private companies that export asparagus to Japan and European countries.

The written contract is generally signed for three years and can be renewed after every three years as asparagus is a perennial crop. Growing asparagus from seed takes about eight months. The harvest of each crop can then be started every two months from the eighth month, taking a month's break in between each harvest, and can be harvested for 10 years.

From the contractors' point of view, the intermediary model means that the contractor does not have a contract with each individual farmer who has small amount of production from marginal land (less than 0.3 ha). In order to collect enough volume of production, the contractor usually signs a contract with the leader of the farmer group. The contractor employs in-house technical and extension staff to provide technical assistance, to control and to supervise the asparagus production of the farmers' group. The company provides a seed supply, agricultural materials in terms of pesticides and biological substances to the farmer groups, and the leader of the groups will sell inputs to group members at a lower price and deduct input expenses when farmers sell their products to the company. For the contract agreement on production management, the company requests the farmers to produce according to GAP (Good Agricultural Practices) standards. The chemicals used in asparagus production must be approved by the contracted company. For the marketing agreement, the company agrees to buy asparagus from farmer groups at the price specified in the contract before the planting date. The price varies according to the grade of asparagus, and is fixed for the whole year at a level that is higher than the average market price for the whole year. The price will be adjusted on a case-by-case basis, for example during periods of high demand.

From the farmers' point of view, the leader of the farmer group collects asparagus from group members to deliver to the contracting company. After harvesting, an individual farmer transports asparagus to the group's collection outlet, which is close to members' farms.

Farmers have to follow the contractor's regulations in how to produce safe asparagus. The fixed buying price will be calculated at the collection outlet after grading, which is undertaken by members of the local community. The contractors pay the group's management costs, and deposit the money for this, and for asparagus sales, to the group. The management committee of each group will manage the distribution of the asparagus sales payments to its individual members.

In sum, the intermediary model is commonly applied in cases involving asparagus, where intermediary agents are needed to collect products produced on a small scale. In this model, the contractors support the intermediary agents in developing collection outlet facilities, particularly in cleaning and grading activities. In addition, the intermediary model, operated via farmer groups, helps small-scale farmers to participate in CF.

2) Multipartite model

From the KIIs it emerged that the characteristics of the multipartite model were used at the initial stage of CF in asparagus. In 1985, when asparagus CF was first introduced, private companies, the DOAE, BAAC and Kasetsart University worked together to create a project to promote asparagus production for export. The DOAE established a farmer group and provided input at the beginning in respect of technical support and services for farmers. Kasetsart University also contributed to the provision of technical services and technology transfer to farmers. BAAC provided loans to farmers, and private companies guaranteed minimum prices to them. Currently, there is only one case of asparagus CF in which a private company (foreign exporters) has an agreement with farmer groups under the supervision of the DOAE. The contract agreements between a company and leaders of farmer groups are signed in the presence of witnesses who are representatives from the DOAE at the provincial level. The DOAE at the provincial level is also involved in coordinating and facilitating CF between farmers and companies.

From the contractor's point of view, the company still carries out CF under the supervision of the DOAE. The representative from the DOAE in Ratchaburi province is involved in coordinating and arranging a signing ceremony between farmers and companies. Under this arrangement, a farmer leader sells all green asparagus exclusively to the company on a constant daily basis according to the size and the quantity of green asparagus, for a period of three years, from the notified planted area. The company specifies practices in respect of maintenance, soil preparation, cultivation and post-harvest treatment according to the GAP standards, and delivery. The price specified by grade is fixed for the whole year, which is higher than the average market price for that period. The DOAE is a coordinator during the negotiation of the price process before the contract is signed.

From the farmers' point of view, the involvement of the DOAE as the coordinator is important in guaranteeing that the contract will be honoured by the company.

In sum, the multipartite model can be applied to asparagus cases where the contractor is a foreign company and farmers are smallholders. The supervision of the DOAE enhances a sense of mutual trust between both parties, company and smallholders.

Baby corn

The intermediary model and centralised model, categorised in the CF literature, has been applied in respect of baby corn CF in the study areas.

1) Intermediary model

As in the case of asparagus, the intermediary model of CF for baby corn is commonly practised in the area studied. A contractor directly engages in a verbal or written contract with intermediary agents such as collectors/brokers or leaders of farmer groups. Intermediary agents are needed for collecting baby corn from small-scale farmers who grow on only marginal land. In the baby corn CF, contractors are usually private processing companies who export fresh, chilled or canned baby corn.

From the contractor's point of view on the CF of baby corn in Thailand, each contractor agrees a contract to buy fresh baby corn via brokers in the local area. The brokers are usually leaders of farmer groups. Each contractor engages in a verbal or written agreement with approximately 20-30 brokers. Brokers then have informal agreements to buy fresh baby corn from farmers under their own network.

Generally, the contractor purchases fresh baby corn from the brokers by specifying the amount of purchase (the quota) and the buying standard at a predetermined, guaranteed price. The contractor provides seed for the brokers to distribute to the contracted farmers. In addition, the contractor specifies the requirement for good agricultural practice. Most brokers provide extension services, land ploughing services, fertilisers and chemicals, as well as loans for contracted farmers. Some brokers offer a cutting service. Brokers offer guaranteed minimum prices to farmers. In cases where the market price increases substantially on a seasonal basis, brokers also offer additional prices to avoid side-selling. The contractor usually pays each broker the management fee for collection and grading. Each broker also earns the difference between the purchase price from the contractor and the price paid to the farmers

From the farmers' point of view, brokers are usually the leader of the farmer group in the village. After harvesting, an individual farmer transports baby corn to the broker's collection outlet, which is close to members' farms. Normally, farmers receive loans from brokers, as well as inputs such as seed, fertilisers and herbicides. Farmers do not generally receive technical advice from brokers as baby corn does not require intensive care and most farmers have more than ten years of experience in growing it.

In sum, the intermediary model is commonly applied in cases of baby corn CF, where intermediary agents are needed to collect products on a small scale. In this model, the brokers provide farmers with loans, seed, fertiliser and herbicide.

2) Centralised model

The centralised model of CF for baby corn is applied in cases where the contractor needs to control the quality of production in order to export fresh baby corn, which requires strict quality standards. From the contractors' point of view, each contractor agrees to purchase fresh baby corn from individual farmers at prices and of a product quality that is predetermined. The contractor guarantees a fixed price all year by quality-grading the baby corn. In order to control both the quality and quantity of the production, the contractor has in-house technical and extension staff who can provide farmers with technical assistance, extension and advisory services. Farmers must follow the company's production guidelines relating to, for instance, seed and input use and safe production methods. The contractor's extension staff work closely with farmers to plan and monitor production. The contractor has an internal control for inspecting farmers' plots, and in some case, will pay the inspection fee for international standard certification such as that for Global GAP. For collection, the contractor supports the group to gather the product by providing storage trucks to pick baby corn up to take it to the group's collection outlet.

From the farmers' point of view, some contracted farmers engage under this type of CF arrangement in order to gain market access with a high guaranteed price. Farmers also receive technical advice from the company's extension staff. However, farmers need to follow the company's production guidelines. The company makes cash payments directly to individual farmers.

In sum, companies use the centralised model of CF to provide seed and inputs, and to control the production process. The centralised model enables small-scale farmers to fulfil the quality requirements of export markets. In this model, companies invest heavily in internal control systems. The prices that farmers receive under the centralised model are, on average, higher than those available under the intermediary model because of the higher production quality. However, small-scale farmers need commitment and skills to produce high-quality baby corn.

Hom Thong Banana

Three types of CF model have been practised in the study sites focusing on Hom Thong banana: the intermediary model, the nucleus estate model and a hybrid between the nucleus and the intermediary models.

1) Intermediary model of CF for banana is commonly practised in the area studied. From the contractors' point of view, they directly engage in a contract with intermediary agents such as agricultural cooperatives or

brokers. Intermediary agents are needed to collect banana from small-scale farmers. From the farmers' point of view, they have entered into a contract with intermediary agents who mostly provide harvesting services and loans for farmers.

According to the KIIs and FGDs, the intermediary model has three main characteristics.

1. Thai agricultural cooperatives in Phetchaburi province have entered into written agreements with Japanese consumer cooperatives in the trading of Hom Thong banana with specifications relating to the quantity and quality required by Japanese consumer cooperatives. After receiving the order from the Japanese consumer cooperatives, the Thai agricultural cooperatives enter into an agreement to buy chemical-free banana with the cooperative members. In the agreement, farmers, who are members of the cooperatives, will agree to sell all the banana produced to the cooperatives at a guaranteed price. The farmer members must allow the cooperatives to inspect their plots, and they have to make a farm record of the use of non-chemical substances.

2. Thai agricultural cooperatives have also entered into agreements with convenience stores (7-Eleven). The cooperatives supply Hom Thong banana in the quantity and quality required by 7-Eleven at the guaranteed price. After that, the cooperative enters into an agreement to buy bananas from cooperative members. For the production of golden bananas for sale in the country, with an agreement, cooperative members undertake to sell all the bananas produced at the guaranteed fixed price to the cooperatives and allow them to inspect their plots. But they are not as strict about the use of chemicals as they are for production destined for export, which is required to be chemical free.

Cooperatives normally provide loans, inputs, extension and harvesting services for farmers, particularly to control output quality, and help the farmers to reduce transportation costs. In case of natural disaster, such as high winds, the cooperative provides cash payment assistance for farmers.

3. From a company point of view, private companies purchase bananas through a broker in the production area through a written or verbal contract. The broker will make a verbal contract with their own farmer networks. Brokers and growers have generally been trading for a long time and have mutual trust. Under the marketing agreement, a grower will undertake to sell the agreed quantity of banana to the brokers at

the predetermined price. In general, the farm gate price is determined before harvesting, based on the market price and standards. For the production management agreement, if the private company sells banana for the "modern-trade", the GAP standards and a detailed notification of production plans are required before planting. The farm gate price is also guaranteed and fixed throughout the year, which is higher than average market prices for the whole year if the product is sold to the "modern-trade". Brokers usually do not deliver extension services and do not provide factor inputs for growers. For the embedded services, brokers normally provide loans and harvesting services for farmers. They also provide farmers with banana shoots or fertilisers if necessary.

2) Nucleus estate model

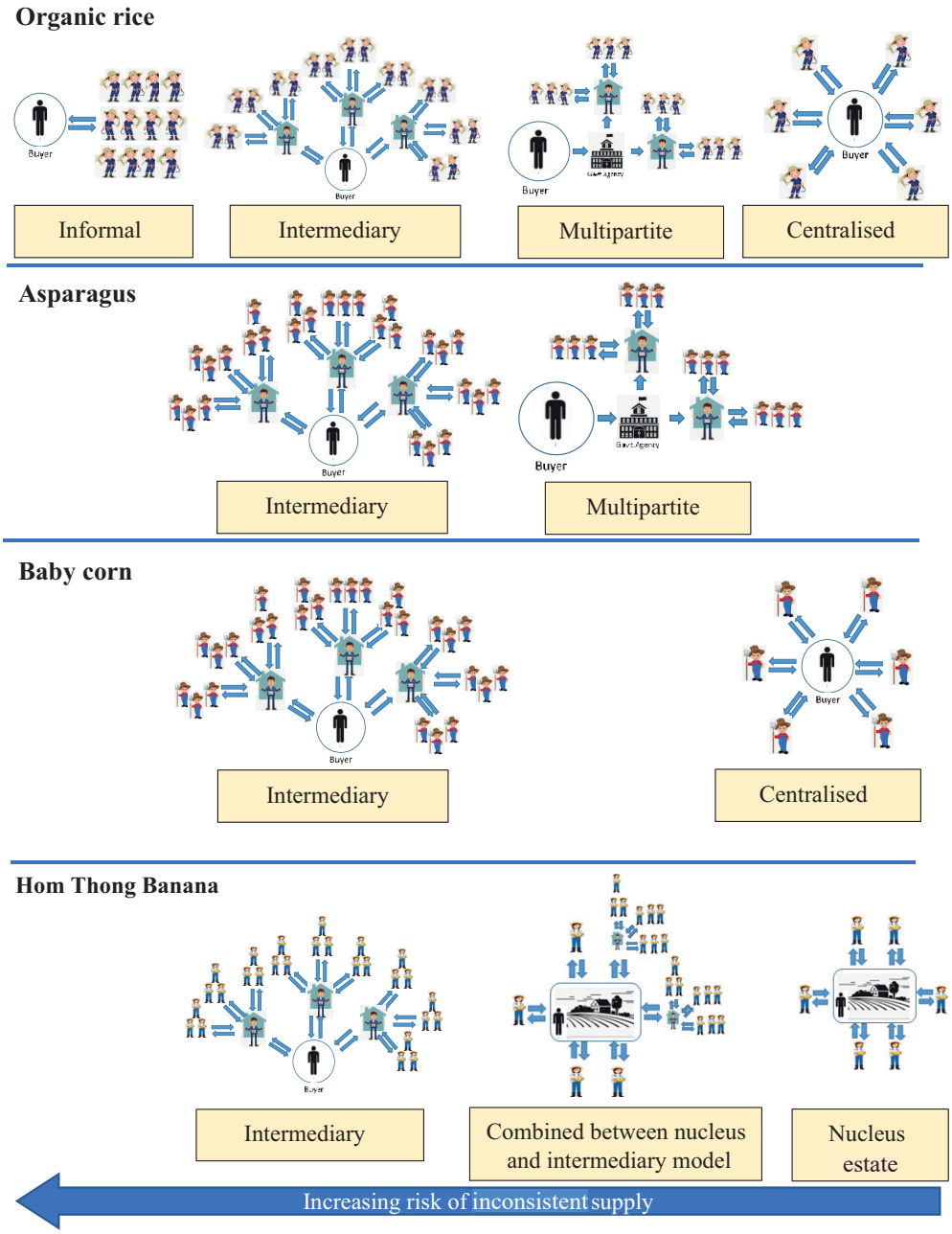
Private companies have their own large banana growing plantations and enter into a contract to buy bananas with individual farmers all over the country in order to secure the supply. The company is the planting planner for all in order to ensure the amount of banana shoots needed to provide a satisfactory level of production. The farmers are required to purchase the first banana shoots from the company at a reasonable price, which is lower than the market price, and the company will purchase the banana at the guaranteed price. Farmers must inform the company every time they want to plant a new crop so that the company can forecast the amount of production that will be available from the farmers. From the farmers' point of view, they gain access to high-quality banana shoots and technical knowledge from the company.

3) Combination of the nucleus estate model and the intermediary model

Similar to the nucleus model, the company has direct contract with a farmer organisation to buy and collect banana from farmers, instead of having a direct contract with individual farmers.

In sum, companies use a hybrid between the nucleus estate model and the intermediary model to subcontract a farmer organisation to deliver banana to a "modern-trade" distribution centre under the company's specifications in order to reduce the logistic and transportation costs. In addition, the intermediary model, enacted via a farmer group, helps small-scale farmers to participate in CF. The company has to build the capacity of a farmer organisation for post-harvest management, and invests in post-harvesting facilities for farmer groups.

Figure 4.7: Contract farming model classified by products



Source: Modified from Margret Will in the Contract Farming Handbook, GIZ p.17

Overall, no single type of the model works well for any specific crop. It depends on the context, such as the type of crop, the resources of buyers and farmers, and the relationships and experience of farmers engaged in CF.

The characteristics of success and failure of all five models is clarified in the following Table.

Table 4.5: The characteristics of success classified by CF models

CF model	Success
Informal model	• Long term relationship between buyers and sellers (more trust) • High skills/capability of farmers • Minimum requirements for processing (no need for high technology)
Intermediary model	• Good for sellers in remote areas • Low logistic costs • Brokers and collectors have a close relationship with buyers • Strength of farmers' organisation • Management of farmers' organisation to control production and collect products
Multipartite model	• Having the third party (government or statutory bodies or academic institutes) that can be relied on and have technical knowledge • Having a good relationship between buyers and the third party
Centralised model	• Buyers can closely control all production processes • Sellers are located in the same area (not scattered areas) • Investment in capacity building for the extension staff of contractors
Nucleus estate model	• Buyers have their own land and need good management to secure the products • Good for the large volume requirements • Investment in capacity building for the extension staff of contractors

4.4.2. Conflict resolution mechanisms

In the case of Thailand, conflicts between contractors and farmers are generally about quality standards and prices. According to the interviews with farmers, farmer groups and brokers, there were a few cases where contracting companies rejected sub-standard produce or made payment according to lower-grade produce. Furthermore, when market prices fell, the contracting firm reduced the guaranteed price. The interviews with contracting companies indicated that there were few cases of side-selling during times when market prices were high. In addition, for cases where contracting companies and farmers had long-term relationships, and had been engaged in CF for a long time, both parties had the same understanding of the quality standards, thus provoking less conflict.

According to the KIIs with contractors and farmers, legal procedures are stated in the written contract for settling disputes. However, almost all companies had never had a case in which it was necessary to sue farmers who did not fulfil the contract. For alternative dispute resolution mechanisms, the contractors would organise a face-to-face meeting between the contractors and the farmers in order to inform them about the market and production situation, and negotiate prices (from KIIs and FGDs 2019).

The conflicts, and mechanisms to defuse them, between the contractor and the farmers can be outlined as follows:

4.4.2.1. For organic rice

From the KIIs with the extension staff of contracting companies and farmers, it appeared that conflicts are found in cases where rice farmers misunderstood which inputs, particularly in respect of bio-herbicides, can be used to maintain organic standards. To resolve this source of conflict, the company's extension staff visit fields more often and clarify the input use from the information received from the Rice Department. In addition, an annual meeting that allows farmer representatives to negotiate the price would lessen the conflict.

4.4.2.2. For asparagus and baby corn

From KIIs with the extension staff of contracting companies and farmers, it appeared that conflicts about grading were not substantial as the company uses local people who are the family members of contracting farmers to grade the product.

Government meetings can be used as a conflict resolution mechanism to resolve conflict problems. For example, the heads of farmer groups would like to increase the guaranteed price of some grades, but the company resists this. The DOAE at the local level organises many meetings and acts as an intermediary to coordinate both parties in talking openly about the production and operation costs. Working together, both parties can agree a satisfactory price.

4.4.2.3. For Hom Thong banana

From the KIIs with buyers and farmers, it appears that both companies and cooperatives have a clear understanding of how CF works, and inform farmers about the contract conditions. In addition, the contractors organise training in how to produce high-quality banana at the field level before farmers sign the contract. After the contract is signed, frequent field visits by the owners and extension staff will give farmers a better understanding of farm management practices and how the company grades the products. As a result, farmers have a clear understanding and there is no conflict.

4.4.3. Benefits and challenges of CF to smallholder farmers and contractors

Benefits of CF to smallholder farmers

1) Guaranteed reliable market access to the modern value chain

According to the interviews with smallholder farmers, those involved in CF for all the products studied for this report gain benefits from having guaranteed, reliable market access. CF can help to integrate small farmers into the modern value chain and give them opportunities to reach wider markets, such as export markets and the modern retail trade.

> "After having CF with the company, we have access to reliable export rice markets in Europe with a guaranteed price, which is higher than market price." (Contracted rice farmer, Sri-saket province)

2) Reduced price risk and higher income/price

The price is guaranteed so farmers do not have to face risk. Smallholder farmers gain increased income from improved prices and yield.

> "I do not have to worry about receiving very low prices when there is more production in the market. With CF, the price is fixed throughout the year. On average, I receive a higher price than I do when I sell banana to the market." (Contracted banana farmer, Petchaburi province)

> "After switching to organic contract farming with the company, my yield, price and income increased. The yield increased from less than 400 kilogram per rai during 1995-1996 to 500 kilogram per rai in 2018. With the increased income, I can expand my land plots to grow organic rice - from 10 rai (1.6 ha) to 30 rai (4.5 ha)." (Contracted rice farmer, and rice farmer group leader, who joined CF with the company when it was first introduced in Payao province)

3) Access to modern technology, knowledge/new production methods

From the interviews, it can be noted that major farmers are satisfied with the knowledge they had gained from the contractors. This covered topics including marketing and the production process - seed/shoot selection and production techniques. Some rice farmers can access seedling machines provided by the contract company.

> "I am very satisfied with the knowledge I have gained from the company, particularly knowledge relating to organic fertiliser and bio-herbicides. The company also provided Trichoderma and EM fertilizer (Effective Microorganism) for organic production." (Contracted rice farmer, Chiang Rai province)

> "I learned new techniques from the contracting company in how to produce high-quality rice seed. The company provided me with a seedling machine that uses fewer seeds." (Rice farmer under a CF agreement in Ubon Ratchani province)

4) Access to credit and assistance after natural disasters

When the buyer is a cooperative, contracting farmers can gain access to credit. The cooperative also provides cash compensation in cases of natural disasters such as high winds.

> "I joined the CF with the cooperative to access credit. I received a working capital loan to grow banana from the cooperative. Besides, the company gave me compensation of TBH300." (Contracted banana farmer, Petchaburi province)

5) Strengthening the social capital of farmer groups and enhancing the management of group activities towards post-harvest activities

When a contracting company uses a farmer organisation as an intermediary agent, the company can strengthen the farmer group and support community development. In addition, in the case of asparagus, baby corn and banana, the company enhances the management of group activities towards post-harvest activities such as cleaning, cutting, grading and packing.

> "The company supports the activities of farmer groups, such as in making organic seeds and organic fertiliser." (Contracted rice farmer, Chiang-rai province)

> "The company supports the post-harvest facilities of collection outlets through, for instance, storage and cold equipment." (Contracted baby corn farmer and farmer group leader, Kanchanaburi province)

> "The company supports post-harvest facilities for collection outlets. The company trains and hires the family members of a contracted farmer to clean, grade and pack asparagus. This post-harvest support also creates more employment in the community." (Contracted asparagus farmer and leader of a farmer group, Kanchanaburi province).

> "After being involved in CF with the company, I can sell bananas at a guaranteed price, which is higher than the market price. I received information about how to produce high-quality banana from the CEO of the company who is an expert in banana production. I followed his advice and achieved a higher weight. I receive a higher income from selling banana with the company. The company has also provided the market outlet for our farmer group." (A leader of a banana community enterprise, Nakorn Ratchasima province)

6) Improved bargaining power of farmer organisations with companies

Under the intermediary model of CF, there were cases where leaders of farmer organisations could negotiate with companies in price-setting. From the interview with the local government officials, who sit in on meeting where contracts and prices are negotiated, there is evidence that the grower groups have more bargaining power in negotiating price.

The benefits of CF to smallholders can be categorised by commodity, and are summarised in the Table below.

Table 4.6: The benefits of CF to smallholders, classified by commodity

Benefits of CF	Product		
	Organic rice	**Asparagus**	**Hom Thong banana**
• **Reliable market access**	√	√	√
• **Higher quality of production with a higher market price**	√	√	√
• **Access to technology/ farm management or good production practices**	√ For certified production practices	√ For high-quality production practices	√ For high-quality production practices
• **Access to modern machinery**	√ Seedling machines		
• **Strengthening social capital and enhancing further activities**	√ From activities such as making compost	√ From activities towards post-harvesting	√ From activities towards post-harvest
• **Improved bargaining power of farmer groups with companies**		√	√
• **More employment of members of CF farmer families at the packing house**		√	
• **Enhancement of further activities**			√ Towards post harvest/transporting

However, CF presents several challenges to smallholder farmers.

1) Weather, pests and diseases

Sudden changes in the weather, leading to, for instance, floods and drought, or other disasters, including pests or diseases, might mean that small farmers are unable to supply the amount and quality of product agreed in the contract. In contrast, good weather might lead to an oversupply that the contractor would be unable to buy.

> "I had to drop out of CF with the company due to fungi disease. I had to use chemical herbicides that were prohibited by the company." (Contracted asparagus farmer, Kanchanaburi province)

> "In the past, there were good weather conditions, and banana production increased substantially. The contractor could not manage the extra production and marketing. As a result, the contractor bought only good-grade products." (Contracted banana farmer, Petchaburi province)

2) Limited capital, labour shortages and the high cost of producing high-quality products

Small-scale farmers have limited capital to invest in irrigation equipment. They face family labour shortage for intensive care in the growing process. When the land size is small, it is too costly for farmers to produce high-quality products. As a result, some small farmers receive low prices because of the low-quality of their produce.

> "I had a higher proportion of low-grade banana. I had only a small size of land and only one family labourer to grow banana. As a result, it was not worth it for me to use blue sleeves to protect the banana bunches during fruit growth." (Contracted banana farmer, Kanchanaburi province)

3) Delayed payment

The financial liquidity of contractors affects the cash payments. From the KIIs, it was noted that cooperatives pay cash to farmers on delivery of the product. KII participants, under CF with contracting companies, reported that farmers generally receive cash payment three to seven days after delivering their product. However, there are cases where farmer groups made delayed payments due to cash flow problems among their group.

Overall, it was observed that the multipartite model was more suitable during the initial stages of CF, in which companies (exporters/processors) collaborate with government agencies to work with farmers. The government plays a crucial role in coordinating and providing technical knowledge in

production and farm management. The intermediary contract arrangements model, through cooperatives or farmer groups, is needed for collecting products on a small scale and produced on marginal land, particularly for vegetables and fruits. Cooperatives are relatively more beneficial to smallholder farmers than other types of CF model in terms of prompt cash payment. In addition, the cooperatives provide credit for production, as well as assistance in cases of natural disasters and pests. Nonetheless, it is less beneficial to smallholders in providing technical assistance because cooperatives have only a limited availability of extension staff who have expertise in production. At the same time, centralised and nucleus estate models are more beneficial to smallholder farmers in improving the quality of their products, because of the relatively higher degree of production control.

4.4.4. Benefits and challenges of CF to contractors (buyers)

CF can help contractors to achieve supply reliability to continuously fulfil customer orders.

> "Through working with contracted farmers in different geological locations, our firm can continuously fulfil orders from the modern trade, even when there are the production risks of natural disaster that are potentially damaging to the company's own plantation." (Contracted company, Patumtani province)

In addition, CF can help contractors to improve their system of food safety and quality control. As a result, contractors can give guarantees to customers that they can deliver the product with consistent food safety and quality standards.

> "After the company decided to enter a CF agreement with farmers, the quality consistency of the product has improved and the company has become large suppliers of fresh banana to the modern trade." (Contracted company, Patumtani province)

In addition, the company's logistics and transaction costs have been reduced in cases where a subcontracted farmer organisation has bought, collected, cleaned, graded and packed the product in accordance with the company's guidelines and supervision.

However, the challenges encountered by contractors include high transaction costs, and management and investment costs for providing collection outlets and post-harvest facilities. In addition, contractors may face the risk of side-selling during periods when the market price is high, or low production as a result of natural disasters and diseases. Moreover, challenges to scale-up the CF with smallholders revolve around land constraints due to limited land

suitability, and the low capability of farmer organisations to manage production and post-harvest activities. (A contracted company, Ubonratchani province).

4.4.5. Factors determining the success of CF

Factors determining success depend on the characteristics of crops, the location sites, and the mutual trust between buyers and farmers. Successful cases were selected if they had been involved with the CF for more than 20 years, and an increase in farm income had resulted from higher prices and yields.

The factors determining the success of CF to smallholders, classified by product, is summarised in the Table below.

Table 4.7: Key success factors of CF to smallholders, classified by product type

Key success factors	**Product**		
of CF	**Organic rice**	**Asparagus**	**Hom Thong banana**
• **Have suitable land and water for production**	√	√	√
• **Have stable and/or diversified market outlets**	√	√	√
• **Coordination by the partners within the integrated supply chain**	√		
• **Willingness and commitment of buyers to enhance farmers' capability to improve yield or the quality of production, and to strengthen communities to improve their livelihoods**	√		√
• **Honesty/mutual trust**	√		√
• **R&D**	√ Seed	√ Seed	√ Improved shoots
• **Extension services to provide information, transfer technology and closely monitor production**	√ Certified	√ Fungi disease	√ Fungi disease
• **Advice about techniques to improve farmers' yields and quality, and to reduce the cost of production**	√	√	√
• **Effective plans for production and harvesting processes with farmers**		√	√
• **Price incentives towards high-quality products**	√	√	√
• **Benefit-sharing**	√		
• **Effective group leaders**	√	√	

Rice

Factors determining the success of CF in the case of organic rice are as follows.

(1) Suitable locations for organic production

The private company chooses the location in provinces that have suitable land and water resources for organic rice production. In addition, the character of a community in the area has to be suitable for organic farming: the area is underdeveloped, and rice plantation reflects traditional practices with family labourers and no use of chemical fertilisers.

(2) Have stable and diversified market outlets

The private company has a stable demand for organic rice from European countries. The company also diversifies market outlets to many countries including the USA. The company has close and long-term relationships with distributors in European countries for maintaining market stability.

(3) Coordination within the integrated supply chain partners

The private company has a close and long-term relationship with partners along the supply chain, i.e. the distributors in the importing countries (particularly in the EU), the certified organic rice and the rice-related government agencies, such as the Rice Research Department and the Department of Agriculture, for R&D and the transfer of technology, and farmer leaders.

(4) Willingness and commitment of buyers to enhance farmers' capability to improve yield or the quality of production and to strengthen farmer groups or communities to improve livelihoods

The private company has a mission to create an organic supply chain based on fairness and sustainability. In particular, the company continuously supports the rural community to practice organic farming, to enhance farmers' capacity-building to improve yield or the quality of production, and to strengthen communities to improve their livelihoods. This includes support for young people to learn organic farming and for the establishment of farmer group savings funds. This increases the trust farmers have in the company.

(5) The technical expertise and the availability of extension staff to closely monitor practices for certified organic products

The extension staff of the company have technical expertise to teach production techniques to improve farmers' yields and the quality of their product, and to reduce the costs of production. Extension staff have frequent meetings with farmer groups to provide information, to transfer technology and to closely monitor the production practices for certified organic produce.

(6) Government and university support to provide technical production knowledge

With modern technology, knowledge and R&D support from the Rice Department, the Ministry of Agriculture and Cooperatives and/or universities, the contracted farmers are able to develop organic farming methods to improve yield and reduce the cost of production.

(7) Effective group leaders

Group leaders under CF are very effective. They can apply local wisdom and knowledge, transferred from the government and extension services by private companies, to produce organic rice. They have convinced, communicated with, and monitored members in the group to follow organic rice procedures and have the vision to become self-reliant by producing compost and by milling rice.

(8) Price incentives towards the production of high-quality products and/or revenue sharing

The private company provides price incentives to encourage the production of organic produce, offering a price that is higher than that of the market. In addition, the company shares some of the benefits of processing with the farmers. The company pays extra benefits to farmers if the percentage of head rice is higher.

Asparagus

Factors determining the success of CF in the case of asparagus are as follows.

(1) Suitable locations and farmers' capacity for asparagus farming practices

The private company has chosen that location based on topography and soil characteristics. Farmers are selected based on land suitability, labour management and the availability of capital as is required for intensive crop management. The capacity of farmers and the ecological sustainability of their practices contribute largely to success. In particular, all contracted farms have been GAP verified.

(2) Have stable and diversified market outlets

The company has a stable demand for fresh asparagus from Japan and also diversifies exports to other countries, such as the ASEAN and European countries.

(3) Willingness and commitment of buyers to strengthen farmer groups or communities to improve livelihoods

The private company has established collection outlets for asparagus, which are close to the plots of land of farmer group members. The company has hired local people in the community to conduct simple post-harvest activities, such as cleaning, grading and packing, before the company's cold storage truck comes to pick asparagus up at each collection station. This increases employment and livelihoods at the community level, and helps to reduce conflicts in the grading process. In some cases, where the farmer group members have strong capabilities, the company has invested in cold storage for the group's benefit. Technical support and advice on grading and simple post-harvest procedures are also given.

(4) The technical expertise and the availability of the extension staff for effective planning of production and harvesting, farmer training, close monitoring and a swift response to solve problems

The extension staff of the company have technical expertise in understanding different agricultural production systems in order to provide appropriate technical advice, to plan to grow and rest asparagus (i.e., to leave the land fallow) effectively for a whole year cycle. In particular, they have monitored whether or not production complies with domestic and international standards, i.e. GAP, Euro GAP, or organic standards. Monthly training sessions and frequent farm visits, pest and disease management and control and responsiveness in resolving problems, largely contribute to success.

(5) Government and university support to provide technical knowledge about production, irrigation and marketing facilities

Technical knowledge and information, and transferred technology, supported by the local government and the university or college in the community, with the support of irrigation implements including water-pumping machines, water pipelines and sprinklers, and marketing facilities, are also among the factors that contribute to success.

(6) Efficient farmer organisations

As farmers have to form a group under asparagus CF to achieve economies of scale in respect of volume and logistics, efficient farmer organisations have made a significant contribution to the success of CF for that crop. Most of the asparagus producer group committee members have strong bargaining power with the CF company.

(7) Firm's and farmers' honesty and transparency in production and in the buying system

Standards and price-setting mechanisms enhance the commitment of both parties and boost mutual trust

Hom Thong Banana

Factors determining the success of CF in the case of banana are as follows.

(1) Suitable locations and farmers' capacity for high-quality banana farming practices

Firms select growers from different geographical locations that are suitable and have different climate risks to avoid failing to fulfil orders. The contracted firms generally choose banana growers who cultivate on about 1.6 ha of land, as that size is optimal to enable farmers to employ family labourers for the intensive care needed to produce high-quality banana: the economies of scale are crucial for harvesting and transporting banana to the collection outlets. Firms require growers to have water sources and they must have at least 1.6 ha of land for cultivation to be able to rotate in order to achieve year-round production.

(2) Stable and diversified market outlets

The contracted firm has established close and long-term relationships with modern retailers to maintain stable markets. This allows firms to conduct effective planning with farmers relating to production and harvesting. Firms have diversified market outlets for different grades to guarantee that firms can buy all grades of bananas and thereby increase farmer trust.

(3) Willingness and commitment of buyers to enhance farmers' capability to improve yield or the quality of production, and to reduce the costs of production to improve livelihoods

The contracted firm is willing and commits to enhance farmers' capability to grow high-quality banana. The firm's priority is research and development to improve production and processing, the provision of appropriate technical advice for farmers and support for income-expense accounting. The firm believes that CF will be sustained if farmers can earn a high net income from CF throughout the year. If farmers can produce a greater proportion of high grade banana, they can reap benefits from higher prices. Good farming practice can reduce the cost of production, and recording income and expenses will reduce unnecessary expenditure. This can help farmers to earn a net income that covers expenses while also providing savings to improve their livelihoods.

(4) Research and development, and investment in technology

The contracted firms invest in R&D in order to produce high-quality banana shoots, while better production and harvesting techniques and traceability allow the firm to improve control and the standard of output. In addition, the contracted firm invests in R&D in the processing of low-grade banana, to produce, for instance, banana drinks, to guarantee that all grades of bananas can be sold.

(5) The technical expertise and the availability of extension staff for effective planning for production and harvesting, for training farmers, for close monitoring and for making a swift response to resolve problems

The owner, who is the managing director of the company, has technical expertise in banana production. The company has a professional team to continuously train and advise growers to adopt techniques that support good farming practices to improve the quality and reduce the costs of production. The company frequently visits farms to monitor production and to communicate with farmers using ICT online, so that problems can be swiftly resolved.

(6) Firm's and farmers' honesty and transparency in production and in the buying system

Standard specifications and price-setting promote commitment between both parties, and boost mutual trust.

The causes of CF failure.

Relatively less successful CF cases were those from which farmers had dropped out.

Rice

The major reasons for dropping out of a CF scheme include the low profitability of organic rice in an irrigated area, such as in the lower north region of Thailand. Rice production in the irrigated areas is highly sensitive to chemical fertilisers. At the initial stage of CF, farmers faced relatively low yields which were not profitable even though the price was higher than that of the market. In addition, organic rice production practices differ from those of non-organic rice, as it has to be harvested by hand, and the paddy dried, which requires an appropriate site and labour for harvesting and drying. In addition, buyers will make a cash payment after milling as the price setting depends on the milling rate. The delayed cash payments caused farmers who had a debt burden to drop out of the programme.

Asparagus

Diseases, particularly fungi disease, are key external risks that affect asparagus production. Farmers need to plan when to grow and when not to grow (or to leave the land fallow), and asparagus requires intensive farming to produce a high-quality product that meets the standards required by buyers and that prevents fungi diseases. Farmers have had to drop out of CF schemes as they have had limited capability to provide intensive care to grow asparagus, because they lacked family labourers, they had a plot of only a small size, or they had no other sources of income. In some cases, small-scale farmers could not continue with CF as the group committees decided to drop out of the scheme because they could not meet the required standards.

Hom Thong banana

Contracted buyers have relatively less effective production and harvesting plans. In particular, when buyers offer a harvesting service, the harvesting team cannot manage to harvest on-time. This delayed harvest has caused growers to receive lower prices. In addition, if extension staff have limited technical expertise, or if the number of extension staff members is inadequate for close monitoring and for a timely response to resolve problems, this can also be problematic. In some cases relating to Cavendish banana, contracted buyers do not have a good reputation or have financial liquidity problems, so that they cannot make payments to farmers.

4.5. Lessons learned

1. Contracted buyers are likely to choose growers with suitable sites. In the case of organic rice, vegetables and fruits, the land has to be suitable to meet organic requirements. In the case of vegetables and fruits, the sites are chosen where irrigation is easily available and the land is of a suitable size for all-year crop rotation. Growers are likely to be selected when they have family labourers to perform intensive care to produce high-quality products. This might exclude small-scale farmers who have land of only a marginal size, who cannot access irrigation and do not have family labourers for intensive care. Therefore, irrigation policy, land policy - i.e. land consolidation and credit policy to support land expansion - and irrigation equipment, as well as the role of cooperatives or intermediary agents in providing credit and collecting products particularly in remote areas, are crucial for increasing the involvement of small-scale farmers in CF.

2. Contracted firms should establish close and long-term relationships with farmers and modern retailers/exporters to maintain stable markets, and they

should diversify market outlets for different grades of product to guarantee that all grades can be sold. This allows for effective production and harvest planning with farmers, and guarantees that firms can buy all grades of products, increasing the trust farmers have with firms. Proper farm management, particularly disease management, harvest practices and post-harvest handling are critical to the success of CF for vegetables and fruits.

3. Price incentives can motivate farmers to produce high-quality products. Sharing information about production, domestic and international demand, market prices and competitors, as well as providing extra price premiums during times when the market price is high, can help to reduce side-selling. The bargaining power in contract negotiation tend to be more favourable for smallholders in the case of asparagus for export to Japan as buyers need high-quality that not many farmers can achieve. Well-established and functioning smallholder groups or organisations/cooperatives can negotiate more favourable agreements as they can collect volumes that represent economies of scale. In particular, well-functioning cooperatives can share the burden of risks such as natural disasters, pests and diseases, by providing relief funds and, in some cases, they can share the price risk. On the buyer side, a well-functioning group helps to minimise the risk that contractual obligations will not be met.

4. Close monitoring through extension services, and a timely response to solve problems, can help to reduce the misuse/diversion of inputs relating to methods of production, and to build trust for both parties.

5. Research and development, along with investment in technology, in different varieties and production techniques, are important in providing high-quality seeds and in giving guidance in techniques to improve farmers' yields and quality, and in reducing the cost of production.

6. Government and universities have a key role in providing infrastructure, supporting R&D and transferring knowledge and technology. Moreover, they can act as a coordinator between the company and farmers, boosting the trust both parties have in CF.

7. A good reputation and sound financial performance of firms means that they pay farmers in cash promptly, and, in case of market risks, they have cash liquidity to fulfil promises and build trust with the farmers. The government should make buyers' financial statements and background information available to growers when they are making decisions about participation in CF.

8. ICT technology can improve communication and information sharing.

4.6. Policy recommendations

Policy recommendations are drawn from this research analysis and results as well as suggestions made by key stakeholders such as private companies, cooperatives, farmers, leaders of farmer organisations, researchers and government officials.

Government

The role of development

1. The government could provide a good physical infrastructure, particularly irrigation, roads and marketing facilities. A credit policy is also necessary to support land expansion, improvements in soil fertility and irrigation equipment, which are crucial for increasing the involvement of small-scale farmers in CF: land suitability and water availability are pre-conditions for contracted firms when they are selecting sites and farmers for CF.

   "The Thai government should improve water management infrastructure (irrigation/flood control) in order to reduce production risks." (Contracted farmer, Ubon Ratchatani province)

   "In the case of banana, irrigation has a significant effect on productivity. Credit policy to support small farmers to invest in irrigation equipment or an irrigation system in the field, or to increase the land size is very important." (Contracting company, Patumtani province)

2. Government could promote the establishment of, or strengthen farmers' organisations, particularly in cases where farmers have land of only a marginal size in remote areas where logistics and road infrastructure are not fully developed. This could lower the transaction costs associated with dealing with many small farmers and reduce logistic costs as a result of economies of scale.

   "The CF between small farmers and a company with well-managed CF cannot scale up due to high transaction and management costs. The farmer organisation plays a very important role as an intermediary agent. As a result, strengthening the capability of farmer organisations in managing production and post-harvesting activities is very important." (Contracting company, Ubon Ratchatani province)

Enabling and regulatory role

1. The government could invest in research and development, and especially in technology to improve varieties/seeds/shoots, particularly those in which

private companies do not invest. The government could develop agricultural machinery for production and harvesting to solve the problems of labour shortages and ageing farmers. Provisions for training in technological and managerial skills, as well as guidance in techniques for production and harvesting to produce high-quality products, improve yields and/or reduce costs, would allow firms to provide improved seed and to give better guidance in techniques to improve farming practice. This could be done in the form of private-public partnerships with a package of services such as credit, the transfer of technology, machinery provision, and extension services.

"The high-quality asparagus shoots are very expensive and have to be imported. The government should invest in R&D in high-quality shoots." (Contracted farmer, Nakorn Pathom province)

"The government should have played a major role in improving the quality of banana shoots. This could be done under a public-private partnership. The costs of investing in R&D in shoots would be reduced. (It would be too costly for one company alone to invest in banana shoots.)" (Contracted farmer, Nakorn Pathom province)

2. The government could inform all stakeholders involved in CF, and provide a clear understanding, about the "Contract Farming Promotion and Development Act 2017". This aims to promote the competitiveness of CF, as well as to regulate the system for protecting farmers against conglomerates and to ensure fairness for all parties involved. The government should encourage companies to register as contracted firms so that background information about them could be provided for small farmers who are interested in joining CF.

"The Ministry of Agriculture released a new law to support contract farming. The 'Contract Farming Promotion and Development Act' was enforced in September 2018. Most stakeholders have not received information about this Act. Few companies have registered as contracted firms. Therefore, the government should provide a clear understanding for all stakeholders." (Government official, Bangkok)

3. The government could enable local officers to make background information about production, market demand and price, publicly available to all parties in CF. Local extension officers could act as intermediaries to coordinate between farmers and buyers and to provide information that farmers need for CF, and production information for companies. They could also organise meetings for discussion, negotiation, contract signing and dispute resolution, and the monitoring of the contract. This would help

the parties concerned to have trust in CF. (This was a suggestion from a local government official from Petchaburi province)

4. The government could support the crop insurance programme for risk sharing in cases of natural disaster or pests. (This was a suggestion from a contract farmer from Petchaburi province)

Private companies/cooperatives

Policy recommendations for private companies/cooperatives to promote successful CF are drawn from this research.

1. Private companies or cooperatives could establish close and long-term relationships with exporters or modern retailers to maintain stable markets. This would allow firms to make successful plans with farmers for effective production and harvesting.

2. Private companies could select growers from different geographical locations that are suitable to avoid a failure to fulfil orders.

3. Private companies or cooperatives could diversify market outlets for different grades to guarantee that all grades of product can be sold, and to boost the trust farmers have with firms.

4. Private companies or cooperatives should have a clear understanding of production and buying systems, grading standards or product specifications and price-setting, and this information could be made available with complete transparency so that farmers could be firmly committed.

5. Private companies or cooperatives could provide price incentives to motivate farmers to produce high-quality products. In addition, price-setting should be negotiable, particularly during times when the market price is high, so that firms can provide add-on prices to reduce the risks of side-selling.

6. Private companies could invest in research and development, and technological development in improved varieties, production and harvesting techniques and traceability. This would enable firms to provide improved varieties and to give better advice on techniques to improve farmers' yields and quality, and to reduce the costs of production. This can be in the form of public-private partnerships.

7. Private companies or cooperatives could put a focus on capacity building for extension staff to enhance their production expertise so that they can closely monitor and swiftly respond to resolve critical problems.

8. Private companies or cooperatives could provide collection outlets at the farm gate, as well as timely harvesting services, which would lessen the transportation costs for farmers. It would also reduce the chances of farmers receiving lower prices because of the low quality of their produce due to the delayed harvest. Improving the post-harvest activities at the collection outlets, including cleaning and packing, would increase the value-added to farmers and help to reduce the costs to firms

9. Private companies or cooperatives could integrate ICT technology for information-sharing among the firms, extension staff and farmers.

10. Private companies or cooperatives could support activities to improve the livelihoods of communities in order to increase farmer trust.

11. Firms or cooperatives should maintain a good reputation and good financial performance. This would mean that farmers could be paid promptly, in cash. It would also help to minimise market risks, ensuring that firms have cash liquidity to fulfil promises in order to build trust with farmers.

Partners such as local universities

Private companies/ cooperatives could coordinate with local universities to support R&D and to transfer knowledge and technology.

4.7. Conclusion

4.7.1. Summary of the main findings

There are widely different models of contracts for agricultural products (organic rice, Hom Thong banana and asparagus or baby corn) in Thailand, ranging from mere verbal to written agreements, from partial to full resource provisioning contracts. The CF models for organic rice comprise the informal model, the multipartite model, the intermediary model and the centralised model. The multipartite and intermediary models have been practised in cases of contract arrangements relating to fresh asparagus, whereas the intermediary model and centralised model have been applied for baby corn. CF modes relating to Hom Thong banana include the intermediary model, the nucleus estate model and a hybrid between nucleus and intermediary model.

The smallholder farmers involved in CF gain benefits from having market access with guaranteed prices, stabilised incomes, and access to technical support/assistance via extension services. They are also able to learn about new production techniques, and acquire credit or inputs from contractors. However, challenges for small-scale farmers include the weather, pests and

diseases, limited capital, labour shortages, the high costs of producing high-quality products, and delayed payment.

CF can help contractors to achieve a continuous flow of products by securing a more reliable supply in terms of quality and quantity. In addition, the logistics and transaction costs of the company are reduced in cases where the CF is subcontracted to a farmer organisation to buy, collect, clean, grade and pack the product according to the company's guidelines and under the company's supervision.

However, the challenges to contractors include high transaction, management and investment costs in providing collection outlets and post-harvesting facilities. In addition, contractors may face the risk of side-selling. In addition, contractors can face lower production as a result of natural disasters and diseases. Moreover, challenges to the scaling-up of CF with smallholders include land constraints because of limited land suitability, and the low capability of farmer organisations to manage production and post-harvesting activities.

Major factors for the success of CF are: suitable physical infrastructure; the availability of stable and diversified market outlets; a willingness and commitment among buyers to enhance farmers' capability; the technical expertise of extension staff; price setting mechanisms; and the good reputation of, and sound financial performance from, the company.

Limitations of the study

Our interviews depended on the firms, and there was some information that they did not wish to divulge. In this research, cases of CF failure could not be found because no existing companies or farmers had changed to conduct business with others.

4.7.2. Future research direction and topics

Future research could be extended to assess the impact of different CF arrangements on the outcome for smallholders.

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Annexes

Annex 1: Contract farming models and types classified by product type

Product type	KII	Market Type		CF Model						CF type							
										Marketing specification		Production management and technical support			Resources provided		
		Inter. market	Domestic market	Informal	Intermediary	Multi partite	Centralised	Nucleus	Verbal/written	Fixed minimum price (higher than market price)	Adjusted price due to high demand	Using seeds or shoots from company	Making production plan	Technical support for farm management	Inputs support	credit	Pay for std. cert.
Organic	Private company																
Rice	• Top Organics	√	√	√					Verbal/ written	√				√	√		√ Group cert.
	• Pun Dee Rice Company Limited		√				√		written	√		√	√	√	√	√ upon request	√
	• Sukka House Thailand	√					√		written	√		√	√	√	√		√ Group cert.
	Cooperatives																
	• Green Net Organic-Agricultural Cooperative	√	√		√				Written	√			√	√	√		√ Group cert.
	• Agricultural Cooperative Group of Palang Samakkee Women's Mekong River		√				√		Written	√			√	√	√	√	

Product type	KII	Market Type		CF Model						CF type							
										Marketing specification		Production management and technical support			Resources provided		
		Inter. market	Domestic market	Informal	Intermediary	Multi partite	Centralised	Nucleus	Verbal/written	Fixed minimum price (higher than market price)	Adjusted price due to high demand	Using seeds or shoots from company	Making production plan	Technical support for farm management	Inputs support	credit	Pay for std. cert.
Asparagus	• Pan Agricultural Cooperative		√		√				Written	√			√	√	√	√	
	Community enterprise																
	• BoonMee Community Enterprise	√	√				√		written	√			√	√	√		√
	NGOs																
	• Progressive Agriculture Association	√					√		written	√	√	√	√	√	√		√
	Private company																
	• Swift Co., Ltd.	√	√		√				written	√grade		√	√	√	√		
	• KC fresh	√	√		√				written	√grade		√	√	√	√		
	• AgriFresh Co., Ltd.	√	√		√				written	√grade	√	√	√	√	√		
	• Taniyama Siam Co., Ltd.	√				√			written	√grade	√	√	√	√	√		
Baby corn	Private company																
	• Swift Co., Ltd.	√	√		√				written	√grade		√		√	√		
	• KC fresh	√	√		√				written	√grade		√		√	√		
	• AgriFresh Co., Ltd.	√	√				√		written	√grade	√	√	√	√	√		√Global GAP

Product type	KII	Market Type		CF Model						CF type							
										Marketing specification		Production management and technical support			Resources provided		
		Inter. market	Domestic market	Informal	Intermediary	Multi partite	Centralised	Nucleus	Verbal/written	Fixed minimum price (higher than market price)	Adjusted price due to high demand	Using seeds or shoots from company	Making production plan	Technical support for farm management	Inputs support	credit	Pay for std. cert.
	• Universal Food Public Co., Ltd. (UFC)	√			√				written	√grade			√	√	√ upon request		
	• Mae Tha Agriculture Cooperative Limited		√		√				written	√grade			√	√	√ upon request		
	• Kamonrat Rung Reuang Foods Co.Ltd.		√				√		written	√grade			√	√	√ upon request		
	• Local Middlemen		√		√				verbal	√grade			√	√	√		
Hom Thong banana	Private company																
	• King Fruit Co.Ltd.		√		√t			√	written	√grade	√	√ 1st time	√ Follow company advice	√	√ upon request	√ upon request	
	• One Banana		√					√	written	√grade	√	√	√ Follow company advice	√	√ upon request		

Product type	KII	Market Type		CF Model						CF type							
										Marketing specification		Production management and technical support			Resources provided		
		Inter. market	Domestic market	Informal	Intermediary	Multi partite	Centralised	Nucleus	Verbal/written	Fixed minimum price (higher than market price)	Adjusted price due to high demand	Using seeds or shoots from company	Making production plan	Technical support for farm management	Inputs support	credit	Pay for std. cert.
	Cooperatives																
	• Tha Yang Agricultural Cooperatives	√	√		√				written	√grade			√ Follow company advice	√	√		
	• Ban Lat Agricultural Cooperatives	√	√		√				written	√grade			√ Follow company advice	√	√		

Annex 2: Lists of KIIs and FGDs and relevant photos

Lists of Key Informant Interviews

Product Type/ Buyer	Private company	Government officials	Local government officials	University	Cooperatives	Community enterprise/farmer group/ farmer broker/ collector	NGOs
Rice	• Top Organics	• Rice department	• Ubon Ratchathani Provincial Agriculture and Cooperatives Office	• Maejo University	• Green Net Organic-Agricultural Cooperative	• BoonMee Community Enterprise	• Progressive Agriculture Association
	• Pun Dee Rice Company Limited	• Office of the permanent secretary for Ministry of Agriculture and Cooperatives	• Phitsanulok Provincial Agriculture and Cooperatives Office	• Kasetsart University	• Agricultural Cooperative Group of Palang Samakkee Women's Mekong River	• 6 Farmers	
	• Sukha House, Thailand		• Phisnulok Rice Research Center		• Pan Agricultural Cooperatives		
			• Chiang Rai Rice Research Center				
Asparagus	• Swift Co., Ltd.	• Department of Agricultural Extension	• Office of Agricultural Extension and Development No.2, Ratchaburi	• Kasetsart University		• 3 Farmers	
	• KC fresh	• Office of the Permanent Secretary for the Ministry of Agriculture and Cooperatives	• Tha Maka District Agriculture Office			• 3 local brokers	

	• AgriFresh Co., Ltd.		• Kamphaengsaen District Agriculture Office				
	• Taniyama Siam Co., Ltd.						
Baby corn	• Swift Co., Ltd.	• Department of Agricultural Extension	• Office of Agricultural Extension and Development No. 2, Ratchaburi	• Kasetsart University	• Mae Tha Agriculture Cooperative Limited	• 3 Farmers	
	• KC fresh	• Office of the Permanent Secretary for the Ministry of Agriculture and Cooperative	• Tha Maka District Agriculture Office			• 3 local brokers	
	• AgriFresh Co., Ltd.		• Kamphaengsaen District Agriculture Office				
	• Universal Food Public Co., Ltd. (UFC)						
	• Kamonrat Rung Reuang Foods Co. Ltd.						
	• Local Middlemen						
Hom Thong banana	• King Fruit Co. Ltd.	• Department of Agricultural Extension	• Tha Yang District Agriculture Office	• Kasetsart University	• Tha Yang Agricultural Cooperatives	• Sukpaibul community enterprise	
	• One Banana	• Office of the Permanent Secretary for the Ministry of Agriculture and Cooperative	• Ban Lat District Agriculture Office		• Ban Lat Agricultural Cooperatives	• 6 farmers	
			• Nongsuea District Agriculture Office				

Annex 3: Table of successes and failures classified by products

Organic Rice

Issues	**Success**	**Failure**
Background	Organic Homali rice in northern provinces mainly for the export market	Organic white rice in "lower north" province mainly for the export market in processed rice products (such as noodles)
CF initiation	Has been implemented since 1992	Was implemented in 2015
Number of Participation	270 farmers with a total of 1,120 ha	4-5 farmers with a total of less than 160 ha
Arrangement	Agreement to be a member under the "Organic Rice Production Promotion Programme"	
Terms and Condition	Private companies pay the inspection fees and guarantee the minimum price which is higher than general market prices. If the rice farmers or farmer groups produce good quality rice (with a high percentage of head rice) farmers will receive higher prices	
Benefits	Income increased from improved prices and yield	Improved prices but yield has sharply declined so income has not been enhanced
Factors contributing to success/failure	• Suitable land for production • Coordination within the integrated supply chain • Support from the Ministry of Agriculture	• Organic yield is relatively much lower than ordinary yield
Factors determining success	• Buyers have stable and diversified rice markets • Good /close relationship with, and willingness of, the buyers to improve the livelihood of farmers • Honesty/mutual trust • R&D of rice seed • Extension services to provide information, transfer technology and monitor production closely • Delivery of the payments	
Suggestion		• More coordination with rice research departments • Diversification towards other organic production to increase income

Hom Thong banana

Issues	Success	Less effective (cases where farmers dropped out of CF)
Type	Nucleus Estate (private firm)	Intermediary (cooperatives)
Site/farmer selection	• Firm selected growers from different geographical locations that are suitable (having water) to avoid not fulfilling orders	• Members of cooperatives can apply for CF of banana within the area of the cooperatives
Input requirement	• Firm provided improved banana shoots for the first time	• Farmers can use their own shoots (they are experts in growing)
Pricing mechanism	• Fixed price incentives towards high-quality grades (increased when demand is too high)	• Fixed price
Harvesting/ transporting/ logistics	• Firm does not offer harvesting and transporting services	• Cooperative offers harvesting and transporting services
Extension support	• Firm suggested production techniques (know-how of the company) to improve farmers' yields and quality, and to reduce the cost of production	• Extension services have been conducted via cooperative extension staff
Development of farmer groups involved	• Strengthened farmer groups to improve production and post-harvesting activities (i.e. cleaning the banana)	
Third-party support	• Firm has access to support from agro-industry faculty at the university for R&D in processing	
Benefits to smallholders	• Higher yields with higher prices	• Lower price received on account of the delayed harvest • Welfare from cooperatives

Factors contributing to success/ failure	• Have close and long-term relationships with modern retailers/exporters for maintaining stable markets • Have effective plans for production and harvesting with farmers • Have diversified market outlets for different grades to guarantee the purchase of all grades • The firms exhibit good financial performance and pay farmers in cash, promptly. In the case of market risks, firms have cash liquidity to fulfil promises and build trust with farmers • Offer price incentives to promote high-quality grades • Give advice about techniques to improve farmers' yields and quality and reduce the cost of production • Have technical expetise and the extension staff to be able to closely monitor and respond to resolve problems swiftly	• Less effective production and harvesting plans/ cannot manage to harvest on time • Less technical expertise and lower availability of extension staff for close monitoring and responsiveness to resolve problems

Asparagus

Issues	Success	Less effective (Cases that farmers dropped-off CF)
Type	Multipartite (private firms with govt.)	Intermediary
Site/farmer selection	• Firm selected growers from different geographical locations that are suitable (having water) to avoid failure to fulfil orders	• The collectors select suitable members in areas that they can manage
Input requirement	• Firms provided seed depending on requests	• Farmers can request seed from the company or use their own seed
Pricing mechanism	• Fixed price incentive towards high-quality grade (increased when demand is too high)	• Fixed price

Extension support	• Firm suggested production techniques (know-how of the company) to improve farmers' yields and quality, and to reduce the cost of production	• Limited extension services due to lack of extension staff
Development of farmer groups involved	• Strengthen farmer groups to improve production and post-harvesting activities (e.g. grading)	
Third-party support	• Firm can get support from government agencies and has access to R&D in seed production	
Benefits to smallholders	• Higher quality with higher prices	
Factors contribution success/failure	• Have close and long-term relationships with buyers/ modern retailers/exporters for maintaining stable markets • Have effective planning for production and harvesting with farmers • Have diversified market outlets for different grades to guarantee the sale of all grades • The firm has a good financial performance • Have price incentives to promote the production of high-quality grades • Can give advice about techniques to improve farmers' yields and quality, and to reduce the costs of production • Have technical expetise and the extension staff to conduct close monitoring, and to respond swiftly to resolve problems • R&D to improve seed • Sufficient labour for intensive care	• Less effective production and harvesting plans • Less technical expertise and lower availability of extension staff for the close monitoring and responsiveness to resolve problems

Chapter 5
Enhancing Research and Dialogue on Contract Farming in Mekong Countries: Good Practices and Lessons Learned from Vietnam

Nguyen Anh Phong and Nguyen Do Anh Tuan

Abstract

Contract farming has been expected to be one of the measures that would facilitate the participation of farmers in the commercial production of agriculture, adding more value to agricultural produce. The purpose of this study is to understand the current situation and constraints of contract farming in Vietnam and to identify the best practices. In addition to the desk review, intensive case studies of contract farming practices were conducted, focusing on three commodities (rice, mango and vegetables).

Four main types of contract farming are applied in Vietnam: the multipartite model; the centralised model; the nucleus estate model; and the intermediary and informal models. However, there is no specific model of contract farming that is appropriate for certain products, locations and farmers, and each type has its own advantages and disadvantages. Additionally, empirical evidence presented by the six cases shows that the efficiency of enterprises in terms of the financial and technical support, monitoring and good performance of farmer organisations are the key factors determining the success of the contract in Vietnam's agriculture. The support of local government also plays a positive role in initiating and promoting contract farming in respect of agricultural production and sales. Furthermore, the multipartite model has the greatest potential to engage and benefit small-scale farmers in contract farming. The major advantages of the multipartite model rest on its facilitation for agricultural structural change, particularly for small farmers. Therefore, it creates a good opportunity to engage and benefit them.

Based on evidence from six cases, in combination with the analysis of achievements and the limitations of support policies relating to contract farming in Vietnam, some potential solutions are suggested for implementation, including improving the business and legal environment, and enhancing the capacity of farmer organisations to promote the application of contract farming. Although the study attempts to be comprehensive, there were limitations in terms of selecting examples of the various contract types and sub-sectors in agriculture, and a lack of quantitative research methods to estimate the effects of contract farming on farmers and enterprises.

5.1. Introduction

Organisation of the Chapter

This Chapter on Contract Farming: Good Practices and Lessons Learned from Vietnam is organized into three main parts:

1. Introduction: Background information about the study, a literature review, objectives and research questions, methodology, significance and potential contribution of the study, main findings and policy recommendations.
2. Results and discussion: An overview of contract farming in Vietnam; contract farming in the rice sector, the mango sector and the vegetable sector; main findings in implementing contract farming in Vietnam and lessons learned.
3. Conclusion and policy recommendations.

5.1.1. Background

Over the last 30 years, Vietnam's agricultural sector has made enormous progress. Steady advances in smallholder farm productivity and intensification through the 1990s and beyond have played a central role in Vietnam's successes in poverty reduction, national food security, and social stability. Vietnam once experienced hunger, yet its *per capita* food availability now ranks among the top tier of middle-income countries, and it has become one of the world's top exporters of rice, rubber, coffee, pepper, cashew nuts, wood products and fish. Agriculture is the only sector with a trade surplus even though it has experienced the hardest time of the whole economic sector. The export turnover of the agricultural sector notched up its highest achievement in 2018, reaching more than USD40 billion (Ministry of Agriculture and Rural Development (MARD) 2018).

In a relatively short time agricultural development in Vietnam has been a spectacular success, and the country has become a major global supplier of agricultural products and foodstuffs. However, a large proportion of the agricultural growth has stemmed from the expanded or more intensive use of land, water, labour and other inputs, especially the heavy use of fertilisers and other agro-chemicals. More output has come from more and more inputs, at increasing environmental cost. In addition, this has limited the scope for further expansion of productivity, and young people are leaving the sector.

All of this brings Vietnamese agriculture to a turning point. The agricultural sector can no longer solely rely on the current extensive growth model and requires measures that will promote a conversion towards modern, high value-

added and sustainable agriculture. Vietnam also has bright opportunities in both domestic and international markets, yet effectively competing in these will depend on the ability of farmers and firms to deliver products with reliability, and with assurances relating to quality, safety and sustainability (World Bank 2016).

At the present, there are growing concerns about the quality and sustainability of Vietnam's agricultural development. A comparatively "low quality" of growth is manifested by (absolutely and relatively) low smallholder farmer profitability, low agricultural worker productivity, low or mixed product quality, low value addition, growing concerns about food safety, and limited technological or institutional innovation (World Bank 2016). Among the reasons for this, some are critical, such as the high transaction costs and asymmetric information that restrains farmers, especially smallholders, in fully accessing markets for products, services, and inputs. Inadequate access to output markets inhibits farmers' ability to grow diverse products to serve the high value-added local and international markets. The low value and high risk of agriculture production fails to attract private sector investment. Along the supply chain, processors and traders are constrained by inadequate supply, low product quality and high transaction costs in dealing with small-scale, dispersed and unorganised producers. Direct links between farmers and processors/exporters is still uncommon. According to the Department of Cooperatives and Rural Development (2018) the proportion of agricultural products that participate in linked value chains is about 11-14 percent of total output. Most value chains feature large numbers of intermediaries. For example, in the rice sector, despite generating the highest economic efficiency, traceability, quality control and the highest quality, direct links between farmers and enterprises account for only 2 percent of rice production. Although the government has policies to encourage contract farming between farmers and rice enterprises, about 95 percent of rice farmers still sell paddy to traders (Institute of Policy and Strategy for Agriculture and Rural Development 2014). Consequently, it is difficult to apply traceability to most agriculture products, as well as to make forward commitments to buyers and assure them that a product's origins are safe and sustainable.

In acknowledgement of those challenges, the approaches to link farmers to markets in inclusive ways via contract farming have been receiving growing attention from the Vietnamese government. The Decision 80/2002/QD-TTG on 24 June 2002 was issued formally by the government and was recognised as the first example of official contract farming support. Since then, a lot of effort has been made to increase the implementation of contract farming and

to help to improve procurement and efficiency. However, the performance and practice of contract farming still face difficulties and limitations. This paper will review the practical development of contract farming in Vietnam, advantages and disadvantages, successes and failures, as well as the related government policies.

5.1.2. Literature review

5.1.2.1 The concept of contracts and contract farming

Contract farming is often defined as "an agreement between farmers and processing and/or marketing firms for the production and supply of agricultural products under forwarding agreements, frequently at predetermined prices" (Eaton and Shepherd 2001). Contracts are initiated by large-scale agribusiness firms, which often undertake backward integration by forming alliances with groups of smallholders and, through written or verbal contracts, provide farm inputs such as credit and extension in return for the guaranteed delivery of products of a specific quality, often at predetermined prices. In the agricultural sector, farmers can agree with the "landowner" to rent production land; they might agree with the suppliers of materials to buy fertilisers, plant protection products, veterinary drugs and animal feeds; or they might have an agreement with a buyer to sell agricultural products. These agreements can be set up in writing, or just verbally.

Contract farming can be structured in a variety of ways depending on the objectives and resources of the sponsor and the experience of the farmers. Contracting-out production to farmers is a commercial decision by the sponsor to facilitate procurement of an adequate supply within a designated time-frame at an economical price. To achieve the objective, contract farming can be chosen from a variety of models.

According to Sykuta and Parcell (2003), contract farming in agriculture proposes rules for allocating three main elements: benefits; risks; and decision-making. Thus, the nature of contract production is the price that reflects the interests, risks, and decision-making powers of buyers and sellers. This means that the agreed price must ensure that the seller gains certain benefits and that the buyer can purchase the goods at an acceptable price. Even at the time of delivery, the market price may be higher or lower than the agreed price. The nature of the production contract can be generalised as follows:

- First, in terms of the organisational structure of contract production, this is an ordered framework that establishes the relationship between buyers and sellers. Contract production appears in many different forms.

Each form has a different organisational structure, so the role of the participants is also different.

- Second, in terms of the mechanism of operation and contract production expressed in many different forms of structure, there will be different operating mechanisms. The operating mechanism of contract production forms is the mechanism for allocating benefits, risks, and decision-making rights between buyers and sellers. In terms of benefits, buyers and sellers work together for mutual gain. It is the producer who ensures that the farm products have a place of consumption with an expected income. Buyers make sure that they buy goods at a quantity, quality, and price agreed in advance. In terms of risks, buyers (processing and consuming enterprises) will bear market risks, and sellers (farmers) will bear production risks. However, in the event of a *force majeure* affecting any of the parties involved, there is a sharing mechanism to ensure a relationship where there is sustainable development. In terms of decision-making and contract-based production in different forms, actors will share decision-making rights depending on the benefits and risks allocated.

- Third, in terms of facilities and conditions of development, contract production only develops based on specific facilities and conditions. In different forms of contract production, the facilities, and development conditions, will differ.

Contract farming can be categorised either by the intensity of the contractual arrangement or the schemes of organisational structures (Eaton and Shepherd 2001). The intensity of the contractual arrangement varies according to the depth and complexity of the provisions in the three areas of market provision, resource provision and management specification. The schemes of contract organisational structures depend on the nature of the product, the resources of the sponsors and the intensity of the relationship between farmers and sponsors. The five general models of contract farming are: (1) centralised processing-marketing; (2) nucleus estate processing-marketing; (3) multipartite processing-marketing; (4) subcontracting; and (5) the individual developer.

Centralised processing-marketing: This is a vertically co-ordinated model where the sponsors purchase the crop from farmers and process or package and market the product. With some variations, this model is used extensively by multinationals, smaller companies, government agencies and farmer cooperatives. Except in a limited number of cases, farmer quotas are normally distributed by the sponsors at the beginning of each growing season and

quality is tightly controlled. A central administrative structure is applied for this model (and also for the nucleus processing-marketing model). Sponsors in this type of model may purchase from tens of thousands of small-scale farmers within a single project. Such contracts are common where processing specifications are high, such as in export crops, tree crops, and meat products. Where fresh vegetables and fruits are grown under contract, processing may comprise grading, sorting and packaging, as well as the provision of cool storage facilities (Asian Development Bank 2005).

Nucleus estate processing-marketing: As a centralised model, the estate processing-marketing contract is a strict form of vertical coordination between producers and buyers in which quotas are allocated to producers to produce a pre-specified amount of goods. Estate contracts differ from centralised contracts only in the sense that the sponsor of the project also owns and manages an estate plantation, which is usually close to the processing plant. The estate can be fairly large in order to provide some guarantee of throughput for the plant but on occasion it can be relatively small, primarily serving as a trial and demonstration farm. A common mode of operation is for the sponsors to start with a pilot estate, then, after a trial period, introduce to farmers, sometimes called "satellite" growers, the technology and management techniques of that particular crop. Nucleus estates are often used in connection with resettlement or transmigration schemes for oil palm and other crops. While mainly used for tree crops, there are examples of the nucleus estate concept being used for other products (Asian Development Bank 2005).

The multipartite model involves a number of statutory bodies and private sector companies jointly participating with farmers, such as government and companies that are coordinated in relationships between producers and buyers. Multipartite contract farming may have separate organisations responsible for credit provision, production, management, processing and marketing (Asian Development Bank 2005).

The subcontracting model: The formal sub-contracting of crops by corporate sponsors to middlemen is a common practice in some South Asia countries (Eaton and Shepherd 2001). It is sometimes known as an "informal contract", which is often a verbal contract between parties to meet the demands for seasonal production, and is found in relation to fruits, vegetables and other products that require minimal processing. It is also based on trust among various types of contract partners.

Table 5.1: Characteristics of contract farming structures

Type of CF	Characteristics	Stakeholders
Multipartite model	- Contract farming is often operated through cooperatives and farmer groups - Based on long-term establishment and close relationships between enterprises and the cooperatives, with the strong support of local governments (DARDs) - Enterprises invest capital, input materials, technical guidance, . - Farmers invest land, labour, etc. and ensure output standards - Cooperatives and farmer groups in collaboration with enterprises and state agencies to guide people, ensure the quality and standards of products	- Enterprises - Farmers - Cooperatives and farmer groups - DARDs
Centralised model	- Enterprise signs direct contract with farmers to build up their material production area - Farmers often have considerable resources - Enterprises support farmers in capital and production techniques, but in a very limited way, while the product standard requirements are quite high and unclear	- Enterprises - Farmers
Nucleus Estate model	- Enterprise signs direct contract with farmers, and holds the right of land use, etc. - Farmers work as hired labourers on the land of the enterprise, and are paid according to the product	- Enterprises - Farmers
Intermediary and informal model	- Based on verbal contracts and trust between contract partners - Contract transactions are usually through traders or purchasing agents	- Enterprises - Farmers - Traders or purchasing agents

Source: Research team 2018

Various types of sponsors participate in this contract, including processing enterprises, wholesale and retail agencies. The sponsor agrees a contract with farmers through intermediaries such as cooperatives, traders or local authorities. Farmers may participate in a contract of this model individually or through farmer groups. Contract transaction is often operated through intermediary traders or procurement agents. This type of contract provides market access for farmers supplying normal agricultural products, which are often characterised by unstable market outlets and prices. This type of contract arose from the need for business expansion for small-scale enterprises, which had been established for a long time in certain locations. Yet, it is difficult to increase the scale and scope of contract farming in this scheme because informal contracts cannot create regular communication for the strict control of product quality and standards. However, it is expected that the development

of ICT and better technologies to codify transactions will encourage partners to join this scheme to participate in formal contracts.

The individual developer: This model applies to individual entrepreneurs or small private companies who agree informal production contracts with farmers on a seasonal basis, particularly involving crops such as fresh vegetables and tropical fruits. Crops grown under this structure usually require only a minimal amount of processing. Material inputs for this type of contract are often limited to the provision of seeds and basic fertilisers, with technical advice limited only to matters of grading and quality control.

The individual developer model represents an approach to contract farming in which the single sponsor, after purchasing the crop, simply grades and packages it for resale to the retail trade. Supermarkets frequently purchase fresh produce through individual developers and, in some cases, directly from farmers. Financial investment by individual developers is usually minimal. This is the most transient and speculative of all contract farming models, with the risk of default by both the promoter and the farmer. Nevertheless, in the majority of developing countries such traders are seen as a long-established component of rural economies and, in many circumstances, they have proved to present an alternative to the corporate or state agency approach (Beets 1990).

In Vietnam, there are four major models. However, the level of popularity and effectiveness of each model varies. Different types of contracts can be employed depending on the type of product and partners in the relationship. The characteristics of these models are summarised in Table 5.1 above.

5.1.2.2 Reviews of contract farming practices

There have been many studies to determine the factors affecting the performance of contract farming in Vietnam and in the wider world. Contract farming is not suitable for all types of products (Nguyen Do Anh Tuan, Tran Cong Thang et al. 2005). Examples include traditional products (Nigel Key and David Runsten 1999) and non-specialised, famous consumer market (Nguyen Thi Bich Hong 2008). This means that products with many buyers will not be suitable for contract farming. The activities of enterprises in contractual relations with farmers include mostly service activities for production. Therefore, the quality of business operations, the reliability of the business, the quality of employees and the interest and understanding of the business have a significant influence on farmers' satisfaction (Parasuraman A et al., 1988). Factors including a market shortage are among the reasons farmers adopt contract farming (Key and Runsten 1996). And farmers in remote areas, or who experience severe

traffic conditions in transporting products to market, are in high demand to implement contract farming and the associated investment, providing new resources. Trust is needed to attract farmers to contract farming (Oliver Masakure and Spencer Henson2005).

The unreliable legal infrastructure in many developing countries often makes it difficult for businesses to use legal action against local farmers to ensure contract success (Nigel Key and David Runsten 1999). Documents on contract implementation identify two mechanisms to minimise the possibility of breach of contract - public (legal) enforcement and private enforcement (self-enforcement), whereby good behaviour is rewarded, and threats are issued to punish bad behaviour: these are deemed to be the means through which businesses can make contracts effective (Negel Key and David Runsten 1999). In order to limit opportunistic behaviour, it is necessary to develop a practical and useful legal system. Finally, benefit sharing, decision-making, and risk are factors that contribute to contract success (Michael Sykuta and Joseph Parcell 2003).

In Ho Que Hau's study (2012) the most successful "Factors affecting the performance of integration between enterprises and farmers" in Vietnam were named as: a suitable purchasing price range for farmers, the level of trust farmers have with enterprises, and the economic benefits for farmers. The research also found that integration between enterprises and farmers does not apply to all types of product. Products with a high degree of specification, and new products with a limited consumption market, would be suitable for integration between enterprises and farmers.

Other studies on contract farming in Vietnam mostly focused on the management aspects of contract farming rather than the contracting environment, which might raise important implications for policy intervention. Most of these studies focused on a single country with a limited type of contract. In addition, these studies often focus on the pricing structure of contract farming, while other essential dimensions (such as contract formula, format, and specification) are often overlooked. Lessons learned from previous studies do not specify various organisational schemes of contract farming, though it has been already recognised that a "one size fits all" approach to contract systems might not work for all kinds of agricultural products and locations. The presence of contracts *per se* does not ensure the sustainability of trade relationships. As an institutional mechanism, contract farming requires a continuous adjustment process, according to the characteristics of the parties involved and the exogenous conditions they are facing.

5.1.3. Objectives and research questions

This study aims to determine the best practices for contract farming in Vietnam, so lessons learned will help international development organisations, enterprises, policy makers and relevant stakeholders to understand the current situation and the constraints of contract farming in this country. The analysis of the study will contribute important lessons for policy intervention and policy advocacy not only in Vietnam but also in other countries in the region, where contract farming is considered to be one of the key means for agricultural development.

To meet above objectives, the study focuses on the following research questions:

- What are the typology and major characteristics of key contract farming schemes in Vietnam?
- What are the factors that affect the success or failure of key contract farming schemes in Vietnam?
- What are the factors that determine the inclusiveness of smallholder farmers in key contract farming schemes in Vietnam?
- What are the lessons other countries in the region can learn from Vietnam's experiences of the development of contract farming?

5.1.4. Research methodology

5.1.4.1 Methodology

The research methodologies used are mainly qualitative, including desk research, case studies, and expert consultations. The detailed methods are as follows:

Literature review: The study has conducted a literature and policy review to identify the constraints, risks, and best practices of contract farming in Vietnam. The literature review focuses on the experiences and the practices of contract farming in Vietnam: drivers; types of contractual arrangements; success factors; best practices; impacts; and facilitating policies; and institutional mechanisms. The policy review focuses on policies related to farmer-enterprise linkage and contract farming to assess their successes and limitations in the development of agro-food chains, contracts for agricultural products, the construction of large-scale fields, and so on.

Case studies: The case studies in this project aim to identify: (i) the typology and characteristics of key contract farming schemes in Vietnam; (ii) the factors that support the success or failure of key contract farming schemes; and (iii) the lessons learned for the inclusion of smallholder farmers

in contract farming development. Half of the cases have been pre-determined as successes of contract farming, and the rest are, to a degree, failures

5.1.4.2 Sampling design and samples chosen

a) Site selection

The study covers three key sectors of Vietnam's agriculture, including rice in An Giang, mango in Dong Thap and vegetables in Lam Dong. Rice, mango and vegetables are key commodities in a strongly competitive market, with high growth potential in both production and export. Details of the field trips and case selection appear in Table 5.2.

An Giang

An Giang is one of leading provinces for rice production in Vietnam. The area devoted to growing rice and production in An Giang has significantly increased with the average annual growth rate of 2 percent, and 2.2 percent in the period 2010-2017. In 2017, An Giang had a cultivation area of about 640 thousand ha and produced 3.9 million tonnes of paddy (General Statistics Office 2018). The average rice productivity is 6.2 tonnes per ha, one of the highest productivity scores in the Mekong River Delta and Vietnam. Rice is also a strategic export commodity of An Giang, contributing mainly to the value of export rice of the Mekong Delta region.

An Giang was also one of the first provinces to apply contract farming in the rice sector and is a typical case of the formation and development of a large-scale paddy field model in Vietnam. In An Giang, the research team selected a successful case (the Loc Troi Group) of contract farming implementation, along with an unsuccessful case (Thinh Phu Agrimex) to analyse the reasons and factors affecting the contracts.

Dong Thap

Mango is one of the key products of Dong Thap's agricultural sector and is known in the domestic market by the brand name of "Cat Chu Cao Lanh Mango" or "Cat Hoa Loc Mango". There are two groups of mangos in the province: domestic varieties such as Cat Chu mango, Cat Hoa Loc mango, mango pomelo, and Thanh Ca mango; and imported varieties from Taiwan and Thailand. However, Cat Chu mango (60 percent) and Cat Hoa Loc mango (30 percent) constitute a large proportion of the market, and satisfy consumer tastes. According to statistical data in 2017, the area devoted to mango cultivation covers 9,858.3 ha, the output is 99,849 tonnes (including Cat Chu and Cat Hoa Loc mango), a sharp increase from 6,143 ha in cultivation area and 49,177 tonnes of output in 2005.

Dong Thap's mangoes are mostly exported to China, South Korea, Japan and New Zealand.

Unlike the rice sector, contract farming in the mango sector has developed only in recent years. The cases of the Long Uyen Company and My Xuong Mango Cooperative have been selected to investigate contract farming practices in the mango sector and the lessons learned.

Lam Dong

Lam Dong is one of leading provinces in producing and exporting vegetable products. In 2017, Lam Dong had 59,000 ha devoted to cultivation and 1.9 million tonnes of vegetables, mostly comprising leaf vegetables and fruit vegetables (General Statistics Office 2018). Vegetables in Lam Dong are mainly supplied to provinces in the south of the country and for export. Currently, Lam Dong has applied high-tech production for vegetables, becoming a vital sector and a leader in the country. In the vegetable sector, a centralised model (Phong Thuy Agricultural Product Trade Manufacturing Company) and an informal model (Tien Huy Cooperative) were selected for this study to examine a diversity of practices and to understand many kinds of contract farming in Vietnam.

Table 5.2: Cases selection for field visits

Location	Commodity	Number of CFs	Of which	
			Success CF	Failure CF
An Giang	Rice: applied sustainable farming techniques of "One Must Do Five Reductions- 1M5R" or "Three Reductions, Three Gains – 3R3G"	2	1	1
Dong Thap	Mango fruit farms: applied the VietGAP certificate	2	1	1
Lam Dong	'Safety Vegetables*' farms: applied the VietGAP certificate	2	2	0
Total		**6**	**4**	**2**

Source: Research team

b) Case selection

The study takes into account three dimensions for case selection: (i) the level of success; (ii) the organisational schemes; and (iii) the location. Two-thirds of cases have been pre-determined as successes of contract farming, and the rest have failed in some respect. For the categorisation of contract farming cases, the study has selected the organisational schemes, rather than levels of contract farming intensity, because it helps to pre-determine the stakeholders

and organisational structures involved in contract farming more easily. Furthermore, it has been proposed that cases are evenly distributed throughout various locations (Lam Dong, An Giang and Dong Thap provinces) and sectors (rice, vegetables and mango) in Vietnam.

The success of contracts might be measured by whether they survive over time, indicating both parties are satisfied with the arrangement. Because Decision 80/2002/QD-TTg[1] was enacted in 2002, a timeframe of three to five years has been considered the "cross-point" for success or failure of a contract. In addition, this timeframe combines other criteria such as: (i) growth of the farmer and the land coverage under contract; (ii) the growth of output and sales under contract; (iii) the number of contract violations; (iv) the number of delays in the repayment of advances on inputs and credit provided by sponsors; and (v) the growth of sponsors' market outlay and revenue.

Among organisational schemes, the study focuses on the multipartite model since the "two-contract modality" through cooperatives or farm groups is quite prevalent in Vietnam under Decision 80/QD-TTg. But the study still takes into consideration other schemes in order to give a flavour of the current situation of contract farming in Vietnam. The study combines the intermediary and informal models into one category because empirical evidence suggests that these two models often overlap in Vietnam. The final contract farming scheme is expected to give a comprehensive picture of contract farming and become a benchmark for comparing the impacts on the poor of various contract schemes.

In each province, the study focuses on products that are highly competitive and that have high growth potential for the future. Cases are selected on the basis of cultivation sectors, including rice in An Giang, mango in Dong Thap and vegetables in Lam Dong.

5.1.4.3 Data collection

The data and information for case study analysis will be collected by following tools:

Key informant interview (KIIs): The key informant interviews, based on questionnaires, has been used for key actors such as government officers, representatives from agriculture enterprises, farmers and mass organisations that

* 'Safe' or 'safety' vegetables indicates those that have been certified as safe under the state regulations. E.g. they have been produced without harmful pesticides etc.

1 Decision 80/2002/QD-TTg of the Prime Minister on policies to encourage the contractual sale of commodity farm produce.

are related to the contracts. At the research sites, KIIs were conducted with local leaders (at provincial, district and commune levels, or leaders of cooperatives or farm groups if they were involved in contract farming) in the first instance to acquire background information about the sector and the contract farming application in their localities. Then, in-depth interviews were used in meetings with contractors and the contracted farmers. The in-depth interviews strictly followed the case guide mentioned in the approach to the study, and each case helps to build a major basis for the story of contract farming.

Table 5.3: Sample size in field visits

	Key Informants Interviews	Focus Group discussions	In depth Interviews
An Giang	18	23	2 enterprises, 2 cooperatives, 5 farmers
Dong Thap	22	27	2 enterprises, 2 cooperatives, 4 farmers
Lam Dong	24	26	1 enterprise, 2 cooperatives, 5 farmers
Total	**64**	**76**	**5 enterprise, 6 cooperatives, 14 farmers**

Source: Research team

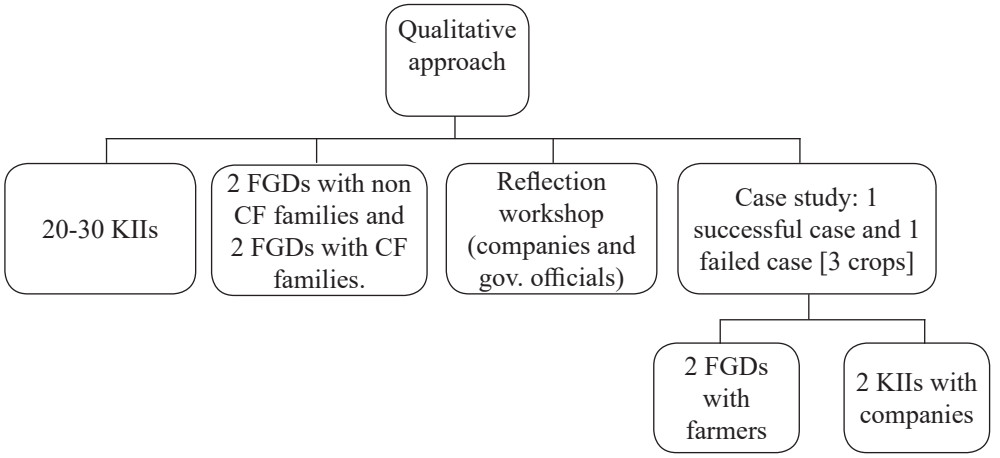
Farmer group discussions: Group discussions using participatory rapid appraisal (PRA) tools were undertaken with two groups of contract farmers and non-contract farmers in each province. These discussions provided historical background to the contract farming cases and other market arrangements for products under contract in the research sites. Ranking and scoring exercises were used in the FGDs to look for factors affecting the success or failure of contract farming (and the determinants for contract engagement and the impacts of contract participation on the well-being of farmers, if necessary).

The sample size of each commodity (i.e., rice, fruit and vegetables) included:

- 20-30 KIIs with: government officials at provincial and commune levels (technical); representatives from mass organisations (e.g., farmer associations, women's unions, etc.) at the commune level; private companies who lead the contracts in selected commodities; policy makers; and development partners. In each province, the research team interviewed representatives from the Department of Agriculture and Rural Development (DARD), district authorities, the Division of Agriculture, commune authorities, farmer associations and cooperatives.
- Two FGDs (10-15 participants) with contract farming (CF) families and two FGDs (10-15) with non-CF families. The gender proportion of respondents at farm household level was also taken into account to ensure at least 30 percent of them were women.

- A reflection or consultation workshop (companies and government officials) to disseminate preliminary findings and discuss CF issues with them to identify solutions to problems.

Figure 5.1: Approach of the study



Conducted a case study with successful and unsuccessful cases: In order to gain a deep understanding about CF, two case studies were conducted relating to three crops, and for each crop, one successful and one failed case. Data used for analysing each case study came from the FGDs with farmers, and the KIIs with companies in both the successful and failed cases.

5.1.5. Significance and potential contribution of the study

The study investigated the application of contract farming to identify the best practices of contract farming in Vietnam. Additionally, the study also reviewed and analysed the support policies for contract farming and proposes policy recommendation to develop contract farming in the country. The lessons learned from best practices, and the policy brief will help international development organisations, enterprises, policy makers and relevant stakeholders to understand the current situation of, and constraints facing, contract farming in Vietnam. The analysis of the study will contribute important lessons for policy intervention and policy advocacy not only in Vietnam but also in other countries in the region, where contract farming is considered to be one of the key stimuli for agriculture development.

The following points are highlights from some of the main research findings and policy implications. First, four main types of contract farming are applied in Vietnam: the multipartite model; the centralised model; the nucleus estate

model; the intermediary; and the informal model. The multipartite model is likely to be most appropriate for small farmers while the centralised model often engages large-scale enterprises, particularly foreign and joint-venture companies, and farmers who are better off. In the nucleus estate model, sponsors often used to be the state-owned farms and they have been equitized and the reallocated land has been placed under farmer management. The intermediary and informal models are based on verbal contracts or trust among various types of contract partners. In general, there is no specific model of contract farming that is appropriate for certain products, locations and farmers. Each type of contract farming has its own advantages and disadvantages.

Next, through six cases of contract farming, the research team also discovered that the efficiency of enterprises in terms of financial and technical support, monitoring and the good performance of farmer organisations are key factors supporting the success of the contract in Vietnam's agriculture. In addition, the support of local government plays a positive role in initiating and promoting contract farming for agricultural production and sales.

Furthermore, empirical evidence through the six cases shows that the multipartite model has the greatest potential to engage and benefit small-scale farmers in contract farming. The major advantages of the multipartite model are located in its facilitation for agricultural structural change, particularly for small farmers. Therefore, this kind of contract scheme creates a very good opportunity for small farmers to engage and benefit.

Again based on the evidence from the six cases, in combination with the analysis of the achievements and limitations of support policies in respect of contract farming in Vietnam, some potential solutions have emerged that could be implemented, including improving the business and legal environment, and enhancing the capacity of farmer organisations to promote the application of contract farming.

5.2. Results and discussion

5.2.1. An overview of contract farming in Vietnam

5.2.1.1 Multipartite processing-marketing

The multipartite model involves a number of statutory bodies and private sector companies jointly participating with farmers, such as government and companies that are coordinated in relationships between producers and buyers. Multipartite contract farming may have separate organisations responsible for credit provision, production, management, processing and marketing.

The multipartite processing-marketing model is known under name of the "4 parties model", and includes state, scientists, businessmen and farmers. In this type of model, contract farming is often operated through cooperatives and farmer groups, although the sponsors sometimes implement the contract through their affiliated procurement agents. There are various types of sponsors who participate in this contract, including both processing enterprises (state-owned enterprises (SOEs)), shareholding companies, foreign joint-ventures and private companies), supermarkets, wholesale and retail agencies. The multipartite model also covers a range of agricultural products from annual crops (paddy, vegetables and cotton) to perennial crops (fruit, cashew nut and coffee). Yet this model is likely to be appropriate for small farmers who cultivate crops with high risks and the requirement of labelling and special marketing channels (such as safety vegetables). The outlets for farmers in this model are strongly driven by the buyers, therefore, the scope and size of the contract depends strongly on the market outlets and production capacity of sponsors (Asian Development Bank 2005).

Interestingly, contract farming in the multipartite model was evident even before Decision 80. Pre 2002, contract farming was based on the long-term establishment of input-supply zones for agro-processing enterprises and close relationships between enterprises and the cooperatives, with the strong support of local governments. Yet it is recognised that Decision 80 provided incentives to trigger the participation of farmers and enterprises in the contract as well as the establishment of cooperatives and farmer groups for contract farming. It is worth noting that SOEs are interested in implementing Decision 80, given the expectation of credit and marketing support under this ruling. In addition, the provincial Departments of Agriculture and Rural Development (DARD) have played an active role in implementing Decision 80, by supporting the establishment of cooperatives and contract farming for small farmers. Major support provided by DARDs includes information dissemination about contract farming, raising awareness of contract farming among small farmers, the introduction of market outlets and partners for contracts, and technical support through the agricultural extension system.

Contract farming is often initiated in an area which offers the availability of agricultural intermediate inputs for further processing and/or in an area where enterprises are willing to set up stable supplies of production inputs. In the initial stages, contract farming really piques the interests of contract partners, but its success requires enterprises to have well-prepared land use planning, to have selected appropriate contract farmers and to have identified good market outlets. In cases where contracts have failed, some enterprises

change to outsource the procurement stage to other agents or pay attention only to sales of inputs for agricultural production to farmers.

In the multipartite model, particularly for perennial crops, sponsors often provide inputs on credit to farmers through the cooperatives and farmer groups. For annual crops, either sponsors or the cooperatives themselves might provide inputs on credit to farmers. The contract price is set through various methods. For perennial crops with a high requirement for investment, sponsors often set the floor price (i.e., the lowest price) for procurement, and the actual purchasing price is fixed annually. For annual crops, the contract price is often higher than the spot-market price (or the current market price) in order to create incentives for farmers to sell as well as to motivate the cooperative management board. In the multipartite model, sponsors collaborate closely with the cooperatives to monitor and supervise the production process of farmers. Furthermore, SOEs often provide funds to cover crop insurance for contract farmers.

In the multipartite model, the success of contract farming is strongly dependent on the capacity of sponsors and the support of local government. It can be observed that sponsors dominate the contract establishment and implementation progress. The contract relationship operates smoothly and sustainably only if sponsors have the financial capacity, professional technical staff and stable market outlets. In addition, local governments play an important role in facilitating the contract between enterprises and small farmers. It is recognised that local government might support the establishment of cooperatives and promote market links between enterprises and cooperatives/ farmer groups. Furthermore, enterprises are more willing to initiate contract farming in the areas where local authorities provide active support in terms of contract information dissemination and extension services. In particular, the support of local governments is crucial to persuade small farmers to transform their crop structure from subsistence, low-value but low-risk crops, to more commercial, high-value but high-risk crops such as “temperate vegetables” (primarily root crops) and “safety vegetables”.

But the most important constraint in the multipartite model is the small scale of farmers’ production, which, in turn, prevents them from complying with the technical standards for the product and the production process. In addition, it is worth noting that it takes time to raise awareness and convince small farmers to strictly follow the technical advice provided by either the sponsors’ technicians and/or extension workers. Furthermore, cooperatives are limited by the source of their working capital, which creates difficulties for them in

facilitating procurement for on-time deliveries and technical monitoring over farmers' production. Additionally, the uncertainty of market outlets has a negative impact on the relationship between sponsors and farmers because of delays in payment procurement. In addition, price instability, particularly for crops like vegetables, and purchasing competition from various stakeholders, make it difficult for sponsors - or even cooperatives - to control the delivery of contract output from farmers. Furthermore, for products that need labelling, like "safety vegetables", there is no effective certification system. Thus, the sponsors themselves have to cover all of the costs of quality warranty. Meanwhile, the real "safety vegetables" often face price competition from fake goods in the free markets.

The research team discovered very few cases where sponsors had received credit support from the government, even for cases involving SOEs. The lack of credit restrains sponsors from opening new contracts or from expanding the contract areas. In addition, sponsors complain that they do not receive support from local government in cases of contract default. This, therefore, depresses sponsors' incentive to sustain contract farming in those default areas.

5.2.1.2 Centralised processing-marketing

The centralised processing-marketing model is considered as contract of "2 parties" including a business and farmers. The sponsor (mainly a business enterprise/collector) has a direct contract with farmers. Therefore, sponsors are normally not interested in contracts with small farmers since these generate high transaction costs. Sponsors often encourage small farmers to establish or join cooperatives/farmer groups to implement contract farming. Sponsors in the centralised model are often large-scale enterprises, particularly foreign and joint-venture companies (Asian Department Bank 2005).

They often provide inputs, supply technical guidance, monitor the production process, quality control and purchase outputs for farmers as part of the agreement. Normally, sponsors have specialised technical teams who strictly monitor and supervise the production processes of contract farmers. For their part, contract farmers often need to make a high basic investment in the infrastructure for production, labour, land, breeding facilities/ cages, etc., and comply with the regulations relating to the production process, which has been launched by the sponsors. Usually, this model is appropriate for perennial crops or other agriculture products with a high requirement for basic investment. Sponsors might provide credit in cash to farmers for the basic investment, or collaborate with local banks to lend credit as working capital for contract farmers. Sponsors set a floor price for procurement, and the actual

purchasing price is stabilised and negotiable. Often, the actual purchasing price is higher than the spot-market (or current) price. Sponsors also provide funds to cover crop insurance for contract farmers in this model. Through this approach, even though sponsors will have spent a considerable amount on investment, supervision, monitoring and purchasing of products from farms, in return, they can ensure the quality of products. Farmers can sell products at higher prices in comparison to non-contract farmers but they may be difficult to apply standard on producing process of the sponsors.

In this model, the sponsors often appraise the input-supply zone very carefully before they make investment decisions and participate in direct contracts with farmers. The success of this form of contract farming is accomplished when enterprises operate efficiently, establish a long-term commitment with contract farmers, and make good preparations for investment. In Vietnam this type of contract has been implemented quite well with CP groups (Charoen Pokphand) in the livestock sector. The model even appeared before Decision 80/QD-TTg was issued in 2002.

In the centralised model, contract farmers often need to make a high basic investment in the infrastructure for production. Therefore, the most important factor for contract success is a long-term commitment from the sponsors. Obviously, long-term investment also requires enterprises to properly prepare their land use plans for the input-supply zone, as well as the selection of appropriate farmers. Similar to the multipartite model, contract success depends strongly on the ability of sponsors in terms of market outlets and operation efficiency. Often, the most successful cases in the centralised model involve enterprises who have established their own brand name in marketing channels.

In addition, product specification plays a crucial role in profitability for both large-scale sponsors and farmers. Therefore, sponsors need to have professional technicians to provide technical support and to strictly monitor production processes. In addition, enterprises with good management over their procurement staff face fewer complaints from farmers, and are able to maintain farmers' incentives to preserve the contract relationship and the technical standards. Often, leaders and staff of enterprises keep in very regular contact with farmers to support them and to identify possible mistakes in the implementation of contract farming. Furthermore, without much support from local government, successful sponsors should be patient in negotiations with farmers in cases of contract default.

5.2.1.3 Nucleus estate processing-marketing

In Vietnam this model exists mostly in the forms of state-owned agricultural and forestry farms. The sponsors are often previously state-owned farms, and they have been equitized and the land relocated under the management of farmers. Contract farmers are the ones who previously worked on the state-owned farms or on farms that are adjacent to the sponsors' land. Because of the historical factors relating to state-owned farms, which are often located in hilly and mountainous areas, this contract is often used for perennial crops.

The nucleus estate model started when the state-owned farms relocated land to worker farmers and persuaded adjacent farmers to participate in contract farming. The previous state-owned farms were quite large, so they do not need support from the implementation of Decision 80. However, management inefficiency, particularly in respect of procurement, has forced the sponsors to establish contract farming through outsourced procurement agents.

In this model, contract farmers take advantage of the relocated land for cultivation using a good, basic investment, which has been realised under the economy of central planning. In addition, contract farmers also receive inputs on credit and certain loans in cash. Furthermore, sponsors provide funds to cover crop insurance for contract farmers. But contract farmers have to commit in the contract to deliver all of their produce to the sponsors. Otherwise, if farmers break the terms of the contract, sponsors can take the land back. Specialised technicians are hired by sponsors to provide technical support and to strictly monitor and supervise the production process for contract farmers. Sponsors often establish floor prices for procurement and fix the actual purchasing price annually.

In the nucleus estate model, sponsors take advantage of previous basic investment in infrastructure, good human resources, the technical capacity of contract farmers, and the monopsony[2] power in the remote and mountainous areas. Therefore, the success of contract farming often coincides with enterprises undertaking successful equitization[3] and identifying market outlets in the new system. The control of land use by the sponsors is also an important factor to prevent farmers from reneging on contracts due to the threat of the

2 A monopsony is a market structure in which a single buyer substantially controls the market as the major purchaser of goods and services offered by many would-be sellers.

3 Equitization is a Vietnamese English term that denotes the conversion of a state-owned enterprise in Vietnam into a public (joint stock) company or a corporation by dividing ownership into shares.

withdrawal of land by the sponsors. But in terms of contract management practice, sponsors in the nucleus estate model should look for the mutual benefits for both the sponsors themselves and farmers. Otherwise, too low a contract price, with sophisticated technical standards, often encourages farmers to sell their products to other traders. This has already happened and certainly will again.

It can be observed that high transportation costs are a major factor affecting the success or failure of contract farming because contract land is often located in remote and mountainous areas, which means that it is a long distance from the farm-gate to the processing factories, and the topography of mountainous areas increases transportation costs and makes transport more difficult. Although sponsors take advantage of farmers' awareness in terms of technical knowledge (since most had become accustomed to technical processes in the previous state-owned farms), there are still cases of contract breaches by farmers when market prices are higher than the contract prices. Moreover, since farmers do not take ownership of the land and property, they do not have a strong motivation regarding production. At the same time, sponsors might seize a monopoly of land ownership to lower the price of output procurement. There are cases in which farmers have complained about contract prices, which they claim are often set unfairly by the sponsors, and are lower than the spot-market (current) prices. This lower price reflects difficulties in the equitization process of state-owned farms, which are assimilating themselves within the market system, finding new ways to conduct business with financial autonomy and are seeking new market outlets. In addition, still under the name they were registered with as the state-owned farms, the sponsors have to take political and social responsibility. This consequently results in relatively higher costs of production for the sponsors, and eventually forces them to set low purchasing prices for farmers (Asian Development Bank 2005).5.2.1.4 Intermediary and informal model

The intermediary and informal model may cover various contractual collaborations. However, most of that cooperation usually exists not through the signing of formal agreements, but mainly through verbal contracts based on mutual "trust" between the parties. In Vietnam, the "subcontracting" model and the "individual developer" are the two most common types of informal contract farming.

The success of this model is based mostly on long-term trust, flexibility in marketing channels and price setting for products that are highly competitive. The success of this model is not easy to replicate. Therefore, it is not advisable

to follow this model, especially because of its constraints on the technical upgrading of contract partners.

Subcontracting

In Vietnam, this model has been applied quite successfully in An Giang province by Kitoku- Agrimex in a contract with farmers to grow rice. In the contract, representatives, namely the Provincial Farmer Association, sign a contract with the company, then, through hierarchic farmers' associations at local levels, the contract is directly signed with local farmers. In 2011 the company signed contracts with farmers to grow over 1400 ha of rice (Tran Quoc Nhan and Takeuchi Ikuo 2012).

In agreeing this type of contract, sponsors can reduce the costs of monitoring and supervising farmers' production processes. However, in the intermediary and informal model, the terms of the contract have been established very loosely, and there is a lack of coordination among the sponsors, intermediaries and farmers. Market relationships among contract partners is mostly based on trust and price signals. This consequently restrains efforts for the technical upgrading of the production process. In particular, farmers are not strictly attached to contract conditions in terms of technical standards and quantity, quality or the timing of contract deliveries, because they do not receive significant technical and financial support from sponsors. The contract mostly sets up the principles for the contract price and delivery in the pre-harvest period. There are no inputs on credit and very little technical support or supervision.

As a result, contract farmers in this model still face the high risk of unstable market outlets and prices, while there is no mechanism for insuring crops under the informal contract. The technical policies and management inputs of the sponsors can become diluted, and production data distorted. In short, the sub-contracting of crop production disconnects the direct link between the sponsor and the farmer. This can result in a lowering of income for the farmer, poorer quality standards and irregular production for the sponsors. The degree to which farmers and sponsors are "bound" is not high, so this also easily leads to breaches of contract.

The sub-contracting of crops by larger farmers to smaller growers, to members of their extended families, or to their own farm workers is also a form of the tripartite model. Tripartite contract farming projects must always be viewed with suspicion; the danger of sponsors losing control over production and prices paid to farmers by middlemen always remains a risk.

The individual developer

The individual developer model was quite popular in the early part of the 20th century. Now, however, it has largely disappeared. In this model, sponsors/ traders pay farmers in advance through seed or fertilisers and they collect products back after harvest time. The relationship between sponsors/traders and farmers has mostly been close for many years and therefore the "trust mechanism" is used to bind them. As a result, contract breakdown is not frequent. But this arrangement has limitations, since the model is applied only in respect of small-scale production, in the same community. In such circumstances, the scope for expanding production/ operation is more limited. Moreover, the trader can easily be at risk and will not guarantee to continue to do business with the farmer. They also often have limited funds to finance inputs for farmers and may have to develop arrangements in which financial institutions provide loans to the farmers against the security of an agreement with the developer.

From the analysis above we can see that the factors that determine success or failure for contract farming include: the sponsors' capacity relating to finance, management and human resources; local government support; and management practices such as the opportunistic behaviour of staff from agribusinesses. Also important are social contact, knowledge of cultural values and the role of leadership, methods for establishing farm groups, the selection of participants for contracts, the enforcement of contract defaults, and the management of conflict. Those factors differ in respect of each model of contract farming. Furthermore, the investigation of the factors that lead to both the success and failure of contract farming helps to illustrate the extent to which those factors may affect the performance of each contract farming model. Particularly, the successful cases can be expected to show how contract partners might overcome the existing macro and institutional constraints on contract development.

5.2.1.5 Factors that affect the implementation of contract farming in Vietnam

Weak enforcement institutions

The contract is an agreement and a commitment to fulfil some of the requirements between the parties. And it is binding. However, both farmers and sponsors in Vietnam are still not familiar with this form of doing business. For many commodity agricultural products, the form of the contract has not yet been applied and it is still unfamiliar to farmers and sponsors in many localities (MARD 2008). The understanding and enforcement according to the legal regulations of farmers are still low, so farmers consider that failing

to follow what was agreed in the contract is normal and not a legal violation. Farmers lack knowledge about the law, and there is a lack of support from the state (MARD 2008).

For their part, sponsors and business enterprises in the agriculture sector have not adapted very well to the market economy, so they do not implement or comply with the principles of the market and are also willing to renege on what they have agreed in the contracts. Many enterprises do not comply with the signed terms, such as failing to supply production materials, unilaterally dismissing contracts, delaying the procurement of products, and holding up contract payment (MARD 2008). The penalty for breaching the contract is also insignificant compared with the benefits that are available from such breaches. In addition, the support of law enforcement is lacking or inadequate, which also leads to a breach of contract terms between farmers and sponsors.

In order to limit contract violations, the state should establish an agency to monitor the implementation of contracts signed between the parties to ensure that the terms are implemented effectively. The state can play an intermediary role in negotiating contracts between farmers and sponsors to ensure the harmonisation of interests among the parties involved in contract implementation (MP4 2005). The dissemination of laws and policies to parties also needs to improve.

Unstable market prices

Most breach of contract cases between farmers and sponsors are related to prices at the time of harvest. The situation of production and consumption in the case of agricultural products is always changing. Neither businesses nor farmers can predict prices in advance, so the signing of contracts on production and consumption of agricultural products between the two sides is difficult to enforce when prices fluctuate (Tran Van Hieu 2004). When prices increase, the farmers figure that they do not need businesses, and when price decreases, businesses just want to turn their backs on farmers (Nguyen Tri Khiem 2005).

The level of implementation of the contract between farmers and sponsors will be very low when there is a large fluctuation in the market. Farmers and sponsors both have small-scale production and business activities, and poor financial ability, so if they comply exactly with the terms of the contract, then their possibilities for loss and bankruptcy will be high. That is also the reason why farmers and sponsors often break signed contracts when there is a fluctuation in market prices.

In order to limit contract breakdown, farmers and sponsors should apply flexible pricing methods. Enterprises can apply floor-price (i.e., the lowest price) regulations, or fixed prices for agricultural products that experience little fluctuation in market prices or for products for which enterprises already have stable markets. Furthermore, it is possible to apply the market price regime in the cases of agricultural products for which prices fluctuate and the market is unstable. In addition, in the process of implementing contracts between farmers and sponsors, it is also possible to change or adjust prices in those contracts to reflect market changes and to harmonise interests between the parties in order to limit the chance that contracts will break down. Businesses also need to improve their forecasting capacity and their ability to assess market information, as well as to increase market channels, and to provide and share information to create trust with farmers. The state can support both parties in market price information so that they have sufficient when they decide on prices stipulated in the contract.

The benefits of the contracts are not enough to attract farmers and businesses

Since the scale of the farmers is small, sponsors might not have sufficient motivation to link with them because of high transaction costs in monitoring, managing and collecting farmers' products. In addition, the enterprises themselves are small and have a low financial capacity making them unable to invest in the production inputs for farmers and then to buy back products. Moreover, the consumption capacity of enterprises for agricultural products remains limited and the consumption market is not stable. Therefore, with higher prices, sponsors are not willing to buy, and with lower prices, the farmers will suffer losses in implementing the contracts (Nguyen Tri Khiem 2005).

If the contract cannot create real benefits for both parties, farmers and businesses will not want to sign the resulting contract. Farmers also face many obstacles when implementing contracts because businesses set high requirements for product quality and production techniques, and inconvenient deliveries all make the contract unattractive in comparison with selling to other traders (Roberts and Khiem 2005). Indeed, free traders often come to the farm gate to buy agricultural products, with lower requirements in terms of quality standards, and this seduces farmers to break contracts.

Farmers often do not want to be tied to production, and prefer the freedom to deal with simple procedures when buying and selling. Thus, free traders find that dealing with them is preferable. Small-scale farmers also complain about

complicated payment procedures that prevent them from continuing to respect the terms of the contract. Farmers then sign to break the contract because the conditions have become too cumbersome, and they do not want to be bound into such contracts if they present more disadvantages than benefits (Roberts and Khiem 2005). Production contracts are not beneficial to all farmers, so not all farmers are willing to follow this route. According to the research of Le Huu Anh (2011), the more difficult households find the production process, the more disadvantages they gain from contracts.

To overcome this limitation, farmers and businesses need to improve contract conditions to bring more benefits to both parties, because the ultimate purpose of both parties is a win-win situation. If this is not achieved, it is difficult to implement the contract, and, therefore, improving the benefits of both parties in the contract is key to determining the long-term relationship between them. Sponsors therefore need to find ways to expand the market to ensure the benefits and integration of raw material producers (Le Huu Anh *et al*. 2011).

Market pressure is not sufficiently powerful

Market pressures are not really sufficiently strong to compel parties to link together (Nguyen Tri Khiem 2005). The farmers are familiar with exchange through free traders and middlemen, and businesses are also familiar with purchasing agricultural products in this way. In the Mekong Delta, 93 percent of farmers' rice production is sold through free traders and only 4.2 percent of the output is sold to companies. Similarly, 62 percent of companies' rice production is bought from free traders and middleman (Vo Thi Thanh Loc and Nguyen Phu Son 2011). This indicates that if the enterprise breaks the contract, it will still be able to buy agricultural products on the free market or from free traders to meet its business needs, and, at other end, if farmers break the contract, it is still easy for them to sell their agricultural products to free traders. So, there is almost no pressure or necessity to implement the contract for either of the two parties.

Since most products are raw, unprocessed, and have no brand name, businesses are not willing to cooperate sustainably with farmers. Therefore, improving and requiring agricultural products of a higher quality might also create pressure for people and businesses to link more closely together.

5.2.2. Policies that support contract farming in Vietnam

5.2.2.1 Supporting policies

To facilitate and sustain contract farming, the government needs to create a sound environment for development. Contract farming was formally introduced in Vietnam in 2002 when the Vietnamese government issued Decision No. 80/2002/QD-TTg. This aims to promote agricultural transformation from subsistence to a commercialised and export-oriented agriculture. This decision, often known as the "four parties" contract, has attempted to increase the use of contracts to improve procurement and efficiency, and to promote technological innovation in the rural economy. In accordance, enterprises from all sectors have been encouraged to sign contracts on sales of farm produce with producers in order to link production with the processing and consumption of commodity farm produce. The idea is that this will develop production in a stable and sustainable manner. The contract serves as the legal basis for binding the parties in their responsibilities and obligations, protecting the rights and legitimate interests of the raw material producers, and the production, business and processing of exporting enterprises, under contractual provisions. In order to implement this decision, several documents at the ministerial level were issued, e.g. Decision 52/2002/QD-BNN of the Ministry of Agriculture and Rural Development, presenting guidelines and providing a sample of agricultural contracts. Circular 05/2002/TT-NHNN of the State Bank provided a guide to loan capital provisions for producers and enterprises signing agricultural contracts. Circular 04/2003/TT-BTC of the Ministry of Finance provided guidelines relating to financial issues to implement Decision 80/2002/QD-TTg.

In 2008, the Prime Minister signed Directive 25/2008/ CT-TTg to enhance the implementation of contract farming. In addition, other policies such as the Law on Association, and the Law on Cooperatives, as well as numerous programmes, support specific commodities, and the New Rural Program and public-private partnership promotion policies have created a legal environment for contract farming. In 2013, the Decision 62/2013/QD-TTg regarding the development of cooperation, the link between the manufacture and the marketing of agricultural products, and establishing large fields, was amended. The Decision 62/2013/QD-TTg has defined support resources and support principles, and specified mechanisms for handling violations.

Recently, the government introduced Decree No. 98/2018/ND-CP to encourage cooperation and links in the production and consumption of agricultural products, and thereby to bring sustainable benefits to the parties

concerned. Accordingly, the coordinating party will be supported by the state budget to the tune of 100 percent (but not exceeding VND300 million) to cover the cost of consultancy to support link-building, including the cost of the related fees, and research to build linkage contracts, projects, and production and business plans, as well as market development. In addition to the support of investment capital for the construction of infrastructure to support such links, the parties can access finance from the state budget to build an agricultural extension model, for vocational and technical training, professional management, production techniques, contract management, chain management and for market development. There is also support for plant and animal varieties, supplies, packages and product labels (but not for more than three seasons or three production cycles), and for exploiting products through the concentrated services of cooperatives. The budget also supports up to 40 percent of the cost of transferring and applying new science and technology, applying technical processes and managing quality in a uniform value chain. These documents are considered to be the most important regulations relating to contract farming in Vietnam.

Furthermore, the government has issued many related policies to support contract farming in terms of financing value chains, insurance coverage, and attracting private investment in agriculture. For example, Decree 55/2015/ND-CP and Decree 116/2018/ND-CP, covering credit policy for agriculture and rural development, have specific regulations relating to credit support for enterprises and cooperatives that participate in contract farming. In addition, enterprises, cooperatives and farmers also enjoy preferential interest loans, and support for training costs and insurance following Decree 57/2018/ND-CP on incentive policies for enterprises investing in agriculture and rural development, and Decree 58/2018/ND-CP on agriculture insurance.

5.2.2.2 Achievements

The link between the production and consumption of agricultural products has developed with many effective models in agriculture, forestry and fisheries. According to the Ministry of Agriculture and Rural Development (2017), 48 out of 63 provinces have implemented the "large-field" programmes, focusing on the Red River Delta and Mekong Delta. The large fields are mainly in the rice sector - numbering 1,661- accounting for 73.4 percent of the total. Through the implementation of large fields, enterprises have collaborated with cooperatives and farmers along the value chains. In 2016, the numbers of enterprises and cooperatives that participated in linkage models were 781 (enterprises) and 2,469 (cooperatives), accounting for 20.3 percent of

agriculture enterprises and 35.5 percent of cooperatives. Additionally, 619.3 thousand farmers joined in forms of linkage (GSO 2016).

The link between farmers, cooperatives and enterprises through contract farming is able to generate significant economic benefits compared with traditional production. For example, in the Mekong Delta, the production cost of rice is 10 percent lower, while output had increased from 20 to 25 percent with an additional profit of VND2.2 to 7.5 million/ha compared with farmers in and out of large-scale fields (MARD 2017). Furthermore, in participating in linkage models, farmers have been supported in terms of technical guidelines, market prices, credit or the provision of inputs. Enterprises, meanwhile, have been benefiting from stable and high-quality sources of material, and a reduction in intermediate and transportation costs (Ministry of Agriculture and Rural Development 2017).

5.2.2.3 Limitations

In the implementation progress, the support policies to promote the application of contract farming in the agriculture sector have revealed limitations, and policy makers are currently considering important amendments. First, the contents of Decree 62/2013/ND-CP are applicable mostly for crop production, especially in the rice sector, but not for the other sub-sectors like animal husbandry, aquaculture and forestry. Second, there is a lack of guidelines for contract procedures and details about regulations relating to contract farming mechanisms, particularly regulations covering conflict resolution mechanisms. Therefore, the legal enforcement of contract farming in agriculture has not been guaranteed, especially when one contract party breaks the contract without any punishment. Moreover, state and local budgets to support contract farming seem to be limited; and the administrative procedures to access subsidies have been complicated with the addition of many steps and document requirements.

According to an assessment by the World Bank (2015), the links between enterprises and farmers, and farmers and cooperatives, are still loose, and are not based on the benefits and responsibilities available to the parties. Contracts relating to agricultural products reveal low legal enforcement between sellers and buyers. Meanwhile, the role of solidarity between the "four parties" is neither tight, nor synchronised. The government has no specific sanctions to punish a breach of contract between the parties. Therefore, contract breaches between enterprises and farmers occur frequently when there is market volatility in prices or consumption. In addition, the issues of small, scattered production, a lack of funds, backward farming practices, low education levels, and a lack of production experience, especially the capacity

for household economic management, also greatly affect the development of contract farming in Vietnam (World Bank 2016). While contract farming is primarily private-sector led, government support for such arrangements is not uncommon, because these can contribute to meeting broader policy objectives such as inclusive growth, food security, or the protection of natural resources (although this approach has its pitfalls).

In terms of credit support policies, such as Decree 55/2015/ND-CP, Decree 116/2018/ND-CP and Decree 58/2015/ND-CP, the amount of capital disbursed under the linkage-support policies is quite small because of complex administrative procedures and a lack of capital. Commercial banks are not interested in loans to the agriculture sector because of the high risk and dependence on the weather. Additionally, government support mostly focuses on enterprises while other subjects, like cooperative farmers, have not received any attention (Institute of Strategy and Policy for Agriculture and Rural Development 2019). Hence, substantial changes are needed in policies, and their application, to maximise benefits and minimise the risks for all stakeholders, especially small-scale farmers.

5.2.3. Contract farming in the rice sector

5.2.3.1 The arrangement of contract farming in the rice sector

The contract farming scheme was initially introduced to rice production and trading in 1996. In the initial stages, the company directly signed contracts with a substantial number of individual rice farmers, which resulted in high transaction costs for contract arrangements and for monitoring the contract implementation and enforcement. Contract farming was applied in An Giang province quite early on. To remove constraints on direct contract arrangements with a great number of farmers, the Farmers' Association representing the farmers negotiated directly, and signed a contract with the company. Thereafter, the Farmers' Association at grassroots level, under the direction of the provincial level, signed a contract directly with individual farmers and took charge of monitoring and enforcing its terms. The company was to be responsible for supplying rice seed and technical guidance, and for purchasing the output.

After some years, it was realised that the contract farming scheme could potentially result in a high economic performance by rice growers. For this reason, the local authorities officially launched the "four actors" linkage programme in rice production and distribution. The linkage programme is defined as the integration of "farmer, entrepreneur, scientist and state" in rice farming activities. It is of great significance since Decision No. 80/QĐ-TTg was

issued, which created the legal framework for rice cultivation and marketing via contracts in Vietnam generally and in the Mekong Delta in particular. In 2007 the first Vietnamese company applied a contract farming scheme to rice farmers in An Giang province, and another Vietnamese company also adopted a contract farming system in its business in 2010. This is the case of the Loc Troi Group that developed the model of the "large-scale paddy field".

In general, contract farming in the rice sector mostly represents the multipartite and subcontracting (or informal contract) models. In the selected cases, both the Loc Troi Group and Thinh Phu Agrimex operate under the multipartite model. In this model, cooperatives for farmers groups act as a bridge connecting enterprises and farmers. In both cases, cooperatives select and organise farmers into groups, while the enterprises provide input materials and guidance in techniques, and then buy paddy at a higher price than is available in the market. In addition, the local authority is also involved in selecting the project areas and in supporting the enterprises in terms of access to the government's preferential policies. This model is significantly suitable for the rice sector, overcoming the limitations on small-scale farmers and fragmented production, and reducing the administrative costs involved in signing a contract with many farmers. DARD, and the local authorities in An Giang, state that the multipartite model has been regularly applied in the rice and other sectors in their province because this model overcomes the disadvantages of small-scale production and brings benefits for farmers, cooperatives and enterprises (survey results from the research team).

The sub-contracting model is usually applied in the rice sector between farmers and traders, or between larger farmers and smaller farmers. In the harvesting period, traders visit the paddy field, and discuss the price and the timing of the harvest with farmers. However, this informal model has not been recommended because of its low legal enforcement and the fact that benefits for farmers do not increase. According to the results of the FGDs in An Giang province, local traders have enough capital and close relationships with farmers so that farmers are willing to sell their paddy to them. However, farmers are normally unable to benefit through informal contracts with local traders (survey results from the research team).

The Loc Troi Group, formerly the An Giang Plant Protection Joint Stock Company, is one of the leading companies in developing a sustainable rice value chain in Vietnam. This has been achieved from research, production, the trading of seed products, crop chemicals and biological-organic products. The Loc Troi Group is also a typical model of the application of contract farming,

namely a "large-scale paddy field" model in the Mekong River Delta and in Vietnam. The model of the Loc Troi Group was set up in 2011, covering an area of 3,400ha of paddy in Tho Son district, An Giang province. Currently, the contracted area has been developed to cover nearly 50,000 ha per year.

In this model, the Loc Troi Group provides seed, fertilisers and pesticides at discounted prices and free of interest rates for 120 days (a paddy season). The company also buys all of the farmers' rice products at a higher price (about VND500/kg) than that in the market at any time when farmers decide to sell within one month from the time of loading rice into the company's storage facilities. It means that farmers can store their paddy at the company's storage in 1 month without fee. During 1 month farmers can sell paddy for the company or for other traders During that one month, the farmers' rice is stored, free of charge. In the contract, farmers have to strictly follow the cultivation process to ensure the rice quality (such as being alert to the pesticide dosage, harvesting on time to reduce the breakage of rice grain, etc.). In addition, the Loc Troi Group also have a good connection and cooperation with farmers through its technical staff, who are called the "Farmer's Friend" (the FF). The FF work directly with farmers to transfer technology and to join farmers in applying those new technologies on the rice fields. They are also responsible for monitoring the farmers' application of technology in cultivation. Until now, more than 1,300 FF staff members have been helping farmers in 76 districts (out of a total of 129 districts in the Mekong Delta) and covering 48,550 ha of rice fields. The FF team of the Loc Troi Group has been recorded as the largest group of agriculture extension staff members who have been accompanying farmers in Vietnam.

In the other case, the Thinh Phu An Giang Import-Export Corporation (Thinh Phu Agrimex) was one of four companies that the state bank selected to implement the credit pilot programme for agriculture development under Decision 1051/QD-NHNN and Decision 1050/QD-NHNN[4]. Contract farming began during the winter-spring crop in 2014 in Tan Thanh village, Tan Chau district, on a land scale of 500 ha in the first period and 1,200 ha in the second period. After approval from the State Bank, Thinh Phu Agrimex worked with local authorities and cooperatives to discuss the terms, conditions and operation of the contract. The Tan Phu A1 Agricultural Cooperative was

4 Decision number 1051/QD-NHNN of the State Bank on 28 May 2014 on approving the list of commercial banks and customers that participate in the credit pilot programme for agricultural development under Resolution 14/NQ-CP on 5 March 2014. And Decision number 1050/QD-NHNN of the State Bank on 28 May 2014 on the credit pilot programme for agricultural development.

selected to implement the contract farming with the participation of Thinh Phu Agrimex, farmers, and the Vietcombank Chau Doc. The Tan Phu A1 Agricultural Cooperative's leader said that, "We are very happy to sign the contract with Thinh Phu Agrimex. We expect that our paddy output can be sold at a higher price and our members can earn a higher profit through the contract."

In accordance with the contract's terms and conditions, Thinh Phu Agrimex pays an advance of VND10 million/ha to farmers at a preferential interest rate (7 percent per year). This interest is lower than commercial interest rates by 1 to 1.5 percent. After that, the company buys paddy in the contracted area and pays everything after each crop season. In this model, Tan Phu A1 Cooperative has the connecting role between farmers and companies. The Cooperative selects farmers to participate in this model and collects paddy at harvesting time. Contracted farmers commit to grow the fixed paddy variety (OM6976) and to sell that paddy to Thinh Phu Agrimex. The paddy price is determined through negotiations five days before harvesting. The model was quite successful in the first season (winter-spring in 2014) but in the second season, the company purchased only about 20 percent of product from contracted area due to the low quality of the paddy, which was affected by bad weather.

5.2.3.2 Conflict resolution mechanisms

Conflicts between enterprises and farmers frequently revolve around quality standards and prices. DARD An Giang indicated that contract conflict occurs when product quality does not meet the requirements of enterprises, or when market prices fluctuate in comparison with the price in the contract. If market prices rise, contracted farmers are tempted to sell their products on the market rather than to the buyer named in the contract. Enterprises, meanwhile, try to classify quality testing as a way to reduce the price they pay to farmers under the contract, particularly when market prices have fallen, or when weather conditions have a negative effect on product quality (survey result from the research team). Thus, settling disputes through the legal system is impractical because of costs and delays. Alternative dispute resolution mechanisms are one way to address these conflicts.

When conflicts in contract farming do take place, the contract signees try to find a way to minimise the economic loss through discussion. In cases where negotiation has failed to settle the matter, it is resolved following an applicable law (if one of the contract party sends the dispute to court). However, resolving frequent conflicts between farmers and firms through the legal system is costly and time-consuming (World Bank 2015). In An Giang

province, contract parties usually stop implementing the contract instead of negotiating or settling it through the legal system because of the high costs and length of time this takes. In addition, due to the small volumes handled by each farmer, the enterprise can buy paddy from another supplier while farmers sell their paddy to local traders at a lower price (survey result from the research team).

In both cases, in the rice sector, there are no direct terms in the contracts relating to conflict resolution. However, the Loc Troi Group has many activities designed to reduce production risks, and to control rice quality, as well as to share risks with farmers. The terms of the contract clearly state that the Group will supply contract farmers with almost all of the inputs they need, including seed, fertilisers and pesticides, at a discounted price without interest for 120 days – the time taken for one crop season in the rice sector. The Loc Troi Group also assigns technical staff to directly guide and supervise farming techniques during the crop season. These terms have a significant effect in reducing the production risks for farmers. In addition, farmers are supported in respect of post-harvest services such as transportation and storage, which decreases production costs. After harvesting, the Group purchases paddy from the farmers at a higher price (about VND500/kg) compared with the market price, to increase farmers' income. This is a good way to avoid conflict in implementing contract farming and to ensure the success of the contract.

In contrast, Thinh Phu Agrimex pays only VND10 million in advance to farmers, at preferential interest rates. The applied interest rate is 7 percent per year, lower than the interest rates of commercial banks by about 1-1.5 percent per year. Farmers have to manage paddy production by themselves, including the supply of inputs and farming techniques, without guidance. Consequently, in the second season, the company only purchased about 20 percent produced on the contracted area because the paddy quality did not meet their requirements. The main reason leading to bad rice quality was bad weather conditions. In this case, farmers were under pressure to pay back the credit, while there was a lack of a strong commitment from the company. Therefore, they sold paddy to local traders, the company refused to buy paddy, and the contract farming contract was nullified. More importantly, there was no risk mechanism or processes to resolve conflict between the company and the farmers (survey result from the research team).

5.2.3.3 Benefits to farmers and enterprises

For farmers: Early studies of contract farming observed that farmers appeared to earn higher incomes than their neighbours who were not in contract

arrangements (World Bank 2015). Contract farming has achieved some performance and development outcomes in the rice sector. A study focusing on contract farming in An Giang province showed that contract growers obtained much higher economic returns than their counterparts did (Tran Quoc Nhan and Takeuchi I.2012).

In fact the contract farmers sold almost all of their rice products at prices that were 16.7 percent higher than those achieved by non-contract farmers. As a result, the gross return and net return of contract farmers are higher than those of non-contract farmers by 18.2 percent and 26.88 percent, respectively. In addition, rice profitability for contract growers was also increased by 9 percent compared with that achieved by non-contract ones. Farmers participating in the contract farming scheme are more likely to earn higher revenues than independent farmers from the same planted area and growing the same kind of crop. Thus, they often achieve a higher net revenue than non-contract farmers (Takeuchi *et al*. 2013).

Table 5.4: Economic efficiency comparing CF and non-CF farmers in the Loc Troi Group case

	Item	CF farmers	Non-CF farmers	Change	
				Value	%
1	Seed costs (million VND/ha)	1.77	1.68	+0.9	+5.4
2	Fertiliser costs (million VND/ha)	5.09	5.64	-0.55	-9.8
3	Pesticide costs (million VND/ha)	4.83	5.10	-0.27	-5.3
4	Other costs (land preparation, irrigation, harvest) (million VND/ ha)	6.18	6.77	-0.59	-8.7
5	Total cost (million VND/ ha)	17.72	19.08	-1.36	-7.1
6	Productivity (Ton/ha)	5.43	5.38	+0.05	+0.9
7	Production cost (VND/kg)	3.289	3.560	-271	-7.6
7	Price (VND/kg)	5.893	5.450	+443	+8.1
8	Revenue (million VND/ ha)	31.99	29.96	+2.03	+6.8
9	Profit (million VND/ ha)	14.27	10.88	+3.39	+31.2

Source: Survey results from the research team

From the table above (Table 5.4), it can be seen that contract farmers have access to more benefits than non-contract ones. Farmers can receive high-quality seed and other inputs (fertilisers and pesticides), technical guidance and assistance from the contracting company. Under a contracting system, farmers are assured that they can find markets for their production at higher prices. In terms of economic efficiency, CF farmers had lower costs, and higher revenues and profits. The total production costs to CF farmers were lower than those

incurred by non-CF farmers by VND1.36 million per ha, while revenue and profit were higher at about 2.03 million/ha and 3.39 million ha, respectively. In addition, farmers had opportunities to upgrade their farming techniques and apply new technology in the production process, such as VietGAP and Sustainable Rice Platform (SRP) standards. Mr Nguyen Van Tam, who participates in the contract with the Loc Troi Group, commented: "I'm very happy to work with the Loc Troi Group. I and other farmers enjoy their support in technical guidance and in providing qualified inputs. In addition, during the harvesting period, we focus only on the harvesting time to ensure the paddy quality while other farmers have to look for buyers, negotiate and compare prices with many traders. We expect to sign a long-term contract." (The results of the survey from the research team)

In the case of Thinh Phu Agrimex, the contract was successful in the first season. Despite a lack of technical guidance and assistance, CF farmers could achieve a higher revenue and profit in comparison with non-CF farmers. In particular, the profit of the CF farmers was VND13.4 million/ha, higher than the VND5.5 million/ha of the non-CF farmers.

Table 5.5: Economic efficiency between CF and non-CF farmers in the Thinh Phu Agrimex case in the first season (winter-spring crop in 2014)

	Production cost (1000 VND/ha)	**Productivity (ton/ha)**	**Unit price (VND/kg)**	**Revenue (1000 VND/ha)**
CF farmers	20000	6.345	5.350	33945
Non-CF farmers	22000	5.849	5.200	30414

Source: Survey results from the research team

For enterprises: On signing contracts, enterprises have the guarantee of a stable supply of inputs and a higher quality of paddy. Entering into contract arrangements can assist enterprises to develop a higher quality and consistency of outputs, thereby enhancing the prestige of the enterprise. Contract farming also enables enterprises to create a good foundation for the development of a reputable brand name and to enhance competitiveness (World Bank 2015).

In the case of the Loc Troi Group, the company encourages farmers to grow rice varieties that match the company's export goals and the market orientation of the company such as the Loc Troi 18 variety, and japonica (the Japanese variety). Additionally, encouraging rice farmers to join together in a large rice field also helps the company to create areas that can produce a stable and high-quality rice output in both quantity and quality. In addition, the support of the government and local authorities also helps farmers to improve their

capacity in cultivating rice to meet VietGAP, Global Gap or SRP (Sustainable Rice Platform) standards. As farmers comply with the company's optimal cultivation process, so the rice product quality has increased and has met export requirements. This means that revenue is also higher compared with the traditional rice production practices. Mr Nguyen Van Chin – a technical staff member from the Loc Troi Group - states that it took time to provide technical guidance for farmers in the first season, but they did very well in the next seasons. The Loc Troi Group is very satisfied with paddy quality when working with farmers (survey results from the research team).

In addition, community awareness about farmers and farming has begun to change to focus on commodity production in the market-oriented economy and the development of cooperatives, farmer groups, clubs, associations, etc. The practice of individual, unlinked small-scale production is gradually changing towards a system whereby small-scale farmers are joining together in a spirit of cooperation. The income and livelihoods of farming families have increased levels of stability under contract farming systems and, through cooperation with enterprises, farmers can gain higher levels of technical knowledge for production.

The development of contract farming modalities can assist in the process of planning the material production zones for large-scale agricultural production, destined for export and domestic consumption. In fact, paddy production in An Giang province is mainly for export (about 80 percent of total production). Additionally, the cultivation of high-quality paddy varieties, such as jasmine, are also promoted for the domestic market. DARD An Giang has encouraged production links to establish special rice-growing areas and to develop a large model field through contract farming (survey results from the research team).

5.2.3.4 Factors determining the success/failure of rice contract farming

a) Success factors

Since the multipartite model is often initiated by the enterprises that have established long-term business in certain locations and with certain cooperatives and farmer groups, the success of contract farming in this model is strongly dependent on the enterprise's capacity, the cooperative's capacity, the market situation, simple terms in the contract and the support of local authorities.

First, the model of the Loc Troi Group has achieved many fruitful results thanks mostly to ***the leading role of private partners***. The Loc Troi Group is a big company, with finance potential, and access to farming techniques and input providers. Thus, they invested significantly in supporting farmers' rice

production in terms of technical guidance and production inputs (fertilisers, pesticides and high-quality seed). The Group is very active in working and supporting farmers as well as assuring farmers of a good income. In addition, the Loc Troi Group has a specific commitment to farmers and complies strictly with all contractual commitments (information gleaned from the FGDs). According to DARD and local authorities in An Giang, the support and supervision of the Loc Troi Group increase farmers' confidence in growing rice with all the technical guidance of the company, ensuring the quality of the rice to meet the company's export aspirations (to ensure compliance with pesticide residues, and accuracy in the harvesting time so that rice grains are less likely to be broken during processing, etc.). Besides implementing contract terms, the Loc Troi Group has improved the living standards of farmers by building a kindergarten for the children of their staff and of the contracted farmers (survey results from the research team).

Second, the ***dynamic leadership of the cooperatives/farmer groups*** is always important not only for the sustainability of the cooperation among farmers, but also for the success of the contract. Mr Nguyen Van Chin, a representative from the Loc Troi Group, confirmed the importance of the Cooperative's management board in supporting the company in terms of monitoring technical standards in the production process, coordinating the harvesting schedule, delivering contract output, and in achieving consensus among farmers about the terms of the contract. CF farmers in the Loc Troi Group case were organised into farmer groups (eight to ten farmers per group). Each group had a group leader who was responsible for: receiving and allocating inputs to farmers; monitoring other members; and coordinating between farmers and the company. Moreover, contract farmers indicated that the Cooperative played an important role in convincing them to sign up for contract farming and in helping them to understand the contract conditions. The Cooperative acts as a bridge between farmers and enterprises (survey results from the research team).

Third, the success of this model is also strongly affected by the ***market situation of the enterprise.*** Contract relationships operate smoothly and sustainably only if the company identifies stable market outlets and maintains a high level of competitiveness, particularly in the case of export products. It can be observed that production differentiation is a major factor ensuring access to market for sponsors and farmers in both the foreign and domestic markets. This is also a factor in encouraging sponsors and farmers to maintain cooperation and contract relationships, which generate mutual benefits

and require a certain level of asset specificity for product differentiation. According to DARD, the An Giang, Loc Troi Group is one of the leading companies in producing and exporting rice products in Vietnam. The company also pays attention to developing high-quality rice products and in promoting its brand name in the market. Therefore, after five years, the Loc Troi Group has continued to expand its large-scale paddy fields through signing contract farming agreements (survey results from the research team).

Additionally, the ***terms of the contract are clear, simple and easy to understand***. Working with small farmers, the contract format, contract terms and conditions should be kept as simple as possible because of farmers' low education level and lack of knowledge about the legal aspects of the contract. Furthermore, farmers are introduced to the terms of contract before signing. The Loc Troi Group is one of companies that directly sign contracts with farmers. This gives farmers more confidence in the Group and creates more willingness among them to conduct contract farming (survey results from the research team).

Last but not least, ***DARDs and local government play important roles*** in facilitating the contract between enterprises and small farmers. It is recognized that DARDs can support the establishment of cooperatives and promote market links between enterprises and cooperatives/farmer groups. Furthermore, enterprises such as the Loc Troi Group and Thinh Phu Agrimex are more willing to initiate contract farming in areas where DARDs and local governments provide active support in terms of contract information dissemination and extension services (survey results from the research team).

b) Factors leading to failure

In the case of Thinh Phu Agrimex, the contract was unsuccessful in the second season due to a lack of technical support and monitoring, the low performance of the cooperative, the lack of a risk-sharing mechanism and the dominant role of local traders.

Thinh Phu Agrimex is a trading and export rice company without technical staff, and producing inputs. Thus, the company ***does not provide any technical support or monitoring services***. Normally, the company buys rice from traders, processes and exports it. Thinh Phu Agrimex signs the contract with farmers in Tan Phu A1 Cooperative, expecting to achieve stable and high-quality paddy for export. The DARD An Giang and Tan Phu A1 Cooperative report that the company set high-quality requirements, but did not provide technical staff and monitoring mechanisms during the cultivation period. Although Thinh Phu

Agrimex could access financial resources from the pilot credit programme at a preferential interest rate, the company had no advantages in respect of farming practices. It can be observed that without direct guidelines and supervision it is difficult to produce high-quality rice in bad weather conditions (Department of Agriculture and Rural Development An Giang 2018).

Second, the ***low performance of Tan Phu A1 Cooperative*** had a negative impact on the implementation of the contract. The Cooperative did not perform the role of linking farmers with the company. According to Mrs. Le Thi Mai, a member of Tan Phu A1 Cooperative, the Cooperative performed quite well during the set-up period in terms of selecting farmers and representing farmers to sign the contract with Thinh Phu Agrimex. However, there were no more linkage activities during the crop period until harvesting. Farmers did not really believe in the enterprise in respect of contract implementation (survey results from the research team).

Third, an important reason leading to the unsuccessful contract of Thinh Phu Agrimex was that there were ***no risk-sharing or conflict resolution mechanisms*** in the terms of contract. The quality of rice production heavily depends on weather conditions so there should have been some risk-sharing mechanism between company and farmers to reduce economic losses for farmers and to affirm the strong commitment of the company. Although there was no dispute between Thinh Phu Agrimex and farmers, the contract was not implemented for the following season (survey results from the research team).

The next factor is likely to have been ***the dominant role of local traders in An Giang province and in the Mekong River Delta***. About 90 percent of rice farmers sell their paddy to local traders out of convenience, close relationships and credit advances (Institute of Strategy and Policy for Agriculture and Rural Development 2014). Particularly in the case of Thinh Phu Agrimex, farmers were under pressure to pay back the credit, while there was a lack of a strong commitment from the company. At the same time, DARD An Giang mentioned that local traders were willing to buy all kinds of paddy (low or high quality) (survey results from the research team). Therefore, farmers sold paddy to traders and broke the terms of the contract even though they received a lower price. Additionally, there was a lack of participation from local authorities in guaranteeing the commitments and in ensuring the strong legal enforcement of the contract.

5.2.4. Contract farming in the mango sector

5.2.4.1 Contract farming arrangements in the mango sector

Dong Thap is the province with the largest area devoted to mango growing in the Mekong River Delta. Mango cultivation is mostly concentrated in Cao Lanh district and Cao Lanh city. Dong Thap province has two groups of mango varieties, local mango groups, such as Cat Chu mango, Cat Hoa Loc mango and Thanh Ca mango, and imported mango varieties such as Taiwanese mango and Thai mango. However, the Cat Chu mango variety accounts for 70 percent and Cat Hoa Loc mango for 20 percent of production. Mango products are consumed in the domestic market and exported to foreign markets such as Australia and the USA (Department of Agriculture and Rural Development Dong Thap 2018)

Recently, provincial authorities have stated that Dong Thap has promoted contract farming in the mango sector in particular, and in the agriculture sector in general, through enhancing the performance of cooperatives and cooperative groups in the province. Cooperatives act as a link between farmers and businesses in the mango value chain. Currently, Dong Thap has four mango cooperatives (including My Xuong Mango Cooperative and Tan Thuan Tay Mango Cooperative) and 37 cooperative groups for mango production and consumption. In 2018, the mango production of linkage models was about 2.500 tonnes, accounting for 2.5 percent of total mango production in Dong Thap. In the past, mango producers were not interested in contract farming. Thus, its implementation in the mango sector in Dong Thap has developed only over recent years because of its advantages in terms of improving the economic efficiency of both farmers and businesses (Department of Agriculture and Rural Development Dong Thap 2018). My Xuong and Tan Thuan Tay mango cooperatives are the leading mango-intensive cooperatives of Dong Thap province. Both cooperatives have methods to increase product quality, especially in applying safe production methods according to VietGAP or Global GAP. However, in linking the consumption of output products, the two cooperatives represent different linkage models.

The Tan Thuan Tay Cooperative has a long-term contract with the Long Uyen Company under the multipartite processing-marketing model. The Long Uyen Company Limited is one of Vietnam's leading manufacturers and exporters of frozen agricultural products, especially mango. Mr Phan Quoc Nam, the Director of Long Uyen Company, has indicated that the company also has sustainable supply chains of raw materials through cooperation with many farmers to ensure the safety and diversification for raw material sources

destined for processing. Simultaneously, the quality control staff of the company supervise and manage the quality of the raw materials to ensure the production of the best quality products for customers. Therefore, the company was able to develop a complete supply chain from farming, harvesting and collection, to processing, marketing and distribution. In the contract farming agreement with Tan Thuan Tay Cooperative, the company not only purchases products, but also supports inputs such as finance, fertilisers, pesticides and technical guidance for members of the Cooperative (survey results from the research team).

In this case, 27 households – members of the Tan Thuan Tay Cooperative - participate in the contract. According to the Tan Thuan Tay Cooperative, households take part in a voluntary spirit, and mango products had obtained VietGAP certification. Under the contract's term and conditions, the company determines the purchase price, which is stated in the contract, after discussions between farmers and the Cooperative, and that price is fixed throughout the implementation process of the contract. In addition to technical guidance, the company have engineers to supervise the cultivation process of farmers to guarantee the mango quality. Long Uyen Company also set up a mango collection station in Cao Lanh city, Dong Thap province to save on the transportation costs for both contract parties (survey results from the research team).

In the other case, the contract between the My Xuong Cooperative and the Hung Phong Company is a sales contract. Under the contract, the Hung Phong Company will purchase 10 tonnes of mangoes from the Cooperative, according to specifications and quality requirements. Specifically, the size of mango must be about 250-350 gram per unit. The Company also provides packing and labels for export. According to representatives from the Hung Phong Company, they have expanded their activities to trade in, and export mango products, which requires them to be careful in selecting products and choosing contract parties. The My Xuong Cooperative reports that they are responsible for working with farmers to ensure that they comply with the farming practices and standards required by the Company. The My Xuong Cooperative also harvests, collects and packages mangoes and makes a note of the harvesting time and delivery location for the company. However, because of changing quality requirements - from 250-350 gram per unit to 300-350 gram per unit without pre-notification – the Hung Phong Company purchased only about 50 percent of the contracted volume. Therefore, after the first delivery, the contract between the My Xuong Cooperative and the Hung Phong Company was discontinued (survey results from the research team).

5.2.4.2 Conflict resolution mechanisms

In both cases, risk-sharing mechanisms were not specifically mentioned in the contract. However, the Long Uyen Company has many activities that aim to reduce risks in mango production. According to Mr Phan Quoc Nam, the Director of Long Uyen Company, "We apply qualified farming practices in producing mango and we have technical staff to work directly with farmers as well as to supervise the production process." The company also helps the farmers to cope with the risk of pests, diseases and natural disasters, and to cover all costs related to testing the levels of pesticide residues in mango products before export. Specifically, the Long Uyen Company has committed to buy all mangoes that meet quality standards. If it does not do this, the Company will lose the deposit (VND270 million) to farmers. This deposit has increased the farmers' trust, avoiding conflict between the contract parties and ensuring the contract implementation (survey result 2018). In contrast, there is no risk-sharing mechanism in the case of the Hung Phong Company and the My Xuong Cooperative. The representative from the My Xuong Cooperative stated that the Hung Phong Company did not provide any support for mango farming practices because the contract covered only sales. The contract's terms and conditions focused only on mango quality, delivery time and payment method. However, the My Xuong Cooperative worked directly with farmers to ensure the quality of the mango (survey results from the research team).

Remarkably, in these two cases, a conflict resolution mechanism was mentioned: any dispute that occurred in the implementation of the contract would be resolved through negotiation and discussion to reduce the parties' losses. If the conflict could not be resolved through negotiation, the problems would be dealt with in accordance with the current legal regulations. In the case of the My Xuong Cooperative, the company changed the specified size of the mangos from 250-350g per unit to 300-350g per unit because the company had a limited market so they could not find other customers for the rest of the products. Therefore, the My Xuong Company had to find new customers for about 50 percent of the mango production volume (that were 250-300 gram per unit). After discussions, the Hung Phong Company agreed to share 50 percent of the loss due this contract violation (survey results from the research team).

5.2.4.3 Benefits for farmers and enterprises

Benefits for farmers

CF helps to increase the income of farmers: Mango farmers in Cao Lanh city often suffer from market price fluctuations and pressure from local traders, especially during harvest time (DARD Dong Thap 2018). However,

the purchase price was predetermined in the contract, avoiding market price fluctuations. In the case of the Long Uyen Company, the fixed price of mango was VND12,000/kg, while the average market price was only VND7,500/kg. Mr Nguyen Van Hoang, a member of the Tan Thuan Tay Cooperative, said, "The price is fixed and we do not worry about the market situation. We focus on following the technical guidance and taking care of our mango trees and mango products." From the collected data it was estimated that, with an average productivity of 10 ton/ha, CF farmers' revenue was much higher than that of non-CF farmers by about VND45 million per ha. However, mango producers must apply safe farming practice processes such as VietGAP and Global GAP to ensure mango quality for export, thereby reducing input costs. According to members of the Tan Thuan Tay Cooperative, by strictly following the technical instructions of the Long Uyen Company, they could reduce pesticide use by about 80 percent and fertiliser by around 20 percent. Therefore, the increase in income is due mainly to price increases and reduced production costs (survey results from the research team).

For the contract between the Hung Phong Company and the My Xuong Cooperative, the value did not amount to much compared with the total output of the whole Cooperative, so there was not so much impact on people's income. Total mango production was about 5,000 tonnes per year, of which Cat Chu mango accounts for 70 percent, and Cat Hoa Loc mango about 30 percent. The volume that the My Xuong Cooperative has signed up for with the Hung Phong Company is only 10 tonnes. It is difficult to collect information about the benefits and losses in the case of the My Xuong Company, so the research team cannot estimate these indicators (survey results from the research team).

CF allows farmers better access to technical guidance: The Long Uyen Company has developed a technical team to train farmers regularly, and to supervise them during the cultivation period. The results of the FGDs show that contracted farmers have also been supported in responding to the risks of pests, diseases and natural disasters, and to develop a mango production process to meet Global GAP standards. By applying a guided production process, mango productivity and quality were higher and met the requirements of many foreign markets such as that of Australia and the USA. In the case of the My Xuong Cooperative, the Cooperative took responsibility for instructing farmers in practices that would enable them to apply IPM (Integrated Pest Management) Vietnam standards and Good Agricultural Practices (VietGAP) and to provide information about harvesting time and delivery location to meet the product requirements of the Hung Phong Company. Farmers had opportunities to access both advanced technical processes in producing

mango, and market information, and to expand their market (survey results from the research team).

Benefits to enterprises

Developing stable and high-quality sources of material/products and increasing competitiveness in the international market: Mr Phan Quoc Nam, Director of the Long Uyen Company, confirmed that it was essential to develop a stable source of material for enterprises because they were always seeking material of the right quality for processing. Linking with farmers gives the Long Uyen Company a sufficient volume of high-quality mangoes for processing to serve domestic and foreign customers, contributing to increasing competitiveness in the market. Currently, the company's frozen mango products are exported to countries in the Asia-Pacific region, Australia - New Zealand, Europe and North America. For their part, the Hung Phong Company can buy qualified products for export to Australia, increasing their revenue and profit (survey results from the research team).

Reducing transportation costs and decreasing post-harvest losses: In order to reduce transportation costs and post-harvest losses, the Long Uyen Company has located a purchasing station in Cao Lanh city, from which it transfers the mango to processing locations in Tien Giang province. According to members of the Tan Thuan Tay Cooperative, mangoes are directly transported to the company after harvesting, leading to a reduction in the percentage of mango losses of about 10-15 percent (survey results from the research team). In addition, according to a survey from IPSARD (the Institute of Policy and Strategy for Agriculture and Rural Development) the average percentage of mango losses is about 15-30 percent due to the lack of links in transporting it among local traders, wholesalers and companies. For its part, the My Xuong Cooperative has been collecting, classifying, pre-processing and packing mangoes following the standards required. It can be seen that the Hung Phong Company has been able to save significant costs in terms of these processes if they buy mangoes from other local traders (survey results from the research team).

5.2.4.4 Factors determining the success/failure of contract farming

Through analysing case studies of contract farming in Dong Thap, the main factors affecting the success/failure of the contract are likely to include the capacity of enterprises, the performance of cooperatives, the market situation and the support of local authorities.

First, ***the capacity of enterprises plays an important role in setting and implementing contract farming***. DARD Dong Thap and the local authorities have indicated that enterprises have an important role in the application of contract farming, affecting its success or failure. The Long Uyen Company is a large mango processing company with diverse products and markets. The mango products of this company have been exported to many countries around the world. Hence, they have been paying close attention to developing their stable material zone (the zone that is most conducive to production). More importantly, the Long Uyen Company also have enough financial and human resources to support farmers in terms of technical guidance and supervision. Like the Loc Troi Group in the rice sector, they provide production inputs (fertilisers and pesticides), and assign technical staff to guide and monitor mango cultivation. In addition, the Long Uyen Company have also created trust with farmers through their strong commitment to buying mango production in all qualities, and advancing payment without interest. In contrast, the Hung Phong Company is a small enterprise, and the export market is quite limited, so it has faced difficulties in diversifying its market and finding new customers in the context of the changing requirements of existing ones.

The second factor is ***the activeness and initiative of cooperatives in organising and training farmers***. In both cases, the cooperatives work directly with farmers to guide them in applying VietGAP and Global GAP production processes for mango. Currently, the Tan Thuan Tay Cooperative has 43 hectares producing mango to VietGAP standards, the My Xuong Cooperative has 5 hectares producing mango to VietGAP standards and 20 hectares producing to meet Global GAP standards. The management boards of cooperatives help members to understand the terms of contracts, especially their benefits and duties. Cooperatives also represent farmers in negotiating the terms of contracts with the company and acting as a link between companies and farmers. In addition, the management board of the cooperative assist companies to monitor technical standards in the production process, to take note of the harvest time, to collect products and mobilise farmers' agreement with contract terms (survey results from the research team). DARD Dong Thap has identified the fact that enhancing the capacity of the leaders of cooperatives is key to promoting the application of contract farming in Dong Thap.

The third factor affecting CF implementation is ***the market situation of enterprises***. Contract farming can be conducted only if enterprises have stable markets for their products. The Long Uyen Company has many products that they process from mango, among which frozen mango products are highly competitive in both the domestic and export markets. Therefore, the company

need stable sources of mango for processing. However, the Hung Phong Company cannot find markets when importers change mango standards and they did not maintain contract farming for a second season. In fact, exporting mango is not their main business activity, making it difficult for them to diversify their market and customers (survey results from the research team).

Another important factor is ***the support of local government***. In Dong Thap, the governmental agencies are actively engaged in promoting the application of contract farming. DARD, along with other local authority representatives, plays an important role in supporting businesses and farmers in establishing contract farming and in promoting the link between farmers and enterprises. DARD also has a special role in establishing cooperatives and enhancing their performance (DARD Dong Thap 2018). For the sustainable development of the mango industry, Dong Thap province has been focusing on investing many resources, such as in technical infrastructure, and applying new scientific and technical advances to production. Post-harvest technology has been gradually applied (building brands, growing area codes and applying blockchain technology[5] to mango traceability), and organising exhibitions, fairs, and forums to connect farmers with businesses (Department of Agriculture and Rural Development Dong Thap 2018).

5.2.5. Contract farming in the vegetable sector

5.2.5.1 Contract farming arrangements

Vegetables have become an emerging export commodity in Vietnam with high growth rate of export value in recent years. The cultivation area of vegetables in Vietnam in 2017 had increased by over 200 percent compared with 1991. With tropical climate conditions, Vietnam can produce nearly 70 types of vegetables all year round (Thi and Loc 2016). Vegetable production has also increased at a high rate, due to the expansion of cultivation areas and productivity from the application of technologies new to production (greenhouses, net houses, etc.). In 2017, the area of vegetable cultivation covered about 910 thousand ha with production of nearly 16 million tonnes (General Statistics Office 2018).

With the advantage of natural conditions, Lam Dong is highly suitable for growing many high-quality cold vegetables, especially for export, such as potatoes, carrots, bell peppers and cauliflower. The plants grown in Lam Dong can be divided into three main groups: tubers (about 15 percent - including potatoes, onions and carrots); fruit vegetables (accounting for around 39 percent - types such as tomatoes, okra and bell peppers); leafy vegetables

5 A blockchain is an open, distributed database.

(accounting for 43 percent - with varieties like cabbage, lettuce and spinach) (JICA 2015). In 2017, Lam Dong had a cultivation area of about 60 thousand ha, with production of 1.87 million tonnes of vegetables, accounting for 75 percent of the vegetables in the Central Highland and 11.8 percent of the country's total (General Statistics Office 2018).

With the rapid development of vegetable production in recent years, links in this production in Lam Dong are also quite typical. They include informal types (verbal contracts) and formal ones (text contracts). The following are two common forms of contractual links in vegetable production in Lam Dong. Although sometimes stakeholders have not signed an official document, the contractual relationship has been quite clearly shaped with clear terms in respect of time, the type of goods, the quality, price, and the related responsibilities of each contractor (Department of Agriculture and Rural Development Lam Dong 2018).

Centralised model: In the centralised model in Lam Dong, enterprises sign contracts directly with each farmer. Depending on the type of contract that the enterprise has signed with them, farmers can receive support relating to some kinds of inputs for production, such as seed, fertilisers and pesticides (Department of Agriculture and Rural Development Lam Dong Lam Dong 2018). The Phong Thuy Agricultural Product Trade Manufacturing Co., Ltd (PTFARM) has a recent production contract with 30 farmers (accounting for a total of 70 hectares). According to the terms of this contract, PTFARM will specify which vegetables to cultivate and provide farmers with seed at a preferential price. PTFARM has committed to purchase all the products from the contracted farmers. However, farmers must follow the procedures set out by the company (survey results from the research team).

Informal model: The informal model has the participation of various stakeholders: farmers; cooperatives; traders; and enterprises. There are many variations in this model in the vegetable industry of Lam Dong. However, currently, the most popular and thriving in Lam Dong is the linkage model between farmers and cooperatives. Unlike a formal contract, which is a text contract, informal contracts are usually verbal agreements, and the parties are committed to each other through unwritten principles (DARD Lam Dong 2018). For example, the Tien Huy Cooperative (Duc Trong district) establishes a contractual cooperation relationship with associated farmers by developing a production plan for them, and issuing a record book to monitor farmers' production activities (survey results from the research team).

In principle, the terms in the informal contract with the Tien Huy Cooperative are the same as those in the PTFARM contract documents.

Based on a purchasing contract with supermarkets, chain stores, and so on, the Cooperative agrees a verbal contract with farmers, including specific requirements in types of vegetables, volume, and the required quality standards. Mr Vo Tien Huy, the Director of Tien Huy Cooperative, said that, "We list very detailed information for farmers in terms of types of vegetable, quality requirements and the harvest time. Although a formal contract is not signed with the farmers, we base the agreement on close relationships and trust to maintain it." The Tien Huy Cooperative also has a technical team to guide and supervise farmers' production activities to ensure vegetable quality and safety. Farmers must follow the Cooperative's production plan and guarantee product quality to meet the required standards (survey results from the research team).

5.2.5.2 Conflict resolution mechanisms

One of the essential objectives of signing or establishing contract farming is to ensure stable output markets and to share risks. Vegetables are products that are characterised by a short-term production cycle and there are diverse types. They are mainly consumed as fresh products with high requirements for quality and safety. Therefore, common risks in contract performance are often related to product safety and quality, and a few are related to price due to fluctuations in the market (Department of Agriculture and Rural Development Lam Dong 2018).

In most cases of contracts between farmers and enterprises or cooperatives the terms of risk-sharing mechanisms are set out quite simply, and they prioritise the flexibility of the parties when handling conflicts. Even in formal contracts there are only one or two sentences relating to this topic, as, for example, "If a dispute occurs, the two parties will negotiate to deal with it in accordance with the provisions of law". Moreover, there are absolutely no details about the parties' responsibilities when a specific conflict occurs. According to DARD Lam Dong and local authorities, most of the contract parties stop the contract when disputes occur instead of settling them by using the legal framework because the administrative procedures are complicated, they take a long time and are very costly.

In the cases of PTFARM and the Tien Huy Cooperative, both often develop their own rules to minimise possible conflicts. Based on the types of risks that might occur, enterprises and cooperatives can formulate non-contracting principles to deal with them.

First, the company and the cooperative often choose to cooperate and sign contracts with farmers already known to them, or with whom they have

experienced successful cooperation in the past. In addition, farmers need to hold at least a quality certificate for their products such as VietGAP. For instance, PTFARM currently maintains contracts with only 30 farmers; each contract is valid for two years. Similarly, the Tien Huy Cooperative also maintains a production plan with 11 Cooperative members and production contract with 30 other farmers. Mr.Vo Tien Huy, the Director of the Tien Huy Cooperative, reported that the Cooperative has worked with farmers over a long period, so they know each member well. In particular, if any farmer wants to join production with the Tien Huy Cooperative, they must undergo a "trial period" of two to three crops (one to two years) (survey results from the research team).

Second, companies and cooperatives are responsible for quality control as soon as farmers start production. In the past, enterprises often organised training courses for households one to three times per year, through various forms such as training, modelling, or by providing instructions for implementing the production process. Currently, most companies, as well as cooperatives in Lam Dong, have their own staff members who can provide regular technical guidance and quality control throughout the cultivation process, at least two or three times a month (Department of Agriculture and Rural Development Lam Dong 2018). For its part, PTFARM sends out supervisors two or three times per week. The representatives of PTFARM indicated that, besides quality control, working with farmers was a good way to create trust and maintain the contract in the long term. Moreover, some "stronger" methods are also applied to punish contract signees who breach the terms, such as contract suspension. In the case of the Tien Huy Cooperative, if any farmer does not meet the agreed product quality standards, the Cooperative can stop those farmers' production plans for one or two crop seasons (survey results from the research team).

Third, farmers are guaranteed benefits relating to selling prices and stable consumer markets. According to FGDs in Lam Dong, farmers confirmed that economic benefits were the most important incentives that attracted them to participate in contract farming. In the two case studies in Lam Dong, when the contract was signed or the partnership was established, most firms and cooperatives committed to purchase all of the farmers' products that conformed with all of the quality conditions, and the purchase price was close to the market price to ensure the economic benefit for farmers. The Tien Huy Cooperative set up a mechanism to determine the purchase price for each type of vegetable. For example, a fixed price for the whole crop season was applied for chili and baby cauliflower, while changes every week, based on market prices, were applied in the case of tomato. For their part, PTFARM, determined rates according to market value and closed prices about one week

before harvest. It represented a flexible mechanism to determine selling prices to minimise price disputes when contracts were being implemented (research results from the research team).

5.2.5.3 Benefits to farmers and enterprises

The case study of vegetable production in Lam Dong shows that participation in contract production presents many benefits to both farmers and businesses, as well as to cooperatives. According to the survey results, despite the lack of quantitative evidence, most of the participants (households, cooperatives, businesses and government officials) confirmed the economic benefits of contract participation. DARD Lam Dong and local authorities stated that the most significant economic benefits for contract farming stakeholders were being able to achieve a stable output and reducing the risk of market failure. Vegetables have generally been consumed as a fresh product a short time after harvest. If the product could not be sold to the company, the farmer has to sell it cheaply to traders, or even discard it because vegetables cannot be preserved for long periods. At the same time, it is also difficult for the company to sign contracts with other partners (exporters or supermarkets) without ensuring a stable, high-quality supply from farmers (survey results from the research team).

Farmers participating in contracts with both PTFARM and Tien Huy Cooperative receive technical support and input supply, and they are assured of selling their products at stable prices. Ms. Nguyen Thi Lan, a farmer who signed a contract with PTFARM, commented that although the investment capital for production was quite high, farmer households could quickly recover investment capital after only two or three crop seasons and had a steady income after that because of the contract. Moreover, farmers were also able to transfer to the use of modern technologies, and had access to new production techniques (survey results from the research team).For enterprises and cooperatives, signing farming contracts with farmers and cooperatives presents a significant benefit in respect of a reduction in investment costs, and stable and high-quality input sources. DARD Lam Dong, PTFARM and the Tien Huy Cooperative all confirmed the advantages for contract parties (survey results from the research team). First, in terms of investment costs, like many other agricultural production sectors, land and labour costs always account for a large proportion, especially in high-tech vegetable production. According to representatives from PTFARM, when signing contracts with cooperatives and farmers, the firm concentrates their capital to focus investment in varieties and some necessary inputs, as well as requirements for technical standards. By involving contract farming, cooperatives and firms can diversify their products and have a chance of reaching high-value markets (export or supermarkets).

Furthermore, contract farming helps enterprises to reduce transaction costs through intermediary partners like traders. Also significant, in the case of Lam Dong province as well as in many other regions, when participating in contract farming with farmers, businesses and cooperatives receive many incentives and support from local and state policies. Both PTFARM and Tien Huy Cooperative have received support for investment capital, equipment, and so on, from policies to promote production links in the value chain of Lam Dong province (research results from the research team).

5.2.5.4 Factors determining the success/failure of contract farming

In the case of the Lam Dong vegetable sector, factors affecting the success or failure of contract farming include endogenous factors from contracting stakeholders (enterprises, farmers, cooperatives, and public stakeholders such as government agencies, DARD, and so on), contract terms beneficial to the parties, and exogenous factors relating to markets and production conditions. Endogenous factors are stakeholders' capacity, such as financial capital as well as reputation, relationships, etc.

First, ***contractor capacity*** is one of the most important factors attracting the participation of farmers and in maintaining the sustainability of contract farming. According to DARD Lam Dong, the capacity of the enterprise and cooperatives in terms of technical and financial support has significantly contributed to the success of contract farming. For example, in the case of PTFARM, the company owns substantial investment capital to provide farmers with seed at a preferential price and to maintain technical staff, who support and monitor farmers to ensure that they are following the correct professional process. Alternatively, although Tien Huy Cooperative is unable to provide inputs to farmers in advance, they still own a team of highly qualified and professional technicians to guide and monitor farmers' performance. Also, most of the farmers interviewed in Lam Dong province agreed that the persuasion and connection skills of the leaders of cooperatives, and the organisation's reputation, encourage them to trust and maintain contracts over the long term (survey results from the research team).

Second, ***flexible and straightforward content in the contract*** increases the initiative for both companies and farmers in production planning. In terms of quality control, strict monitoring ensures that the interests of businesses and cooperatives are safeguarded, and helps farmers to comply with the technical requirements more easily. In the cases of both the Tien Huy Cooperative and PTFARM, whether in a paper contract or a verbal agreement, the contents of the crop type, quantity, cultivated area, quality standards, delivery time, and

unit prices are clearly and easily understood by farmers. Mr Vo Tien Huy, the Director of the Tien Huy Cooperative, said that "without high education levels, everything needs to be simple and clear when working with farmers". Farmers are also proactive in production plans. Usually from two to three weeks before the start of the new crop, farmers will inform PTFARM to build a production plan. In the case of the Tien Huy Cooperative, the contract time is about two months (survey results from the research team).

Third, ***the farmer's capacity and self-discipline*** are two of the critical factors driving the success or failure of contract farming. In previous studies, it has been shown that many agricultural contracts fail because farmers cannot meet the high technical requirements of enterprises (DARD Lam Dong 2018). For instance, from 2019, the Tien Huy Cooperative had to change their strategy from increasing the number of affiliated farmers to maintaining limited households that had the ability to meet the requirements of partners and cooperatives. At the same time, farmers who frequently failed to meet production targets could be suspended. Also, the Cooperative would observe and guide new farmers for a specified period (usually two to three crop seasons) before assigning them to their plan (survey results from the research team).

Fourth, ***the lack of officially signed contractual commitments***, that were recognised by the law, presented parties with legal risks when a conflict arose. In the informal contracts of the Tien Huy Cooperative, the contract parties did not have any signed documents that defined responsibilities, rights or obligations. Although there was a good relationship between the farmers and the cooperative, it was still challenging to eliminate risks when disputes or conflicts occurred that required legal intervention and resolution (survey results from the research team).

Last, but not least, there were ***external factors*** that also had a significant impact, particularly in causing the failure of an agreement, such as climate change, natural disasters, market fluctuations within unpredictable market demand or low market pressure, etc. For example, regarding the output market, all contract parties wish for a stable output market both in demand and in price. At the same time, with regard to the contractual relationship between farmers and businesses or cooperatives, this depends heavily on contractors' ability to find partners, consumer markets, or large consumption contracts. On a positive note, the success of PTFARM and Tien Huy Cooperative in maintaining contract farming owes much to a reasonably stable market: PTFARM has contracts to export to markets in other countries, and the Tien Huy Cooperative also has long-term agreements with supermarket chains.

5.2.6. Main findings in implementing contract farming in Vietnam

Following the analytical framework, the research team reviewed the factors that influenced the success or failure of contract farming according to economic, technical and social environment aspects (including the strength of markets for contracted output, the government's macro institutional policies, technical sophistication in production, and the attenuation of land ownership). Management practices were also examined (including the opportunistic behaviour of staff from agribusinesses, social contacts, knowledge of cultural values, and the role of leadership, the methods of setting up farm groups, the selection of participants for contracts, the enforcement of contract default and management of conflict resolution). Those factors will be considered for each model of contract farming in the following Table. Furthermore, the investigation of both success and failure in contract farming helps to understand the extent to which those factors might affect the success/failure of each model of contract farming. In particular, the successful cases are expected to show how contract partners can overcome the existing macro and institutional constraints on contract development. The factors influencing success and failure appear in the Table below:

Table 5.6: Key factors supporting the success of contract farming in Vietnam

Company	Farmer	Cooperative	Public stakeholder (state government, DARD, etc.)
- **Supports farmers with both technical guidance and inputs to advance production (fertilisers, pesticides, high-quality seed)** - **Directly supervises and monitors farmers' rice practices to ensure rice of good quality** - **The commitment to buy all of the product, ensuring a higher profit for farmers** - **Having a stable consumer market** - **Having significant financial capacity**	- Have good capacity (land, knowledge, skills, etc.) to comply with the company's standard requirements - Strictly follow the production plan set by the company / cooperative	- Supports farmers in both technical guidance and inputs to advance production (fertilisers, pesticides, high-quality seed) - Having active leaders with a high capacity in terms of management - Having a high reputation with farmers - Having a good relationship with other stakeholders, such as enterprises, local government, etc. to find consumer markets	- Strong support for other stakeholders, such as help to access land and credit, build farmer organisations, etc. - Promotion of successful models, and the benefits of participating in contract farming - Actively participate in contract signing and dispute resolution

Source: Survey results from the research team

Table 5.7: Key factors contributing to unsuccessful contract farming in Vietnam

Company	Farmer	Cooperative	Public stakeholder (state government, DARD, etc.)
Endogenous factors			
- **Having poor financial capacity** - **No support or no risk-sharing mechanism with farmers** - **High requirements without support or guidelines**	- Small-scale - Lack of knowledge about the law - Unsustainable production habits (lack of discipline, etc.) - Having inadequate knowledge and abilities to apply new techniques	- Lack of skills and knowledge about the market and management - Having poor financial capacity - Lack of internal solidarity	- Lack of support for farmers and private stakeholders
Exogenous factors			
- **High requirements in terms of technical issues from market stakeholders (standards, technical barriers, etc.)** - **Natural risks** - **Unpredictable market demand and low market pressure** - **Lack of market information**			

Source: Survey results from the research team

5.2.7. Lessons learned to ensure the success of contract farming in Vietnam

By analysing the six cases and assessing the factors that lead to the success or failure of contract farming in Vietnam, the research team identified some lessons to be learned in order to promote the application of contract farming in this and other countries.

Clear and simple terms in the contract with the terms of risk-sharing and conflict resolution mechanism included. The success of contract farming in the Loc Troi Group model shows that farmers prefer indicators that can be monitored and measured for technical standards of contract produce, and therefore enterprises should not agree too many kinds of contract output at various price levels. In addition to the support of the cooperatives/farmer groups, the consensus among farmers relating to the terms of contracts often come through open and participatory discussion between sponsors, cooperative leaders and farmers. This process takes time but this is the only way to make farmers properly aware of the contract benefits, thus supporting the sustainable implementation of contract farming.

Selecting ***potential private partners*** with enough capacity in terms of financial and technical support is important. The evidence from successful cases proves the importance of the private sector in setting up and applying contract farming in the agriculture sector. However, providing qualified inputs, supervising service and ensuring farmers' income are considered to be key factors determining the success of the contract. Hence, enterprises participating in contract farming should consider their own capacity in terms of supplying input materials, technical guidance and monitoring mechanisms before joining in contract farming models. Improving the performance of farmers' organisations, such as cooperatives and farmer groups, to assume the functions of supporting both the enterprises and farmers is crucial. Cooperatives play an important role in managing and organising farmers and in sharing good practices with their members. In addition, cooperatives can support contractors in terms of monitoring technical standards in the production process, coordinating the harvest schedule and delivering contract output, and achieving consensus among farmers on the terms of the contract. Therefore, management fees for those activities need to be taken into account when the contract relationship with farmers is being implemented.

The long-term commitment of contractors should be established, especially in the centralised model, because contract farmers in this model often need to make a high basic investment in the infrastructure for production. Therefore, the most important factor for contract success is the long-term commitment of enterprises. Obviously, long-term investment also requires enterprises to prepare well for land use planning for the input-supply zone and the selection of appropriate farmers. Similar to the multipartite model, contract success depends strongly on the ability of sponsors in terms of market outlets and operation efficiency. Often, the most successful cases in the centralised model are going to involve enterprises that have their own brand name in marketing channels.

Support of DARD and local authorities in facilitating the contract between enterprises and small farmers is necessary. It is recognised that DARDs can support the establishment of cooperatives and promote market links between enterprises and cooperatives/farmer groups. Furthermore, enterprises are more willing to initiate contract farming in the areas where DARDs and local governments provide active support in terms of the dissemination of contract information and extension services. In particular, the support of DARDs and local governments are crucial in persuading small farmers to transform their crop structure from subsistence, low-value but low-risk crops, to more commercial, high-value but high-risk crops such as temperate and "safety"

vegetables. It is necessary to have supporting policies from government in terms of finance sources with preferential interest rates, extension services and land accumulation. Many enterprises want to develop contract farming models in the agriculture sector but not all of them have advantages in producing inputs, processing, trading and exporting. Therefore, to promote the development of contract farming in the agriculture sector, significant policies should be developed to support the private sector as well as to reduce production risks.

5.3. Conclusions and policy recommendations

5.3.1. Summary of the main findings

This review of contract farming and supporting policies, as well as the in-depth analysis of six cases, reconfirms the proposition that "one size cannot fit all": each type of contract model is appropriate only for certain products, certain locations and/or certain types of farmers. It has been shown that the multipartite model is likely to be more appropriate for small farmers, who cultivate crops with high risks and requirements for labelling and special marketing channels (for example, safety vegetables and specific varieties of rice). The centralised model often engages large-scale enterprises, particularly foreign and joint-venture companies, and farmers who are better off because contract farmers in this model often need to make a high basic investment in the infrastructure for production. Usually, the centralised model is appropriate for perennial crops or other agriculture products with a high requirement for basic investment. The nucleus estate model has a special history in Vietnam, in which sponsors often used to be state-owned farms and the land has been equitized and recently relocated under the management of farmers. Contract farmers in the nucleus estate model are the previous worker farmers in the state-owned farms or farmers adjacent to the sponsors' land. Also, due to historical factors surrounding state-owned farms, which are often located in hilly and mountainous areas, this contract is often used for perennial crops. The intermediary and informal models are based on verbal contracts or trust among various types of contract partner. This type of contract often provides market access for farmers supplying normal agricultural products, which are often characterised by unstable market outlets and prices. The existence of intermediary and informal models reflects the fact that formal contract farming is not always necessary for all types of agricultural products, locations and farmers.

Through six cases of contract farming, and the results of discussion with government officers and farmer groups, the research team also discovered that Decision 80, Decree 98 (Decision 63 before) have played a positive

role in initiating and promoting contract farming and collective modes of agricultural production and sale. Particularly DARDs and local governments have provided significant support for the establishment of contract farming. However, government interventions should be limited only to the provision of certain incentives, information and technical support for contract farming: its success and sustainability often also depend strongly on the governance of the contract relationship between contract partners. Otherwise, too much government intervention can create market distortion and disguise incentives for the efficient and effective operation of contract farming. Lessons from six cases show that the success of contract farming (particularly for sponsors) depends on the following factors:

- The efficiency of enterprises in terms of financial support, technical support and monitoring
- The good management of technical and procurement staff
- Strong commitment and investment from enterprises
- Well-organised and managed CF farmer groups
- Open and participatory discussion with farmers about the terms of the contract
- Mechanisms for risk-sharing and conflict resolution
- Simple contract formats, terms and conditions
- A consideration of the seasonal characteristics of products and markets to establish contract prices
- The support of local authorities.

Furthermore, empirical evidence that emerged from the six cases shows that the multipartite model has the greatest potential to engage and benefit small-scale farmers in contract farming. The major advantages of the multipartite model are located in its facilitation for agricultural structural change, particularly for small farmers. Therefore, it creates a good chance to engage and benefit the small farmers. However, with the existing lack of access to technical information, finance and markets, small-scale farmers need strong support from the government in terms of extension services, inputs and credit provision. Otherwise, they often refuse to participate in collective sales and production or in contract farming in the multipartite model.

5.3.2. Recommendations

In order to promote contract farming application in Vietnam's agriculture sector, some potential issues should be addressed, including improving the business and legal environment, and enhancing the capacity of farmer organisations.

- A more favourable business environment is needed to encourage both domestic and foreign enterprises to invest in the agriculture business. More enterprises will create a competitive environment to help extend agricultural production.
- Improvements are needed to the legal environment, particularly Articles on punishments for violations to enhance the enforcement and performance of contracts.
- Cooperatives and other farmers' organisations should be developed to facilitate future links between enterprises and farmers.
- A favourable environment should be created for enterprises and farmers' cooperatives to better link and increase product quality with a view to establishing a brand name for agricultural products.

In addition, the government could implement facilitation activities to encourage contract farming application in Vietnam. Actions could involve:

- Implementing the Decree 98/2018/ND-CP on incentive policies to develop links in producing and consuming agricultural products. Support policies could be developed on land, tax, credit, training, insurance, trade promotion to attract enterprises, and cooperatives and farmers participating in contract farming.
- Allocation of state and local government budgets to implement policies to support links.
- Linkage programmes could be developed in each province to connect enterprises, cooperatives and farmers.
- Guidelines could be developed relating to the application of contract farming for enterprises, cooperatives and farmers, including: (i) drafting contract terms and conditions; and (ii) adding conflict resolution mechanisms to the contract.
- Training could be provided in technological and managerial skills at all levels, if sponsors do not provide those services.
- Research studies could be initiated and facilitated, in collaboration and consultation with the sponsors, into the products under contract. State research institutes could particularly benefit smaller projects, especially those managed by individual developers who cannot economically sustain their own plant breeding programmes, etc.

The provision of agricultural extension to projects that do not employ their own field staff. As noted elsewhere, large-scale contract farming firms are unlikely to use government extension services because they require field staff with detailed knowledge of the particular product and an ability to respond to problems immediately. However, smaller developers often cannot

afford the luxury of their own extension service and thus need to make use of government services. Collaboration between the individual developers and the government extension service to ensure that inputs are used as recommended by the sponsors is important. The possibility that extension workers might regard activities in support of a contract farming venture as beyond their normal responsibilities, and demand payment from the sponsor, also needs to be addressed. If a developer requires a field officer from a government agency, then a full-time secondment for the duration of the season could be negotiated.

5.3.3. Limitations of the study

The study did encounter some limitations. First, the selected case studies focused only on some types of contract and on certain crop sectors, including rice, vegetables and mango. The application of contract farming in other sectors, such as livestock, fisheries and forestry, has not been covered in this study. That limitation also led to constraints in studying some models of contract farming, such as the nucleus estate model, which are not commonly applied for the crops chosen for this study in Vietnam.

Second, the study identified the factors affecting the success and failure of contract farming but the effect of these factors was not measured. The main reason is that this study has applied mainly qualitative methods to analyse progress in the implementation of contract farming. However, it is necessary to estimate the impact of these key factors, to identify those that have the greatest potential to affect the application of contract farming, in order to properly identify the lessons learned and to propose recommendations for Vietnam and other countries.

5.3.4. Future research direction and topics

Based on the limitations of this study, and the new trends in developing the agriculture sector, the research team proposes some future research directions and topics in contract farming:

- A study to enhance inclusive contract farming application in the livestock, fisheries and forestry sectors
- A study to identify the role of contract farming in promoting inclusive development and the gender balance of smallholders in the agriculture sector
- The application of contract farming in the context of FDI (foreign direct investment) and in /developing regional links in ASEAN and the Mekong region.

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Annex: Summary of the six cases of contract farming in Vietnam

Issues	Rice sector		Mango sector		Vegetable sector	
	Successful case	**Failed case**	**Successful case**	**Failed case**	**Successful case**	**Successful case**
Main characteristic of sector	- Strategic export commodity in Vietnam - Short production cycle (3 months) - Small-scale farmers - CF has been applied in the rice sector since 1990s - CF in the rice sector is mostly multipartite and subcontracted (informal contract) models		- Emerging export commodity in Vietnam - Perennial fruits, mostly in the Mekong River Delta - Are consumed in the domestic market and exported - CF has been applied in the mango sector in recent years, mostly sales contracts		- Emerging export commodity in Vietnam - Many types of vegetables: leaves, fruit vegetables and roots - Short production cycle	
Type of CF	Multipartite	Multipartite	Multipartite	Sales contracts	Centralised model	Informal model
Terms of contract	**Loc Troi Group:** - Provides seed, fertilisers, and pesticides at a discounted price without interest for 120 days. - Provides guidance in farming techniques, post-harvest services (transportation, storage). - Ensures the output at market prices but farmers and the buyers themselves decide on their selling price. **Farmers** Commit to farm the same seed. - Apply the same production processes. - Perform similar services through the enterprise. **Price mechanism**: Negotiation but higher than the market price -VND500/kg paddy.	**Thinh Phu Agrimex:** - Farmers receive VND10 million/ha in advance with preferential interest rates (7 percent/year). - Buy paddy and pay for it all after each crop season. **Tan Phu A1 cooperatives** - Select farmers - Connect farmers with the company. - Supply inputs for production: fertilisers, pesticides, etc. - Collect paddy for the company. **Farmers** Produce paddy in a fixed rice variety (OM6976). **Price mechanism**: Negotiating 5 days before harvesting.	**Long Uyen Co. Ltd** - Pays farmers in advance VND1 million/1.000 m2 (no interest on loans). - Instructs and monitors chemical application. - Purchases mango that meets quality standards. **Tan Thuan Tay cooperatives** - Reps. for farmers (co-op members) to sign the contract with the company. **Farmers** - Production strictly follows the regulations for chemical use on the instruction of the company. - Completes farmer diary. **Price mechanism**: Fixed price at VND12.000/kg (2018).	**Hung Phong Co. Ltd** - Purchases mango that complies with the specification and quality requirements. - Provides packaging, labels. - Exports **My Xuong Cooperative** - Complies with the farming practices and standards required by the enterprise. - Collection, pre-processing and packaging with specific requirements on quality, quantity, time, and delivery location. - Provides information on production, harvesting time, delivery location etc.	**Phong Thuy Company:** - Provides seed at preferential prices. - Follows and monitors the chemical application (2-3 times/ week). - Order purchasing type of vegetable. - Responsible for quality inspection and delivery. **Farmers** - Inform availability to start the new crop before 2-3 weeks. - Plant vegetables following technical instructions. **Price mechanism**: Price will be negotiated 1 week before harvesting.	**Tien Huy Cooperative** - Guides and supervises farmers' production activities to ensure proper technical procedures and safety. - Appoints members to grow vegs based on supermarket orders. **Farmers** - Register the cultivated area about 2 months in advance. - Have a trial period of 2-3 crop seasons (1-2 years) before becoming a member of the co-op. **Price mechanism**: Price with farmers will be fixed during the season or every 1 week for each vegetable.

Issues	Rice sector		Mango sector		Vegetable sector	
	Successful case	**Failed case**	**Successful case**	**Failed case**	**Successful case**	**Successful case**
Partners	Loc Troi Group, An Giang's DARD, farmers, and farmer organisations (FOs)	Thinh Phu Corporation, Tan Phu A1 cooperatives, Vietcombank Chau Doc and farmers	Long Uyen Co. Ltd, Tan Thuan Tay Cooperative and its members, People's Committee of Tan Thuan Tay commune	Hung Phong Co. Ltd; My Xuong Cooperative and its members	Phong Thuy Agricultural Product Trade Manufacturing Co., Ltd, and farmers	Tien Huy Cooperative, cooperative members, and farmers
Conflict resolution mechanisms	- Technical staff directly guide and supervise farmers, a good way to share risk. - Ensure paddy bought from farmers even in cases of poor quality with negotiated price.	- No risk-sharing or conflict resolution mechanisms.	- Activities to reduce risks in production. - Commits to buy all mangoes.	- No conflict resolution mechanisms. - After discussion, the company shared 50% of loss due to contract violations.	- No conflict resolution mechanism.	N. A
Benefit of the contract	- Increased farmers' income and paddy quality, expanded the number of farmers joining in the model. - Improve production techniques. - Stable paddy supply for companies.	- In the first season, farmers' income increased. - In the second season, because of bad weather, paddy quality did not meet the company's requirement; company purchases came from about 20% of contracted area.	- Increased farmers' income. - Improved mango quality.	N. A	- Farmers earn higher revenues, and have income stability. - Long-term, contract not broken or interrupted.	- Farmers earn higher revenues, and have income stability. - Long-term and sustainable cooperation without any signed contract. - Attracting other farmers to join.

Issues	Rice sector		Mango sector		Vegetable sector	
	Successful case	**Failed case**	**Successful case**	**Failed case**	**Successful case**	**Successful case**
Success/ failure factors, limitations	**Company** - Supports farmers in both technical guidance and production using advanced inputs (fertiliser, pesticide, high-quality seed). - Directly supervises and monitors farmers' rice practices to ensure the rice quality. - Buys all paddy at a higher price, ensuring higher profit for farmers. **Farmers** - Correctly apply the (guided) farming practices. **Others** - The participation of DARD and commune authorities enhances the commitment between farmers and the company. - Active participation of farmer organisations in links with the company and supervising farmers.	**Company** - High-quality requirements while it does not provide technical staff and monitoring mechanisms. - No direct contract signed with farmers (signed with cooperative instead). - No risk-sharing mechanisms between company and cooperatives/ farmers. **Farmer** - Lack of strong commitment to the company, farmers sell paddy to traders when company refused to buy paddy from some farmers. - Pressure to pay back the credit and loose commitment. **Others** - The dominant role of traders in the area. - Lack of participation of local authorities in guaranteeing the commitments.	**Company** - Company provides technical instruction for the cooperative and farmers. - Company's technical engineers worked with farmers to instruct and monitor. - Payment in advance without interest for farmers. - The company purchased all the qualified products at a higher price. **Farmers** Apply instructions re farming practices correctly. **Local authorities** Clear mechanism to deal with contract conflicts with local authority's participation.	**Company** - Changes the quality requirements (size of mango changed from 250-350g to 300-350g/piece) without notification. - The company has limited markets so they cannot find other customers for the rest of the products. - Does not monitor farm production. - Does not provide risk sharing/ contract violation mechanism in the contract. **Cooperatives** Lack of insurance/ risk mitigation mechanisms with signed contract.	**Company** - The company provides inputs (seed, fertilisers, etc.) and technical guidance. - Flexible and straightforward content in the contract increases initiative for both companies and farmers in production planning. - Strict monitoring of the quality of the purchasing partner and the company. - A long-term contract (re-signed every two years) with farmer. - Stable consumption market. **Farmer** - Has good capacity to comply with the company's standard requirements. - Strictly follows the production plan set by the company.	**Cooperative** - The cooperatives have long-term contracts with stable consumption partners (supermarkets, processing firms, etc.). - Cooperative leaders have persuasion and connection skills. - Strict monitoring of the quality of the purchasing partner. - Long-term trust between the cooperative and farmers. - Sharing risk of price variation (benefit-share based on sale prices). **Farmer** - Has good capacity to comply with the company's standard requirements. - Farmers strictly follow the production plan set by the cooperative.

Chapter 6
Regional Synthesis of Contract Farming Practices and Lessons Learned

Lonn Pichdara and Chem Phalla

6.1. Background to the Case Studies

In collaboration with the Mekong riparian countries, China's government initiated the Mekong-Lancang Cooperation (MLC) framework in 2012. Since then, the MLC has promoted concrete projects to bolster the region's economic and social development. In expecting to narrow-down the development gap among the Mekong countries, the MLC supports the ASEAN community to promote sustainable development. The framework for MLC's implementation is boosting regional cooperation. It follows a multiple-participation and project-oriented model for building a community with a future of peace and shared prosperity among Mekong countries. In addition to other sectors, MLC focuses on agricultural development, which supports food security in the region and globally.

With the financial support of MLC's special fund, the Cambodia Development Resource Institute (CDRI), as the project leader, has collaborated with researchers from four countries - Cambodia, China, Thailand and Vietnam - to conduct four case studies. The specific research partners include China Agriculture University in China, Kasetsart University in Thailand, and the Institute of Policy and Strategy for Agriculture and Rural Development of the Ministry of Agriculture and Rural Development in Vietnam. Each partner has conducted a case study in their respective countries.

The agricultural sector provides an excellent opportunity for transformation from livelihood subsistence to an improved quality suitable for commercial export. The government encourages employment generation and market access for rural smallholders through contract farming, which proposes rules for allocating three main elements: benefits; risks; and decision-making. Thus, contract production must reflects the interests, threats to, and decision-making powers of buyers and sellers. Contract farming is a means to ensure that the sellers (farmers) gain certain benefits and that the buyers (companies) can purchase the goods at an acceptable price. The nature of this study on contract farming has focused on the following characteristics:

- The organisational structure of the contract is an ordered framework that establishes the relationship between buyers and sellers.
- The operation of the contract is expressed through different mechanisms. These mechanisms allocate benefits, risks and decision-making rights between buyers and sellers.
- The facilities and conditions of the contract only develop based on specific facilities and needs. The forms of contract production, the facilities, and development conditions will differ.

Through contract farming, smallholders are to be commercialised or become entrepreneurial, adopting improved farm technology, including input use and postharvest technology, to meet agribusiness standards, including those imposed by exporters or processors (Reardon *et al*. 2019). However, promoting sustainable farm commercialisation is challenging, and it requires active participation from the private sector, the government and farmers (Singh 2005). From a theoretical point of view, contract farming: (1) provides a means to solve the problems smallholders face in accessing agricultural inputs, when state extension services are inadequate; and (2) is expected to be a useful tool to deal with the price fluctuations of agricultural products. However, given its expected roles, contract farming remains far from complete.

The agricultural value chain is fragmented and the markets for agricultural produce are still unreliable in terms of price and demand. Smallholders have been less powerful than the contracting companies or buyers in terms of bargaining power and the benefits generated from the contract farming scheme. Linked to such problems, collective action among smallholders through the establishment of agricultural cooperatives – a vital mechanism supporting contract farming – is not sustainable or prosperous because of a lack of funding and limited capacity among leading farmers.

Each country's case study asked the same questions to gain an insight into the issues of contract farming:

- What are the different types of contract farming?
- What are the lessons learned in respect of conflict resolution from practical experiences in contract farming?
- Why do some specific contract arrangements provide more benefits to farmers than others?
- What are the factors that determine success or failure in the implementation of contract farming?

6.2. Synthesis of key findings from Cambodia, China, Thailand and Vietnam

6.2.1. Types of contract farming arrangement

When the governments initiated contract farming, different types of contractual arrangements emerged. Every type plays a different role in terms of the economies of scale. The evidence from the case studies from the four countries suggests that there are up to six types of contract farming currently in practice. Cambodia has quite a long experience in contract farming, but implementation in this country includes only a formal and informal contract. China implements centralised, intermediary and informal model agreements. Thailand has six types: the nucleus estate; centralised; multipartite; intermediary; informal; and a combination of intermediary and nucleus estate models. Vietnam arranges contract farming in five categories: multipartite; centralised; nucleus estate; intermediary; and informal models. The research found that informal, formal, and centralised contractual arrangements are standard in the Mekong region and in China.

To achieve economies of scale, the centralised model involves big company contracts agreed directly with farmers' organisations called agriculture cooperatives. Smallholders join the agriculture cooperatives to strengthen their bargaining power. At the same time, the company is also willing to form a centralised contract farming agreement through the agriculture cooperative to ensure a larger scale in production for its processing and exports. In the informal arrangements, the company agrees a contract with farmers verbally, without the involvement of any third party to certify their legal status: informal agreements are thus based on social trust. The formal contract is the most favourable because it involves a third party, such as the local authority and government agencies. The formal agreement is also a better model for conflict resolution, and each party in the contract is promised benefits.

Table 6.1: Comparison of different types of contract farming

Countries	Types	Descriptions
Cambodia	1. Informal contract	A written or verbal agreement that companies sign directly with agriculture cooperatives[1].
	2. Formal contract	A written agreement that companies sign directly with agriculture cooperatives with an assurance from a third party[2].

1 Farmers, including smallholders, join contract farming agreements through agriculture cooperatives.

2 The third party is a provincial department of agriculture, forestry and fisheries.

Countries	Types	Descriptions
China	1. Centralised	The company signs the contract directly with farmers.
	2. Intermediary	Companies no longer directly sign a contract with scattered farmers, but with agriculture cooperatives – a new type of farmers' professional, cooperative, economic organisation.
	3. Informal	Companies sign contracts on a verbal basis with farmers.
Thailand	1. Nucleus estate	The company manages its large-scale plantation with the participation of individual families of farmers or agriculture cooperatives.
	2. Centralised	The company directly purchases crops from farmers or farmer groups (agriculture cooperatives).
	3. Multipartite	The multipartite model involves different farmer organisations jointly participating in contract farming with the companies (or buyers).
	4. Intermediary	The companies purchase crops from agriculture cooperatives (producer organisations) who have their own informal or formal arrangements with individual farmers.
	5. Informal	The individual company agrees informal contracts with members of farmer groups who have had CF experience with the company for an extended period.
	6. Hybrid: a combination of Intermediary and Nucleus Estate	The hybrid model has characteristics of the intermediary model in terms of a direct contract between a farmer organisation and a contracting company. It has attributes of the nucleus estate model to manage the company's and farmers' plantation.
Vietnam	1. Multipartite	The multipartite model involves several statutory bodies and private sector companies jointly participating with farmers, such as the government—the government coordinates between producers and buyers. This type has a separate organisation responsible for credit provision.
	2. Centralised	A centralised processing-marketing model is a two-part contract between a company (business) and farmers.
	3. Nucleus Estate	The nucleus estate model encompasses the previously state-owned farms that have been reallocated to worker farmers, and adjacent farmers have also been persuaded to participate.
	4. Intermediary	The intermediary type of contract farming is a verbal agreement based on mutual trust between the company and farmers (the parties).

6.2.2. Lessons learned for conflict resolution

The study draws out some lessons to be learned from the four case studies. The contract farming project results in fewer conflicts and better outcomes if the contract provides for good benefit-sharing and the building of trust among companies and farmers. In practice, smallholders become involved in contract farming through joining agriculture cooperatives. The agricultural cooperatives coordinate contractual arrangements with the companies. The agriculture cooperatives established and joined by a local authority - a third party - can help to build social trust in contract farming projects. The third-party, such as local authorities and government agencies (provincial and national levels), helps to establish the legal binding of the contract.

The local authorities assist in contract arrangements by identifying contract farming farmer-members who comply with selection criteria, such as land and labour availability. The local authority also plays a role in ensuring the company delivers the contract conditions, such as providing seed and technical assistance relating to on-farm management.

Evidence from the four countries shows that the companies are more willing to sign contracts with agriculture cooperatives rather than individual farmers. Therefore, the formation of the agriculture cooperatives, with the full support of local authorities, would help smallholders to gain more contract farming benefits.

Contract farming contributes to food safety through its strict quality control systems. Both agriculture cooperatives and companies gain consumer trust through the company's quality standards for export. Some companies contract agriculture cooperatives to purchase, clean, grade and pack the products from farmers. This way, companies can reduce transactional costs.

The companies involved in contract farming face many challenges. One of them is that some farmers had been side-selling their products during times when the market prices were high. Moreover, companies also faced the risk of natural disasters and disease. Smallholders' primary challenges revolved around a small land size, and lack of investment for inputs and postharvest activities. The formation of agriculture cooperatives could help smallholders to access new markets and information for production.

But companies play essential roles in contract farming. Experience shows that a company's long-term commitment to local farmers is crucial in building social trust with them and with agriculture cooperatives. To improve production, farmers need to properly prepare and level their land, and that

needs investment. The commitment of the company to long-term investment would help local farmers. Many cases in Vietnam show that a centralised contract farming model provides long-term financing to properly prepare land use plans for the input-supply zone and to select appropriate farmers. As in the multipartite model, contract success strongly depends on the ability of sponsors in terms of market outlets and operation efficiencies. Often, the most successful cases in the centralised model involve enterprises whose brand names are recognised in marketing channels.

Table 6.2, below, illustrates some experiences and lessons learned in respect of the conflict resolution mechanisms used in contract farming, and the factors that contribute to fewer conflicts and better outcomes for contract farming projects.

Table 6.2: Conflict resolution: lessons learned from Cambodia, China, Thailand and Vietnam

Countries	Conflict resolution mechanisms	Other mechanisms that contribute to fewer conflicts in contract farming projects
Cambodia	• The contract sets terms and conditions for farmers, e.g., if farmers violate the agreement, they must pay back to the company twice their amount. If a problem occurs, farmers or the company could bring the case to the commune and village chiefs to seek a solution. • The company has the right to investigate in order to understand the real problem. • The contract sets a conflict resolution mechanism based on negotiation and consultation: - First, the company and farmers try to resolve any issues directly; - Second, if those parties cannot resolve their disagreements, they must bring them to the Provincial Department of Agriculture, Forestry and Fisheries (PDAFF); - Finally, if the PDAFF cannot find a solution, it goes to the contract farming committee at the national level. There, both parties must accept the committee decision.	• Farmers join contract farming through agriculture cooperatives. This helps smallholders to increase their bargaining power. • Companies are willing to agree contract farming arrangements with agriculture cooperatives to ensure the quantity and quality of produce at harvest time. • Agriculture cooperatives form groups of farmers to join a contract farming agreement. • Companies work with agriculture cooperatives to form a contract and provide support for increasing production. • Third-parties, such as local authorities or provincial departments of agriculture, forestry and fisheries, can witness the companies and the farmers implementing the agreed terms and conditions set out in the agreement. • NGOs and other international organisations play an essential role in promoting contract farming by strengthening farmers' capacity at the farm level and providing financial support.

Countries	Conflict resolution mechanisms	Other mechanisms that contribute to fewer conflicts in contract farming projects
China	• If the company breaches a contract, farmers can quit the cooperative unconditionally. • If a farmer breaches the terms of a contract, the company confiscates the farmer's membership fee of CNY200 and cancels his/her membership. • If an enterprise signs a contract with a cooperative and a breach of contract occurs, the enterprise must deal with the breach. But if an enterprise signs a contract with a farmer, the enterprise has to deal with the breach of contract flexibly. • If farmers breach the contract, the company has two ways to handle it - by imposing a light penalty or by not dealing with the breach of contract at all (i.e. by not imposing any penalty). • The contracts lack clauses regarding the agreement's liability and handling; the contracts require binding force and a way to resolve a breach of contract.	• Contract farming based on local practices and shaped by the market has the characteristics of local rule in the contract signing, contract execution, and the handling of breach of contract. • Cultivating local companies and agriculture cooperatives is of great significance to the development of contract farming. • The government's supporting role in building the brands of agricultural products, information services, and the construction of the market environment is essential. • Improving the self-organisation ability of farmers will help to promote the healthy development of contract farming. • Companies are willing to sign contracts with cooperatives or farmers outlining a particular production scale, thereby reducing transaction costs.
Thailand	• Conflict occurs mostly regarding the quality of products. When the quality of the products is lower than the agreement, the company reduces the price. • The companies have never sued farmers. For alternative dispute resolution mechanisms, the contractors organise a face-to-face meeting between the contractors and farmers to inform them about the market and production situation and to negotiate prices. • To resolve or reduce conflicts, the company provides extension staff to visit fields more often and clarify the rice department's information input. • The government can assist in a conflict resolution mechanism to solve problems. The heads of farmer groups meet the company to increase the guaranteed prices for some grades, but the company resists. The local and provincial authorities act as intermediaries to openly coordinate both parties to discuss production and operation costs. Both parties can come up with a satisfactory price.	• Companies decide which farmers should join the contract farming agreement depending on their land suitability, such as land location, access to irrigation, sufficient labour, good roads, etc. • Longer-term investments from the companies to farmers have built trust. • Price incentives for high-quality grades can motivate farmers to produce high-quality products. • Close monitoring and timely response to resolve problems from the extension services can help to reduce misuse/ diversion of inputs in production methods and build trust among both parties. • Governments and universities have a crucial role in providing infrastructure, supporting R & D, and transferring knowledge and technology. • Firms pay farmers in cash promptly, and in the case of market risks, firms have cash liquidity to fulfil promises and build trust with farmers. • ICT technology improves communication and information sharing.

Countries	Conflict resolution mechanisms	Other mechanisms that contribute to fewer conflicts in contract farming projects
Vietnam	• When product quality does not meet enterprises' requirements or market prices, The participating parties try to discuss ways of minimising economic loss. In cases that remain unresolved, despite negotiation, any party can seek support from taking the matter to court using the relevant laws. • Contract parties usually stop implementing the contract instead of negotiating or settling through the legal system because of the high costs and the length of time involved. • To reduce conflict, the company assigns technical staff to directly guide and supervise crop growing.	• There is a need for clear and simple terms in the contract regarding risk-sharing and conflict resolution mechanisms. • Selecting potential private partners with enough capacity in terms of financial and technical support: the evidence from successful cases proves the private sector's importance in setting up and applying contract farming in the agriculture sector. • Contractors' long-term commitment should be established, especially in the centralised model, because contract farmers in this model often need to make a substantial investment in production infrastructure. Therefore, the essential factor for contract success is the long-term commitment of enterprises. • The support of DARD and local authorities in facilitating the contract between enterprises and small farmers.

6.2.3. Benefits of Contract Farming

As we discuss above, formal arrangements have gained more trust among farmers than informal ones. This is because of the involvement of third parties, which could be government agencies, which have helped to ensure that the company and farmers receive the benefits they were expecting from the implementation of the contract. When contract farming is well prepared, it can provide a lot of benefits for farmers and companies, as well as for national economic development. First, contract farming helps farmers to access new premium markets and technical support. Farmers can access technical farming management training and support from the investment companies. Second, farmers can access credit schemes provided either by the company or micro-finance institutions. The company can also pay fees for the services of agriculture cooperatives, and cover rice transportation costs. They can also provide company warehouses for storage, and accurate scales to weigh paddy. Third, by joining a contract farming scheme, farmers can increase their incomes. In Cambodia's case, the study found that the revenues (riels) per hectare, received by rice-growing farmers, had doubled. The research discovered that farmers gained benefits that were worth twice the input costs in terms of the cost-benefit per hectare. On average, they earned KHR1,300,000 (about USD325) per hectare. Farmers had achieved greater income compared with the amount they earned before joining the contract farming arrangement.

Fourth, more children could go to school because their families had joined contract farming projects, and many households could buy possessions such as televisions, motorbikes, and some new houses. Fifth, farmers who joined in contract farming arrangements could achieve an increase compared with their agricultural production yield per hectare before they entered the contract farming scheme. And it was not just farmers who could benefit from joining: companies could also gain, by increasing exportation volumes, expanding facilities, and gaining better access to international markets. Companies earned recognition from farmers and the government, as well as promoting their brand as a national export company in Cambodia and overseas.

Contract farming reduces risks from the market through price protection measures. Smallholders plant their crops on small land areas and lack stable sales channels. Their yield is also low. Smallholders have minimal bargaining power in the market. However, signing order contracts can unblock sales channels. Agricultural products are often weak in their ability to withstand market risks. But if price protection measures support farmers, they will suffer less from price fluctuations in the market.

Contract farming has helped to guarantee reliable market access to new value chains. The smallholder farmers involved in contract farming could benefit from having guaranteed, secure market access. Contract farming has also helped to integrate smallholders within the value chains and to reach broader targets such as export markets and the modern retail trade.

Contract farming provides access to modern technology, and up-to-date knowledge/new production methods. Many farmers are satisfied with the knowledge they have gained from joining contract farming schemes, including know-how relating to marketing and production, such as seed/shoot selection and cultivation techniques. Some rice farmers can access seedling machines provided by the contract company.

Contract farming has helped to enhance access to credit and assistance to cover natural disasters. When the buyer is a cooperative, contracting farmers can gain access to credit. The cooperative also provides cash compensation in cases of emergencies such as wind storms.

Contract farming has helped to strengthen the social capital of farmer groups and to enhance the management of group endeavours towards post-harvest activities. When the contracting company uses farmer organisations as an intermediary agent, it can strengthen the farmers' group and support community development. In the case of asparagus, baby corn and banana,

the company enhances group activities towards post-harvest work such as cleaning, cutting, grading and packing.

Contract farming has also helped to improve the bargaining power of farmer organisations with companies. Farmer group leaders can negotiate with companies in price setting. There was evidence that the grower groups could wield more bargaining power in negotiating prices.

In addition, the study shows that participation in contract production benefits farmers, businesses and agriculture cooperatives engaged in vegetable production. Despite the lack of quantitative evidence, most farmers claimed to have gained economic benefits from contract participation. The most significant economic benefits came from having a stable output and reducing the risk of market failure. Vegetables are often consumed fresh, a short time after harvest. If the companies cannot sell their products, farmers sell it cheaply to the traders before the quality deteriorates. At the same time, it is also difficult for the company to sign contracts with other partners (exporters, supermarkets, and so on) without ensuring a stable and high-quality supply from farmers.

6.2.4. Key Factors Determining the Success of Contract Farming

The first factor is the agreement arrangements. The involvement of a third-party can help to build trust and can guarantee that the company and farmers will respect the terms and conditions in the contract. The second factor is the assurance of a third party. The involvement and commitment of the third party – agriculture cooperatives, Provincial Department of Agriculture, Forestry and Fisheries, and the Ministry of Agriculture, Forestry and Fisheries – play a significant role in supporting contract farming. The research found that formal contract farming worked best for farmers and the company in achieving contract farming goals. Without building trust, farmers would not join contract farming. Farmers tended to trust the leadership of the agriculture-cooperative committee who played a crucial role on the ground in coordinating work between farmers and the company. The research also found that the numbers of contract farming projects kept increasing.

It was further discovered that contract formation was one of the main factors in the success of contract farming. In the case of Guangxi Lingshan County in China, the Cooperative made the contract with and bought products directly from farmers for processing and selling. The contract stipulated both parties' rights and obligations (the Cooperative and the farmers), including the management of planting, fruit standards, order management, purchase prices,

and the handling of breach of contract. Once signed, the contracts were valid for a long time unless farmers voluntarily requested to quit the Cooperative, an act that was regarded as the abandonment of the contract. One factor that should be noted is that the quality of the products from contract farming was higher than it was for those from non-contract farms. The reasons were that the company had provided top-quality seeds for farmers. The company had also offered technicians who regularly worked with farmers for on-farm management such as fertiliser use and pest management. Another case was developing contract farming through e-commerce. In a further example, the company had signed production and sale contracts with cooperatives, which then organised the farmers and purchased agricultural products from them, thus forming a mode of e-commerce.

The company chose farmers with suitable sites. In organic rice, vegetables and fruits, the land must meet organic requirements. In the case of vegetables and fruits, the company selected sites that quickly provided irrigation facilities and had sizable cultivation land for year-round crop rotation.

The company selected families who had labourers able to dispense intensive care to produce high-quality products. Smallholders who had a marginal land size that could not access irrigation and did not have family labourers to deliver intensive care, were excluded. Therefore, irrigation policy, land policy - i.e., land consolidation and credit policy to support the land expansion and irrigation equipment - as well as the role of cooperatives or intermediary agents in providing credit and collecting products, particularly in remote areas, are crucial for increasing the involvement of small-scale farmers in contract farming.

Technical inputs, such as irrigation systems and processes, are crucial for increasing agricultural production. A lack of water for irrigation reduces the yield and quality of rice, and thus affects contract farming. The management and control capabilities of cooperatives are crucial factors in determining the quality of agricultural products. Most companies provide seeds and fertilisers and send technicians regularly to guide field management to ensure the promised production quantity and quality are met.

Price incentives for high-quality grades can motivate farmers to produce high-quality products. Sharing information on production, domestic and international demand, market prices and competitors, and providing an extra price premium during times when the market price is high, can help to reduce side-selling. The bargaining power in contract negotiation tends to be more favourable for smallholders in the case of asparagus for export to Japan, as

buyers need high quality asparagus that not many farmers can achieve. A well-established and functional smallholder group or organisation/cooperative can negotiate more favourable agreements to collect the volumes that represent economies of scale. In particular, well-functioning cooperatives can share the burden of risks, such as natural disasters, pests and diseases, by providing relief funds and, in some cases, can share the price risk. On the buyer side, a well-functioning group helps to minimise the chances of not fulfilling contractual obligations.

Close control and responsiveness to resolve problems, with timely intervention from extension services, can to help to reduce the misuse/diversion of inputs relating to production methods, and build trust for both parties.

Research and development, and technology investment in varieties and production techniques, are significant in providing high-quality seeds, in identifying procedures to improve farmers' yields and quality, and in reduce production costs.

Government and universities have a crucial role in providing infrastructure, supporting R & D, and transferring knowledge and technology. Moreover, they can act as coordinators between the company and farmers, enhancing the trust both parties have in contract farming.

The excellent reputation and sound financial performance of the firms lead them to pay farmers promptly. To accommodate market risks, firms have cash liquidity to fulfil promises and to build trust with farmers. The government should provide buyers' financial statements and background information to growers to support decisions on whether or not to participate in contract farming.

Conflicts between contractors and farmers generally revolve around quality standards and prices. There were a few cases where contracting companies rejected sub-standard produce or made payments that reflected lower grade produce. In addition, when the market prices fell, the contracting firm reduced the guaranteed prices. There were a few cases of side-selling when market prices were high. Also, for issues where contracting companies and farmers had developed a long-term relationship, and had been engaged in contract farming for a long time, both parties understood the quality standards, there was consequently less conflict.

Table 6.3: Key factors that determine the success of contract farming

Cambodia	China	Thailand	Vietnam
• Companies and agriculture cooperatives have followed the agreement; no big problems have emerged. • Farmers have trusted the leadership of agriculture cooperatives. • Third-parties, such as the local authority and the provincial department of agriculture, forestry and fisheries, have played a significant role in supporting contract farming. • Building trust among the key actors, i.e., farmers, agricultural cooperatives and/or associations, and the contracting companies, is an essential determinant of the success of the contract farming initiative. • Fairness of the contract arrangements. • Technical and financial support for farmers during the planting and/or growing process. • Inadequate capital and limited physical infrastructure were also a constraint on CF success	• Characteristics of companies or cooperatives. According to the field research results, there is a base for mutual trust between local companies or cooperatives and farmers. As a result, companies or cooperatives can make the most of the network of acquaintances in the local society to realise the effective "embedding" of economic and social benefits, thus creating conditions for contract farming development. Companies' or cooperatives' management and control capabilities are also crucial factors determining the quality of agricultural products. • The government's support for contract farming, in areas such as technology, information, and the market environment, has promoted contract farming development. • Smallholder farmers often regard standard contract text as too complicated because of their lack of education, and they are worried about being cheated. • Farmers also worry that they cannot earn enough income during the execution of the contract. • Companies are not willing to bear the risk that farmers cannot effectively execute contracts.	• The stable and diversified market for all grades of the product. • Suitable locations for production. • Coordination within the partners in the integrated supply chain. • Buyers' willingness and commitment to enhance farmers' capability to improve yield or production quality and to strengthen communities to improve livelihoods. • Farmers' willingness and commitment to produce high-quality products. • The technical expertise and availability of extension staff for significant production and harvesting planning, close monitoring, and responsiveness to swiftly resolve problems. • The honesty of firms and farmers. • Transparency in the production and buying system, standards and price setting. • Government support in being a coordinator and providing technical product knowledge, and cooperation with the private sector in research and development. • Well-established and functional smallholder groups or organisations/cooperatives. • Buyers delayed cash payments or offered delayed harvesting services because production and harvesting plans were less effective. • Diseases, particularly fungi disease, are external risks that affected asparagus production. • Farmers need to plan to grow and rest asparagus adequately and practice intensive farming to produce a high-quality product that meets the standards required by buyers and prevents fungi diseases.	• Unstable market price: the signing of contracts relating to the production and consumption of agricultural products between the two sides is complicated to enforce when the price fluctuates. • The enterprises have established long-term businesses in specific locations. • Market situation of the enterprise. Contract relationship operates smoothly and sustainably only if the company finds stable market outlets and maintains high competitiveness, particularly in export products. • The terms of the contract are clear, simple and easy to understand. Working with small farmers, the contract format, contract words and conditions should be kept as simple as possible because of the farmers' low education level and lack of knowledge in the agreement's legal aspects. • DARDs and local government play an essential role in facilitating the contract between enterprises and small farmers.

The government's contribution to contract farming is mainly in the construction of technology and the external market environment. Government officers mentioned in interviews that, although the local government had not issued any clear policy or measures to support contract farming, the agricultural and rural departments had been actively promoting contract farming development. In terms of technical support, the government was helping companies to gain certification, such as "green", "organic", and "pollution-free", as well as geographical indication documentation. The government provides information services for enterprises. It allows enterprises to build their brands by encouraging them to participate in exhibitions and evaluations. The booth fees are often borne by the government, which motivates the enterprises to take part. The government also organises various festivals for agricultural products to raise their profile, and can provide economic support for enterprises.

6.3. Recommendations

6.3.1. For government

6.3.1.1 Financial support

- The Provincial Departments of Agriculture, Forestry and Fisheries play a crucial role in forming contract farming. The government could provide more financial support to enable them to conduct more efficient and active monitoring of contract farming formation and implementation.
- As an encouragement for private companies to invest in contract farming projects, the government could also make financial capital available for them to buy more farmers' products.
- Microcredit is also crucial for the rural economy. There is a need for credit for production inputs and to support agricultural land expansion in order to increase productivity.

6.3.1.2 Support for capacity building

- Farmers need technical guidelines on the use of fertilisers and pesticides. At least at the provincial level, the government could establish a laboratory to test the quality of fertilisers and pesticides, and develop national language guidelines and make them available to farmers.
- The government could raise awareness about contract farming among agriculture cooperatives and coordinate enterprises and farmers.
- The capacity of agriculture cooperatives is limited. Thus, there is a need for training in leadership, management, marketing, communications and bookkeeping, database creation, data analysis, and negotiation.

- The government could provide more agricultural extension and training in on-farm management.
- The government could develop guidelines for forming a contract, including terms and conditions and conflict resolution mechanisms.
- Also, the government could strengthen the presence of farmers, especially smallholders, through establishing agriculture cooperatives.

6.3.1.3 Legal and policy support

Legal and conflict resolution

- The government could help to set a precise conflict resolution mechanism for contract farming arrangements and execution.
- The government could include articles on the punishment for contract violations to enhance contract enforcement and performance.
- The government could also raise awareness about laws and regulations related to contract farming among farmers and companies. This awareness would help both parties to arrange contract farming more effectively to provide better benefits for smallholders. The contract farming agreement requires law enforcement. There is a need for more dissemination of the related laws and regulations. The government could support lawyers to help companies and agricultural cooperatives in contractual arrangements to ensure that everyone understands the conditions and procedures.

Improving business development and public-private partnership

- The government could create an environment to deepen public-private partnership (PPP) initiatives in contract farming research.
- The government could promote the growth of the business community. This means, specifically, that the government could encourage domestic and foreign enterprises to invest in the agriculture business. More enterprises will create a competitive environment to help to extend agricultural production.
- Smallholders lack bargaining power. Although a third party, e.g., the local authority, assists in contractual arrangements and negotiations, the smallholders still cannot gain very much. Therefore, the formation of agriculture cooperatives can help to increase their bargaining power.

R&D investment

- As part of agricultural extension, the government could promote research and development, which would benefit smallholders.
- The government could establish research and development to promote

new technology, such as agricultural mechanisation for production, harvesting and post-harvest activity, supporting private companies and farmers.

Regional collaboration

- The Mekong region and the Chinese government could promote contract farming in the Mekong-Lancang River Basin; the government could create a regional agricultural product market system, share market interests, and achieve mutual benefits through investment and cooperation.

Infrastructure building

- Infrastructure plays a crucial role in encouraging the establishment of new contract farming schemes. Facilities such as irrigation and access roads are vital elements for rural infrastructure to support economic development, which the government could provide for farmers.
- The government could create a credit policy to support the land expansion and irrigation facilities that attract firms to establish contract farming projects with smallholders. Although irrigation infrastructure development requires a large investment, a credit policy to support small farmers to invest in tertiary irrigation canal systems in the field, or to increase the land size, is important.

6.3.2. For companies

Investment

Building trust between farmers and companies

- The companies play a crucial role in the process of contract farming. The greater the participation of farmers, the better the chance that the contract will be a success. However, farmers will not join contract farming unless they trust the companies' capacity and principles. Therefore, companies have to build trust with farmers in financial and technical investments, buying and payment policies.

Innovation and technology

- Labour shortage is a crucial constraint in contract farming arrangements, leading to company losses. Promoting high-quality, high-tech production training would help to guarantee production supply and quality, and reduce company costs.

Inclusive development

- Private companies could select growers from different, suitable, geographical locations to avoid failure to fulfil orders, and to increase equality and inclusive development in communities.

Incentives and pricing mechanism

- Private companies or cooperatives could provide price incentives for high-quality grades to motivate farmers to produce high-quality products. Also, price setting should be negotiable, particularly during times when the high market price is high, so that firms can provide an add-on price to reduce the risk of side-selling.

R&D investment

- Private companies could invest in research and development, and in technology development, to improve varieties, production and harvesting techniques, and traceability. Such research would allow firms to provide an improved range and suggest techniques to increase yield and quality, and to reduce production costs.

Support for capacity building

- Private companies or cooperatives could put a focus on the capacity building of extension staff with production expertise for close monitoring and the swift resolution of problems.
- Smallholders need agricultural cooperatives as a platform to support them in joining contract farming projects. Through agricultural cooperatives, it is also easier for companies to provide technical support for smallholders. The company could provide the required production-quality standards and financial loans that support the product quality that is expected. Increased smallholder effort to access credit would improve productivity and help them to gain the many benefits of joining contract farming.
- The agricultural cooperatives and farmers seek technical support from the companies. However, the research did not find evidence that the contracting company provided farmers with enough technical support, such as improved seed and loans, which would considerably enhance their capacity and enable the cash-constrained farmers to cover farm expenditure. It is recommended that the contract farming companies could provide more capacity building, especially for smallholders to improve their productivity so that they can access the promised markets.

- The companies that work with organic rice farmers could support young people to learn about organic farming. Such support would encourage farmers to have more trust in joining contract farming schemes.
- Based on evidence from the case studies (from Cambodia, China, Thailand and Vietnam) in the analysis of the achievements and limitations of policies to support contract farming, some potential solutions could be implemented, including improving the business and legal environment and enhancing the capacity of agricultural cooperatives to promote the participation of smallholders in contract farming projects.
- Companies could encourage smallholders to join together to form large rice farms through training. This would help the companies to create raw material areas with stable and high-quality rice output in both quantity and quality. This way, smallholders could comply with the companies' optimal cultivation processes; in other words, where the rice product quality has increased and met exporting requirements.

6.4. Conclusion

The governments of the four countries have promoted contract farming for selling the products of agriculture to the domestic and foreign markets. The private companies, whose agro-industry or export businesses have engaged in contract farming with farmers through an agriculture cooperative, seek the involvement of government agencies as a third party for the contract signing.

The three parties - the agriculture cooperative, the company, and the government - play different roles in creating profitable contract farming. The agriculture cooperatives ensure that the farmers produce a signed contract committing to a product of sufficient quantity and quality through regular coordination with farmers and the companies. The companies provide technical support and agree on seed, supplied to farmers as an input, and are contracted to buy the product as set out in the agreement. The government agencies play essential roles in certifying the contract that ensures every party in the agreement obeys the conditions and terms specified, and intervenes in cases of conflict.

For Cambodia, non-governmental organisations (NGOs) also play a role in contract farming. They help to link agriculture cooperatives with companies and train farmers in various aspects of agriculture.

All four cases confirm that contract farming has provided benefits for farmers and companies, and has contributed to national economic growth. Access to markets, stable set-prices, and better inputs, such as good quality

seed, credit, etc., are some examples of the results of successful contract farming. Another essential benefit is the help it provides for smallholders from agriculture cooperatives, enabling them to access markets, which they could not do without entering into a contract farming agreement.

Implementing this collaborative research has allowed researchers to exchange visits to the four countries involved. They have learned about contract farming policy and practice through field visits, joining conferences and workshops, and from editing and reviewing publications.

Experience gained from this research will help the research teams from each country to formulate future collaborative research. For further inquiries, it is essential to develop hypotheses based on qualitative research examining the current situation of contract farming in China and the Mekong regional countries. The investigation should confirm these hypotheses by conducting a quantitative study on the development model of contract farming of a particular crop, smallholder farmers' participation, and the influencing factors. The next research project could also explore the effective ways in which farmers can be integrated into modern agricultural development, and the influence they can wield, through a comparative study based on agricultural development in countries in the Mekong River Basin.

The Cambodia Development Resource Institute (CDRI) has implemented a regional research programme called "Enhancing Research and Dialogue on Contract Farming in the Mekong-Lancang Countries". The objective of this research was to provide empirical evidence and policy suggestions for discussion among the Mekong-Lancang countries, with a focus on contract farming, best practices and lessons learned. CDRI has worked closely with institutional partners, who also included representatives from China, Thailand and Vietnam.

The project officially began in May 2018 with an anticipated end-date of February 2020. However, because of the Covid 19 pandemic, it was extended for a six-month period up to August 2020. An important activity set for the project wrap-up was a regional dissemination workshop, scheduled for 24 August 2020. Due to international travel restrictions relating to the pandemic, the event was conducted using an online platform linking the Cambodian team in CDRI's conference room #32, with the participants invited/hosted by the China Agricultural University (CAU), Kasetsart University (Bangkok, Thailand), and the Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD) (Hanoi, Vietnam).

The objective of this webinar conference was to disseminate the results of the study, provide the policy suggestions for the development of contract farming in the MLC countries and to discuss further research and collaboration.

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Contract Farming in Mekong Countries

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