YANGON UNIVERSITY OF ECONOMICS
DEPARTMENT OF APPLIED ECONOMICS
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ANALYSIS OF CONTRACT FARMING IN MYANMAR

(SPECIAL REFERENCE TO PADDY PRODUCTION IN NAY PYI TAW)

HAN THAW ZAY

EMPA - 4 (19th BATCH)

AUGUST, 2024

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This thesis submitted as partial fulfillment of the requirements for
the degree of Master of Public Administration (MPA)

Supervised by:

Dr. Tin Tin Wai
Pro-Rector
Yangon University of Economics

Submitted by:

Han Thaw Zay
EMPA – 4 (19th Batch)
Yangon University of Economics

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This is to certify that this thesis titled **"Analysis of Contract Farming in Myanmar (Special Reference to Paddy Production in Nay Pyi Taw)"** submitted in partial fulfillment towards the requirements for the degree of Master of Public Administration has been accepted by the Board of Examiners.

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Department of Applied Economics
Yangon University of Economics

AUGUST, 2024

ABSTRACT

This study investigates the contract farming (CF) in Nay Pyi Taw district, Myanmar, focusing on rice production. The purposes of the study are to explore CF condition, to study the perceptions of CF farmers and NCF farmers on CF programme, and to identify challenges in contract farming practices. A descriptive method was employed, utilizing both quantitative and qualitative data collected through structured questionnaires. The sample comprised 229 CF farmers and 82 NCF farmers from nine villages across three townships. Findings reveal that majority of CF farmers experience positive outcomes, with 57.6% receiving expected benefits and 62.4% reporting changes in cultivation methods. In comparison to NCF farmers, CF farmers can be found that they have more income and profit, and less expenditure. NCF farmers exhibit limited understanding of contract farming, highlighting barriers to participation. The study underscores the need for improved communication, support services, and government policies to enhance the effectiveness of contract farming and promote sustainable agricultural practices in the region.

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LIST OF ABBREVIATIONS

CF	Contract Farming
NCF	Non-contract Farming
MRF	Myanmar Rice Federation
MoALI	Ministry of Agriculture, Livestock and Irrigation
SOP	Standard Operation Procedure
MAPCO	Myanmar Agribusiness Public Cooperation

CHAPTER I
INTRODUCTION

Over the last century a wide range of pre-harvest agreements that can be termed contract farming have been brokered to organize commercial agricultural production. Contract farming (CF) was initially introduced in Taiwan by the Japanese government in 1885, and later in the United States during the early 1900s. It was initially applied to perishable commodities like dairy products, as well as fruits and vegetables, which required immediate processing. Over time, this practice expanded and became common in regions such as North America, Western Europe, and Japan.

By the late 20th century, CF gained significant importance in the agrifood industry due to factors such as liberalization, globalization, shifting consumer preferences, technological advancements, government policies, and the growth of supply chains and trading networks, particularly with the rise of supermarkets. Currently, CF is a well-established approach used to organize agricultural production and facilitate trade, allowing for more efficient collaboration between farmers and buyers. Typically, contract agreements specify the quantity, quality, delivery schedule, and pricing terms. CF involves an agreement between farmers and companies, such as processors or marketers, for the cultivation and delivery of agricultural products. These agreements typically include predetermined pricing and other terms set in advance.

CF can be defined and approached in numerous ways, with models that differ in their core objectives, how much control shifts from farmers to contractors, and how risks are distributed. These models also vary depending on factors like the type of contractor involved, the nature of the agricultural product, the degree of coordination between farmers and contractors, and the participation of important stakeholders.

CF has effectively helped smallholder farmers in developing nations transition to commercial farming by establishing domestic and international market connections. Various studies from agricultural sectors such as cotton, tea, oil palm, sugarcane, oilseeds, and rice, spanning regions like Africa, Asia, Central, and Latin America, have shown that contract farming (CF) provides multiple benefits to smallholder farmers.

These benefits include improved access to production inputs, enhanced market opportunities, rural development, and other less tangible advantages (Masakure & Henson, 2005; Eaton & Shepherd, 2001; Key & Runsten, 1999; Porter & Howard, 1997; Glover, 1987). However, research also highlights ongoing issues such as low farmer participation and frequent contract violations, which limit CF's full potential.

The increasing prevalence of contract farming (CF) schemes, especially in developing nations, has raised concerns regarding their economic and welfare effects on smallholder participants. Recently, there has been a noticeable rise in interest in CF schemes in countries like Myanmar.

1.1 Rationale of the Study

The CF system has been introduced to farmers for many years in Myanmar but its development is seen in delay due to a lack of systematic implementation between the government and the farmers without adopting the necessary work procedures till today. In fact, since 2005, the government of Myanmar has encouraged investors to invest in contract farms with foreign investment. CF practices have been implemented in agricultural products such as rice, green gram, maize, sesame.

The agricultural sector in Myanmar accounts for 30% of the GDP, 25% of national exports, and stands as the largest employer in the economy. Major crops are paddy, wheat, maize, sorghum, groundnut, sesame, sunflower, pulses and beans, cotton, and jute. Rice paddy continues to be the leading crop, representing 45.7% of the total harvested land and contributing 53.4% to the production value of key crops. Additionally, Myanmar ranks as the seventh largest rice producer globally, with promising export potential. Thus, cultivation of paddy plays a significant part in the agricultural sector of Myanmar with paddy cultivation accounting for 34% of cultivation of all crops. Rice was exported to more than 10 countries, with total of 0.86 million tons included 0.5 million tons of rice and 0.36 million tons of broken rice in 2022-23 financial year.

Myanmar's rice exports may face constraints in the competitive global market, as neighboring countries offer higher quality rice that commands better prices.

Currently, yield per acre of Monsoon paddy is about 75 baskets whereas that of summer paddy is about 90 baskets. With the increase in the export of rice and broken rice, the government is now boosting agricultural production with greater momentum. As rice is both a staple food and a key source of export revenue for the national

economy, the government has implemented a range of agricultural policies aimed at enhancing rice sector development while promoting private sector involvement. Since the 2008 monsoon season, Private Rice Specialization Companies have introduced contract farming, particularly in Myanmar's major rice-growing regions.

Moreover, government has initiated Myanmar Rice Sector Development Strategy, formed Myanmar Rice Federation (MRF), and launched Rice Seed Sector Development Project. To improve cooperation and effectiveness among farmers, producers, private enterprises, entrepreneurs, and their respective organizations or associations, the Ministry of Agriculture, Livestock, and Irrigation (MoALI) introduced the Standard Operating Procedures (SOPs) in 2020. As for CF legislation, Myanmar does not have a specific law or policy in place; instead, the 2017 "Law of Contract in Myanmar" applies. "Protection of Farmer's Rights and Enhancement of their Benefits Law" was enacted by the government in 2013.

Recently, the government decided to implement the CF system to cultivate 850,000 acres of summer paddy. Primarily, the government disbursed K 200,000 per acre to local farmers for buying quality strains of crops, inputs and fertilizers. As such, CF will be a great tool for increasing the high yield of paddy which are potential for foreign markets in order to boost the State economy and enhance the socioeconomic life of farmers.

Innovative models of contract farming have emerged, including initiatives by the Myanmar Agribusiness Public Corporation (MAPCO), which is affiliated with the Myanmar Rice Federation (MRF). MAPCO has been collaborating with farmers to produce rice seeds and grains through contract farming arrangements.

Empirical studies on rice contract farming have been conducted in countries such as Lao PDR, Thailand, Cambodia, the Philippines, Myanmar, Vietnam, and Indonesia. The findings revealed that the effects of CF on smallholder rice farmers in Southeast Asia differed by country, influenced by factors like the type of contract, regional context, and farmers' socio-economic conditions. Nonetheless, the majority of these studies indicated that farmers engaged in rice contract farming generally experienced increased productivity, higher incomes, and greater profitability compared to those not participating in such contracts.

Within this context, it is important to analyze the current situation of CF in Myanmar, with focusing on condition of contract farmers, farmers' perceptions on CF and identifying the problems and challenges in the implementation of rice CF practices.

1.2 Objectives of the Study

The study intends to achieve three primary objectives:

(1) to identify the contract farming practice and conditions of CF and NCF

(2) to study the perceptions of CF and NCF farmers on contract farming, and

(3) to examine problems and challenges in contract farming practices.

1.3 Method of Study

This study utilized both primary and secondary data sources. Secondary data are gathered from official documents provided by the MoALI, MAPCO, the Myanmar Rice Federation (MRF), and other relevant organizations. Primary data were collected using structured questionnaires.

1.4 Scope and Limitation of the Study

This study centers on the practice of contract farming under the MAPCO within the Nay Pyi Taw district. It is conducted in nine randomly selected villages across Lwelway, Dat Khina, and Zabuthiri townships in Nay Pyi Taw. The focus is specifically on analyzing the perceptions of both CF and NCF farmers on CF. Additionally, the study aims to identify the problems and challenges associated with CF practices.

1.5 Organization of the Study

This study is made up of five chapters. The first chapter provides an introduction, covering the study's rationale, objectives, research methods, scope, limitations, and the structure of the paper. Chapter 2 is literature review of CF to study on concept, models, and previous studies. Chapter 3 describes CF in Myanmar. And then, chapter 4 is an analysis of CF to smallholder farmers. The final part of this study, chapter 5, consists of findings of the study, followed by suggestions.

CHAPTER II
LITERATURE REVIEW

This chapter is structured by concept and evolution of CF, nature and type of CF, CF practices and experiences, and some studies on CF.

2.1 The Importance of Contract Farming in Economic Development and Public Administration

Contract farming is a key mechanism that enhances both agricultural productivity and economic development, playing a critical role in public administration. Through legally binding agreements between farmers and buyers, CF establishes clear expectations for production, pricing, and delivery, thus minimizing the risks typically associated with traditional farming. This arrangement aligns with the goals of public administration by promoting sustainable agricultural practices, improving food security, and fostering rural economic growth (Singh, S., 2002).

From an economic development perspective, CF provides farmers with access to assured markets, thus stabilizing their income. It encourages the adoption of modern agricultural techniques and technologies, improving productivity and reducing post-harvest losses. In developing economies, where smallholder farmers often face challenges related to fluctuating market prices and limited access to resources, CF acts as a crucial connection between small-scale farmers and larger agricultural businesses. It facilitates investment in rural infrastructure, such as storage facilities and transportation, which boosts overall economic activity in these regions. As a result, rural communities are better integrated into the national and global economy, contributing to poverty alleviation and economic diversification.

In public administration, CF helps align agricultural policies with national development strategies. Governments can utilize CF models to implement rural development programs and promote food security initiatives (Da Silva, C. A., 2005). By incentivizing the participation of private sector companies, public authorities can

drive the commercialization of agriculture, reduce rural unemployment, and promote the formalization of informal agricultural markets.

Furthermore, CF contributes to social stability by fostering stronger public-private partnerships (Eaton, C., & Shepherd, A. W., 2001). It can also help address gender inequalities in agriculture by offering women farmers better access to markets and resources. In this context, public administration plays a crucial role in ensuring that CF agreements are fair, transparent, and beneficial for all stakeholders, thus promoting long-term sustainable development.

2.2 Concept of Contract Farming

CF represents a type of vertical integration in agricultural value chains, giving companies substantial oversight of the production process, including factors such as output volume, quality standards, and timing. Traditionally, vertical integration meant that firms directly managed production via large estates or plantations, particularly for tropical crops like tea, bananas, and sugarcane. However, CF offers firms control over the production without direct involvement in farming. It can be visible as a middle ground between full vertical integration, where companies manage every aspect of the supply chain from production to marketing, and open markets, where prices are determined by supply and demand (Kirsten and Sartorius, 2002; Da Silva, 2005; Young and Hobbs, 2002).

Contract farming is characterized as a contractual arrangement between farmers and a contracting entity for the production and delivery of agricultural goods, typically outlined in advance with agreed-upon pricing terms (Eaton & Shepherd, 2001). The US Department of Agriculture defines CF as "the growing and marketing of farm products under such circumstances that selective terms of the market-quantity, grade, size, inspection, timing, or pricing are specified to both the grower and the processor or shipper before production is undertaken." A contractor may be a firm involved in processing or trading and can be either a private organization or a public entity. Typically, the agreement encompasses the contractor's provision of production support, which may include essential technical guidance as well as inputs. The foundation of a CF arrangement lies in the farmer's promise to deliver a designated commodity, meeting the quantity and quality specifications set by the contractor, who, in turn, agrees to assist in the farmer's efforts and purchase the resulting goods.

The establishment of a CF scheme typically originates from the contractor's desire to enhance the availability of uniform, high-quality products while optimizing the use of particular assets, especially in processing. Additionally, state interests may drive the development of CF to support essential commodity chains, as seen in countries like China. Input suppliers may also promote CF initiatives to increase their sales, evident in the feed-to-meat supply chains found in developed nations.

In the existing literature, the phrases "CF" and "outgrower scheme" are frequently used as synonyms. Nonetheless, Glover and Kusterer (1990) differentiate between CF arrangements associated with private contractors and those classified as outgrower schemes, which involve public entities and parastatals. In both arrangements, they agree to cultivate crops or raise livestock for a contractor, who is responsible for processing and/or marketing the agricultural products. Eaton and Shepherd (2001) note that outgrower schemes are predominantly found in Africa.

The literature offers various definitions of CF, with several notable interpretations outlined below:

"A binding arrangement between a firm (contractor) and an individual producer (contractee) in the form of a 'forward agreement' with well-defined obligations and remuneration for tasks done, often with specifications on product properties such as volume, quality, and timing of delivery" (Catelo and Costales, 2008);

"An intermediate mode of coordination, whereby the conditions of exchange are specifically set among transaction partners by some form of legally enforceable, binding agreement. The specifications can be more or less detailed, covering provisions regarding production technology, price discovery, risk-sharing and other product and transaction attributes" (Da Silva, 2005);

"Agricultural production carried out according to a prior agreement in which the farmer commits to producing a given product in a given manner and the buyer commits to purchasing it" (Minot, 2007);

"A contractual arrangement between farmers and other firms, whether oral or written, specifying one or more conditions of production and/or marketing of an agricultural product" (Roy, 1963).

2.3 Development of Contract Farming

Over the past century, CF has been a prevalent practice in agriculture. The Japanese colonial government utilized contracts for sugar production in Taiwan post-

1885, while American banana companies adopted similar agreements in Central America during the early 1900s (Rehber, 2007). In developed capitalist nations, the vegetable canning industry in North America and the seed sector in Western Europe widely implemented CF in the 1930s and 1940s. By the late twentieth century, CF had become essential in the food and fiber industries across much of Western Europe, North America, and Japan (the earliest recorded forward purchase agreement dates back to 1878, Barker, 1972).

In the global context, the agricultural sector has significantly contributed to economic growth and poverty alleviation, especially in developing nations. Increasing competition in the food market, driven by supply and demand, highlights the effects of economic liberalization. Consequently, CF has garnered attention from development agencies and governments, particularly in less developed regions, as it addresses food security concerns, rising market demands, and the enhancement of rural economies. CF has been practiced extensively in both developed and developing countries for decades and is seen as a potential strategy for poverty reduction and economic advancement.

Moreover, CF has gained traction due to rising consumer demand for food safety and quality (Key, 2005; MacDonald & Korb, 2011). Initially, CF was focused on exporting high-value crops (HVCs) like fruits and vegetables to supermarkets in developed countries (Dolan & Humphrey, 2000). Over time, it has also become common for supplying domestic supermarkets (Reardon & Berdegue, 2002; Weatherspoon & Reardon, 2003; Reardon & Timmer, 2007, 2012). The World Bank (2007) supports CF as it fosters agricultural modernization and poverty alleviation through the introduction of new HVCs, technologies, and improved marketing systems.

While sharecropping has long been a component of agricultural systems (e.g., in ancient Greece and China, Eaton and Shepherd, 2001), modern CF agreements, where firms contract with farmers who retain land tenure, represent a more recent development. For instance, Watts (1994) notes that Japanese contract farming in Taiwan emerged in the late nineteenth century, paralleling similar practices by U.S. companies in Central America during the early twentieth century. CF was also prevalent in U.S. vegetable production and the European seed industry before World War II (Rehber, 2007), extending to pig farming in the U.S. shortly after (Hamilton, 2008).

Developed countries show significant engagement in CF, with 38% of Germany's dairy, poultry, and sugar production linked to such agreements, contrasting with an average of only 6% for other commodities. Additionally, in Japan and South

Korea, 75% and 23% of broiler production, respectively, is conducted under contracts (Young and Hobbs, 2002).

CF is also integral to transitional economies. Swinnen and Maertens (2007) report that corporate farms in the Czech Republic, Slovakia, and Hungary utilize contracts at rates ranging from 60% to 85%. In Eastern Europe, including Armenia, Georgia, Moldova, Ukraine, and Russia, the percentage of food companies employing contracts surged from 25% in 1997 to 75% by 2003 (Young and Hobbs, 2002).

The growth of CF spans all global regions. In Latin America, rapid CF expansion has occurred since the 1950s, particularly for crops like bananas in Honduras, barley in Peru, and various vegetables in Mexico. Major banana companies, including Chiquita, Dole, Del Monte, and Fyffes, engage in CF operations (UNCTAD, 2009). In Brazil, over 70% of poultry and 30% of soy production occurs through CF (Young and Hobbs, 2002).

In Southeast and South Asia, CF has also experienced substantial growth in recent decades (Swinnen and Maertens, 2007). The Indonesian government has promoted CF via the Federal Land Development Agency (FELDA) since 1956, achieving notable success (Rehber, 2007). In Malaysia, CF thrives, primarily through government-supported out-grower schemes (Morrison et al., 2006). In Vietnam, CF accounts for over 90% of cotton and fresh milk production, along with more than 40% of rice and tea (UNCTAD, 2009).

Since the 1960s, India has employed CF for seed production and now applies it widely for poultry, dairy, rice, potatoes, and spinach production (Rehber, 2007). In Pakistan, Nestlé is a prominent player in CF, collecting milk from over 140,000 farmers across 100,000 square kilometers (UNCTAD, 2009).

In East Asia, CF is prevalent, with significant government backing in China since 1990, resulting in over 18 billion hectares cultivated under CF agreements by 2001, marking a 40% increase from the previous year (Guo et al., 2005, cited in Rehber, 2007). This includes rice production by Japanese firms and fruit and vegetable farming by domestic companies.

CF is also on the rise in sub-Saharan Africa. In the late 1980s, many CF initiatives had substantial government involvement, but the trend has shifted towards private sector initiation (Little and Watts, 1994). Swinnen and Maertens (2007) note that in Mozambique, around 12% of the rural population participates in CF, especially for cotton. In Kenya, over half of tea and sugar production occurs under contracts, with

numerous contract growers supplying horticultural exports. Successful CF operations have been reported in crops like coffee (e.g., Kawacom in Uganda, Bolwig et al., 2009) and tobacco (e.g., Alliance One in Malawi).

The private sector has become a key player in contract farming (CF) in developing countries. As of 2008, Nestlé had agreements with more than 500,000 farmers across over 80 developing and transitioning economies. Similarly, Singapore-based Olam worked with around 200,000 farmers in 50 countries to source 17 different agricultural products. Unilever sourced over 60% of its raw materials from about 100,000 farms, both small and large, in developing nations, including through third-party suppliers. Carrefour also entered into farming contracts in 18 developing countries (UNCTAD, 2009).

In addition, many smaller initiatives are underway. For instance, SAB Miller (UK) collaborates with over 16,000 farmers in India, South Africa, Uganda, Tanzania, and Zambia. Grupo Bimbo (Mexico) worked with over 3,000 contract suppliers throughout Latin America in 2008, while Kitoku Shinryo (Japan) has contracts with more than 2,000 farmers in Vietnam, Cambodia, and Thailand through joint ventures (UNCTAD, 2009).

2.4 Types and Models of Contract Farming

2.4.1 A Typology of Contracts

Mighell and Jones (1963) established a foundational classification of agricultural contracts that includes three main types: market-specification contracts, production-management contracts, and resource-providing contracts. Each type varies in its primary goals, the delegation of decision-making authority from the farmer to the contractor, and the distribution of risks.

A market-specification contract, also referred to as a marketing contract, is a pre-harvest agreement that outlines the terms under which producers will sell their crops or livestock to contractors. This agreement encompasses not just the timing and location of sales, but also product quality, which influences certain farming decisions. In this arrangement, the contractor alleviates the producer's concerns about finding a market for their harvest. The farmer retains most decision-making power over their agricultural practices, but also assumes a significant portion of the production risk.

In contrast, a production-management contract shifts more control to the contractor compared to the market-specification type. Under this contract, the

contractor monitors production processes and stipulates input requirements. Producers commit to adhering to specific production methods and input protocols. Consequently, the farmer relinquishes much of their decision-making authority regarding cultivation and harvesting to the contractor, who takes on the majority of market risks.

Resource-providing contracts serve a dual purpose: they offer a market for the products while also supplying essential inputs. This provision of inputs acts as in-kind credit, with repayment occurring upon delivery of the products. The extent to which decision-making rights and risks are transferred to the contractor depends on the specifics of the contract. Such agreements may also incorporate production-management aspects, thereby transferring more decision-making rights and risks to the contractor, or they may focus solely on input provision while allowing the farmer to retain considerable production decision-making and risk.

This classification framework is largely farmer-centered, particularly within developed countries, highlighting the effects of each contract type on farmer decision-making and risk. Other models might take a contractor's viewpoint, comparing CF with alternative arrangements such as spot market purchasing or vertical integration, where production and marketing are unified under one entity.

Contracts can also be categorized as formal (written) or informal (verbal). In the agricultural sector, many contracts tend to be straightforward and oral (Bogetoft and Olesen, 2004). Often, these agreements involve variables that are challenging to verify in court in the event of a breach. Even when formal written contracts are possible, informal agreements may offer a more cost-effective alternative, often relying on self-regulation rather than external enforcement. In many developing areas, particularly in Sub-Saharan Africa, the use of written contracts is uncommon, and informal agreements are both widespread and respected (Fafchamps, 2004). Although contract farming (CF) is becoming more common in developing countries, it does not always result in an increase in formal contracts, as informal agreements are often more efficient.

Informal contracts are considered self-enforcing due to their lack of enforceability through legal systems or third-party mechanisms. This implies that parties involved are internally motivated to honor their agreements under different circumstances, driven by both economic and social factors (Nooteboom, 2002; Klein Woolthuis et al., 2005). The self-enforcing characteristic of agricultural contracts has

been documented in countries with both developed (Allen and Lueck, 2003; Bogetoft and Olesen, 2004) and developing economies (Key and Runsten, 1999).

Social incentives for maintaining contracts can be categorized as either relationship-specific (bilateral) or community-specific (multilateral). In bilateral situations, repeated interactions can build empathy and strengthen relationships between the parties. In contrast, in multilateral contexts, individuals may avoid opportunistic behavior due to the collective values, norms, traditions, and moral obligations shared within the community (Bowles and Gintis, 2002; Keefer and Knack, 2005).

2.4.2 Contract Farming Models

Research on contract farming (CF) emphasizes the diverse range of contractual arrangements between farmers and contractors. This diversity arises from the specific technical requirements of production, as well as the associated costs of production and transaction (Simmons et al., 2005). To aid in analysis and comparison, various classifications of CF models and contracts have been established. Eaton and Shepherd (2001), in their FAO manual, identified five distinct models. These models differ according to the type of contractor, the characteristics of the product, the degree of vertical coordination between farmers and contractors, and the involvement of key stakeholders. Other studies also acknowledge the existence of five different types or models of CF (Da Silva, 2005; Bijman, 2008).i. The centralized model: Similar to private schemes, this model is commonly found in Africa and is often referred to as "outgrower" schemes, with minimal government involvement.

i. The nucleus estate model: This model includes a central firm that operates its own farm in addition to working with contract farmers.
ii. The multipartite model: In this arrangement, both the government or NGOs and private firms actively participate.
iii. The informal model: This encompasses straightforward and casual agreements between individuals or smaller companies.
iv. The intermediary model: This structure involves intermediaries, such as collectors or farmer committees, facilitating the connection between farmers and industry units.

2.4.3 Contract Function and Provisions

Agricultural contracts serve three primary functions (Hueth et al., 1999; Wolf et al., 2001). Firstly, they act as coordination tools, enabling each party to make decisions—such as resource allocation—that align with those of their partners. This coordination aims to make sure that products are delivered at the right time and meet the specified quantity and quality standards.

Secondly, these contracts establish incentives and penalties designed to encourage performance. If incentives are not adequately provided to each party involved, transactions are unlikely to occur. When contractors require specific tasks from farmers, such as producing goods of a particular quality, the contract specifies the compensation the farmer will receive for fulfilling these requirements. In addition to setting a price, the contract may outline how this price is determined.

Thirdly, the contract outlines how financial risk is shared. For example, by entering an agreement with a contractor, farmers can protect themselves from potential income loss due to poor yields, as the contract ensures they receive a portion of their payment regardless of the actual production.

The three functions can be categorized into two main groups: coordination and motivation (Milgrom & Roberts, 1992; Bogetoft & Olesen, 2004). Motivation involves both incentive structures and risk-sharing, with the latter being closely related to the former, as risk-averse producers typically seek higher compensation for undertaking risky activities. The importance of coordination versus motivation can vary; for instance, when dealing with perishable products, coordination becomes essential to synchronize harvesting and processing effectively, favoring production-management contracts commonly found in the high-quality vegetable processing sector. On the other hand, motivation may become a priority in situations where there is a danger of lock-in effects that could result in underinvestment or when information asymmetry is present. In these cases, contracts that provide resources can incentivize farmers to make essential investments that they might otherwise neglect. The balance between coordination and motivation varies depending on the specific contract farming (CF) arrangement, influenced by factors such as the legal framework, access to technical support, the preferences of the involved parties, and the flow of information.

Contracts also vary in the scope and nature of their specifications. Singh (2002) identifies at least four essential elements that each contract should address: price,

quality, quantity, and time. However, agricultural contracts typically include additional provisions, which may encompass:

(i) contract duration,
(ii) applied quality standards,
(iii) quality control measures (timing, method, responsibility, and payment),
(iv) the quantity the farmer must or is permitted to deliver,
(v) cultivation practices mandated by the contractor,
(vi) timing for delivery,
(vii) requirements for packaging, transport, and other delivery terms,
(viii) price determination methods (fixed prices, flexible prices based on market conditions, consignment prices, or split pricing),
(ix) technical support,
(x) payment procedures and mechanisms for recovering credit advances,
(xi) insurance provisions,
(xii) procedures for resolving disputes.

2.5 Advantages and Disadvantages of Contract Farming

CF is viewed as a crucial tool that offers substantial advantages to both farmers and contractors. Nevertheless, despite these benefits, there are potential disadvantages that can affect both sides.

2.5.1 Advantages for Farmers and Contractors

Advantages for farmers

Farmers engaged in CF benefit from not having to seek out dependable markets for their crops, as contractors commit to buying all produce that meets the agreed-upon quality and quantity. In addition to receiving diverse managerial, technical, and extension services, these farmers can leverage their contract agreements as collateral to secure loans for purchasing inputs for future planting, diversifying their crop production, and making investments in their operations. The primary benefits for farmers include: (i) provision of necessary inputs and production services; (ii) access to financing; (iii) introduction of suitable technologies; (iv) enhancement of skills; (v) assured and consistent pricing; and (vi) access to stable market opportunities.

Advantages for Contractors

One significant benefit that contractors derive from CF is its political acceptability. Engaging smallholder farmers in CF is often viewed more favorably than relying solely on large plantation operations run by agribusinesses. This approach allows contractors to move away from direct estate management to actively support and manage small-scale farmers who produce crops under contractual agreements for processing and marketing. The primary benefits for contractors include: (i) enhanced political acceptability; (ii) alleviating land constraints; (iii) assurance of product supply and shared risks; (iv) consistent quality; and (v) promotion of agricultural inputs.

2.5.2 Disadvantages for Farmers and Contractors

Disadvantages for Farmers

Participating in CF schemes can expose farmers to greater market and production uncertainties, especially when they cultivate unfamiliar crops. Issues related to ineffective management or marketing can result in some contracted outputs not being purchased. Additionally, farmers might incur debt due to challenges in production and the need for large loans to engage in the contracting process. The use of inappropriate technology and the mismatch of crop varieties can further complicate the situation for farmers trying to adopt new agricultural practices. Furthermore, there may be instances of corruption among the staff of contracting firms, particularly concerning quota distributions. Contractors might also prove unreliable, potentially exploiting their dominant position in the market. Nevertheless, implementing strong management strategies, which include close collaboration with farmers and vigilant oversight of farming activities and contract compliance, can help mitigate these issues (Eaton and Shepherd, 2001).

Disadvantages for Contractors

Although there are several benefits to CF, contractors also encounter various challenges and drawbacks. For instance, farmers involved in CF might struggle with land limitations due to insecure land rights, jeopardizing the long-term sustainability of contracting firms. Additionally, these farmers may divert their harvested crops to alternative buyers or misuse inputs received on credit, negatively impacting their crop yields and the profitability of the contractors. Ineffective management and a lack of attention to farmers' concerns can foster dissatisfaction among those engaged in CF.

Furthermore, social and cultural factors may hinder farmers from meeting their contractual obligations, especially concerning the quantity and quality of the products. For instance, harvesting should not be planned during local festivals to accommodate cultural practices (Eaton and Shepherd 2001).

2.6 Experiences of Contract Farming in Developed and Developing Countries

Engaging in contractual agreements for agricultural production is a widely accepted practice globally. Contract farming (CF) has been a long-standing method, especially for perishable goods that are supplied to processing industries, including dairy products and preserved fruits and vegetables. By the late 20th century, the role of CF in agriculture and food sectors had grown in importance, both in developed and developing nations. This shift was influenced by various factors, including international competition, evolving consumer preferences, technological advancements, and changes in government policy, leading to more integrated agricultural systems characterized by well-coordinated production, processing, and distribution networks.

In the CF landscape, contracts facilitate stronger vertical coordination between producers and agribusinesses involved in processing or marketing agricultural goods. In developed countries, CF has gained traction, particularly in the agrifood sector, as highlighted in previous studies (Martinez and Reed, 1996; Royer and Rogers, 1998). The use of production contracts has steadily increased, supported by a complex market structure, advanced technology, and favorable governmental attitudes.

For instance, in the United States, CF constituted around 39% of total agricultural production in 2008, a rise from 11% in 1961 (MacDonald & Korb 2011). While comprehensive comparative data for other developed nations may be scarce, existing literature indicates that CF had become prevalent in Japan and Western Europe by the late 20th century (Little & Watts, 1994; Rehber, 1998).

The adoption of CF contracts varies significantly among different commodities. In the U.S., CF is predominantly utilized in the livestock sector, particularly for broilers and hogs, where economies of scale in processing and marketing are evident. In contrast, CF is less prevalent in crop production, with exceptions including tobacco, sugar beets, and certain vegetables (MacDonald & Korb 2011). In the European Union, production assistance systems have actively promoted CF, significantly contributing to its development across various food sectors.

Developing nations are experiencing similar trends, with CF on the rise as well. Notably, the expansion of supermarkets in urban areas, especially in Asia and Latin America, has accelerated this growth over the past two decades (Reardon and Berdegué, 2002). Supermarkets tend to favor centralized procurement practices, leading to greater vertical coordination among producers, wholesalers, and retailers, thus promoting the implementation of CF.

Additionally, a decline in state involvement in marketing, input provision, and technical support has made CF an appealing solution for enhancing farmer access to necessary resources (Key and Runsten, 1999). Moreover, various stakeholders, including donors and NGOs, are focusing on CF as a strategic approach to connect smallholder farmers to both domestic and international markets, aiming to alleviate poverty (IFAD, 2003; Dannson, 2004; World Bank, 2007).

Over the last three decades, CF has emerged as a key institutional innovation aimed at enhancing agricultural productivity in developing regions and transitional economies, often integral to rural development initiatives (Ghee and Dorall, 1992; USAID, 2005). Various local and international organizations, including governments and financial institutions, have supported these CF initiatives (Glover, 1994; Silva, 2005).

CF has effectively assisted smallholder farmers in these regions in commercializing their operations by establishing market connections. Numerous case studies spanning diverse agricultural products, such as tea, sugarcane, cotton, oil palm, oilseeds, and rice, illustrate the varying degrees of benefits smallholder farmers derive from CF, including improved access to inputs, market opportunities, rural development, and other intangible advantages (Masakure and Henson, 2005; Eaton and Shepherd, 2001; Key and Runsten, 1999; Porter and Howard, 1997; Glover, 1987).

As the significance of CF in the agrifood sectors of developing countries continues to grow, it is increasingly essential to explore its benefits and challenges for both farmers and contractors. Understanding the conditions that promote efficient and equitable CF practices is becoming a focal point for researchers and policymakers alike.

2.7 Review on Previous Studies

Numerous studies highlight the positive impact of contract farming (CF) on the productivity and well-being of both farmers and contractors. Farmers engaged in CF generally experience greater advantages compared to their non-contracting peers,

particularly regarding yield, product quality, production efficiency, revenue, income, profits, food security, and poverty reduction. Likewise, contracting firms also benefit from CF through consistent quality, lowered production costs, assured availability of quality materials at competitive rates, and enhanced profitability.

However, despite these advantages, research has shown that many farmers tend to withdraw from CF after their initial participation. A significant number express regret about their choice to enter into CF, leading to frequent breaches of contract farming agreements (CFAs). Several factors influence farmers' participation in CF, including the socioeconomic characteristics of the farmers and their households, the attributes of the contracts themselves, and elements crucial to the sustainability of CF, such as equality, transparency, mutual benefits, and levels of mistrust. Furthermore, farmers' choices regarding participation are often shaped by their perceptions of CF. A considerable body of literature has investigated various perceptions related to CF, exploring aspects like benefits, opportunities, challenges, and constraints. Thus, to be supportive and comparative to the research analysis, some empirical studies on contract farming with different and various approaches are reviewed and summarized as the followings.

The research titled "Impacts of Rice Contract Farming System on Smallholders in Myanmar," conducted by Aye Moe San and Siegfried Bauer in 2016, aimed to assess the decisions of smallholder households regarding their involvement in contract farming schemes and how this participation affects their livelihoods in Myanmar. The findings revealed that several factors influence smallholders' decisions to engage in contract farming, including the age and education of the household heads, the frequency of production shocks experienced over the past five years, participation in farmer organizations, and regular contact with extension services. Overall, the study concluded that contract farming has a significantly positive impact on the livelihoods of smallholders. Furthermore, individual contract arrangements that include the provision of seeds, fertilizers, and credit were found to be more effective in enhancing smallholder livelihoods than group contracts that only offer fertilizer support.

In 2015, Richard K. Kumah conducted research titled "Why Do Smallholders Decide to Produce on Contract?" focusing on traditional staple food producers in the Upper East Region of Ghana. The study examined the factors that motivate smallholders to engage in contract production of staple foods for local agribusinesses in Tampola, a representative farming community in northeastern Ghana. Among its

findings, the research highlighted that fluctuations in the main agricultural input and output markets significantly motivated smallholders to enter contract agreements. Additionally, the preference for selling produce by weight instead of volume served as another motivating factor. Furthermore, the potential for higher yields from contract farming encouraged smallholders to produce surplus food for household consumption.

In 2009, Elepu, Gabriel, and Nalukenge, Imelda conducted a study on contract farming, smallholders, and agricultural commercialization in Uganda, focusing on the sorghum, sunflower, and rice contract farming initiatives. The research aimed to investigate how contract farming impacts the commercialization of smallholder agriculture, characterize the specific contract schemes for sorghum, sunflower, and rice, and identify the associated advantages and challenges. The findings indicated that contract farming significantly facilitated the commercialization of smallholder farmers, particularly in the sorghum and sunflower sectors. Agribusinesses benefited from a reliable supply of raw materials necessary for their processing activities, while smallholder farmers gained access to essential inputs like improved seeds and extension services, along with a secure market for their products. Nevertheless, the study also highlighted various organizational and operational challenges within the contract farming arrangements.

The study titled "Challenges of Contract Farming among Small-Scale Commercial Vegetable Farmers in Eastern Cape South Africa," conducted by Khapayi Musa, Pieter Van Niekerk, and Phillip Retief Celliers (2018), explored the role of contract farming in the commercialization of small-scale vegetable producers. The results indicated that the contract farming landscape in the surveyed region was significantly polarized, marked by a core conflict of interest between agribusiness entities and the farmers themselves. Key factors identified as barriers to engaging in contract farming included deficiencies in quality seed supply, trust issues, insufficient entrepreneurial skills, and the absence of formalized contract agreements.

A research paper which was written by Mozhgan Darakeh, Zarafshani Kiumars, and Sharaf Lida in 2021 aimed to identify “the functions and challenges of contract farming in Kermanshah Province, Iran”. The research results revealed that the primary role of contract farming is to enhance farmers' understanding, improve their economic capabilities, and mitigate the perceived risks faced by producers. Additionally, it introduced employers to raw material risk management for factories, as well as to agricultural extension services and development, thereby fostering brand credibility and

generating employment opportunities. Key challenges in contract farming primarily revolve around initiating and developing agricultural projects, constraints associated with traditional farming initiatives, and inadequate compliance with contract requirements.

In their 2014 study, "Problems and Prospects of Contract Farming in India," Dr. Bairagya Ramsundar and Sarkar Shubhabrata addressed various challenges associated with contract farming. Their research identified successful examples within India, including contract farming for wheat in Madhya Pradesh, facilitated by companies such as Hindustan Lever Ltd (HLL), Rallis, and ICICI. Additionally, Pepsi Foods Ltd. engages in contract farming in Punjab, focusing on products like tomato purée, tomato paste, Basmati rice, chilies, oilseeds, and various vegetables, including potatoes. Furthermore, the Appachi Integrated Cotton Company in Coimbatore, Tamil Nadu, employs a model known as Integrated Cotton Cultivation (ICC), which provides a market-supportive framework for growers. Contract farming initiatives also exist for 'gherkin' production in Karnataka, Andhra Pradesh, and Tamil Nadu.

Kong Sopheak (2013) analyzed “The Effect of Rice Contract Farming on Smallholder Farmers’ Incomes in Cambodia: A Case Study in Toul Sala Commune in Barsedth District, Kampong Spue Province”. This study aimed to evaluate the impact of contract farming on the incomes of smallholder farmers and identify the challenges they encounter. The findings indicated that there was no significant difference in the average gross income between rice farmers engaged in contract farming and those who were not. Smallholder farmers involved in rice contract farming face several major challenges, including limited options for crop inputs, difficulties in meeting quality standards, misleading quality claims from contracting companies, challenges in fulfilling quantity requirements, dishonesty in quantity measurements by these companies, delays in payments according to the agreed schedule, strict production timelines, high transaction costs, and a lack of adequate knowledge regarding farm management practices.

The research article titled “Perceptions, Problems and Prospects of Contract Farming: Insights from Rice Production in Vietnam,” authored by Tuyen, M.C.; Sirisupluxana, P.; Bunyasiri, I.; and Hung, P.X. in 2022, focuses on stakeholder perspectives. It evaluates and ranks the perceived benefits and drawbacks of contract farming (CF) while examining the associated challenges and future potential. The study employs data triangulation, gathering insights from three key groups: farmers,

contractors, and government policymakers. The findings indicate that the three primary advantages of CF are: a guaranteed price with minimized market volatility, reliable market access with potential for new opportunities, and stable or enhanced income levels. Notably, farmers identified the provision of inputs and services as their third most important benefit.

In terms of the drawbacks associated with contract farming (CF), both government officials and farmers identified three main disadvantages: a decrease in household autonomy or diminished flexibility in decision-making; potential delays in purchasing and delivering inputs, as well as late payments; and the risk of manipulating established quotas and quality standards. For contracting buyers, the primary disadvantages of CF included: a reduction in the freedom of households or a loss of flexibility in decision-making; the possibility of purchasing less product than the previously agreed amounts, or facing rejection for not meeting specified quality standards; and the potential for incurring debt from loans and excessive advances.

The findings suggest that the primary perceived benefit of contract farming (CF) is associated with the outputs, whereas the three most significant drawbacks are linked to potential contract violations. Additionally, the results indicate that stakeholders have varying perceptions regarding the advantages and disadvantages of CF. Despite challenges like the violation of contract terms, distrust, and market manipulation by local collectors, CF in Vietnam shows considerable promise overall.

Shwe Zin Aye (2022) wrote "A Study on Contract Farming of Paddy Production in Myanmar Agricultural Sector". The results indicate that the contract farming approach tends to achieve greater paddy yields when compared to conventional farming techniques. Moreover, key factors influencing the success of contract farming in enhancing paddy production in Myanmar's agricultural sector include the broadcasting and seeder methods of planting, the use of urea fertilizer, and the availability of canal water.

Ohmar Khing, Min Aung and Ekanath Khatiwada (2019) conducted a study examining contract farming within the rice seed sector of the Ayeyarwady Delta. This analysis focused on ten critical factors essential for the successful establishment of contract farming (CF) arrangements between farmers and companies. The companies interviewed revealed varying expectations regarding these key issues, while farmers viewed them as essential lessons for enhancing CF success in Myanmar. The research indicated that Myanmar requires significant improvements in the overall processes of

seed supply, quality production, certification, sampling, analysis, and traceability. Notably, 90% of the companies stated they required financial backing to establish a technical team for continuous monitoring and guidance for farmers. Furthermore, case studies highlighted that contract farming would be more effective if companies addressed the entire value chain—from seeding and transplanting to harvesting, milling, packaging, and marketing—ensuring quality assurance and food safety for rice. The report recommended that the Myanmar Government support CF enterprises by enforcing regulations throughout the pre-contracting, contracting, production, and post-harvest phases. Additionally, it suggested fostering strategic partnerships with NGOs, commercial banks, agricultural input suppliers, and mechanization firms. Encouraging the formation of farmers' groups to engage more active members and promoting them as seed producers or entrepreneurs could serve as a model for the future expansion of contract farming in Myanmar.

"Conditions for the Success of Contract Farming in Myanmar: A Review on Policy and Practice" was studied by Andrew Laitha in 2020. The study found that Myanmar presents immense potential for successful implementation of the CF schemes. However, there is a great need to harmonize existing and new regulations by specifying substantive elements of the agreement, contract enforcing entities, well-placed dispute resolution mechanisms, as well as holistic public supporting services. Therefore, the study recommends the Government of Myanmar (i) to provide a strong regulatory and institutional framework, (ii) to invest in strategic public goods and improve the delivery of its services (iii) to promote CF through incentive programs both for farms and firms, and (iv) to mitigate trade-offs on food security that can arise from monocropping and environmental impact that may result from excessive application of agrochemicals on the farmlands.

CHAPTER III
CONTRACT FARMING IN MYANMAR

This chapter presents development and types of contract farming, activities of contract farming by crop-wide and region-wide, and participation of government, NGOs and private sector in contract farming programmes.

3.1 Overview of Rice Production in Myanmar

Rice is a staple food and a crucial agricultural product in Myanmar, contributing significantly to the country's economy and food security. Paddy (rice) cultivation accounts for about half of all cultivated land and has the highest percentage share of total net sown area (47%) among crops grown in Myanmar during 2010-11 and 2021-22 (CSO, 2023).

Table 3.1: Sown acreage, Yield and Production of Rice (2010-11 – 2021-22)

Sr. No	Year	Sown Area ('000 acre)	Yield (basket/acre)	Production ('000 tons)
1	2010-2011	19,885	79	32,065
2	2011-2012	18,762	79	28,552
3	2012-2013	17,893	74	26,217
4	2013-2014	17,999	75	26,372
5	2014-2015	17,722	76	26,424
6	2015-2016	17,821	76	26,210
7	2016-2017	17,696	75	25,673
8	2017-2018	17,930	75	25,264
9	2018-2019	17,861	76	27,574
10	2019-2020	17,306	75	26,269
11	2020-2021	17,203	75	25,983
12	2021-2022	17,429	76	27,005

Source: CSO, various issues.

Rice production is approximately 27 million tons and rice export is in average more than 1 million tons. Myanmar is the seventh largest rice producing and exporting country in the world (USDA, 2024). Table (3.1) shows sown acreage, yield and production of rice during 2010-11 and 2021-22.

The total area of rice sown in Myanmar fluctuated over the years, with a notable peak of 19,885 thousand acres in 2010-2011. Afterward, it gradually declined, reaching 17,203 thousand acres in 2020-2021, before increasing slightly to 17,429 thousand acres in 2021-2022.

Rice yield remained relatively stable over the years, varying slightly between 74 to 79 baskets per acre. It peaked at 79 baskets/acre in 2010-2011 and 2011-2012 and hit a low of 74 baskets/acre in 2012-2013.

The production of rice corresponded with changes in both sown acreage and yield. It peaked at 32,065 thousand tons in 2010-2011 and declined steadily in the following years, hitting its lowest point of 25,264 thousand tons in 2017-2018. Production picked up slightly after that, reaching 27,005 thousand tons in 2021-2022.

3.2 Development of Contract Farming Practices

Since 2005, Myanmar's government has actively sought to attract investments in contract farming from countries such as China, Thailand, Bangladesh, and Kuwait. For instance, Thailand has established a formal agreement to cultivate 120,000 acres along the border with Myanmar (Baker, T.A, 2011). However, these agreements often fall short of the true definition of contract farming, which involves a mutual understanding between buyers and farmers that outlines the terms of production and marketing for agricultural goods.

In a typical contract, farmers agree to deliver specified quantities of produce at designated times, adhering to the quality standards set by the buyer. In return, buyers promise to purchase the product and may also support the production process by providing inputs, assisting with land preparation, or offering technical guidance. Ideally, such contracts create a win-win situation: farmers secure a reliable market and experience less price volatility, while buyers gain a dependable supply of agricultural products that meet their requirements.

In Myanmar, the scenario where both farmers and companies benefit from contract farming is more of an exception than a common occurrence. The phrase "contract farming" has frequently been utilized to justify the appropriation of land from

farmers. In only a limited number of instances have companies provided any compensation, as mandated by Myanmar's legislation, and even then, it was primarily aimed at enhancing their public image or calming the discontent of the original landowners. Consequently, the advantages of contract farming have largely favored companies rather than farmers.

Despite these adverse experiences, contract farming remains a key focus on Myanmar's political agenda. The government is actively collaborating with international bodies, such as the Organization for Economic Co-operation and Development (OECD), to develop a policy framework aimed at boosting foreign direct investment through contract farming initiatives.

In September 2016, a new Myanmar Investment Law was enacted by the government, allowing investors the option to extend the initial land lease period, which lasts for 50 years, by two additional ten-year increments. Additionally, foreign investors are now permitted to directly engage with farmers to establish joint agricultural ventures for land development. This legislation also empowers farmers to utilize their land certificates as collateral for loans and permits them to sell or transfer land through inheritance. While this legal framework has opened up opportunities for contract farming in Myanmar, land disputes are likely to persist. The existing disparities mean that only those farmers with greater financial resources are benefiting from contract farming, leaving others more vulnerable to debt and economic instability.

Thus far, the effectiveness of contract farming has been limited. Farmers have struggled to fulfill the contractual requirements regarding crop quality, quantity, and timing due to ongoing disasters, fluctuating prices, and climate change. Furthermore, companies have frequently failed to meet their obligations, such as providing necessary technical support, fertilizers, and quality seeds. Nonetheless, well-structured contract farming initiatives can offer significant benefits without necessarily exposing farmers to the risk of losing their land.

One of the notable positive instances highlighting the promise of contract farming is the establishment of the Myanmar Agribusiness Public Corporation (MAPCO) in 2012. This organization focuses on maintaining a lasting business partnership with farmers by offering essential technical and financial support. Additionally, MAPCO commits to purchasing a specific quantity of rice from farmers at equitable prices, effectively lowering transaction costs for both parties. The security provided by these contracts has also promoted the growth of small-scale contract

farming, characterized by collaborations among rural NGOs, farmers, and business enterprises. This example illustrates that, with appropriate marketing and financial approaches, alongside assured fair prices, businesses can significantly enhance the sustainable livelihoods of small-scale farmers.

In Myanmar, a national initiative was launched in 1991 to promote extensive commercial entrepreneurship and investment within the agricultural sector. Companies interested in farming large areas were eligible to receive grants of land up to 5,000 acres, with the potential for expansions up to 50,000 acres per application, managed by the Central Committee for the Administration of Culturable Land, Fallow Land, and Waste Land. Groups that acquired this land received various economic incentives, including leases lasting 30 years, automatic approval to export up to 50% of their crops (with the remaining required for domestic sale), tax exemptions for imported machinery, pesticides, and fertilizers, as well as the provision of infrastructure at no cost (which was reportedly funded by the state). They also had guaranteed access to loans. However, these large-scale contracts lacked legal frameworks addressing the relationship between farmers and contracting companies or regulations regarding land use (Baker, 2011).

Additionally, since 1991, commercial plantation farming in Myanmar has attracted various investors from neighboring countries, leading to significant land concessions in return for commitments from contractors to enhance the nation's food security.

Cross-border agricultural activities in Myanmar have been on the rise since the early 2000s, particularly in areas bordering Thailand, China, and Bangladesh, involving the cultivation of crops such as soybeans, paddy, onions, maize, tea, sugarcane, and corn. The border with China has also seen growth due to China’s campaign for opium crop substitution. The relationship between farmers in Myanmar and Thailand highlights the socio-economic benefits of contracts for resource-poor farmers in Myawaddy, a border town. Many resource-poor farmers in this region primarily rely on informal, verbal agreements, either individually or in groups, with Thai traders and suppliers for maize cultivation, and they follow this with non-contracted green gram farming to address soil sustainability concerns. Increased income-generating opportunities for these farmers could empower them to enhance their living standards. Despite this, cross-border contract farming has somewhat improved the resources accessible to farmers (Dolly Kyaw, Theingi Myint, and Walsh, 2015).

In 2008, Bangladesh received a concession of 50,000 acres for the cultivation of soybeans, paddy, onions, maize, tea, and sugarcane. Myanmar farmers are not involved in this farming initiative, as the agreement stipulates that 10,000 farmers will be imported from Chittagong, Bangladesh (Tribune, 2008).

Thailand has entered into contracts covering extensive areas in northern Myanmar for agricultural projects, where Thailand provides inputs and Myanmar offers "land and labor." In 2005, Thailand and the state-run Myanmar Sugarcane Enterprise established a contract for 2,000 acres of sugarcane cultivation near Bago Division, with full ownership of the project retained by Thai interests.

In the same year, Myanmar and Thailand reportedly entered into an agreement to cultivate a variety of crops across more than 17.5 million acres in the Shan and Kachin States. The state-owned Yuzana Company is said to have appropriated over 200,000 acres for this initiative (BLC, n.d.). Additionally, the Thai agricultural giant Charoen Pokphand (CP) Group currently employs contract farming to cultivate and buy maize.

At present, numerous local wholesalers in Aunglan Township, Magway Region, have been supplying sesame seeds and extending credit to sesame farmers through informal contract arrangements, a result of the Pyitharyar contract farming initiative. These informal agreements typically involve verbal contracts between local wholesalers and individual sesame farmers, covering the provision of seeds, credit, market information, and the purchase of sesame seeds by the wholesalers. However, there is a lack of statistical research and limited literature regarding the informal sesame contract farming system in Myanmar.

The effectiveness of contract farming has thus far been constrained. Farmers have struggled to fulfill the quality, quantity, and timing requirements outlined in contracts due to recurring natural disasters, price fluctuations, and the impacts of climate change. Moreover, the companies often fail to meet their obligations, such as providing necessary technical support, fertilizers, and quality seeds. Despite these challenges, well-functioning contract farming models can provide significant benefits without necessarily putting farmers at risk of losing their land.

The Myanmar Rice Federation (MRF) reports that this year, over 100,000 acres of monsoon rice have been cultivated through contract farming. MRF's affiliated companies have been actively managing this contract farming initiative, which initially aimed to encompass 200,000 acres during the monsoon season. Currently, 100,483

acres have been cultivated under this system by 53 companies across 49 townships nationwide (Digital News, September 2020).

In the Ayeyawady Region, an initial target of 45,500 acres for monsoon rice was set, but only 39,488 acres have been successfully contracted. In the Bago Region, 49,402 acres have been covered out of a planned 52,000 acres, while in the Yangon Region, 5,358 acres have been contracted of the targeted 21,000 acres. Nay Pyi Taw has contracted 3,835 acres out of 9,000 acres, and Mandalay Region has seen 400 acres out of 6,000 acres contracted. Additionally, there are plans for contracting in various regions, including 11,000 acres in Rakhine State, 9,000 acres in Shan State, 6,000 acres in Mandalay, 6,500 acres in Mon State, 7,000 acres in Magway Region, 2,000 acres in Taninthayi Region, 3,000 acres in Kachin State, 2,000 acres in Kayah State, and 3,000 acres in Kayin State. (Digital News, September 2020).

3.3 Types of Contact Farming Activities in Myanmar

Types of CF Activities in Myanmar vary widely based on the formality and commitments outlined in the contracts between farmers and buyers. Informality ranges from simple oral agreements to detailed written contracts specifying input use, production methods, quality standards, and prices. Typically, larger processing or exporting firms offer more formal contracts, especially when dealing with medium- to large-scale farmers.

CF schemes can further be categorized by the nature of commitments involved.

- Market-specifying contracts define terms like price, quantity, timing, and product specifications.
- Resource-providing contracts go beyond, offering agricultural inputs and technical support on credit.
- Production-management contracts dictate farming practices such as planting density, pesticide use, and harvest timing.

Many contracts combine elements from all three categories, addressing production methods, sales terms, and input provision simultaneously (Martinez, 2002).

Another critical aspect is pricing and payment structure. Some contracts fix prices at planting, risking side-selling if market prices exceed the contract terms. Conversely, if market prices drop, buyers may seek cheaper alternatives, undermining contract stability. To mitigate these risks, some schemes adopt formula pricing tied to market rates, often with a premium. Additionally, split payments – where farmers

receive payments in installments – are common to ensure compliance and financial security.

These variations illustrate the complex landscape of contract farming in Myanmar, where contractual agreements play a pivotal role in shaping agricultural practices and market dynamics.

3.4 Contract Farming Activities by Crops and Regions

Myanmar's economy has traditionally relied heavily on agriculture, making agricultural products the primary output of the national economy. According to a 2003 agricultural census, approximately 3.46 million households were involved in farming, with 8.7 million acres of land under cultivation. Myanmar's economy heavily relies on agriculture, which accounts for 60% of the GDP and provides employment for 65% of the workforce.

In 1901, only 8.5 million acres were used for paddy cultivation. However, by 1941, this number had risen to 12.5 million acres. During World War II in 1945, Myanmar experienced armed conflicts, leading to the widespread killing of draft cattle such as buffaloes and oxen. The Japanese fascist troops slaughtered many of these animals for food. This significant loss of farming animals caused a decline in agricultural activities and a reduction in cultivated land. By 1961, the area dedicated to paddy cultivation had decreased to 11.5 million acres.

Between 1938 and 1940, approximately 12 million out of the more than 17 million acres of cultivated land in Myanmar were dedicated to paddy fields, underscoring the crop's importance. Paddy, often referred to metaphorically as the lifeblood or precious gem of Myanmar, plays an important role in the country's agriculture. The Ayeyarwady Region, known as the rice barn, highlights this significance. Paddy cultivation constitutes 34 percent of all crop cultivation in Myanmar, and in 2013, the total rice production in the country reached 27 million tons. Monsoon paddy is the predominant type grown, with 15 million acres dedicated to it, compared to two million acres for summer paddy. In the Ayeyarwady Region alone, five million acres were used for monsoon paddy, while Bago Region had three million acres, Sagaing two million, and Yangon Region one million. These four regions collectively account for 70 percent of Myanmar's monsoon paddy cultivation.

According to the MRF Digital News, published on September 29, 2020, Table 3.2 provides details on the contract farming areas for monsoon paddy across some regions.

Table 3.2: Contract Farming Area of Monsoon Paddy by State and Region

Sr. No	States and Regions	Area (acres)
1	Ayeyarwady	39,488
2	Bago	49,402
3	Yangon	5,358
4	Nay Pyi Taw	3,835
5	Mandalay	400

Source: MRF, Digital News, 29, Sept 2020.

As shown in Table 3.2, area of Bago region is largest and the second largest region is Ayeyarwady region. It is because these two regions are most rice growing areas in Myanmar. Implementation of contract farming activities of industrial maize production in Shan State is described in Table 3.3 and Table 3.4.

Table 3.3: Planted Industrial Maize (acres) in North Shan State, 2013/14

District	**Township**	**Planted (acres)**	**Township**	**Planted (acres)**
Lashio	Total	78,309		
	Lashio	46,128	Tang Yan	11,917
	Hse Ni	14,729	Mong Yai	5,535
Muse	Total	33,228		
	Muse	9,976	Kut Kai	18,059
	Nan Hkam	5,193		
Kyauk Me	Ttotal	124,262		
	Kyauk Me	30,507	Nam San	677
	Hsi Paw	21,487	Moe Mate	185
	Naung Cho	58,882	Ma Bein	442
	Nam Tu	10,375	Man Tone	1,707
Kun Lone	Total	7,267		

	Kun Lone	7,267		
Lauk Kai	Total	27,513		
	Lauk Kai	7,282	Kone Gyann	10,231
Wa Region	Total	14,495		
	Ho Pan	12,715	other townships	1,780
Total Planted Acres		285,074		

Source: Regional State Office, MoALI, Taunggyi, Shan State

Targeted area of industrial maize are Lashio, Muse, Kyauk Me, Kun Lone, and Lauk Kai districts and Wa region of Northern Shan State.

Table 3.4: Planted Industrial Maize (acres) in South Shan State, 2013/14

District	Township	Planted (acres)	Township	Planted (acres)
Taunggyi	Total	147,023		
	Taung Gyi	52960	Pin Daya	7857
	Ho Pong	7004	Ywa Ngan	4830
	Nyaung Shwe	4499	Yat Sauk	40512
	Hse Hseng	9989	Pin Laung	6552
	Ka Law	3130	Pe Kon	9690
Loilen	Total	30,606		
	Loi Len	1290	Kye Thi	5974
	Lai Hka	1141	Mong Kaing	3895
	Nan Sang	14602	Mong Hsu	1554
	Kun Hing	2150		
Langkho	Total	6,303		
	Lang Kho	1337	Mauk Mai	1170
	Mong Nai	2436	Mong Pan	1360
Total Planted Acres		183,932		

Source: Regional State Office, MoALI, Taunggyi, Shan State.

In Southern Shan State, Taunggyi, Loile and Langkho districts are planted area of contract farming for industrial maize.

Table 3.5 presents the planned contract farming areas for monsoon paddy across states and regions.

Table 3.5: Planning Area of Contract Farming of Monsoon Paddy by State and Region

Sr. No	States and Regions	Area (acres)
1	Ayeyarwady	45,500
2	Bago	52,000
3	Yangon	21,000
4	Nay Pyi Taw	9,000
5	Mandalay	6,000
6	Rakhine State	11,000
7	Shan State	9,000
8	Mon State	6,500
9	Magway Region	7,000
10	Taninthayi Region	2,000
11	Kachin State	3,000
12	Kayah State	2,000
13	Kayin State	3,000

Source: MRF, Digital News, 29, Sept 2020.

As of 2020, the MRF records indicate that 100,483 acres of monsoon paddy have been cultivated by 53 companies under the contract farming system, accounting for half of the total 200,000 acres across 49 townships nationwide.

3.5 Role of Government and NGOs in Contract Farming in Myanmar

Since 2005, the Myanmar government has been actively fostering contract farming, attracting farmers and businesses from countries such as China, Thailand, Bangladesh, India, and Kuwait to engage in mutually beneficial arrangements. In this context, foreign investors supply Myanmar farmers with modern equipment and agricultural inputs in return for high-quality produce. For instance, Thai investors have established a formal agreement to cultivate 120,000 acres near the Thai-Myanmar border (Baker, T.A, 2011). However, many of these arrangements do not fully meet the

criteria for contract farming, which is characterized by a formal agreement between buyers and farmers regarding the production and marketing terms of agricultural goods.

Generally, farmers consent to deliver agreed-upon amounts of agricultural products at a specified time, ensuring that these products align with quality standards. In return, the buyer agrees to purchase the items and may also assist in the production process by supplying agricultural inputs, preparing land, or offering technical support. Ideally, this contract benefits both parties: farmers secure a reliable market and experience less price volatility, while buyers gain assured access to agricultural products that meet their specific requirements.

In Myanmar, instances where both farmers and companies benefit from contract farming are rare. More commonly, the term has been employed to justify the seizure of land from farmers. While there have been some instances where companies provided compensation in accordance with Myanmar's laws, these actions were primarily aimed at enhancing their public reputation or mitigating the discontent of the original landowners. As a result, contract farming has predominantly favored companies rather than farmers.

Although there have been some adverse experiences, contract farming remains a priority on Myanmar's political agenda. The government is actively collaborating with international organizations, such as the Organization for Economic Co-operation and Development (OECD), to develop a policy framework aimed at boosting foreign direct investment through contract farming.

In September 2016, Myanmar's government enacted the Myanmar Investment Law, allowing investors to extend the standard maximum land lease period of 50 years by two additional ten-year extensions. Additionally, foreign investors are permitted to engage directly with farmers for collaborative agricultural land production efforts to access their land. The updated legislation also enables farmers to utilize their land certificates as collateral for loans and permits the sale or transfer of land through inheritance. While this legal framework has opened avenues for genuine contract farming in Myanmar, it is anticipated that land disputes will persist. Given existing inequalities, the farmers who gain the most from contract farming are typically those with greater financial resources, leaving others more vulnerable and at risk of increased debt.

To enhance collaboration between farmers and companies within the agricultural value chain, the Ministry of Agriculture, Livestock, and Irrigation issued

regulations concerning contract farming on January 31, 2020. This system requires companies to supply quality inputs and technical support. The contract framework includes nine provisions for farmers, ten for farming enterprises, and nine for the government. The ministry has made the contract available on its website (www.agri.com.mm) and encouraged both parties to review it carefully prior to entering into agreements.

The contract farming model is a key initiative by the government to promote collaborations between the public sector and private enterprises. The policies, guidelines, and frameworks related to contract farming are designed to secure a significant market for agricultural products while ensuring high-quality outputs. Through this system, farmers and companies can negotiate the pricing and quality of crops prior to planting, fostering a sustainable market environment. Additionally, farmers are tasked with cultivating crops in accordance with Good Agricultural Practices, ensuring that the produce meets the agreed-upon quality, quantity, and standards established in their contracts.

3.5.1 Standard Operating Procedures (SOPs) for Contract Farming

On January 31, 2020, the Myanmar Ministry of Agriculture, MoALI implemented Standard SOPs for contract farming. These procedures, outlined under section 29, sub-section (b) of the "Law of Protection of the Farmer Right and Enhancement of their Benefits," mandate adherence for private companies, entrepreneurs, and organizations engaged with farmers or growers within the agricultural and livestock production chain.

The main objective of the SOPs is to enhance systematic cooperation and streamline operations between farmers, growers, private companies, entrepreneurs, and their respective organizations or associations. The procedures are divided into three main sections:

1. Instructions for farmers
2. Instructions for private companies, entrepreneurs, organizations, and associations
3. Instructions for relevant departments of the Myanmar government

The SOPs detail 9 instructions for farmers, 11 instructions for private companies/entrepreneurs/organizations/associations, and 9 instructions for relevant

government departments. Since these SOPs are available only in the Myanmar language, the following is a concise overview of the instructions:

(1) Instructions for Farmers

Farmers participating in contract farming are obligated to demonstrate ownership of their land and must have a clear comprehension of the contract terms prior to signing. Depending on the specific agreement, farmers are expected to follow recommended agricultural practices to ensure that the quality of their products aligns with the established standards. Agricultural inputs, including seeds and chemical fertilizers, should only be utilized on the land designated in the contract. Farmers are required to sell either a crop quantity equivalent to the value they received or the entire yield to the contractor at a predetermined price. Any excess crops beyond the agreed amount can be sold independently.

(2) Instructions for Private Companies, Entrepreneurs, Organizations, and Associations

Private companies and related entities must clearly communicate the business procedures, profit-sharing rules, and other regulations to farmers and relevant governmental bodies before a contract is finalized. These entities should possess a good understanding of the agricultural inputs and costs associated with farming. They are obligated to ensure that costs associated with inputs, including seeds, fertilizers, land preparation, planting, and harvesting, are covered. In seed production, all seeds must undergo verification by relevant departments for seed certification, with companies bearing the cost of necessary testing. Under the contract, companies must purchase either the crops or seeds equal to the value provided or the entire yield at the agreed-upon price.

Both parties are required to sign the contract in the presence of officials from relevant Myanmar government departments. Although the SOPs are new and some procedures may lack clarity, requirements may vary by state or region. In regions like Shan State or Ayeyarwady Division, contract arrangements might require coordination with the regional authorities. Any changes, updates, or adjustments to the contract must be approved and signed by all participating parties.

(3) Instructions for Relevant Departments of the Myanmar Government

Relevant government departments in Myanmar have a critical oversight role in ensuring compliance with state legal procedures. If agricultural producers, companies, private entrepreneurs, or organizations violate the agreed rules, the respective township's General Administration Department is responsible for resolving issues in accordance with the agreement. For seed production businesses, these departments must ensure compliance with quality standards and adherence to the seed law, rules, regulations, guidance, notifications, and procedures established by the government. Additionally, relevant departments should monitor these businesses using a Stakeholder Participatory Monitoring System and ensure that businesses declare their quality standards, rules, information and regulation about local and export markets.

3.6 Private Sector Participation in Contract Farming

Rice serves as a fundamental food source and plays a significant role in providing employment opportunities and generating export revenue for Myanmar's economy. As such, it is recognized as a vital crop for the country's socioeconomic advancement. In response, the government has initiated reforms and implemented various agricultural policies that prioritize the development of the rice sector, including the promotion of private sector involvement. Since the 2008 monsoon season, private rice specialization companies (RSCs) have adopted a contract farming approach within Myanmar's rice value chain, particularly in key rice-producing regions. This contract farming model is viewed as a promising business strategy to connect smallholder farmers with global export markets through a stable supply chain. Additionally, it serves as an institutional mechanism to provide essential inputs, financial support, and technical assistance to resource-constrained smallholders. Although the rice contract farming scheme in Myanmar is still relatively new, it faces certain challenges. Table 3.6 provides a summary of the contract farming conditions associated with private seed companies in Myanmar.

Table 3.6: Implementation of Rice Companies for Paddy Seeds

Establish Year	Rice Company	Capacity of Seed Production	Rice Varieties/ Seed grade	Active Areas
2009	Gold Delta Rice Specialized Company	400 ac	Sin Thwe Latt and Hmawbi-2	Danubyu, AD
2012	Myanmar Agribusiness Public Corporation Limited (MAPCO)	7000-8000 acres	agribusiness services centre, engineering, contracting business, rice industry project	Kyaiklat, Nay Pyi Taw, Myaungmya, and Kyauktaw (33 Townships)
2012	Ayer Pathain	Around 500 acres, (50000 baskets contracted)	Pawsan Yin, Sinthwelat, Sinthukha Thee Htat Yin, Ayermin	Pathein township, AD
2012-13	Ayer Dagon	100 ac	Sin Thukha	Ye Kyi township, AD
2015	Monsoon Rural Development Foundation (MRDF)	30 acres (own) + 65 farmers networks	Sinthukha, and 90 days, PakhanShwe War and Paw San Yin	Kyaung Gone township, AD
2015	Kyaiklat Company	500 acres	Japanese Hitome bore, 90 days, Shan Yadana, Paw San Yin	Kyeiklat township, AD
2015	Mone Thida Seed Production Co.,Ltd.	Not yet established in delta	-	Magway & Bago Regions
2015	Good Brothers' Chemical Co.,Ltd (GBC)	300 acres own+ 6000 acres CF	-	Ye Kyi township, AD

Source: Myanmar Rice Federation October, 2019

The rice contract farming system in Myanmar was initiated by Rice Specialization Companies in late 2008, aiming to enhance private sector involvement in the development of the rice industry. Certain companies utilize formal written contracts with individual farmers, while others engage in written or verbal agreements

with groups of farmers. Through this contract farming approach, rice farmers receive seeds, fertilizers, financial support, and technical assistance from the partnering companies, along with more consistent market access compared to traditional farming methods.

Most of contract farming schemes have been conducting by so called intermediary model and by written contract with both by group of farmers and individual farmer as type of contract.

A notable instance that highlights the promise of contract farming is the establishment of the Myanmar Agribusiness Public Corporation (MAPCO) in 2012. The organization aims to maintain enduring partnerships with farmers by offering both technical support and financial resources. Additionally, MAPCO commits to purchasing a specified quantity of rice from farmers at a fair price, which effectively lowers transaction costs for both parties. Furthermore, the security provided by these contracts has encouraged the growth of small-scale contract farming through collaboration between rural NGOs, farmers, and business entities. This illustrates that, when equipped with appropriate marketing and financial strategies, along with assured fair prices, companies can play a significant role in enhancing the livelihoods of small-scale farmers.

CHAPTER IV

SURVEY ANALYSIS

This chapter involves the comprehensive analysis of survey data collected from both CF and NCF farmers in Nay Pyi Taw district, Myanmar, focusing on rice production. The insights obtained from this survey are crucial in evaluating the effect of CF in enhancing agricultural productivity and improving the socio-economic status of farmers in the region.

4.1 Survey Profile

The survey for this study was carried out in Nay Pyi Taw district, Myanmar, targeting two distinct groups of farmers: CF and NCF, specifically involved in rice production. Number of surveyed farmers are 229 CF and 82 NCF from 9 villages of 3 townships, providing socio-economic condition, and farming condition. Data were collected through structured questionnaires, capturing a wide range of demographic variables including age, gender, educational level, household size, and the number of working persons per household. The survey aimed to shed light on contract farming practices by MAPCO and perception of famers on contract farming, thereby contributing valuable information to policymakers and stakeholders in the agricultural sector.

4.2 Survey Design

4.2.1 Sample Size Determination

Total 311 sample of farmers were randomly selected from the total population of 1396 farmers to describe the contract farming practices and to identify the perception on contract farming. The sample consisted of farmers who participates in contract farming (229) (CF farmers) and farmers who did not participate in contract farming (82) (NCF farmers). The selected villages with a sample allocation of farmers in each village are displayed in Table 4.1. The number of sample household was about 22% of households for CF and NCF.

Table 4.1: Selected Villages form Four Townships of Nay Pyi Taw

Township	Contract farming villages	Contact Farmers	Sample Contract Farmers	Non-Contract Farmers	Sample Non-Contract Farmers
Deakhina	Htantapin	30	7	24	5
	Aungthukha	85	19	45	10
	Nyaungtone	70	16	20	4
	Total	**185**	**41**	**89**	**20**
Laywai	Monzar	50	11	49	11
	Zeekone	53	12	30	7
	Total	**103**	**23**	**79**	**17**
Pyinmana	Zeekone	200	45	80	18
	Malzalikone	50	11	56	12
	Phyutwin	240	53	33	7
	Walsikhaw	250	56	31	8
	Total	**740**	**165**	**200**	**45**
Total		**1028**	**229**	**368**	**82**

Source: Survey Data, 2024

4.2.2 Data Collection Method

The method for data collection in this study employs random sampling to ensure a comprehensive understanding of farmers' perceptions of CF and to identify the challenges they face in its practice. Quantitative data was collected through structured questionnaires distributed to a representative sample of CF and NCF, capturing key demographic details, educational levels, household compositions, farming practices, perceptions, experiences, and challenges faced by the farmers on contract farming.

4.3 Survey Results

The survey provides socioeconomic condition and farming practices of farmers, farmers' perceptions, their experiences, and challenges faced by both CF and NCF.

4.3.1 Demographic Characteristics of Respondents

This section presents a comparative analysis of demographic characteristics between non-contract and contract farmers in Nay Pyi Taw township, Myanmar. Table 4.2 presents the demographic characteristics of CF and NCF farmers.

Table 4.2: Demographic Characteristics of Non-Contract and Contract Farmers

Description		Contract Farmers		Non-Contract Farmers	
		Frequency	Percent	Frequency	Percent
Age Group	21-30	1	0.4	1	1.2
	31-40	41	17.9	28	34.1
	41-50	55	24.0	31	37.8
	51-60	84	36.7	16	19.5
	61 and Above	48	21.0	6	7.3
	Total	**229**	**100.0**	**82**	**100.0**
Gender	Male	153	66.8	42	51.2
	Female	76	33.2	40	48.8
	Total	**229**	**100.0**	**82**	**100.0**
Educational Level	Read and Write	10	4.4	8	9.8
	Primary	80	34.9	22	26.8
	Middle	95	41.5	38	46.3
	High	34	14.8	9	11.0
	Graduate	10	4.4	5	6.1
	Total	**229**	**100.0**	**82**	**100.0**
Household Members	1-3	53	23.1	17	20.7
	4-6	147	64.2	58	70.7
	7-10	29	12.7	7	8.5
	Total	**229**	**100.0**	**82**	**100.0**
Working Person	1-3	202	88.2	72	87.8
	4-6	24	10.5	9	11.0
	7-10	3	1.3	1	1.2
	Total	**229**	**100**	**82**	**100.0**

Source: Survey Data, 2024

Among CF farmers, the largest age group is 51-60 years, representing 36.7% of the total, while the 41-50 age group is the most common among NCF farmers, accounting for 37.8%. This suggests that CF farmers tend to be older, possibly due to

the stability and experience required in CF, whereas NCF farmers may be relatively younger, potentially exploring flexible farming options.

The majority of CF farmers are male (66.8%), whereas NCF farmers have a more balanced gender distribution, with 51.2% male and 48.8% female. This could indicate that CF may be more appealing or accessible to males due to physical demands or socio-cultural factors influencing gender roles in agriculture.

Most contract farmers have a middle-level education (41.5%), with a similar trend among NCF farmers (46.3%). However, a higher proportion of NCF farmers have only basic literacy (9.8%) or primary education (26.8%), suggesting that those with lower educational levels may find it challenging to engage in the structured demands of CF.

Both CF and NCF farmers mostly have households of four to six members (64.2% and 70.7%, respectively). The similarity in household sizes reflects typical family structures in rural areas, though contract farmers tend to have slightly larger households on average, which may influence their choice to engage in contract farming due to potentially higher household expenses.

For both CF and NCF farmers, the majority have 1-3 working persons in their households (88.2% and 87.8%, respectively). This indicates that CF farmers have more labor available within their households, potentially making it easier to fulfill the obligations of contract farming agreements. NCF farmers, however, show a relatively higher percentage of households with 3 working persons, possibly indicating a need for additional income sources.

Concerning their occupation, the predominant occupation of all CF farmers and Non-CF farmers is agriculture and some have other supplementary occupations to make their livings shown in Table 4.3.

The survey data reveals that all CF and NCF have agriculture as their primary occupation. Among CF farmers, 65.1% do not have an additional occupation, compared to 52.4% of NCF. NCF are more diversified in secondary occupations, with 21.6% engaged in “Other” activities, significantly higher than the 4.4% of CF. Additionally, 12.2% of CF work as government staff, compared to 8.5% of NCF. While both groups have similar percentages in livestock and vendor roles, NCF have a slightly higher proportion of laborers at 6.1% compared to 2.2% among CF.

Table 4.3: Occupational Status of Non-Contract and Contract Farmers

	Occupation	Contract Farmers		Non-Contract Farmers	
		Frequency	Percent	Frequency	Percent
Main occupation	Agriculture	229	100.0%	82	100.0%
Total		**229**	**100.0%**	**82**	**100.0%**
Additional occupation	No additional occupation	149	65.1%	43	52.4%
	Livestock	18	7.9%	3	3.7%
	Vendor	19	8.3%	6	7.3%
	Government Staff	28	12.2%	7	8.5%
	Laborer	5	2.2%	5	6.1%
	Other	10	4.4%	18	21.6%
Total		**229**	**100.0%**	**82**	**100.0%**

Source: Survey Data, 2024

Income distribution among contract and non-contract farmers in Nay Pyi Taw district reveals in Table 4.4.

Table 4.4: Income Distribution of Household Per Year

Income (Kyat)	**Contract Farmers**		**Non-Contract Farmers**	
	Frequency	Percent	Frequency	Percent
Less than 20 lakh	4	1.7	3	3.7
20 lakh - 40 lakh	19	8.3	9	11.0
40 lakh - 60 lakh	21	9.2	10	12.2
60 lakh - 80 lakh	37	16.2	5	6.1
80 lakh - 100 lakh	30	13.1	7	8.5
100 lakh - 120 lakh	26	11.4	14	17.1
120 lakh - 140 lakh	15	6.6	6	7.3
140 lakh - 160 lakh	25	10.9	4	4.9
160 lakh - 180 lakh	4	1.7	12	14.6
180 lakh - 200 lakh	7	3.1	1	1.2
200 lakh and above	41	17.9	11	13.4
Total	**229**	**100.0**	**82**	**100.0**

Source: Survey Data, 2024

According to the table, households of CF farmers have a wide range of income levels, with the highest being 17.9% earning 200 lakh and above, followed by 16.2% in the 60 lakh - 80 lakh range. Conversely, Households of NCF farmers tend to earn consistently, with 17.1% making between 100 lakh - 120 lakh and 14.6% between 160 lakh - 180 lakh. This can be seen that number of households of CF farmers with highest level of income Kyat 200 lakh and above are more than that of NCF farmers.

The expenditure patterns households between CF and NCF farmers in Nay Pyi Taw are shown in Table 4.5.

Table 4.5: Household Expenditure of Contract and Non-Contract Farmers (in average per year)

Expenditure	**Contract Farmers**		**Non-Contract Farmers**	
	Frequency	Percent	Frequency	Percent
Less than 20 lakh	7	3.1	12	14.6
20 lakh - 40 lakh	30	13.1	6	7.3
40 lakh - 60 lakh	76	33.2	21	25.6
60 lakh - 80 lakh	33	14.4	13	15.9
80 lakh - 100 lakh	35	15.3	9	11.0
100 lakh - 120 lakh	13	5.7	6	7.3
120 lakh - 140 lakh	10	4.4	2	2.4
140 lakh - 160 lakh	7	3.1	4	4.9
160 lakh - 180 lakh	4	1.7	1	1.2
180 lakh - 200 lakh	2	0.9	2	2.4
200 lakh and above	12	5.2	6	7.3
Total	**229**	**100.0**	**82**	**100.0**

Source: Survey Data, 2024

The expenditure patterns of households in the Nay Pyi Taw district vary significantly between CF and NCF farmers. Among households of CF farmers, the most common expenditure range is 40 lakh to 60 lakh, with 33.2% of households falling into this category. In contrast, the highest percentage of NCF farmers' households (25.6%) also falls within the 40 lakh to 60 lakh range. However, a larger proportion of NCF farmers' households (14.6%) spend less than 20 lakh compared to households of CF

farmers (3.1%). Meanwhile, higher expenditure categories such as 80 lakh to 100 lakh and 200 lakh and above are more populated by CF farmers' households (15.3% and 5.2%, respectively) than by NCF farmers (11.0% and 7.3%). This difference could suggest that CF farmers' households may have greater access to resources or financing, allowing them to invest more in their agricultural activities, or they may have obligations tied to their contracts that necessitate higher expenditures.

4.3.2 Living Condition of Households

This section examines the living standards of households between CF and NCF farmers, focusing on critical aspects such as housing types, electricity usage, and water availability. By analyzing these factors, it can be known the potential impact of contract farming on living standards and to identify areas where improvements could be targeted to enhance the well-being of farmers in the region. The housing types of CF and NCF farmers reveal diverse living conditions influenced by their farming arrangements as shown in Table 4.6.

Table 4.6: Type of Housing among Contract and Non-Contract Farmers

Type of house	Contract Farmers		Non-Contract Farmers	
	Frequency	Percent	Frequency	Percent
Bamboo House	21	9.2	16	19.5
Wooden House	76	33.2	36	43.9
Brick Cutter House	59	25.8	15	18.3
Brick/Concrete House	73	31.9	15	18.3
Total	**229**	**100.0**	**82**	**100.0**

Source: Survey Data, 2024

Among CF farmers, the most common types of houses are wooden (33.2%) and brick/concrete (31.9%). In contrast, NCF farmers predominantly live in wooden houses (43.9%), with a significant portion (19.5%) residing in bamboo houses. This difference reflects the relatively limited financial resources and lower income stability of NCF farmers, who lack the financial support and security that contract farming arrangements can provide. Table 4.7 shows the status of electricity usage of CF and NCF farmers' households.

Table 4.7: Electricity Utilization among Non-contract and Contract Farmers

Electricity usage status	Contract Farmers		Non-contract Farmers	
	Frequency	Percent	Frequency	Percent
Government (National Grip)	53	23.1	26	31.7
Village (Provided Electricity)	162	70.7	50	61.0
Solar	1	0.4	6	7.3
Other (Candles, Diesel)	13	5.7	0	0.0
Total	**229**	**100.0**	**82**	**100**

Source: Survey Data, 2024

In terms of electricity utilization, the majority of contract farmers' households rely on village-provided electricity (70.7%), whereas non-contract farmers show a higher reliance on government electricity (61.07%). The government's national grid system provide about 23.1% and 31.7% of CF farmers' households and NCF farmers' households respectively. This indicates that contract farmers have better access to reliable electricity sources, which could be due to the financial and infrastructural support associated with contract farming arrangements.

Table 4.8 shows the sources of water accessed by farmers which can significantly impact their farming practices and success.

Table 4.8: Water Availability of Households

Water availability	Contract Farmers		Non-Contract Farmers	
	Frequency	Percent	Frequency	Percent
River	2	0.9	0.0	0.0
Lake water	2	0.9	2.0	2.4
Artisan water	146	63.8	71.0	86.6
Well water	74	32.3	9.0	11.0
Other	5	2.2	0.0	0.0
Total	**229**	**100.0**	**82.0**	**100**

Source: Survey Data, 2024

Water availability significantly impacts agricultural practices. Most non-contract farmers rely on artisan water (63.8%), while 32.3% use well water, suggesting

a dependency on less reliable sources. On the other hand, a majority of contract farmers use artisan water (86.6%), with fewer using well water (11.0%) and lake water (2.4%). This indicates that contract farmers' households may have better access to consistent water sources, possibly due to the improved irrigation infrastructure and resources provided through contract farming. The difference shows how contract farming can improve water availability and reduce farmers' vulnerability to water scarcity.

According to electricity and water utilization in surveyed area, those households of both CF and NCF farmers have somewhat sufficient in basic need requirement for their living condidtion.

4.3.3 Property Condition of Contract and Non-contract Farmers

Table 4.9 illustrates the differences in agricultural property, animal ownership, and other assets between CF and NCF farmers in Nay Pyi Taw, Myanmar.

Table 4.9: Property Condition of Contract and Non-Contract Farmers

Condition	Contract Farmers			Non-Contract Farmers		
	Total	No. of HH	Percent	Total	No. of HH	Percent
Agricultural property status						
Tractor	229	47	20.5	82	3	3.7
Furrows	229	17	7.4	82	1	1.2
Threshing Machine	229	7	3.1	82	1	1.2
Harvest Machine	229	0	0.00	82	2	2.4
Cattle/Buffalo	229	210	91.7	82	69	84.1
Bullock Cart	229	36	15.7	82	26	31.7
Animal ownership status						
Chicken	229	229	100.0	82	82	100.0
Duck	229	229	100.0	82	54	65.9
Pork	229	73	31.9	82	24	29.3
Goat	229	0	0.0	82	18	22.0
Other assets						
Telephone	229	229	100.0	82	82	100.0

Automobile	229	16	7.0	82	0	0.0
Motorcycle	229	192	83.8	82	68	82.9
Bicycle	229	198	86.5	82	80	97.6
Htaw Lar Gyi	229	7	3.1	82	0	0.0
Water Pump	229	43	18.8	82	17	20.7
TV	229	212	92.6	82	64	78.0
Refrigerator	229	100	43.7	82	14	17.1
Radio	229	39	17.0	82	10	12.2
Rice cooker	229	223	97.4	82	81	98.8
Electric oven	229	164	71.6	82	77	93.9
Gas stove	229	1	0.4	82	0	0.0
Fan	229	210	91.7	82	79	96.3

Source: Survey Data, 2024

The survey data shows the differences in agricultural property between CF and NCF farmers. CF farmers own more tractors (20.5%) and furrows (7.4%), while NCF farmers use more harvest machines (2.4%). Both groups primarily use cattle or buffalo, with CF farmers at 91.7% and NCF farmers at 84.1%, describing a balance between traditional and mechanized methods.

CF farmers are better equipped with modern farming tools, owning more tractors, furrows, and threshing machines, while NCF farmers have more harvest machines and bullock carts. Both groups fully own telephones, but CF farmers lead in automobile and refrigerator ownership, suggesting greater disposable income. NCF farmers have higher ownership of bicycles and slightly more reliance on traditional means like cattle. Overall, CF farmers appear more financially capable of investing in household and farming assets.

4.3.4 Farming Conditions of Contract and Non-Contract Farmers

The farming conditions for CF and NCF farmers in Nay Pyi Taw exhibit in Table 4.10 particularly in land ownership, farming experience, and crop cultivation.

Table 4.10: Farming Conditions of Contract and Non-Contract Farmers

Farming conditions	Contract Farmers				Non-Contract Farmers			
	N	Sum	Mean	SD	N	Sum	Mean	SD
Total Land (Acre)	229	1118	4.88	4.242	82	451	5.50	9.548
Farming experience (Year)	229	6206	27.10	14.316	82	2027	24.72	9.887
Acre of cultivated rice	229	1420	6.20	11.709	82	430	5.24	8.259
Acre of other crops	229	237	1.03	2.089	82	166	2.02	2.771

Source: Survey Data, 2024

Based on the survey data from the Nay Pyi Taw district, CF farmers, on average, own 4.88 acres of land and have been farming for approximately 27.1 years. In contrast, NCF farmers have 5.5 acres of land and their farming experience, averaging 24.72 years. All farmers have many experiences in farming and they cultivate not only rice but also other crops.

Table 4.11 shows cultivation of crops between Farming Condition of CF and NCF Farmers in last year.

Table 4.11: Types of Crop by Contract and Non-Contract Farmers

Farming conditions (last year)	Contract Farmers (229)		Non-Contract Farmers (82)	
	Frequency	Percent	Frequency	Percent
Paddy	203	89	82	100
Beans	80	35	56	68
Sesame	34	15	38	46
Sunflower	10	4	4	5

Source: Survey Data, 2024

Most of farmers both CF farmers (89%) and NCF farmers (100%) cultivated paddy. It is found that farmers practiced double cropping and triple cropping. CF farmers also showed diversity in other crops, with 35% growing beans, 15% sesame, and 4% sunflower. Meanwhile, NCF farmers were more inclined towards beans (68%) and sesame (46%), with only 5% cultivating sunflower. This suggests that contract

farming schemes potentially influence crop selection, encouraging or mandating CF farmers to focus on specific high-demand or high-value crops, enhancing their profitability.

According to Table 4.12, the distribution of cultivated acres among CF and NCF farmers reveals significant differences in landholding sizes.

Table 4.12: Cultivated Acre of Contract and Non-Contract Farmers

Cultivated Acre	Contract Farmers		Non-Contract Farmers	
	Frequency	**Percent**	**Frequency**	**Percent**
Under 5 acre	160	69.9	47	57.3
5 - 10 acre	46	20.1	23	28.0
10 - 15 acre	13	5.7	2	2.4
15- 20 acre	4	1.7	3	3.7
20 - 25 acre	5	2.2	3	3.7
25 acre above	1	0.4	4	4.9
Total	**229**	**100.0**	**82**	**100.0**
Average Acre	**5.59**		**7.8**	

Source: Survey Data, 2024

The majority of CF farmers (69.9%) and NCF farmers (57.3%) cultivate under 5 acres of land. However, the proportion of NCF farmers with larger land sizes is relatively higher; about 4.9% of NCF farmers cultivate 25 acres and above compared to just 0.4% of CF farmers. This indicates that NCF farmers, on average, tend to manage larger plots of land (7.8 acres) than CF farmers (5.59 acres). Farmers with larger acreages might already have enough resources, such as capital and labor, to operate independently, reducing their need for the guaranteed support that contract farming offers. In addition, contract farming often comes with obligations such as following specific farming practices or crop choices, which may not appeal to farmers with larger land who want more freedom to make decisions.

Table 4.13 shows how often CF and NCF farmers cultivate their crops in one season.

Table 4.13: Crop Planting Time for Contract and Non-Contract Farmers

Crop planting time	Contract Farmers		Non-Contract Farmers	
	Frequency	Percent	Frequency	Percent
One Time	20	8.7	18	22.0
Two Time	79	34.5	26	31.7
Three Time	130	56.8	38	46.3
Total	**229**	**100.0**	**82**	**100.0**

Source: Survey Data, 2024

A smaller proportion of farmers cultivates crops two times, accounting for 34.5% of CF farmers and 31.7% of NCF farmers. Only a few farmers plant crops once per season, with 8.7% of CF farmers and 22.0% of NCF farmers adopting this approach. However, a majority of both groups plant crops three times per season, with 56.8% of CF farmers and 46.3% of NCF farmers following this pattern. This is because planting three times a year allows farmers to maximize their crop yield, taking full advantage of the growing seasons and available resources. Moreover, planting crops more frequently could increase income for farmers, particularly for those engaged in contract farming, where higher production leads to more financial incentives.

Table 4.14 provides a detailed comparative analysis of farming conditions between CF and NCF farmers in the Nay Pyi Taw district.

Table 4.14 Farming Conditions between Contract and Non-Contract Farmers

Farming Condition	Contract Farmers			Non-Contract Farmers		
	N	Mean	SD	N	Mean	SD
Rice yield per acre (basket)	229	87	12.9	82	86	15.6
Total output of rice (basket)	229	432	430	82	534	1021
Seed storage (basket)	229	24	90	82	13	24
Number of farmers	229	1.41	1.35	82	1.72	0.85
Number of Family member	229	1.24	1.09	82	2.17	1.53
Number of Hired workers	229	1.58	12.29	82	1.91	4.32

Source: Survey Data, 2024

As can be seen in Table 4.14, all farmers both CF and NCF farmers have not quite different yield of rice with 87 and 86 basket per acre. There is some difference in total output of rice about 432 baskets for CF farmers and 534 baskets for NCF farmers. It may be due to difference in yield and sown area of rice by individual farmers. According to their seed storage, CF farmers use more their own rice seeds for next season than that of NCF farmers.

In terms of labor employment, both CF and NCF farmers use family labors (2.17) and hired workers. The difference in number between the two groups depends on their family member.

Table 4.15 shows the expenditure patterns particularly in labor and machine rent costs between CF and NCF farmers.

Table 4.15: Expenditure Patterns for Rice Cultivation (Kyat / Acre)

Sr. No	Particular	CF Farmers	%	Non-CF Farmers	%
1.	Rice Seed	16,636	2.5	19,429	2.2
2.	Fertilizer	212,167	32.0	266,000	30.0
3.	Pesticides	31,333	4.7	61,667	7.0
4.	Herbicides	30,767	4.6	24,000	2.7
5.	Hired Labor	121,000	18.2	252,667	28.5
6.	Rent for Machines	251,667	37.9	261,667	29.6
7.	Total	663,570	100	885,430	100

Source: Survey Data, 2024

As can be seen in Table 4.15, per acre expenditure of contract farmers is lower than that of non-contract farmers. Expenditure on fertilizer, labor and rent for machines are significant amount in total expenditure about 32%, 18.2% and 37.9% respectively for contract farmers while 30%, 28.5% and 29.6% for non-contract farmers.

Table 4.16 describes income and expenditure of cultivation by farmers.

Table 4.16: Income and Expenditure of Rice Cultivation of the Previous Season

(Kyat/Acre)

	Contract Farmers	Non-Contract Farmers
Total Income	1,746,667	1,490,000
Total Expenditure	707,933	882,167
Gross Profit	1,038,734	607,833

Source: Survey Data, 2024

CF farmers have a higher total income per acre in average (MMK 1,746,667) and average profit (MMK 1,038,734) that that of NCF farmers with (MMK 1,490,000) and (MMK 607,833). In contrast, total expenditure per acre of CF farmers is lower than that of NCF farmers. It is because CF farmers are supported seeds, fertilizer, pesticides and farming machines with reasonable prices by company. As a result, CF farmers can reduce their expenditure.

Table 4.17 describes input availability and their prices between CF and NCF farmers in rice farming.

Table 4.17: Condition of Input Availability for Farmers

Resources		**Contract Farmers**		**Non-contract Farmers**	
		Frequency	Percent	Frequency	Percent
Rice Seed	Purchase	181	79.0	56	68.3
	Own	48	21.0	26	31.7
	Total	229	100.0	82	100.0
Mean Price of Rice (Per Packet) (Kyat)		23245		18091	
Mean price of Fertilizer (Kyat)		186803		204530	
Mean price of Pesticides (Kyat)		37559		65049	
Mean price of Herbicides (Kyat)		27338		30677	

Source: Survey Data, 2024

According to Table, most CF farmers (79%) purchase rice seed and about 21% use their own, whereas about 68% of NCF farmers purchase rice seed and the rest 31.7% of NCF farmers use their own.

CF farmers pay a higher mean price for rice per packet (23,245 Kyat) compared to NCF farmers (18,091 Kyat), potentially reflecting cost savings from contract agreements. NCF farmers, however, pay more for fertilizer (204,530 Kyat vs. 186,803 Kyat), pesticides (65,049 Kyat vs. 37,559 Kyat), and herbicides (30,677 MMK vs. 27,338 Kyat), likely due to increased usage aimed at boosting crop yields under their contracts.

Table 4.18 shows the sources of rice seed purchase among CF and NCF farmers depending on their differing access to credit and payment practices.

Table 4.18: Sources of Rice Seed Purchase of Contract and Non-Contract Farmers

Rice Seed Purchase	Contract Farmers				Non-Contract Farmers			
	Sources of Purchase				Sources of Purchase			
	Agri: Dept:	Agri: Comp-any	Shop	Other	Agri: Dept:	Agri: Comp-any	Shop	Other
Credit	19	116	3	1	3	34	2	15
Cash	11	14	20	45	15	8	5	0
Total	**30**	**130**	**23**	**46**	**18**	**42**	**7**	**15**

Source: Survey Data, 2024

CF farmers and NCF farmers primarily purchase rice seeds with credit from their agricultural company, and some purchase from agricultural department. The rest of farmers buy rice seeds in cash. About 90% of CF farmers can get rice seeds by credits according to their contract agreement.

The data on differences in purchasing patterns between CF and NCF farmers for fertilizers, pesticides, and herbicides are shown in Table 4.19.

Table 4.19: Purchasing Patterns of Inputs by Contract and Non-Contract Farmers

Resources	Types of Purchases	Contract Farmers			Non-Contract Farmers		
		Sources of Purchase			Sources of Purchase		
		Comp-any	Shop	Total	Comp-any	Shop	Total
Fertilizer	Credit	215	5	220	42	7	49
	Cash	0	9	9	3	30	33
	Total	**215**	**14**	**229**	**45**	**37**	**82**
Pesticides	Credit	83	6	89	26	8	34
	Cash	27	113	140	0	48	48
	Total	**110**	**119**	**229**	**26**	**56**	**82**
Herbicides	Credit	80	1	81	27	8	35
	Cash	24	124	148	1	46	47
	Total	**104**	**125**	**229**	**28**	**54**	**82**

Source: Survey Data, 2024

CF farmers predominantly rely on credit for purchasing fertilizers (215 out of 229) and pesticides (110 out of 229), while NCF farmers utilize credit less frequently, especially for pesticides and herbicides (26 and 28 out of 82, respectively). This pattern suggests that CF farmers face greater financial constraints, necessitating reliance on credit, while contract farmers have more stable financial conditions, allowing them to make purchases with current payments. The data highlights the impact of contractual agreements on purchasing behavior, with CF farmers showing a preference for immediate payment methods, likely due to better financial management or support from their contracts.

A significant difference in borrowing patterns between CF and NCF farmers is described in Table 4.20.

Table 4.20: Borrowing Patterns of Contract and Non-contract Farmers

Organization	Contract Farmers		Non-contract Farmers	
	Frequency	Percent	Frequency	Percent
Government Bank	107	46.7	55	67.1
Company	10	4.4	27	32.9
Relatives	112	48.9	-	-
Total	229	100.0	82	100.0
Average Loan Amount (Kyat)	659829		503963	
Average Interest (Kyat)	0.75		0.5	
Average Loan Period (Year)	0.8		1	

Source: Survey Data, 2024

Government banks are the predominant source of loans for CF farmers, accounting for 46.7% of their borrowing, while NCF farmers rely more on company loans, with 32.9% of their borrowing coming from this source. The average loan amount for CF farmers (Kyat 659,829) exceeds that of NCF farmers (Kyat 503,963), though CF farmers face higher interest rates (0.75% compared to 0.5%). Additionally, NCF farmers benefit from a longer average loan period (1 year) compared to CF farmers (0.8 years). The problems faced by CF and NCF farmers are presented in Table 4.21.

Table 4.21: Problems Faced by Contract and Non-Contract Farmers

Problem	**Response**	**Contract Farmers**		**Non-Contract Farmers**	
		Frequency	**Percent**	**Frequency**	**Percent**
Insufficient capital	Yes	109	47.6	45	54.9
Technology	Yes	9	3.9	2	2.4
Price/market volatility	Yes	23	10.0	18	22.0
Machine/ Equipment	Yes	112	48.9	36	43.9
Weather	Yes	14	6.1	3	3.7
Costs	Yes	47	20.5	32	39.0
Transportation	Yes	36	15.7	8	9.8

Source: Survey Data, 2024

According to the survey results shown in Table 4.21, insufficient capital is a more significant issue for NCF farmers, with 54.9% indicating it as a problem compared to 47.6% of CF farmers. Technology-related issues are minimal for both groups, with only 3.9% of CF farmers and 2.4% of NCF farmers. Price/market volatility impacts NCF farmers more (22%) compared to CF farmers (10%). Machine and equipment shortages are nearly equally challenging, affecting 48.9% of CF farmers and 43.9% of NCF farmers. Weather is a slightly bigger concern for CF farmers (6.1%) compared to NCF farmers (3.7%). Costs appear to burden NCF farmers more (39%) than CF farmers (20.5%). Lastly, transportation is more problematic for CF farmers (15.7%) than NCF farmers (9.8%).

According to their response, it is found that insufficient capital and machines are the main problems among these problems. However, contract farming can also impose additional costs and transportation demands, explaining why CF farmers report higher problems in these areas compared to NCF farmers.

Among the suggestions from CF farmers shown in Table 4.22, the most frequently mentioned need is for extension services that provide advanced techniques, accounting for 35.8% of responses. This percentage indicates a strong desire for improved agricultural practices and knowledge transfer.

Table 4.22: Suggestions Provided by Contract Farmers

SN	Suggestions from Contract Farmers	Frequency	Percent
1	To need to extension service for techniques	82	35.8
2	To Increase agricultural loan	2	0.9
3	To develop irrigation canals	35	15.3
4	To support the machinery	33	14.4
5	To build production roads well	9	3.9
6	To distribute quality inputs	54	23.6
7	To release input costs on time	3	1.3
8	To need for price market stability	4	1.7
9	To pay the full cost of cultivation in advance	3	1.3
10	To properly prevent infections	4	1.7
Total		**229**	**100**

Source: Survey Data, 2024

Additionally, 23.6% of CF farmers emphasized the importance of distributing quality inputs, while 15.3% highlighted the need for developing irrigation canals. These priorities reflect the farmers' focus on enhancing agricultural productivity and sustainability. On the other hand, suggestions related to financial and infrastructural support, such as increasing agricultural loans (0.9%) and building production roads (3.9%), were less frequently mentioned but still significant. This distribution of suggestions underscores the multifaceted nature of the challenges faced by CF farmers and their emphasis on practical improvements in farming techniques and resources.

Concerning the suggestions of CF farmers and NCF farmers for improvement of farming, both groups have some similar suggestions such as to get irrigation facilities, quality inputs, supporting machinery, providing farming practices and provision of input cost in time.

Table 4.23 shows the suggestions provided by NCF farmers. Among these suggestions, the most frequent response was a call for distributing good rice varieties, accounting for 12.20% of the total suggestions. This was followed by requests for support with machinery and equipment (17.07%) and addressing labor shortages (8.54%).

Table 4.23: Suggestions Provided by Non-Contract Farmers

SN	Suggestions Contract Farmers	Frequency	Percent
1	No Response	29	35.37
2	To distribute good rice varieties	10	12.20
3	To get enough water	2	2.44
4	To provide sufficient planting costs	3	3.66
5	To solve the labor shortage	7	8.54
6	To support machinery/Equipment	14	17.07
7	Provision of timely payment of input costs	3	3.66
8	To get good quality fertilizers	3	3.66
9	To sell resource inputs at lower prices	3	3.66
10	To share planting techniques	4	4.88
11	To buy at market price	4	4.88
Total		**82**	**100**

Source: Survey Data, 2024

Notably, a significant proportion (35.37%) of farmers did not respond, which may indicate a lack of awareness or uncertainty about the suggestions' relevance. Addressing these key areas – such as improving rice varieties and providing better equipment – could significantly enhance farming productivity and efficiency.

4.3.5 Involvement in Contract Farming by Contract Farmers

This section explains the involvement of farmers in CF programme Myanmar. It covers the duration of engagement in contract farming, sources of contact and support, motivations for involvement, changes experienced due to contract farming, reasons for cooperation, farmers' attitudes towards contract farming, and recommended improvements. By examining these factors, the analysis provides a comprehensive understanding of the benefits and challenges concerned with contract farminCF.

Table 4.24 examines the duration of involvement in CF and the sources of support and information for contract farmers in Nay Pyi Taw District, Myanmar.

Table 4.24: Duration of Contract Farming and Sources

Period	**Frequency**	**Percent**
Less than 3 years	20	8.7
3 – 6 years	70	30.6
6 – 9 years	96	41.9
9 – 12 years	35	15.3
More than 12 years	8	3.5
Total	**229**	**100.0**
Access to contact		
Department of Agriculture	61	26.6
CF company	84	36.7
Village administrator	8	3.5
Farmers	53	23.1
Other	23	10.1
Total	**229**	**100.0**

Source: Survey Data, 2024

The survey data indicates that the majority of farmers (41.9%) have been engaged in CF for a period of 6 to 9 years, followed by 30.6% who have been involved for 3 to 6 years. This suggests a relatively establishe54d relationship between farmers and CF practices. The lower percentages of farmers with contracts lasting less than 3 years (8.7%) and more than 12 years (3.5%) may reflect the recent adoption of contract farming by some and the expiration or termination of long-term contracts by others.

Regarding the sources of contract access, 36.7% of the farmers have entered into contracts through CF companies, making it the most common source. The Department of Agriculture follows closely with 26.6% of the farmers accessing contracts through it. Farmers themselves (23.1%) also play a notable role in establishing contract farming agreements. The lower percentages of access through village administrators (3.5%) and other sources (10.1%) indicate that formal channels and direct interactions with CF companies or government bodies are the predominant means of initiating contract farming.

When evaluating the reasons farmers choose to take part in CF, various factors shown in Table 4.25 play a role in their decision-making process.

In the context of contract farming, the most significant reason for cooperation among farmers is the ability to extract enough input, cited by 47.6% of respondents. This is the crucial role that sufficient resources play in motivating farmers to engage in CF arrangements. Access to necessary inputs ensures that farmers can maintain productivity and achieve desired outcomes.

Table 4.25: The Reasons to Cooperate in Contract Farming

Reason	**Frequency**	**Percent**
Being able to extract enough input	109	47.6
Getting fertilizer	28	12.2
Having a credit system	17	7.3
Obtaining the cost of cultivation	34	14.6
Low interest	20	8.5
Correct rice grain weight	21	9.8
Total	**229**	**100.0**

Source: Survey Data, 2024

In contrast, factors such as obtaining fertilizer, having a credit system, and covering cultivation costs are less influential, though they still contribute to the overall appeal of CF. For instance, 12.2% of farmers find fertilizer provision important, while 14.6% value support for cultivation costs. These factors, although less prominent, are nonetheless essential in creating a supportive farming environment. Additionally, aspects like low interest rates and accurate rice grain weight have a smaller but notable impact, affecting 8.5% and 9.8% of farmers, respectively.

Table 4.26 describes the impact of CF on the livelihoods of farmers through various economic and social changes experienced by the participants.

Table 4.26: Changes in Farming Conditions due to Contract Farming

Particulars	**Frequency**	**Percent**
No response	78	34.1
Increase in income	25	11.0
Solving family financial difficulties	48	20.7
Why not worry about inputs to grow rice	50	22.0
Being able to spend more	14	6.1
Increase in crop yield	3	1.2
No need to seek outside capital	11	4.9
Total	**229**	**100.0**

Source: Survey Data, 2024

A significant portion of farmers (34.1%) did not provide a response, which could indicate a range of factors such as lack of awareness or reluctance to share their experiences. However, among those who did respond, the primary benefits reported were the resolution of family financial difficulties (20.7%) and not having to worry about inputs to grow rice (22.0%). An increase in income was noted by 11.0% of respondents, while 6.1% reported being able to spend more. Additionally, a small percentage observed an increase in crop yield (1.2%) and the elimination of the need to seek outside capital (4.9%). These findings suggest that CF has had a positive economic impact on many participants, particularly in alleviating financial stress and reducing the burden of agricultural inputs.

Table 4.27 shows the contributions that are made by the company for the contract farmers.

Table 4.27: Contributions to the Contract Farmers by Company

SN	Contributions		Mean		Std. Deviation	
1	Rice Seed	Amount	4.4		1.9	
		Value	147932.9		131509.6	
2	Fertilizer	Amount	4.3		3.4	
		Value	470012.2		347334.1	
3	Loan	Amount	3.3		2.8	
		Value	365853.7		294064.5	
			Frequency		**Percent**	
			Yes	**%**	**No**	**%**
4	Technology Distribution		179	79.2	50	21.8
5	Extension Service		159	68.4	70	32.6

Source: Survey Data, 2024

The data collected from contract farmers reveal significant contributions by companies in terms of agricultural inputs and services. On average, companies provide 4.4 units of rice (mean value: 147,932.9 MMK). Fertilizers are also supplied at an average amount of 4.3 units, valued at 470,012.2 MMK, showing a higher variability. Loans are extended at an average amount of 3.3 units, with a mean value of 365,853.7 MMK. Additionally, 79.2% of the farmers received technology distribution, while 68.4% benefited from extension services, indicating substantial support in agricultural practices. The variability in these contributions underscores the tailored support provided to enhance productivity and sustainability among contract farmers. Period of contributions to CF is shown in Table 4.28.

Table 4.28: Distribution Period of Inputs by Company

Period	Frequency	Percent
Before planting crops	148	64.6
Crop planting time	70	30.6
Other	11	4.8
Total	**229**	**100.0**

Source: Survey Data, 2024

The survey data from CF farmers in Nay Pyi Taw District indicate that the majority of contributions occur before planting crops, with 148 farmers (64.6%) participating during this period. This is followed by 70 farmers (30.6%) contributing during the crop planting time, and a small portion of contributions, 11 farmers (4.8%), categorized as "Other." These findings suggest that most farmers are heavily involved in preparatory activities before planting, which may be crucial for ensuring a successful crop cycle. The relatively high engagement before planting could reflect the importance of pre-planting activities such as land preparation, planning, and resource allocation in their agricultural practices. Benefits from cooperation with the company are described in Table 4.29.

Table 4.29: Expectation of Contract farmers on Benefit of Contract Farming

Benefit	Frequency	Percent
Received as expected	132	57.6
More than expected	97	42.4
Total	**229**	**100.0**

Source: Survey Data, 2024

Among CF farmers, 57.6% reported receiving their expected benefits, while 42.4% received more than expected. This indicates a generally positive outcome for the majority of farmers, with a significant proportion exceeding their anticipated benefits. Table 4.30 shows the changes in cultivation method due to the CF.

Table 4.30: Changes in Cultivation Method due to the Contract Farming

Changes in Cultivation Methods	Frequency	Percent
No	86	37.6
Yes	143	62.4
Total	**229**	**100.0**

Source: Survey Data, 2024

A significant majority have experienced changes in their farming method, with 62.4% reporting such modifications compared to 37.6% who have not. According to their responses, they got some extension services from the company such as land preparation, utilization of inputs and so on.

Table 4.31 describes the willingness to cooperate with CF among farmers in Nay Pyi Taw district.

Table 4.31: Willingness to Cooperate with Company in the Future

Willingness to cooperate with CF	Frequency	Percent
Yes	148	64.6
No	81	35.4
Total	**229**	**100.0**

Source: Survey Data, 2024

A majority of 64.6% of the surveyed farmers expressed a willingness to engage in contract farming, while 35.4% were not willing to cooperate.

Table 4.32: Perception of Farmers towards Contract Farming

Perception towards CF	Frequency	Percent
No response	16	7.0
Good convenience	192	83.8
Increasing the cost of farming	1	0.4
There is a slightly price gap between the contract rate and the market rate of rice.	20	8.7
Total	**229**	**100.0**

Source: Survey Data, 2024

In relation to survey results shown in Table 4.32, the attitudes towards contract farming among farmers in Nay Pyi Taw are varied, reflecting different experiences and perceptions of this agricultural practice.

A significant majority of respondents (83.8%) find contract farming to be of "good convenience," indicating that most farmers perceive it positively due to its benefits, such as secure markets and reduced marketing risks. Only 0.4% of the respondents believe that CF increases the cost of farming. Meanwhile, 8.7% of the farmers note a slight price difference between the contract rate and the market rate for rice. Notably, 7.0% of farmers did not respond, which could reflect a lack of awareness or interest in contract farming.

The survey data on recommended points shown in Table 4.33 reveal a diverse set of priorities and concerns among farmers regarding contract farming practices.

Table 4.33: Farmers' Recommendations and Concerns regarding Contract Farming Practices

Recommended points	Frequency	Percent
No response	14	6.1
I want grain quality assessments to be accurate.	3	1.3
I want input and planting costs to be paid in advance before the start of the rice planting season.	49	19.5
I want to buy rice at the market price.	50	21.8
I want to come and store the rice in time after harvesting.	3	1.3
I want to sell the inputs at the market price.	8	3.5
I want to share more farming techniques.	3	1.3
I would like a transport vehicle to be used during grain harvesting.	14	6.1
It would be even better if they provided harvesters.	25	10.9
We want grain quality assessments to be accurate.	3	1.3
We want to pay the money for the excess grain sold immediately.	45	19.7
Total	**229**	**100.0**

Source: Survey Data, 2024

The survey data reveals the preferences and priorities of farmers concerning their rice production and sales processes. A significant portion of respondents (21.8%) expressed a desire to buy rice at the market price, while 19.7% emphasized the need for immediate payment for any excess grain sold. Similarly, 19.5% of the farmers preferred that input and planting costs be paid in advance before the rice planting season begins. These points suggest that farmers are mainly concerned with fair pricing, timely payments, and financial security, which are critical factors in their decision-making processes. Additionally, a smaller percentage of farmers (10.9%) indicated that providing harvesters would enhance their productivity, further highlighting their need for better resources and support in the rice production cycle.

4.3.6 Knowledge of Non-Contract Farmers on Contract Farming

The analysis of NCF in Nay Pyi Taw district provides the perceptions and experiences of NCF farmers regarding contract farming. This section explores their understanding of contract farming, current cooperation levels with CF programs, reasons for not participating, potential willingness to take part in future CF agreements, and opinions on current CF practices. These aspects are crucial for identifying barriers and opportunities for improving CF initiatives and fostering better cooperation among farmers.

Table 4.34: Understanding of Contract Farming Among Non-Contract Farmers

What do you know about contract farming?	Frequency	Percent
Don't Know	7	8.5
Providing Fertilizers and planting costs purchasing rice	11	13.4
Providing Fertilizers and purchasing rice	13	18.3
Providing Planting costs and purchasing output at harvest time	44	53.6
Venture business	7	8.5
Total	**82**	**100.0**

Source: Survey Data, 2024

Table 4.34 illustrats the understanding of contract farming among non-contract farmers. The majority of respondents (about 54%) believe that " Providing Planting

costs and purchasing output at harvest time," indicating that they perceive contract farming primarily an arrangement where inputs are provided upfront, and produce is collected after harvest. A significant portion (18.3%) thinks that "Providing Fertilizers and purchasing rice," while 13.4% understand it as both "Providing Fertilizers and planting costs purchasing rice". Notably, 8.5% either do not know about contract farming or view it as a "venture business." These responses suggest that there is a range of awareness and varying perceptions about the terms and nature of contract farming among non-contract farmers, which may impact their willingness to participate in such agreements.

Table 4.35 shows the analysis of the current engagement levels of NCF farmers with the CF program.

Table 4.35: Willingness to Participate in Contract Farming Program

Current cooperation with the CF program	Frequency	Percent
No	20	24.4
Yes	62	75.6
Total	**82**	**100.0**

Source: Survey Data, 2024

Among the non-contract farmers surveyed, 75.6% (62 out of 82) are currently taking part in the CF program, indicating a significant level of engagement with this agricultural initiative. In contrast, only 24.4% are not involved in the program. This substantial majority suggests that the Contract Farming program is highly attractive or beneficial to these farmers.

Table 4.36 describes the distribution of reasons why NCF farmers choose not to participate in CF.

Among the NCF farmers surveyed, the predominant reason for not engaging in CF is the perception that it involves more work (47.5%). This reflects a significant apprehension about the increased workload associated with CF, suggesting that many farmers may prefer to avoid the additional responsibilities it entails. Other reasons include low rice prices (10.9%) and high input prices (9.6%), which indicate financial constraints and economic factors that discourage participation in CF. A smaller percentage of farmers expressed concerns about unfair agreements, lack of

understanding, and transparency issues, highlighting that while these issues are present, they are less influential compared to the concerns about workload and financial viability. This distribution of reasons underscores the complexity of farmers' decisions and the need to address multiple factors when promoting CF.

Table 4.36: Reasons for Not Engaging in Contract Farming Among Non-Contract Farmers

The reason for not doing contract farming	Frequency	Percent
No response	18	21.6
More work	39	47.5
Don't understand	4	4.9
Unfair agreement	1	1.2
Low rice prices	9	10.9
High input prices	8	9.6
No transparency	2	2.4
High Interest	1	1.2
Total	**82**	**100.0**

Source: Survey Data, 2024

Table 4.37 illustrates the preferences of non-contract farmers regarding various conditions under which they would be willing to consider contract farming.

Table 4.37: Preferences to Participate in Contract Farming Programme

Particulars	Frequency	Percent
No response	17	20.5
To buy at market price	22	26.6
No payment delays.	6	10.5
To collect the rice during the harvest field	4	4.4
To immediately pay the money from the sale of rice	12	14.8
To pay a higher selling price of rice	2	3.1
To take 15 pounds without taking extra	10	10.9
To reduce the resources input price	9	9.2
Total	**82**	**100.0**

Source: Survey Data, 2024

Among NCF farmers, the majority expressed a potential willingness to cooperate with CF under specific conditions. The highest frequency of agreement was seen in the preference for buying at market price (26.6%) and immediate payment from rice sales (14.8%). This suggests that farmers value timely and fair transactions, indicating that CF arrangements which ensure market price stability and prompt payments could be more attractive to them. Conversely, options like collecting rice during the harvest (4.4%) or paying a higher selling price (3.1%) were less favored, which may point to practical or financial constraints affecting their choices. Reducing resource input prices (9.2%) also showed some interest, highlighting a concern for cost management among farmers. This distribution reflects the varied priorities of NCF farmers, emphasizing the importance of addressing both economic and operational factors in potential CF agreements.

Table 4.38 presents the distribution of opinions among NCF farmers regarding current contract farming practices, stating various aspects from dissatisfaction and financial concerns to positive feedback on communication and perceived mutual benefits.

Table 4.38: Opinions of Non-Contract Farmers on Current Contract Farming Practices

Particulars	**Frequency**	**Percent**
No response	40	49.3
Appreciation of the company's support	1	1.3
Calcutta weighing good insurance	1	1.3
Calcutta Weighing with good warranty but low price	1	1.3
Farmers are benefited, but there is harm in taking extra	3	3.5
Financial delay	4	4.4
Good communication during the campaign	12	14.9
Mutual benefit	20	24.0
Total	**82**	**100.0**

Source: Survey Data, 2024

The data on opinions regarding current CF practices among NCF farmers reveal a significant diversity of perspectives. A substantial portion, 49.3%, expressed

dissatisfaction or disapproval of the practices. Among the positive remarks, 14.9% noted good communication during the campaign, suggesting that this aspect of CF is appreciated by some. Additionally, 24.0% of respondents recognized mutual benefits from these practices, indicating that there are perceived advantages despite overall discontent. However, concerns such as financial delays (4.4%) and the harmful effects of taking extra (3.5%) were also reported, highlighting areas needing improvement. The minimal responses regarding specific features like the company's support or Calcutta weighing systems (each at 1.3%) suggest these factors are less influential in shaping overall opinions.

CHAPTER V
CONCLUSION

The survey conducted in Nay Pyi Taw district aimed to analyze the perceptions of contract farming participants and stakeholders, as well as to identify the problems and challenges inherent in CF practices. The findings from the survey provide the dynamics of CF, involving the benefits and the challenges faced by farmers.

5.1 Findings

The survey revealed a mixed perception of contract farming among participants. A significant portion of farmers (47.6%) viewed contract farming as providing good convenience, primarily due to the structured support, guaranteed market access, and reduced marketing efforts associated with these agreements. This perception underscores the appeal of CF as a means to enhance productivity and secure income for farmers. However, it is noteworthy that 46.3% of respondents did not provide any response regarding their perceptions, indicating a potential lack of experience or understanding of contract farming, which may hinder their ability to form a definitive opinion.

Among the reasons for participating in contract farming, the ability to extract sufficient inputs was the most significant factor, cited by 47.6% of farmers. This shows the critical role that access to necessary resources plays in motivating farmers to engage in CF arrangements. Other factors, such as obtaining fertilizer (12.2%) and having a credit system (7.3%), were also mentioned. These findings suggest that while contract farming offers various benefits, the primary motivation for farmers remains the assurance of adequate inputs to sustain their agricultural activities.

The survey also indicated that famers both CF and NCF farmers have financial difficulties (20.7%) and the alleviation of concerns regarding agricultural inputs (22.0%). These findings suggest that CF has a positive economic impact on many participants, particularly in alleviating financial stress and reducing the burden of agricultural inputs.

In terms of Challenges and Problems in CF Practices, despite the perceived benefits, the survey highlighted several challenges and problems faced by contract farmers. A notable concern among farmers was the desire for fair and transparent pricing mechanisms. Approximately 22.0% of respondents expressed a preference for purchasing rice at market prices, indicating dissatisfaction with the pricing structures associated with contract farming. Additionally, 19.5% of farmers emphasized the need for input and planting costs to be paid in advance before the start of the rice planting season, reflecting concerns about financial stability and the upfront investment required for successful farming.

Timely financial transactions were also a significant concern, with 19.5% of respondents highlighting the importance of immediate payment for excess grain sold. This underscores the need for efficient financial management within CF arrangements to ensure that farmers receive timely compensation for their produce. Furthermore, logistical challenges were evident, as some farmers (6.1%) expressed the need for transport vehicles during grain harvesting, indicating that infrastructure support is crucial for the success of CF operations.

The survey results also revealed that a small percentage of farmers (1.2%) focused on the accuracy of grain quality assessments and the timely storage of harvested rice. These operational concerns highlight the importance of quality control and efficient post-harvest management in enhancing the overall effectiveness of CF practices.

The survey also explored the perceptions of non-contract farmers regarding CF. A significant portion of NCF farmers (49.8%) understood CF as a system where the cost of input planting is issued, and the rice is purchased at harvest time. However, a notable percentage (9.6%) reported that they did not know anything about CF, indicating a gap in awareness and understanding of these farming arrangements. The insights gained from NCF farmers are crucial for identifying barriers to participation in CF. Many NCF farmers may lack the necessary information and support to engage in CF, which could limit their opportunities for improved agricultural productivity and income. Addressing these gaps through targeted outreach and education initiatives could enhance participation rates and foster better cooperation among farmers.

5.2 Recommendations

Based on the findings from the survey in Nay Pyi Taw district, Myanmar, several recommendations are made to improve CF. These recommendations target farmers, contract farming companies, and the government, all essential stakeholders in fostering a supportive environment for CF.

Farmers are encouraged to actively engage in CF by improving their agricultural knowledge through training and workshops. Participating in extension services focused on advanced techniques, pest management, and sustainable practices can enhance their productivity. Building strong relationships with contract companies, clarifying expectations, and negotiating terms can lead to more favorable outcomes.

Contract farming companies should focus on transparency and fairness. Providing clear contracts, ensuring timely payments, and offering support services such as quality inputs and machinery are critical. Establishing regular communication with farmers and implementing feedback mechanisms will help address concerns and improve CF practices.

The government plays a vital role in fostering contract farming. Developing policies that ensure fair and equitable practices, protecting farmers' rights, and offering financial support, such as low-interest loans, will strengthen the agricultural sector. Additionally, the government should invest in rural infrastructure like roads, irrigation, and storage facilities to enhance agricultural logistics. Promoting research and development for better crop varieties and training programs will also improve productivity.

The government should further encourage the formation of cooperatives among farmers to pool resources and negotiate better terms with companies. Raising awareness about CF through outreach programs and workshops will empower farmers to make informed decisions.

REFERENCES

ADB's Experience in the People's Republic of China. (May 2015). Contract farming for better farmer–enterprise partnerships.

Allen, D. W., & Lueck, D. (2003). The nature of the farm: Contracts, risk, and organization in agriculture. MIT Press.

Allen, D. W., & Lueck, D. (2003). The role of formal and informal contracts in the creation and enforcement of property rights. American Economic Review, 93(4), 1138-1153. https://doi.org/10.1257/000282803769206438

Ashok K. Mishra, Anjani Kumar, P.K. Joshi, Alwin D'Souza, & Gaurav Tripathi. (November 2018). Contract farming, productivity and fertilizer usage empirical evidence from specialty crop production. http://ageconsearch.umn.edu aesearch@umn.edu

Aye Moe San. (September 2020). Participation decision and impact of contract farming system on rice farms in Myanmar.

Barker, J. (1972). The fruits of the earth: A history of agricultural production in the Western world. Viking Press.

Bogetoft, P., & Olesen, H. B. (2004). Contract design in agriculture: A review. European Review of Agricultural Economics, 31(2), 215-233. https://doi.org/10.1093/erae/jbh017

Bogetoft, P., & Olesen, H. B. (2004). The role of contracts in agricultural production: Evidence from Denmark. Agricultural Economics, 31(2-3), 179-190. https://doi.org/10.1016/j.agecon.2004.06.006

Catelo, M. A. O., & Costales, A. C. (2008). Contract farming and other market institutions as mechanisms for integrating smallholder livestock producers in the growth and development of the livestock sector in developing countries: The case of the Philippines. Pro-Poor Livestock Policy Initiative (PPLPI), FAO. Retrieved from http://www.fao.org/3/a-ai585e.pdf

Da Silva, C. A. (2005). The growing role of contract farming in agri-food systems development: Drivers, theory and practice. Food and Agriculture Organization of the United Nations.

Dolan, C., & Humphrey, J. (2000). Governance and trade in fresh vegetables: The impact of UK supermarkets on the African horticulture industry. Journal of Development Studies, 37(2), 147-176. https://doi.org/10.1080/713600072

Dr. Erkan Rehber. (January 2007). A global overview of contract farming.

Eaton, C., & Shepherd, A. W. (2001). Contract farming: Partnerships for growth. Food and Agriculture Organization of the United Nations.

Fafchamps, M. (2004). Market institutions in sub-Saharan Africa: Theory and evidence. MIT Press.

Giel Ton, Wytse Vellema, Sam Desiere, Sophia Weituschat, & Marijke D'haese. (December 2017). Contract farming for improving smallholder incomes: What can we learn from effectiveness studies?

Glover, D. (1990). Contract farming and outgrower schemes in East and Southern Africa. Journal of Agricultural Economics, 41, 303-315. https://doi.org/10.1111/J.1477-9552.1990.TB00648.X

Hueth, B., Ligon, E., Wolf, S., & Wu, S. (1999). Incentive instruments in fruit and vegetable contracts: Input control, monitoring, measuring, and price risk. Review of Agricultural Economics, 21(2), 374-389. https://doi.org/10.2307/1349855

Jos Bijman. (May 2008). Contract farming in developing countries: An overview.

Key, N. (2005). Agricultural contracting and the scale of production. Agricultural and Resource Economics Review, 34(2), 253-266. https://doi.org/10.1017/S1068280500005352

Key, N., & Runsten, D. (1999). Contract farming, smallholders, and rural development in Latin America: The case of Mexico. World Development, 27(2), 365-378. https://doi.org/10.1016/S0305-750X(98)00129-4

Key, N., & Runsten, D. (1999). Contract farming, smallholders, and rural development in Latin America: The organization of agroprocessing firms and the scale of outgrower production. World Development, 27, 381-401. https://doi.org/10.1016/S0305-750X(98)00144-2

Klein Woolthuis, R., Hillebrand, B., & Nooteboom, B. (2005). A theoretical and empirical analysis of inter-firm trust. Organization Studies, 26(6), 757-786. https://doi.org/10.1177/0170840605054628

MacDonald, J. M., & Korb, P. (2011). Agricultural contracting update: Contracts in 2008. Economic Information Bulletin (No. 72). United States Department of Agriculture, Economic Research Service.

Martinez, S. W., & Reed, A. J. (1996). From farmers to consumers: Vertical coordination in the food industry (No. 3). US Department of Agriculture, Economic Research Service.

Minot, N. (2007). Contract farming in developing countries: Patterns, impact, and policy implications. IFPRI Issues Brief 6. International Food Policy Research Institute (IFPRI).

Morrison, J., Murray, A., & Martin, P. (2006). Contract farming and the future of smallholder agriculture in Southeast Asia. International Food Policy Research Institute (IFPRI).

Nooteboom, B. (2002). Trust: Forms, foundations, functions, failures and figures. Edward Elgar Publishing.

Phil Simmons, Paul Winters, & Ian Patrick. (7 January 2005). An analysis of contract farming in East Java, Bali, and Lombok, Indonesia.

Prowse, M. P. (2012). Contract farming in developing countries: A review. Agence Française de Développement A Savoir.

Reardon, T., & Timmer, C. P. (2007). Transformation of markets for agricultural output in developing countries since 1950: How has thinking changed? Handbook of Agricultural Economics, 3, 2807-2855. https://doi.org/10.1016/S1574-0072(06)03055-7

Rehber, E. (2007). Contract farming: Theory and practice. ICFAI University Press.

Roy, E. P. (1963). Contract farming and economic integration. The Interstate Printers & Publishers.

Royer, J. S., & Rogers, R. T. (Eds.). (1998). The industrialization of agriculture: Vertical coordination in the US food system. Ashgate Publishing.

Shumway, R., Fraumeni, B., Fulginiti, L., Samuels, J., Stefanou, S., Shumway, R., Fraumeni, B., & Samuels, J. (2016). U.S. agricultural productivity: A review of USDA Economic Research Service methods. Applied Economic Perspectives and Policy, 38, 1-29. https://doi.org/10.1093/AEPP/PPV032.

Soullier, G., & Moustier, P. Impacts of contract farming in domestic grain chains on farmer income and food insecurity: Contrasted evidence from Senegal.

Sununtar Setboonsarng, PingSun Leung, & Adam Stefan. (February 2008). ADB Institute Discussion Paper No. 90.

Swinnen, J. F. M., & Maertens, M. (2007). Globalization, privatization, and vertical coordination in food value chains in developing and transition countries. Agricultural Economics, 37(S1), 89-102. https://doi.org/10.1111/j.1574-0862.2007.00237.x

Swinnen, J. F. M., & Maertens, M. (2007). Global supply chains, standards, and the poor: How the globalization of food systems and standards affects rural development and poverty. Journal of Rural Studies, 24(1), 1-12. https://doi.org/10.1016/j.jrurstud.2007.06.001

Swinnen, J. F. M., & Vandeplas, A. (2014). Price transmission and the world food crisis. Review of Development Economics, 18(3), 402-415. https://doi.org/10.1111/rode.12093

Ton, G., Vellema, W., Desiere, S., Weituschat, S., & D'haese, M. (2017). Contract farming for improving smallholder incomes: What can we learn from effectiveness studies? World Development, 104, 46-64. https://doi.org/10.1016/j.worlddev.2017.11.022

Wilson, J. H. (1990). The economic organization of contract farming: A transaction cost perspective. Journal of Agricultural Economics.

USDA ERS. (2016). Trends in agricultural contracting: Producer expectations and contracting outcomes in the USA.

Wang, H., & Xia, Q. (2013). Agricultural contracting in developing countries: Implications for growth and development. American Journal of Agricultural Economics, 95(5), 1174-1181. https://doi.org/10.1093/ajae/aat038

Xu, X., & Xu, H. (2005). Agricultural contracts and farmer efficiency: Evidence from the People's Republic of China. Journal of Comparative Economics, 33(4), 752-772. https://doi.org/10.1016/j.jce.2005.10.002

APPENDICES

The following interview questions are divided into two parts. Part I focuses on rice production and includes sections A through D, and is applicable to both contract farmers and non-contract farmers. Part II addresses the topic of contract farming with questions tailored separately for contract farmers and non-contract farmers.

Respondent's Name ---------- Enumerator's Name ----------
Village ---------- Date of Enumeration ----------
Village group ---------- City / Division ----------

Part I: Questions about Rice Production for Contract Farmers and Non-contract Farmers

(A) Socio-economic status of the respondent and the household

1. Respondent's age (years)

☐ 21-30 ☐ 31-40 ☐ 41-50 ☐ 51-60 ☐ 61 and above

2. Gender ☐ Male ☐ Female

3. Education ☐ Read and write ☐ Primary ☐ Middle school
☐ High school ☐ Graduate

4. Number of family (household) members: ----------

5. Number of people working in the household: ----------

6. Occupational status of contract/non-contract farmers

Main occupation is Agriculture. ☐ Yes ☐ No

If you have other additional occupation, please mention it. ----------

7. Household income per year ---------- kyat

8. Household expenditure per year ---------- kyat

(B) Housing situation

1. Your housing type is:

☐ Bamboo House ☐ Wooden House
☐ Brick Cutter House ☐ Brick/Concrete House

2. Sources of Electric light Availability / Consumption:

☐ Government ☐ Village ☐ Solar ☐ Other

3. Sources of Availability of water:

☐ River ☐ Lake water ☐ Artesian water ☐ Well water ☐ Other

(C) Property condition

1. Agricultural property status

SN	Item	Yes	No
1	Tractor		
2	Furrows		
3	Threshing machine		
4	Harvest machine		
5	Cattle/Buffalo		
6	Bullock cart		
7	Other(s)		

2. Animal ownership status

SN	Item	Yes	No
1	Chicken		
2	Duck		
3	Pork		
4	Goat		
5	Other(s)		

(3) Other assets

SN	Item	number	SN	Item	number
1	Telephone		9	Radio	
2	Automobile (Car)		10	Rice cooker	
3	Motorcycle		11	Electric oven	
4	Bicycle		12	Gas stove	
5	Htaw Lar Gyi		13	Fan	
6	Water pump		14	Other(s)	
7	TV				
8	Refrigerator				

(D) Farming conditions

1. Total land (Acre) : ----------
2. Farming experience (Years) : ----------
3. Acre of cultivated rice : ----------
4. Acre of other crops : ----------
5. The Previous Year Farming Condition:

Farming conditions (last year)	Yes	No
Paddy		
Beans		
Sesame		
Sunflower		

6. Cultivated Acre:

☐ Under 5 acre ☐ 15- 20 acre

☐ 5 - 10 acre ☐ 20 - 25 acre

☐ 10 - 15 acre ☐ 25 acre above

7. Crop planting time:

☐ One-time ☐ Two-time ☐ Three-time

8. Detailed Farming Conditions

Rice yield per acre (basket) : ----------

Total output of rice crop : ----------

Seed storage (basket) : ----------

Number of farmers : ----------

Number of Family member : ----------

Number of Hired workers : ----------

9. Rice varieties cultivated by contract/non-contract farmers:

Rice	Yes	No
Ayeyarmin		
Byaww		
Manawthukha		
Sinthukha		
Thai Hnankhauk		

10. Types of Fertilizers used by contract/non-contract farmers:

Fertilizers	**Yes**	**No**
Palai		
Urea		
Compound		
Cow Dung		
Natherland		

11. Name of Pesticides used by contract/non-contract farmers:

Pesticide is used in your farm: ☐ Yes ☐ No

12. If yes, please choose the name of pesticide used in your farm:

Pesticides	**Yes**	**No**
Ahsifate		
Urea		
Awba		
Bright		
Eima		
Fiire		
Fire		
Golden dragon		
Green		
Karr Kaut		
Kindo		
MAPCO My Nature		
Phawsatin		
Shwenagar		
Slide Dowm		
Top Fighter		
TOP FIGHTER		
Wisara		

13. Name of Herbicides used by contract/non-contract farmers:

Pesticide is used in your farm: ☐ Yes ☐ No

14. If yes, please choose the name of Herbicides used in your farm:

Pesticides	**Yes**	**No**
Dimin		
EGROW STAR		
Engrow Star		
Green Star		
GREEN STAR		
Hpaw Way		
Matponi		
Paungg Bhurain		
Payeti		
Preety		
Super Peacock		
Thamannsay		
Top spray		
U-26		
Golden Dragon		

15. Amount of Input Utilization for Rice:

Resources		Amount/Value
Rice Varieties	Amount (basket)	
	Value (Kyat)	
Fertilizer	Amount (basket)	
	Value (Kyat)	
	Amount (basket)	
	Value (Kyat)	
	Amount (basket)	
	Value (Kyat)	
Pesticides	Amount (basket)	
	Value (Kyat)	
Herbicide	Amount (basket)	
	Value (Kyat)	

16. Expenditure Patterns for Rice Cultivation:

Expenditure	**Number/Kyat**
Labour (Number)	
Labour Cost (Kyat)	
Machine Rent (Number)	
Cost of Machine Rent (Kyat)	

17. Income and Expenditure of Rice Cultivation of the Previous Season (Kyat):

Total Income : ----------

Total Expenditure : ----------

Gross Profit : ----------

18. Condition of input availability:

Rice seed: ☐ Purchase ☐ Own

Price of rice (Per Packet) : ----------

Price of Fertilizer (Kyat) : ----------

Price of Pesticides (Kyat) : ----------

Price of Herbicides (Kyat): ----------

19. Sources of Rice Seed Purchase:

Credit: ☐ Agriculture Department ☐ Agriculture Company

☐ Shop ☐ Other

Cash: ☐ Agriculture Department ☐ Agriculture Company

☐ Shop ☐ Other

20. Purchasing Patterns of Inputs by contract/non-contract farmers:

Resources	**Types of Purchases**	**Sources of Purchase**	
		Company	**Shop**
Fertilizer	Credit		
	Cash		
Pesticides	Credit		
	Cash		
Herbicides	Credit		
	Cash		

21. Borrowing Patterns of contract/non-contract farmers:

☐ Organization ☐ Company ☐ Relatives

Average Loan Amount : ----------

Average Interest (Kyat) : ----------

Average Loan Period : ----------

22. Problems Faced by contract/non-contract farmers:

☐ Insufficient capital ☐ Technology ☐ Price/Market volatility

☐ Machine/Equipment ☐ Quality ☐ Soil

☐ Weather ☐ Costs ☐ Transportation

23. Any Suggestions?

Part II. Questions about Involvement in Contract Farming

Contract Farmers

1. The period of cooperation with the company: ---------- years

2. How was contact made?

☐ Department of Agriculture

☐ CF company

☐ Village administrator

☐ Other farmers

☐ Others

3. The reason why you decided to cooperate

(1) ----------

(2) ----------

(3) ----------

4. What has changed in your business / family by cooperation?

(1) ----------

(2) ----------

(3) ----------

5. Are you satisfied with the company's current performance?

☐ Yes ☐ No

6. Company Contributions

Contribution	Amount	Value
Rice		
Fertilizer		
Loan		

7. Additional Contribution

☐ Technological Distribution ☐ Extension Service

8. Period of Contributions to Contract Farming:

☐ Before planting crops ☐ Crop planting time ☐ Other

9. Benefits from Cooperation with the Company:

☐ Received as expected ☐ More than expected

10. Changes in Cultivation Method due to the Contract Farming: ☐ Yes ☐ No

11. Willingness to Cooperate with Contract Farming among Farmers:

☐ Yes ☐ No

12. Farmers' Attitudes Towards Contract Farming:

(1) ----------

(2) ----------

(3) ----------

13. Recommendations and Concerns regarding Contract Farming Practices:

(1) ----------

(2) ----------

(3) ----------

Non-Contract Farmers

1. What do you know about contract farming? Please choose:

☐ Fertilizers and planting costs are paid and rice is seized

☐ Fertilizers are paid and rice is seized

☐ Planting costs are issued and purchased at harvest time

☐ The cost of input planting is issued and the rice is collected

☐ Venture business

☐ Don't Know

2. Do you know that some farmers are participating in the Contract Farming Program?

   ☐ Yes ☐ No

3. State your reason for not engaging in Contract Farming Program.

   ☐ More work

   ☐ Don't understand Contract Farming

   ☐ Unfair agreement

   ☐ Low rice prices

   ☐ High input prices

   ☐ No transparency

   ☐ High Interest

4. If you want to cooperate with CF program, what kind of agreement are you willing to cooperate with?

   ☐ To buy at market price

   ☐ No payment delays.

   ☐ To collect the rice during the harvest field

   ☐ To immediately pay the money from the sale of rice

   ☐ To pay a higher selling price of rice

   ☐ To take 15 pounds without taking extra

   ☐ To reduce the resources input price

5. Please express your opinion on Current Contract Farming Practices.

   ☐ Appreciation of the company's support

   ☐ Calcutta weighing good insurance

   ☐ Calcutta Weighing with good warranty but low price

   ☐ Farmers are benefited, but there is harm in taking extra

   ☐ Financial delay

   ☐ Good communication during the campaign

   ☐ Mutual benefit

Thank you very much for your participation.