No.1 | 2010

Mekong Institute

RESEARCH WORKING PAPER SERIES 2010

Transboundary Production in Agriculture: A Case Study of Maize Contract Farming in Cambodia

Poch Kongchheng

nzaid
New Zealand's International Aid & Development Agency

MI WORKING PAPER NO.1/2010

Transboundary Production in Agriculture: A Case Study of Maize Contract Farming in Cambodia

Poch Kongchheng

October 2010

Poch Kongchheng is a Researcher at the Economic Institute o Cambodia (EIC)

The Mekong Institute Working Paper Series cover the outputs of research projects supported by the Mekong Institute. The papers published under this series are part of a capacity-building program to enhance the research skills of young researchers in the GMS countries.

For more information, please contact the Information and Knowledge Management Program of Mekong Institute, Khon Kaen, Thailand.
Telephone: +66 43 202411-2
Fax: +66 43 343131
E-mail: library@mekonginstitute.org

Technical Editor: Dr. Christopher Gan, Associate Professor, Lincoln University, New Zealand

Language Editor: Peter Miller, Program Development Advisor, Mekong Institute, Thailand

Managing Editor: Maria Theresa S. Medialdia, Program Manager, Mekong Institute, Thailand

Cover Design & Page Layout: Li Xin, Program Officer, Mekong Institute, Thailand

Transboundary Production in Agriculture: A Case Study of Maize Contract Farming in Cambodia

Comments on this paper should be sent to the author
Poch Kongchheng: #2012ABC, NR 5, Sangkat Tuol Sangke, Khan Reussei Keo, Phnom Penh, Cambodia, Tel. +855-23-987941, Fax. +855-23-224626, Email. kongchheng.poch@eicambodia.org

Or

Information and Knowledge Management Program, Mekong Institute

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABBREVIATIONS AND ACRONYMS

AKR	Angkor Kasekam Roongroeung Co., Ltd.
BAT	British American Tobacco
CF	Contract Farming
EIC	Economic Institute of Cambodia
FGD	Focus Group Discussion
GDP	Gross Domestic Product
GMS	Greater Mekong Subregion
HH	Household
MAFF	Ministry of Agriculture, Forestry and Fisheries
MFI	Microfinance Institute
MI	Mekong Institute

ACKNOWLEDGAMENTS

The author would like to express deep gratitude to Mekong Institute (MI) for its financial and technical support. The study of maize Contract Farming in Cambodia would not have been successfully completed without great insights and assistance from MI Research Manager and Research & Development Department staff.

Appreciation is conveyed to Research Director of the Economic Institute of Cambodia (EIC) for his generous support and encouragement. Without his constant motivation, the author would have been unable to carry out this challenging study.

Sincere thanks goes to Associate Professor Dr. Christopher Gan, Lincoln University, New Zealand, for his tireless efforts and inspiration. His insightful expertise and contribution are of significant value in finalizing the report.

Last but not least, the report would not have been possible without the contribution of numerous people working in both public and private institutions, especially the farmers who voluntarily participated in the study.

ABSTRACT

This study examines the nature of transboundary production of maize, the key benefits to farmers from contract farming (CF) and the factors influencing a farmer's decision to participate in CF. Farmers who are suppliers in CF were surveyed to answer the study objectives and statistical analysis was employed. The findings reveal that the market for maize in Cambodia is too small which makes farmers extremely vulnerable to price fluctuation. Contract farmers are usually poor and have low education. While CF is predominantly dependent on verbal contracts, contractors who are middlemen are likely to gain high profit margins in the market chain for maize. But the income of farmers is not helped by CF and CF does not improve their livelihood. Access to credits and seeds is what attract farmers to CF. The findings suggest that a legal framework is needed for CF and better market access is important for agricultural and economic development in Cambodia.

Keywords: Transboundary Production, Maize, Contract Farming

1. Introduction

1.1 Background

Cambodia's economy has grown over 10% per annum between 2004 and 2008. This high rate of economic growth largely comes from garment, construction and tourism. However, agriculture remains a major cornerstone of the Cambodian economy. The agricultural sector accounts for more than 30 percent of gross domestic product (GDP) and employs more than 70 percent of the Cambodian labor force (Cai, Ung, Setboonsarng, and Leung, 2008). Hence, agriculture is significant for the Cambodian economy and for economic growth and poverty reduction since more than 80 percent of people live in rural areas.

In Cambodia, maize is the major cash crop after rice. Maize production is one of the major agricultural activities in Cambodia with a total cultivated area of 163,106 hectares in 2008 (MAFF, 2009). However, the production of maize in Cambodia is significantly lower than in neighboring countries due to natural calamities, inefficient farming techniques and insufficient capital (ACI and CamConsult, 2006). Further, Visal (2006) reveals that access to markets, lack of capital and underdeveloped infrastructure is restricting maize production in Cambodia. Given the low production capacity and the under utilization of cultivated land, there is plenty of room for maize farming development in Cambodia. Even though maize production in the country is principally for domestic consumption, large amounts of maize are formally and informally exported to Thailand and Vietnam for further processing.

The Government is in the best position to enhance maize production in Cambodia by increasing public investments, but the private sector has a significant role to play. A partnership between the private sector and farmers would boost production and market access. Production and sale of agricultural produces on a contractual basis occurs in developed countries. This creative concept has operated around the world for a long time due to higher demand for quality produce that can be delivered in sufficient quantities. Initially, it was used with perishable agricultural produce such as fruits, vegetables, cash crops and milk.

Contract farming (CF) is a system whereby farmers and buyers voluntarily enter into a contract for the production and supply of agriculture and horticulture produce (Singh, 2005). For farmers, CF is of great benefits because it is a source of production capital, farming inputs, extension services and a guaranteed price for their produce. On the other hand, the buyer gains a quality and a pre-determined quantity of produce with timely delivery of the produce.

CF has been used in Cambodia for short-term crops (rice and organic rice), permanent crops (rubber, palm oil, palm sugar and organic cashew nuts) and upland crops (tobacco, cotton, rubber, cassava, castor bean and maize) which are produced for export. For example, Angkor Kasekam Roongroeung Co., Ltd. (AKR), a private rice-milling company, has been practicing CF on organic rice with small farmers in Kampong Speu, Kampot, Kandal, and Takeo province. Similarly, British American Tobacco (BAT), which is a largest joint venture company, has been practicing CF for tobacco in Kampong Cham province.

1.2 Rationale of the Study

The use of CF in Cambodia is expected to enhance agricultural development and contribute to poverty alleviation by raising the living standards of rural farmers. However, there are mixed feelings about whether CF is truly beneficial to farmers and the country's economic development.

CF is used for maize in the north-western provinces of Cambodia such as Banteay Meanchey, Battambang and Pailin. These areas have tremendous potential for such a crop because of their high productivity compared to other provinces. On the other hand, these provinces are close to the border with Thailand which is monopolistic in term of buying maize from Cambodia. Maize is exported to Thailand for processing. This production chain has some interesting transboundary issues such as trading, processing and price regulation.

CF is of great interest to academics. There is ample literature on CF. However, few studies have been conducted about CF in the Greater Mekong Subregion (GMS), except in Thailand which was the first initiator and the major contracting country in the region. Hence, the study of maize CF would help to fill the gap in the existing literature.

More importantly, the concept and logistics of CF are not well known to the public and policy makers. It is of great interest in policy options formulation. A few CF studies have been undertaken on rice and poultry. Thus, it is important to conduct a study on maize A study of CF would be beneficial in formulating effective policies to enhance CF practices and maize production in Cambodia. It would help to contribute to the country's economic development.

1.3 Objectives of the Study

The main objective of the study is to understand and assess the CF practices with maize in Cambodia. The specific objectives are:

1. To describe the transboundary movement of maize production from Cambodia to Thailand.
2. To assess the benefits of CF in maize production.

3. To identify the factors that influence the decisions of maize farmers to participate or not to participate in CF.

1.4 Scope of the Study

It is worth noting that maize is a major crop which is grown in provinces along the Thai-Cambodian border. Also, maize is generally exported for processing and consumption in Thailand. In addition, the study has assessed maize CF practices by taking the views of producers or suppliers into account.

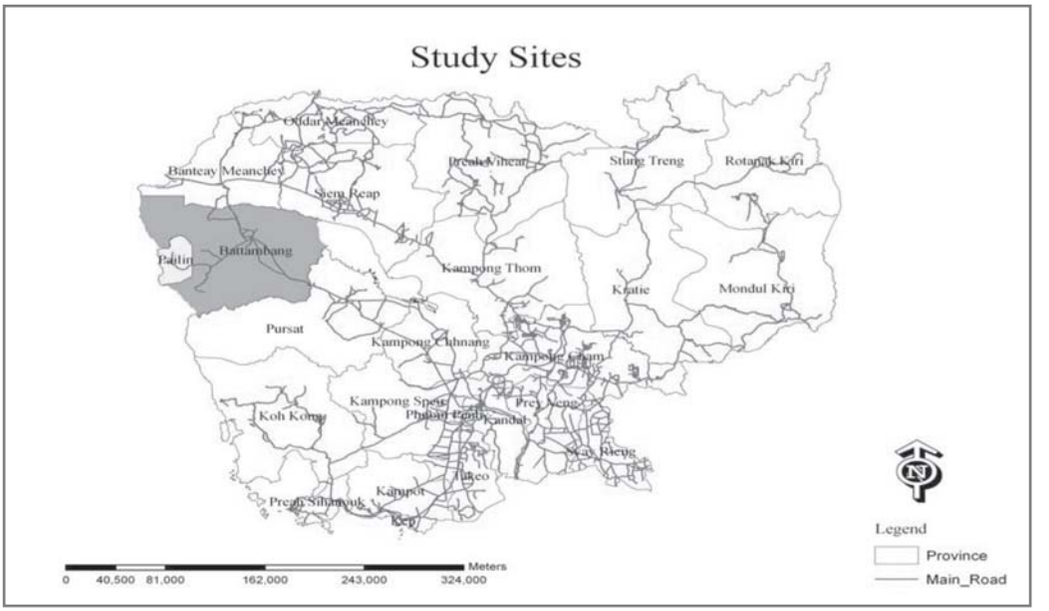
Battambang and Pailin provinces are the largest maize producing provinces in Cambodia. CF is exclusively practiced in these two provinces because of the number of farmers in those provinces, the amount of available cultivated land and the ease of access to Thailand.

The study was conducted among maize contract farmers and non-contract farmers. The study sought to test the hypothesis that CF is beneficial to farmers. Finally, the advantages and disadvantages of CF are addressed by identifying factors that encourage farmers to participate in CF.

1.5 Study Sites

The study was conducted in Battambang and Pailin provinces. These two provinces are located in the north-west of Cambodia. They share the border with Sa Keo and Chanthaburi province of Thailand. Specifically, Sampov Lun district of Battambang province and Sala Krauv district of Pailin province were selected for the study (see Figure 1). These two districts produce and sell a large amount of maize to Thailand. It is extremely difficult to reach Sampov Lun district which is a remote area in Cambodia while accessing Sala Krauv district is much easier.

Figure 1. Map of Study Sites



2. Literature Review

2.1. Definition of Contract Farming

There is ample literature on CF both general and case studies. This abundant of literature definitely provides an important source of information. Nonetheless, it complicates an understanding of whether CF is a solution to agricultural development and poverty reduction at the global, regional or country level or not. Advancements in the field of marketing and technology and changes in international markets have brought about new arrangements for raw material supply, including the use of contract farming. Basically, demand for the reliable supply of products has pushed large firms to outsource or sub-contract raw materials from small firms and farming communities.

The use made of CF varies from region to region. There are many intriguing definitions of CF. According to Eaton and Shepherd (2001), CF is an agreement between farmers and processing and/ or marketing firms for the production and supply of agricultural products under forward agreements at a pre-determined price. The US Department of Agricultural 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 (Bijman, 2008).

Singh (2005) defines CF as a system for the production and supply of agricultural and horticultural produce by farmers/primary producers, who provide a standardized quality of an agricultural commodity, at a specified time, price and in specified quantity to a recognized purchaser under an advance contract. There are many definitions in CF, but CF usually involves specifications of the price, quantity and quality of produce, production conditions, delivery and grading requirements (Runsten and Key, 1996).

2.2. Modalities of Contracts

CF normally involves farmers, intermediaries and marketing/trading or processing firms who play a vital role in producing and marketing in the agricultural sector. As a result, there are many CF models. In this sense, CF practices and models differ depending on the kind of crop, situational and geographical conditions, and the socio-cultural context. This diversity is the result of the technical requirements of production and the associated production and transaction costs (Simmons, Winters, and Patrick, 2005). Singh (2005) argues that CF varies depending on the nature and type of contracting agency, technology, nature of crop/produce and the local and national context.

Eaton and Shepherd (2001) have distinguished five CF models, namely centralized, nucleus estate, multipartite, informal and intermediary.

Centralized model is a vertical model that involves a contractor and farmers, where quantity and quality are strictly controlled from the beginning of producing season and the contractor purchases the crop from a large number of farmers and processes or packages and markets the product. A high degree of processing is needed under this model for products such as tobacco, cotton, sugar cane and bananas, and with tree crops such as coffee, tea, cocoa and rubber. However, poultry, pork, dairy products, fruits and fresh vegetable are also produced using this model (Eaton and Shepherd, 2001).

Nucleus estate model is a variation of the centralized model where the contractor not only sources product from farmers, but also has and manages his own estate plantation, which is close to the processing plant. This estate plantation is generally rather large to guarantee throughput for the processing plant, but sometimes it is small serving as a research and experimental farm. A common approach is to commence with a pilot project and then introduce farmers to the technology and management techniques of a particular crop. This model is mainly used for tree crops, for example oil palm. A dairy nucleus estate has been operating in Indonesia (Eaton and Shepherd, 2001).

Multipartite model is a model which involves statutory bodies, private companies and farmers. Multipartite CF may involve farmers, government agencies, foreign and domestic private companies. Joint venture model is commonly seen between public agencies and private companies. For example, the governments of Mexico, Kenya and West Africa have invested in CF with private companies through joint ventures. This model involves many organizations which are responsible for credit provision, production management, processing and marketing (Eaton and Shepherd, 2001).

Informal model is generally applied to individual entrepreneurs or small companies and farmers who operate through an informal arrangement based on a seasonal basis, particularly for crops such as fresh vegetables, watermelons and tropical fruits. These crops only require minimal processing such are sorting, grading and packaging. Material inputs are generally restricted to the provision of seeds and basic fertilizers, with technical advice limited to grading and quality control (Eaton and Shepherd, 2001).

Intermediary model involves three parties, namely a processing firm or major trader formally contracting with collector(s) who then informally contracts with many farmers. This model is regarded as a combination of the centralized and informal models, and is commonly practiced throughout Southeast Asia. This indirect link between contractor and farmers lacks vertical coordination and supporting services, which are the key factors to a successful contract (Eaton and Shepherd, 2001).

2.3. Types of Contracts

Many types of contracts are discussed in the literature. Among other things, the rights to farming and risk management are normally the basis for determining the type of contract used. Bijman (2008) suggests that contracts have different objectives in the transfer of decision-rights, from the farmers to the contractor and the transfer of risk. However, Eaton and Shepherd (2001) suggest that the type of contract is significantly dependent upon the nature of the product, the primary processing required, market demand (in terms of supply reliability), quality incentives, payment arrangements, the level of control and capital.

According to Singh (2005), there are three types of contract: (i) procurement contract, under which only sale and purchase conditions are defined; (ii) partial contracts, under which only some of the inputs are supplied by the contractor and produce is bought at a pre-determined price; and (iii) total contract, under which the contractor supplies and manages all inputs on the farm and the farmers becomes just a supplier of land and labor.

However, this classification of contracts does not cover many of the existing CF practices around the world. For example, in an informal contract model, there is only involvement by the individual entrepreneur and farmers based on a simple arrangement without any written agreement. In this regard, quantity and quality of products are not precisely defined in advance.

Though many different types of contract are found in the literature, they tend to be based on market requirements, product management and resource supply. Mighell and Jones (1963) have categorized conventional agricultural contracts into three types: (i) market-specification contracts, (ii) production-management contracts, and (iii) resource-providing contracts.

Market-specification contracts are the pre-harvest agreements, which specify quantity, timing and place of delivery, price of produces as well as the quality of the produces, which affect the production decisions of farmers (Mighell and Jones, 1963).

Production-management contracts provide exponentially high power to a contractor to control the production process, input supplies and technological usage. Farmers delegates a substantial part of their decision rights to the contractor not only over production by agreeing to follow prescribed production approaches and input usage, but also cultivation and harvesting practices (Mighell and Jones, 1963).

Resource-providing contracts are contracts which allow the contractor to provide key inputs (such as in-kind credits and seeds) and guarantee the markets for producers. These kinds of contracts transfer

considerable marketing risks to contractors by leaving most of the production risks and decision rights with producers (Mighell and Jones, 1963).

2.4. Nature of Contracts

Contracts vary because of regional, cultural and historical reasons, socio-economic conditions, production and marketing systems, the nature of crops, contractors and farmers. Singh (2005) has noted that different firms can have different types of contracts even with the same crop.

Based on legal, cultural and social relationships, contracts can be categorized as written and verbal. Shiva and Crompton (1998) note that the provisions adopted by seed firms in India are different depending on the relationship with the farmers concerned. Furthermore, tradition written contracts are not used in many developing countries, particularly in Sub-Saharan Africa (Bijman, 2008).

Bijman (2008) also concludes that increased use of CF in developing countries does not necessarily lead to more formal contracts. The Bogetoft and Olesen study (2004) concludes that contracts in the agriculture sector are often straightforward and verbal. Moreover, Fafchamps (2004) found that the practice of informal contracts, which have been used traditionally, are well understood and are still commonly upheld and respected.

2.5. Success and Failure Factors of Contracts

The success or failure of CF occurs on a case by case basis. Sriboonchitta and Wiboonpoongse (2008) conclude that CF projects have had mixed results. However, there are many successful cases. For instance, CF in Thailand has been praised for its exceptional success in the Southeast Asian region. This is because of strong intervention and promotion by the Thai Government under the [4-sector Plan and the Mekong sub-regional economic cooperation arrangements - not sure that I've got this right] (Sriboonchitta and Wiboonpoongse, 2008).

Sugar cane, baby corn and asparagus, and broiler and hog contracts have shown success. For example, Sriboonchitta and Wiboonpoongse (2008) note that the major factor to the success of CF with asparagus is the guarantee of a fixed price for various grades of product for the whole year.

On the other hand, there are also many CF failures. For instance, Sorghum CF scheme under the Guinness sorghum project in 2001 failed to achieve its critical objective to help rural farmers in the poor areas of northern Ghana to raise their incomes through sorghum production. Technical and institutional problems underlay the failure of this CF scheme (Kudadjie-Freeman, Richards, and Struik, 2008).

According to Sriboonchitta and Wiboonpoongse (2008), personnel and uncontrollable factors such as weather are reasons for the failure of CF schemes. Simmons (2002) expressed the view that the success of CF schemes largely depend on uncontrollable factors such as legal, social and economic issues and the physical environment as well as the contract management environment.

Eaton and Shepherd (2001) provide evidences of the pre-conditions necessary for the success of CF schemes, namely a profitable market for both contractor and producers; physical and social environment, such as the physical conditions, utilities and communications, land availability and tenure, input availability and social considerations; and government support, including the conducive, regulatory and development role it plays.

Sriboonchitta and Wiboonpoongse (2008) summarize that the key determinants of success - pre-and-post harvest production technology, technology transfer, trust building, pricing policy, financial support and human resource development - need to be properly integrated.

2.6. Benefits of Contracts

CF is often considered a win-win situation where both the contractor and producers gain benefits. It is of great value in linking farmers to markets, which is a dominant problem in developing countries. In addition, a contractor or farmers can simultaneously receive benefits, but in different aspects and scale. Conceptually, CF can be advantageous to both a contractor and farmers. The benefits for both are extensive. The following section briefly summarizes the benefits.

Benefits for Contractors

In reference to the Eaton and Shepherd (2001) study, the benefits for a contractor are that the system is political acceptability; it overcoming land constraints; it provides product reliability and shared risk; it can help to ensure consistent product quality; and encourages farm inputs. Setboonsarng (2008) acknowledges the abovementioned benefits when he identified cost efficiency, quality consistency, trading requirements fulfillment and political acceptability.

Benefits for Farmers

Many evaluation studies illustrate that CF schemes can help farmers to be better off, provide them with more reliable incomes, generate jobs especially for women and provide new skills of farmers (Glover and Kusterer, 1990; Porter and Phillips-Howard, 1995; Singh, 2002). Eaton and Shepherd (2001) identifie many benefits gained by CF farmers, such as reliable market access, price guarantee, efficient supply of inputs and production services, accessibility of credit, access to appropriate technology and improved farming skills.

Setboonsarng (2008) concurs and suggests that in addition to reducing the requirement for monitoring and labor incentives, reducing production risks and introducing higher-value crops CF improves market access, reduces the risk of price uncertainty, allows for the timely provision of inputs and access to credit and financial intermediation.

3. Maize Production and Marketing

3.1 Production Overview

Maize is the second largest crop grown in Cambodia after paddy rice. It is grown across the country upon available cultivated land. Battambang, Pailin, Kampong Cham, Kandal and Banteay Meanchey provinces are the top five producers of maize. These provinces have a competitive edge for maize production because of the abundant of cultivated land.

The increase in production is undeniably due to the increase in cultivated land and productivity. The cultivated land for maize increased by 79 percent from 91,203 hectares (ha) in 2004 to 163,106 ha in 2008; and, at the same time the yield increased from 2.81 tons/ha to 3.75 tons/ha (EIC data, 2009). Yields have increasing by around 3 tons/ha over the period 2004-2008. The lack of agricultural infrastructure means crop production in Cambodia is dependent on weather conditions. Maize is no different to other crops which significantly depend on rainwater and therefore the yield varies from one year to another and across provinces.

The average yield of maize production in Sampov Lun and Sala Krauv districts is around 5-6 tons/ha. According to EIC data, the yield in 2008 was 5 and 4 tons/ha for Battambang and Pailin province, respectively.

Battambang and Pailin provinces are still ranked top in terms of production quantity. Table 1 demonstrates that maize production of Battambang province reached a record high at 423,966 tons in 2008, up from 155,030 tons in 2004, a total increase of 173 percent. Meanwhile, in Pailin province production seems to be fluctuating, but is still considerably higher than other provinces and reached total production of 51,302 tons in 2008 (EIC data, 2009).

Table 1 Maize Production in Cambodia by Selected Provinces from 2004-2008 (tons)

Provinces	**2004**	**2005**	**2006**	**2007**	**2008**
Battambang	155,030	108,018	179,603	298,804	423,966
Pailin	43,354	66,606	98,476	101,832	51,302
Kampong Cham	6,981	19,994	34,019	36,478	39,245
Kandal	19,581	16,584	19,288	25,897	23,610
Banteay Meanchey	10,489	9,554	9,696	19,995	27,530
Prey Veng	5,528	2,911	5,633	8,970	11,107
Kampong Chhnang	1,720	2,913	3,996	4,267	5,964
Kratie	2,839	3,007	3,239	2,944	4,628
Mondol Kiri	528	5,029	391	5,819	4,209
Others	10,618	13,144	12,828	17,697	20,305
Total	**256,668**	**247,760**	**367,169**	**522,703**	**611,865**

Source: Economic Institute of Cambodia (EIC)

Plantation and Cultivation Practices

Maize is normally grown once per year and basically in the rainy season because this crop depends principally on water availability whilst the country, particularly areas along the Thai-Cambodian border, do not have adequate water sources such as rivers or ponds for farming. It is noteworthy that current farming practices in Cambodia rely heavily on rainwater. So, only the rainy season is appropriate for maize production as rainwater is readily available.

The production cycle for maize is four months. The first planting usually starts in between March and May. Farmers living along the rivers can only grow maize once per year, but in the other provinces such as Battambang and Pailin, farmers can grow maize twice per year. In Sampov Lun and Sala Krauv districts, the majority of farmers grow maize once per year; some farmers can produce maize twice per year if rainwater is available in the early part of the year. For instance, if rainwater falls in March, maize will be planted and cultivation will start in July. Under these conditions farmers can start another growing cycle from August to December.

Land needs to be prepared before the rain comes. Plowing is done usually once or twice for planting maize. The first plough normally starts before the forecasted rains, followed by a second ploughing for seed planting. Probably 5 percent of the farmers, who are rich, use their own tractors or power tillers

to prepare the soil. But, most farmers hire tractors to do land preparation. The majority of farmers plough their land twice whilst a number of farmers can only plough their land once due to lack of capital. Yield variation is the critical difference between the two methods of land preparation, but more intensive practices result in better yield. On the other hand, not much labor is needed at the beginning of planting cycle.

To some extent, chemical protein is used by approximately 67 percent of the farmers in the Sala Krauv district whereas 1.5 percent of the farmers in Sampov Lun district use it. For the Sampov Lun district, the soil is rich in nutrients for not only maize, but for other kinds of crop production. However, herbicides and pesticides are also used by farmers in both districts. Herbicides are used to kill grasses once or twice during production. Pesticides are applied in minimal amounts to prevent insects. However, chemicals and organic fertilizers are used minimally by farmers in Sala Krauv district to increase crop yields.

3.2 Marketing System

Thailand and Vietnam are the biggest importers of Cambodian crops ranging from soya-bean to cassava, and paddy rice to maize. In addition, Vietnam is also a big market for maize produced in the north-western region, but maize is exported in larger amounts to Thailand due to easy of accessibility.

There are many players, including farmers, collectors, traders, drying factories and processing factories involved in the marketing and trading of maize in Cambodia. Thai traders and drying factories are the major players involving in maize trading. They are the influential agents who manipulate the price and trading activities.

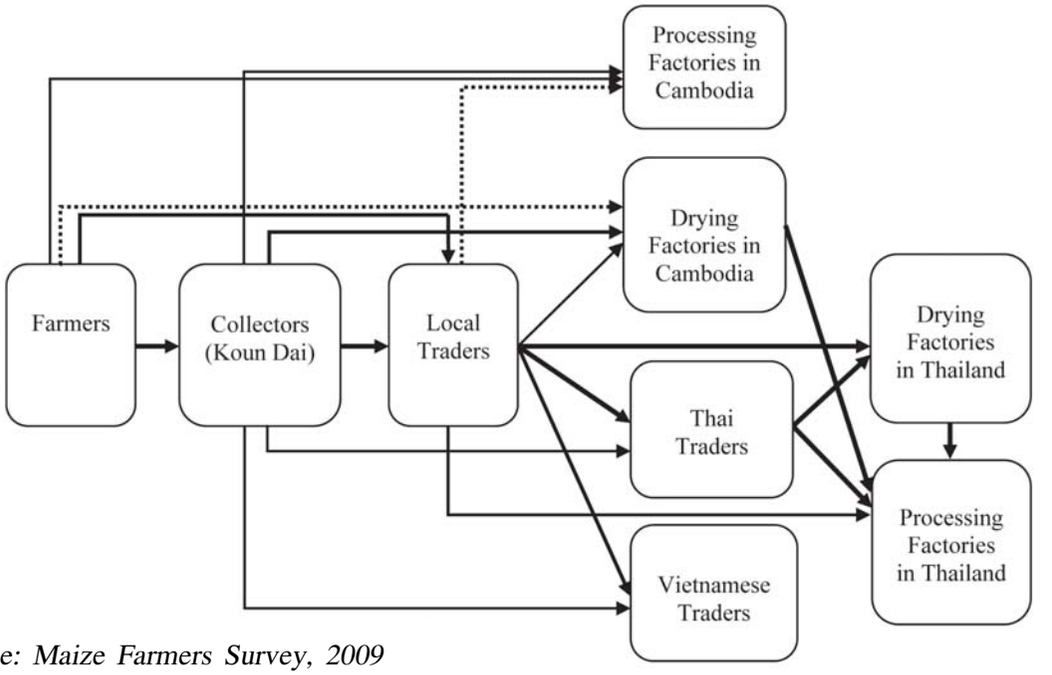
Figure 2 illustrates the marketing system for maize in Cambodia. There are many layers in the marketing chain. The fundamental chain is that farmers sell to local collectors (called "Koun Dai") or directly to local traders. Collectors sell the product to local traders or Thai traders from a commission or profit margin. Then, the traders will then sell the product to Thai traders or drying factories in Thailand. This is the normal process because there is no demand for maize processing in Cambodia.

In this interrelated marketing system, local collectors and traders play a notably intermediary role. This provides a great opportunity for them to make profits by imposing high commissions or profit margins on buyers in Thailand or Vietnam. They have many choices in selling maize collected from farmers. They can sell to Vietnamese buyers if the price is higher than that offered by Thai buyers.

In contrast, farmers have no choice but to sell their maize crops to collectors or traders during the harvesting period where the price of maize is frequently low. They cannot wait to get a higher price because they need money to pay off debts caused by borrowing money to pay for seeds, fertilizer and

land preparation at the beginning of production season. Moreover, they do not have sufficient warehousing and drying machines to stock and dry their maize in order to maintain good quality for selling when the price is high.

Table 1：Maize production in cambodia by selected prouinces from 2004-2008



Source: Maize Farmers Survey, 2009

4. Research Methodology

In order to answer the three main research questions, the study employed a desk review and field survey. A desk review was conducted to obtain an initial understanding of maize production and marketing and to formulate an empirical model for, and an overview of, contract farming practices. The desk review included a review of literature, policy papers and reported and documented statistics.

A field survey was carried out among farmers, both contract and non-contract farmers, for whom maize production is their major source of incomes. Furthermore, focus group discussions and semi-structure interviews were conducted. Critical activities for the field survey included determining the sample size, sampling and the design of data collection tools and data collection.

4.1 Sample Size

Sample size is determined based on the formula: $n_o = \frac{Z^2pq}{e_2}$

Where:

n_o = the sample size

Z^2 = the abscissa of the normal curve

e = the desired level of precision

p = the estimated proportion of an attribute

q = 1 - p

Assuming a 95% confidence interval and $\pm$ 5% precision, the formula provides a result of sample size at 385.

$$no = \frac{Z^2pq}{e^2} = \frac{(1.96)^2(0.5)(0.5)}{(0.5)^2} = 385 \text{ maize farmers}$$

However, 400 maize farmers were interviewed because it was easier to receive the same response rates from two provinces by dividing sample size equally.

4.2 Sampling Method

A stratified sampling method was used to collect data from farmers in Battambang and Pailin province. The 400 sample was divided into 200 for each province. Following this, convenient sampling was employed to conduct the survey in each province. Due to the large number of non-contract farmers in the two provinces, the actual number of interviewed non-contract farmers is 308 and the number of contract farmers is 92.

4.3 Data Collection

A structured survey questionnaire was designed to collect data from the farmers. The questionnaire was based on the literature review and current CF practices in Cambodia. The questionnaire was developed with input from an official in the Ministry of Agriculture, Forestry and Fisheries (MAFF) in Cambodia and Associate Professor Dr. Christopher Gan. In addiiton, a guiding questionnaire was used to collect data during focus group discussions (FGDs). This unstructured questionnaire was used primarily to collect qualitative data and gain an understanding of maize production and the marketing system. The questionnaire was also used to support better design of the survey questionnaire.

The data was collected from 400 maize farmers in Battambang and Pailin province using a structured survey questionnaire. A face-to-face interview was employed to conduct the survey. This technique is of great advantage for investigating the reactions from respondents.

Prior to providing the survey questionnaire to the respondents, two pilot tests were conducted. A total of 15 farmers were purposively selected for conducting each pilot test. The pilot test was conducted to obtain feedbacks on the questionnaire and to improve the content, clarity and understandability of the questionnaire.

FGDs were conducted once in each province in order to gain knowledge of maize production and trading conditions. Ten farmers participated in each FGD, both contract and non-contract farmers.

Semi-structured interviews were also conducted with local authorities (commune councilors), middlemen and contractors. This technique was used to collect data from authority and contractors in order to fill a gap in the survey since the survey was conducted with farmers only.

Secondary data was collected from various reliable sources, such as books, journals, magazines, newspapers and websites. Moreover, secondary data was also obtained from MAFF and EIC.

4.4 Empirical Models

The empirical models in the study were developed from qualitative choice analysis, which is widely used in describing decision-makers' choices in areas such as transportation, housing and telecommunications. A qualitative choice situation is defined as one in which a decision-maker faces a choice among a set of alternatives. Any choice situation in which the decision or choice is represented by a continuous variable is not a qualitative choice situation. Basically, qualitative choice models designate a class of models, such as logit and probit, which attempt to relate the probability of making a particular choice to various explanatory factors and calculate the probability that the decision-maker will choose a particular choice or decision from a set of choices or decisions, given data observed by the researcher (Ben-Akiva and Lerman, 1985).

For many commodities and services, the individual's choice is discrete and the traditional demand theory has to be modified to analyse such a choice (Ben-Akiva and Lerman, 1985). Let by the utility function of the farmer, where yi is a dichotomous variable indicating whether the individual farmer contract is successful, wi is the wealth of the farmer and zi is a vector of the farmer's characteristics. Also, let c be the average cost of a contract, then economic theory posits that the farmer's contract is successful if

$$U_i(Y_i=1,W_i-c,z_i) \geq U_i(y_i=0,w_i,z_i) \quad (1)$$

Even though the farmer's outcome is straightforward, the analyst does not have sufficient information to determine the farmer's contract outcome. Instead, the analyst is able to observe the farmer's contract characteristics and choice, and using them to estimate the relationship between them. Let xi be a vector of the farmer's characteristics and wealth, $x_i = (w_i,z_i)$and then equation (1) can be formulated as an ex-post model given by:

$$Y_i=f(x_i)+\varepsilon_i \quad (2)$$

Where ε_i is the random term. If the random term is assumed to have a logistic distribution, then the above represents the standard binary logit model. However, if we assume that the random term is normally distributed, then the model becomes the binary probit model (Maddala, 1993; Ben-Akiva and Lerman, 1985). The logit model is used in this analysis because of convenience, as the differences between the two models are slight (Maddala, 1993). The logit model is used to address the last two research objectives. The model is estimated by the maximum likelihood.

Model 1: CF is hypothesized to be affected by the following factors and can be implicitly written under the general form:

Farmers' benefits from CF = f (Contractor, years in CF, nature of contract, types of contract, number of income earners, annual HH income, e)

Where:

Farmers' benefits = 1 if farmers gain decision making; 0 otherwise
Contractor = 1 if farmers' contractor is middleman; 0 otherwise
Years in CF = 1 if farmers have been more than one year in the contract; 0 otherwise
Nature of contract = 1 if farmers' contract is based on verbal agreement; 0 otherwise
Types of contract = 1 if farmers' contract is production support type; 0 otherwise
Number of income earners = 1 if farmers' HHs have more than 1 income earners; 0 otherwise
Annual HH income = 1 if farmers' annual income increase; 0 otherwise
e = error terms

Model 2: Adoption of a farm contract is hypothesized to be affected by the following factors and can be implicitly written under the general form:

Adoption of CF = f (small entrepreneur, advice on CF, local buyers, gender, number of children, high school, number of income earners, HH income from farming, e)

Where:

Adoption of CF = 1 if farmers are contract farmers; 0 otherwise

Small entrepreneur = 1 if farmers are small entrepreneurs; 0 otherwise

Advice on CF = 1 if farmers know where to get advice on CF; 0 otherwise

Local buyers = 1 if farmers sell maize to middlemen; 0 otherwise

Gender = 1 if farmers are male; 0 otherwise

Number of children = 1 if farmers have more than one children; 0 otherwise

High school = 1 if farmers completed lower than high school; 0 otherwise

Number of income earners = 1 if farmers' HHs have more than 1 income earners; 0 otherwise

HH income from farming = 1 if farmers' annual HH income depends on farming; 0 otherwise

e = error terms

5. Contract Farming on Maize

The study used the CF practice for maize in the North-west provinces of Cambodia. This CF model is an informal contract. The contract involves only individual intermediaries (middlemen) and farmers on a seasonal basis. It is based on an oral promise or verbal agreement. In this sense, a farmer enters into a money-borrowing agreement to get loan from a middleman[1] and promises to repay that loan by selling the maize to middleman at harvest time. Sometimes, a written loan agreement is not available. Borrowing and promising to sell maize back to the middleman is done by verbal agreement only. In this regard, trust plays a vital role in this kind of CF practice.

The contractor is the local middleman, who lives in the village with the farmers, in Cambodia. The middleman has money to provide credit to and buy seeds for the farmers. Sometimes, the middleman borrows money with zero interest from big traders or drying/processing factories in Thailand to provide credits to the farmers. In turn, the middleman has to collect the maize from the farmers in Cambodia and sell it to the Thai trader or factory and repay the loan. They gain commissions from selling the maize to the Thai buyer and interests from the farmers.

This informal contract basically lasts from six months to one year and is dependent upon credit size. Small amounts of credit make a contract last only six months, which fundamentally supports the maize production cycle. However, thecredit size usually varies from 500 - 2,000 USD. Farmers need to pay off loans the following year if they are not able to pay at the end of production cycle for that year.

[1]A middlemen is referred to either as a collector or trader because these two roles are sometimes played by the ong person

Consequently, contractors will calculate the interest on the balance of the loan for the extended period. Farming techniques and extension services are not available under this informal contract.

However, the price of maize is not stated in the agreement. It is kept open for selling and buying during the harvesting season. Once the maize is harvested, farmers can negotiate the price of maize with their contractor, from whom they borrowed money. If they do not accept the offered price, they can sell to another buyer and get the money to pay off their loans.

This open price scheme provides an option for the farmers. But, they have to sell their maize to the contractor, even though the price is sometime lower than other buyers, because if they sell to another buyer they will not be able to borrow money from their current contractor the following year. The contractor will regard them as untrustworthy. Hence, creditworthiness is fundamental for farmers in reach a contract with a contractor.

6. Empirical Results and Discussion

6.1 Farmer Characteristics

From the survey of respondents, 63 percent were men, 37 percent were women and 91 percent were in the age group between 26-55 years. The majority of the respondents are married with three children at the time of the survey interview. Thus, there are usually five people per household, but there were only two income earners who were commonly the parents. The respondents were the head of the household and were the person responsible for decision making in household matters and about farming. The survey results also showed that 42 percent of the respondents completed primary school while only 23 percent finished lower secondary school. Farming is the major source of income for the households. According to the survey, 76 percent of respondents said farming comprises 80 - 100 percent of their total household incomes.

6.1.1 Contract Farmers

The survey showed that 72 percent of the contract farmers are women. This is because women play a leading role in borrowing money from money lenders or middlemen (businessmen) in the village. As CF is solely based on credits from the middlemen, women farmers generally go to borrow money and make a contract. It is worth noting that the farmers, who choose CF, are over 26 years of age. Only 14 percent of the contract farmers were widowers or widows.

The survey results show that 55 percent of contract farmers completed primary school only. Due to their poor living condition and low education they usually approach a contractor for credit and they

pay off their debts during the harvest season by selling their maize to the contractor at a price, which is lower than their neighbors who are non-contract farmers. More importantly, they have to pay high interest rates to contractor for their loans.

The average land size of contract farmers is 5 hectares. However, 41 percent have only 2-3 hectares of land. A small landholder tends to get into debt because they have many people living in their households and their income from farming is not sufficient for their annual household needs. They have no choice but to enter into a contract with a contractor in order to get access to credit for their household expenditure.

Borrowing money from banks or microfinance institutions (MFIs) is not an option because their small piece of land cannot be used as collateral. Moreover, land title, which is the pre-requisite document for borrowing money from banks or MFIs, is not available. Poor education is undoubtedly a reason why farmers cannot access bank or MFIs facilities and fill out applications for loans. They are afraid their properties will be confiscated by the bank or MFI if they cannot pay off their loans by the due date. In contrast, they can go to a contractor even though the interest rate is higher than the banks or MFIs, because they can negotiate with them if the loans are overdue.

6.1.2 Non Contract Farmers

The survey of non-contract farmers shows that they are mostly men (75%) and 89 percent are in the age group 26 - 55 years. This is different from the contract farmers who are mostly women. However, it proves the critical finding that due to role played by women in borrowing money to cover household expenses, they tend to engage in CF without sufficient information.

The survey result show 94 percent of the non-contract farmers were married while only 4.5 percent were widow or widower. In terms of education, 37 percent of the non-contract farmers completed primary school, and 18 percent completed vocational training. The number of income earners is no different from contract farmers with two persons per household. However, four income earners per household are found with non-contract farmers.

It is of interest to note that only 34 percent of the total non-contract farmers had annual household incomes between 2,001 - 3,000 USD. The non-contract farmers usually have higher incomes than the contract farmers. They normally have larger land size than the contract farmers. The average land size per household for non-contract farmers is 8 ha.

6.2 Empirical Models

The study used logistic regression to test two models. The logistic regression identifies the determinants of farmers' potential benefits from participating in CF and the factors underlying the decision to enter into a contract. The following section discusses the findings from the logistic regression analysis.

Model 1: Determinants of benefits for farmers from CF

The Hosmer and Lemeshow Goodness-of-Fit Test divides subjects into deciles based on predicted probabilities then computes a chi-square from observed and expected frequencies (see Table 3 in Appendix I). The p-value=0.993 here is computed from the chi-square distribution with 7 degrees of freedom and indicates that the logistic model is a good fit. That is, if the Hosmer and Lemeshow Goodness-of-Fit test statistic is 0.05 or greater, we fail to reject the null hypothesis that there is no difference, implying that the model's estimates fit the data at an acceptable level. Thus, the chi-square test strongly rejects the hypothesis that the model has no explanatory power, which rightly predicted 97.8 percent of the observations.

The Wald statistic and the corresponding significance level test the significance of each of the covariate and dummy independents in the model. The ratio of the logistic coefficient B to its standard error S.E., squared, equals the Wald statistic. If the Wald statistic is significant (i.e., less than 0.05) then the parameter is significant in the model. Thus the modeling shows Years in Contract, Nature of Contract, Type of Contract, Number of Income Earners, and Annual Household Income are statistically significant at 5% level of significance in determining the CF benefits for farmers.

For example, CF success is truly dependent on how long it lasts. The contract can last over long periods unless farmers join the contract. In this sense, because farmers get benefits from the contract they tend to stay longer in the contract. The results indicate that the longer the farmer stays in the contract, the more benefits the farmers are likely to get. However, Simmons (2002) points out that determining success of CF over many seasons may be too narrow. In particular, Silva (2005) states that farmers can benefit from a more reliable and stable income flow, especially in term of better planning of consumption and investment decisions, if the contract continues for a long term.

The nature of the contract has a positive sign in determining the benefits for farmers. In this regard, as current contracts largely hinge on verbal agreements, it means that an oral-binding contract is likely to be more beneficial for farmers. Certainly, contract farmers currently can get input support from the contractor, such as for credit and seeds. They can also sell their maize at the market price during

harvesting season. It really depends on the quality of their maize. If the quality of their maize is good, they are able to sell it at a higher price since the pre-determined price in the contract is not defined.

Meanwhile, this type of contract can deliver negative benefits for the farmer. Since current CF contracts are of a resource provision type, farmers are vulnerable to losses because a working capital loan is simply supplied in kind. Similarly, access to both working and fixed capital is improved in the case of market specific contracts (Silva, 2005). Moreover, the farmer has to pay back the loan with high interest while there is no guaranteed market for their maize production. The results illustrate that the increased use of resource provision contracts is likely to reduce the benefits for farmers.

The results also demonstrate that the number of income earners per household positively influences the benefits of CF for farmers. Income earners include respondents who have a job and are capable of working. If contract farmers have many income earners in their household they are highly likely to be able to take advantage from the contract. This result is similar to that reached by Singh (2005) who concluded that CF may engage medium or large capitalist farmers relying on wage labor. It is confirmed that contractors prefer to work with medium and large scale growers (contract farmers) that have an abundance of labor (Little and Watts, 1994; Singh, 2002; Miyata, 2008).

On the other hand, where the annual household income is negative this means that the annual household income of farmers has increased and the benefits gain from the contract are likely to decrease. It is true that the current contract is used by small farmers who frequently lack the credit and inputs for farming. If they have more income, they will borrow less or get less supports from the contractor. In this informal contract scheme, contract farmers can only receive support in terms of seeds and advanced credits.

Model 2: Factors underlying the decisions of farmers to participate in CF

Similar to Model 1, Model 2 fits the data quite well. The chi-square test strongly rejected the hypothesis that the model has no explanatory power, which correctly predicted 97.5 percent of the observations (see Table 4 in Appendix I). The estimated coefficients illustrate that additional occupations, advice on CF, current local buyers, gender, number of children per household and household income, are statistically significant at the 5% level of significance, whereas educational level is statistically significant at 10% level in encouraging farmers to enter into the contract.

Occupation (small entrepreneurs) has a negative relationship with the participation in CF. Farmers, who are also small entrepreneurs (e.g. small vendor), can generate substantial revenue from their businesses, which means they can generate a high proportion of their annual incomes from the

business rather than from farming. They are highly unlikely to participate in the contract while their neighbors who depend significantly on farming to generate incomes have a high probability of participating in CF. Small entrepreneurs in fact do not have problems in financing their farming production. Therefore, they do not necessarily participate in the contract. In contrast, farmers whose main occupation is farming are more likely to participate in the contract.

Information dissemination reveals that CF has a strong positive relationship with the participation in the contract. When information about CF can be properly accessed from a reliable isource, farmers will have a great chance to understand CF. The reliable source of CF information is a catalyst to stimulate farmers to participate in the contract. The results indicate that if a farmer is provided with CF information from a reliable source, they are highly likely to participate in the contract. In a CF study of livestock products, Costales and Catelo (2009) concluded that producers do not participate in CF because they do not have information about the existence of CF in their locations.

On the other hand, marketing of maize is a decisive factor attracting farmers to adopt the contract. Farmers normally sell to a local collector or traders who they consider makes a high profit margin by buying maize from them at a low price. Moreover, price fluctuation becomes a status quo issue, which exposes farmers to possible losses. They often have no choice but to sell at a low price to a local collector or trader because of limited market accessibility. They undeniably need a reliable and stable market for their maize production. The results show that if a farmer currently sells their maize to a collector or trader, the odds are that s/he engagement in the contract will increase.

Gender has a negative effect, which means that if a farmer is male, the odds are that his participation in the contract will decrease. But if a farmer is female, the probability of participating in the contract increases. Among the contract farmers surveyed, 72 percent are female which is higher than the female non-contract farmers (27 percent). This is consistent with the current practice that in the household, the woman is the person responsible for borrowing money as credit is the key in CF practice; therefore, female farmers are highly likely to engage in CF.

The number of children per household has a positive impact on CF adoption. The more children the farmer has, the more likely the farmer is to participate in the contract. It is interesting to note that CF needs intensive labor and farmers can employ their children rather than hiring people from outside. Furthermore, the more children the farmers have, the more expenses the farmers need to pay. Hence, they need advanced credit from the contractor to meet their household needs. The results show that if a household increases by one more child, the probability is that the household is more likely to participate in the contract.

Education is positive, but has the least impact on CF adoption. Specifically, farmers who complete education at lower than high school level has a higher probability of participation in CF because they completely depend on farming for their livelihood. On the other hand, farmers who completed higher than high school level have a lower probability of participation in CF because they can generate more income from their knowledge capability. The result implies that farmers who completed lower than high school level are likely to enter into CF more than the farmers who completed high school or a higher educational level. This result is in contrast to the study of Costales and Catelo (2009) that found that low education seems to be the barrier to participation in the contract because pig production needs higher and more specialized knowledge and skill.

The annual household income from farming negatively influences CF adoption. The finding reveals that if the annual household income from farming increases the odds are that the farmer's participation in CF decreases. This means that farmers who can generate their income from farming because they have a big plot of land have no intention of joining CF. It is not necessary for them to engage in CF where the contractor only support seeds and credits. They try to borrow less because they are afraid of being unable to pay off their loans. In addition, farmers have to pay high interests and usually sell their crops at a low price so that they can try to avoid CF.

The number of income earners per household is insignificant in explaining the likelihood of farmers participating in CF. The number of income earners per household is not relevant for CF adoption because once there are many income earners in a household, those income earners tend to migrate to work or live in other places where they hope to get a higher income.

7. Policy Implications

The empirical findings of the study indicate that present CF practices based on verbal agreements, are beneficial to farmers in terms of seeds and credit support and because farmers are still able to sell their produce at market price. But, this minimal support does not help farmers get a better price or assume responsibility for marketing their own produce which is the ultimate and greater benefit of CF. While a CF law is still to be drafted by MAFF, the present CF practice are only bound by contract law. However, social trust and mutual understanding play a crucial role in the relationship between farmers and contractors and also in terms of contract enforcement. Due to the lack of a well defined law, CF neither maximizes the potentials benefits for agricultural development nor helps farmers improve their livelihoods. Therefore, formal arrangement and a legal framework are required to sustain and improve CF performance.

Contract farmers are small poor farmers who have low education and who rely significantly on small revenue from farming for their household income. They tend to enter into a contract without sufficient information which puts them in a disadvantage position against the contractor. Benefits from the contract largely go to contractor. Therefore, proper information dissemination about CF from a reliable source (e.g. MAFF is normally regarded as a trusted public agency) is of critical importance for raising people's awareness of the potential benefits from, and their role in, CF.

Current CF practices are unable to provide satisfactory rewards to farmers, especially small famers, so that they can improve their living conditions and get out of poverty. The current maize market is largely dependent on Thailand and, to a lesser extent, Vietnam. Due to narrow market accessibility and pre-determined price, farmers are extremely vulnerable to price fluctuations which push them into debt. Thus, broadening the market for maize is important in helping farmers to get higher prices and also for enhancing the production and profitability of maize farming. More importantly, it can improve CF practices and improve maize production to an industrial level.

The empirical findings also illustrate that there is a missing link between processing factories and middlemen so that middlemen cannot guarantee a stable market and price for contract farmers. Contractors cannot provide any agricultural supports besides seeds and credit. These small input provisions undoubtedly help them to take minimal production risks. In fact, the contractors are not in a good position to provide these guarantees because the collectors and traders do not have sufficient capability and assured markets. In order to improve the performance of CF, processing factories should make contract with farmers or through middlemen because only processing factories can provide reliable and stable markets for farmers. More importantly, they have the capacity to support maize production and post-harvest management.

8. Conclusions and Recommendations

The present CF practice is predominantly based on trust and oral agreement. Farmers can get benefits in terms of input support but guaranteed market and price are not available. In fact, farmers try to avoid the contract but they have no choice because they need credit to finance their maize production. In this regard, middlemen are the main source of loans for them. They can easily access these loans from a neighboring financial source. Widening and deepening CF practice beyond the input support is an essential foundation to enhance CF performance.

Thailand is the biggest market for Cambodian maize so it is not necessary for Thai processing factories to make a formal contract with Cambodian farmers to get a guaranteed supply. Narrow market accessibility is a constraint restricting farmers from reduced market risks such as occurs when

demand and price fluctuate. Government support in term of market diversification is useful for maize production, and for maize farmers to gain stable markets and price.

Informal CF schemes cannot play a leading role in promoting agricultural and economic development because they cannot help to improve the production and marketing system or the capacity of the farming sector. Contractors are the middlemen who manipulate the market according to the present marketing chain. Farmers are always in a less competitive position so they cannot take maximum benefit from the contract. Promoting private companies to invest in CF scheme for maize should be shouldered by Government in order to enhance CF results and farmer's incomes.

Studing the allocation of benefits between contractors and farmers is of benevolent importance in understanding the causes of failure and success of CF. The inequitable sharing of risks and benefits between contractors and farmers is a constraint hampering the capacity to maximize the potential benefits of CF for agriculture and economic development.

9. Limitation of the Study

Data was not obtained from Thai traders, drying factories and processing companies. Accessing Thai traders, drying factories and processing companies would allow for a better understand of the market chain for maize from a Thai perspective. However, such an information gap can be fuled from the Cambodian side by interviewing Cambodian collectors and traders.

Another constraint is that interviewees, who are farmers, were not attentive to the interview. They might provide incomplete information to the study team. Nevertheless, the large sample size provided sufficiently data for analysis.

10. Suggested Further Research

This study could not adequately address the issue from a demand-side perspective because it intentionally seeks to assess supply-side issues. Obviously, Cambodia is the supplier of maize to Thailand, which imports large amount of maize every year. Hence, studies on the demand-side should be conducted in order to completely understand the marketing chain from the producing point to consumers. More importantly, studies should be undertaken into the rationale for Thai companies not to contract with Cambodian farmers directly for the supply of maze.

References

Agrifood Consulting International and CamConsult (2006). *Cambodia agriculture sector: Diagnostic report.* Phase 1 of design, Agricultural Program, Cambodia, 2007-12 - Program concept document final report, Phnom Penh.

Ben-Akiva, M. and Lerman, S. (1985). *Discrete choice analysis.* Massachusetts: The MIT Press.

Bijman, J. (2008). *Contract farming in developing countries: an overview*. Wageningen: *Department of Business Administration,* Wageningen University.

Bogetoft, P. and Olesen, H.B. (2004). *Design of production contracts: lessons from theory and Agriculture.* Copenhagen Business Scholl Press.

Cai, J., Ung, L., Setboonsarng, S., and Leung, P. (2008). *Rice contract farming in Cambodia: Empowering farmers to move beyond the contract toward independence.* ADBI Discussion Paper 109. Tokyo: Asian Development Bank Institute.

Costales, A. and Catelo, M.A.O. (2009). *Contract farming as an institution for integrating rural smallholders in markets for livestock products in developing countries: (II) results in case countries.* Research report 09-04. Pro-Poor Livestock Policy Initiative.

Eaton, C. and Shepherd, A. (2001). *Contract farming: Partnership for growth.* FAO agricultural services bulletin 145. Rome: Food and Agriculture Organization of the United Nations.

Fafchamps, M. (2004). *Social capital and development.* Discussion paper series No 214. Department of Economics. University of Oxford.

Glover, D. and Kusterer, K. (1990). *Small farmers, big business: contract farming and rural development.* New York: St. Martin's Press.

Kudadjie-Freeman, C., Richards, P., and Struik, P. (2008). *Unlocking the potential of contract farming: Lessons from Ghana.* The gatekeeper series 139. International Institute for Environment and Development.

Little, P. and Watts, M., (1994). *Living under contract: contract farming and agrarian transformation in Sub-Saharan Africa.* Madison: University of Wisconsin Press.

Maddala, G. S. (1993). *The Econometrics of Panel Data.* Elsevier Science Pub Co.

MAFF (2009). *Annual Report 2009.* Phnom Penh: Ministry of Agriculture, Forest, and Fisheries.

Mighell, R.L. and Jones, L.A. (1963). *Vertical coordination in agriculture.* Agricultural Economics Report No 19. USDA-ERS.

Miyata, S. (2008). Experiences in developed and developing economies and the current situation in China. In J. Wang and M. Watanabe (Eds.), *Pork production in China-a survey and analysis of the industry at a Lewis Turning Point.*

Porter, G. and Phillips-Howard, K. (1997). Comparing contracts: an evaluation of contract farming schemes in Africa. *World Development,* 25, 227-238.

Runsten, D. and Key, N. (1996). *Contract farming in developing countries: theoretical aspects and analysis of some Mexican case studies.* Report LC/L. 989. Economic Commission for Latin America and the Caribbean.

Setboonsarng, S. (2008). *Global partnership in poverty reduction: contract farming and regional cooperation.* ADBI Discussion Paper 89. Tokyo: Asian Development Bank Institute.

Shiva, V and Crompton, T. (1998, September 26). Monopoly and monoculture: trends in Indian seed industry. *Economic and Political Weekly,* A, 137-151.

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

Simmons, P. (2002). *Overview of smallholder contract farming in developing countries.* Armidale: Graduate School of Agricultural and Resource Economics.

Simmons, P., Winters, P. and Patrick, I. (2005). An analysis of contract farming in East Java, Bali, and Lombok, Indonesia. *Agricultural Economics,* 33, 513-525.

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

Singh, S. (2005). *Contract farming for agricultural development: Review of theory and practice with special reference to India.* New Delhi: Centre for Management in Agriculture, Indian Institute of Management.

Sriboonchitta, S. and Wiboonpoongse, A. (2008). *Overview of contract farming in Thailand: Lessons learned.* ADBI Discussion Paper 112. Tokyo: Asian Development Bank Institute.

Summary of Proceedings of Technical Meeting on GMS cross-border agriculture trade and contract farming (March 6, 2009). Bangkok: Greater Mekong Subregion Economic Cooperation Program.

APPENDICES

Appendix I: Results of Data Analysis

Table 2. Characteristics of Contract Farmers and Non-Contract Farmers

Characteristics	Contract Farmers	Non-Contract Farmers	Total	Pearson Chi-Square
Study Site				
Battambang	8%	63%	50%	85.884
Pailin	92%	37%	50%	
Type of Farm Business				
Family or Individual	97%	97%	97%	
Family partnership	3%	2%	2%	
Non-family partnership	0%	1%	1%	0.711
Whom Purchase Farm Input				
Contract agency	65%	1%	16%	
Government agencies	0%	0%	0%	
General suppliers, shops	3%	27%	21%	
Middlemen	31%	30%	30%	
Others	1%	42%	33%	245.6
Whom Sell Farm Output To				
Contract agency	78%	0%	18%	
Cooperatives	0%	1%	0%	
Wholesalers	0%	6%	5%	
Local markets	0%	0%	0%	
Middlemen	22%	92%	76%	
Others	0%	1%	1%	294.5
Land Size				
Under 5 ha	60%	41%	46%	
6 - 10 ha	35%	40%	38%	
11 - 15 ha	4%	14%	12%	15.224

Characteristics	Contract Farmers	Non-Contract Farmers	Total	Pearson Chi-Square
16 - 20 ha	0%	4%	3%	
Over 20 ha	1%	1%	1%	
Years of Farm Holding				
Under 5 years	17%	16%	16%	
6 - 10 years	63%	51%	54%	
11 - 15 years	19%	18%	18%	
16 - 20 years	1%	15%	12%	13.148
Income Earners per HH				
1 - 2 people	39%	38%	38%	0.065
More than 2	61%	62%	62%	
Years of Growing Maize				
Under 5 years	19%	23%	22%	
6 - 10 years	78%	50%	56%	
11 - 15 years	2%	15%	12%	
16 - 20 years	1%	11%	9%	
Over 20 years	0%	1%	1%	29.42
Gender				
Male	28%	73%	63%	
Female	72%	27%	37%	61.858
Age Group (years)				
18-25	0%	5%	4%	
26-35	21%	28%	26%	
36-45	59%	31%	37%	
46-55	18%	31%	28%	
56-65	1%	5%	4%	
Over 65	1%	0%	1%	

Characteristics	Contract Farmers	Non-Contract Farmers	Total	Pearson Chi-Square
Marital Status				
Single/Never married	0%	2%	1%	
Married	86%	93%	92%	
Widow/Widower	14%	5%	7%	11.884
Education				
No education	2%	5%	4%	
Literacy class	1%	13%	10%	
Primary school	56%	37%	41%	
Middle school	27%	22%	23%	
High school	14%	5%	8%	
Vocational	0%	18%	14%	
Associate	0%	0%	0%	40.508
Annual HH Income				
Up to 1,000 USD	15%	18%	17%	
1,001-2,000 USD	16%	20%	19%	
2,001-3,000 USD	60%	34%	40%	
3,001-4,000 USD	6%	12%	11%	
4,001-5,000 USD	1%	4%	3%	
Over 5,000 USD	2%	12%	10%	23.921

Table 3 Model 1: Determinants of the benefits to farmers from CF

Visal, L. (2006). *Cambodia Agriculture Development Report.* Phnom Penh, Cambodia: Economic Institute of Cambodia.

No. of observation:	400
-2 Log likelihood:	19.274
Cox & Snell R2:	0.651
Nagelkerke R2:	0.908
Chi-square statistics:	1.120
Degree of freedom (df):	7
Level of significance:	0.993
Percentage of predicted right:	97.8

Variables	Coefficients	Wald	Sig.	Exp(B)
Constant	-12.828	5.941	0.015	0.000
Years in Contract	2.894	9.232	0.002	18.071
Nature of Contract	16.593	8.866	0.003	1.61E+07
Type of Contract	-10.493	9.393	0.002	0.000
Number of Income Earners	3.786	8.761	0.003	44.101
Annual Household Income	-4.035	4.946	0.026	0.018

Note: All variables are statistically significant at the 0.05 level of significance.

Table 4 Model 2: Factors underlying the decision of farmers to participate in CF

Number of Observation:	400
-2 Log likelihood:	116.999
Cox & Snell R2:	0.517
Nagelkerke R2:	0.794
Chi-Square Statistics:	146.572
Degree of Freedom (df):	8
Level of Significance:	0.000
Percentage of Predicted Right:	97.5

Variables	Coefficients	Wald	Sig.	Exp(B)
Constant	7.567	5.113	0.024	1933.000
Small Entrepreneurs	-2.704	6.467	0.011	0.067
Advice on CF	4.756	16.159	0.000	116.299
Local Buyers	1.800	37.475	0.000	6.048
Gender	-5.267	28.941	0.000	0.005
Number of Children	0.715	5.923	0.015	2.044
High School*	1.423	2.834	0.092	4.150
Number of Income Earners**	-0.361	0.839	0.360	0.697
HH Income from farming	-0.135	15.374	0.000	0.874

Note: All variables are statistically significant at the 0.05 level of significance except High School and Number of Income Earners variable.

* Denoted as statistically significant at the 0.10 level of significance.

** Denoted as not statistically significant.

Appendix II: Survey Questionnaire

Questionneire No._____

MEKONG INSTITUTE

Survey Questionnaire:

TRANSBOUNDARY PRODUCTION IN AGRICULTURE: A CASE STUDY OF MAIZE CONTRACT FARMING IN CAMBODIA

Interviewer record:

Name: .....Date of interview: .....

Time: .....Signature: .....

Remarks: .....

Instructions: for each quetion with brackets or box provided, please tick your answer(s). Otherwise, please follow the instructions given to answer the questions.

Note: Made sure that the respondent in the maiqe grower before proceeding with the interview.

Section 1. General Farm Information (for ALL respondents)

1. Which of the following describes how your farm business is organized?
    1. Family or Individual (NOT partnership or corporation) [ ]
    2. Family Partnership [ ]
    3. Non-family Partnership operation [ ]
    4. Family owned corporation [ ]
    5. Non-family corporation [ ]
    6. Other(s) please specify _____

2. How many years has the farm been in your household?

_____ (please state the year)

3. What is your role on the farm?
    1. Owner Operator [ ]
    2. Child/relative of owner operator [ ]
    3. Non-owner manager [ ]
    4. Other(s) please specify _____

4. How did you obtain your farm? (You can tick more than one)
    1. Inherit (personal land) [ ]_____ ha
    2. Purchase from family member [ ]_____ ha
    3. Rent to buy [ ]_____ ha
    4. Rent [ ]_____ ha
    5. Purchase from others [ ]_____ ha
    6. Leasing from government [ ]_____ ha
    7. Other(s) please specify_____ ha

5. What other types of products do you farm on your farm besides maize?
   (You may tick more than one)

1.	Rice	[ ]	2.	Cassava	[ ]
3.	Soybean	[ ]	4.	Sugar cane	[ ]
5.	Sesame	[ ]	6.	Fish/Prawn	[ ]
7.	Poultry	[ ]	8.	No	[ ]

    9. Other(s) please specify

6. Who did you purchase your farm input from?
    1. Contractor agency [ ]
    2. Cooperatives [ ]
    3. Government agencies [ ]
    4. General suppliers, shops [ ]
    5. Middleman [ ]
    6 Other(s) please specify _____

7. Who did you sell your farm output to?
    1. Contractor agency [ ]
    2. Cooperatives [ ]
    3. Government agencies [ ]
    4. Wholesalers [ ]
    5. Local markets [ ]
    6. Middleman [ ]
    7. Other(s) please specify

8. What other job(s) are you engaged in besides farming? (You can tick more than one)

1. Cattle farming	[ ]	2. Fishery	[ ]
3. Cottage industries	[ ]	4. Small entrepreneur	[ ]
5. Government Service	[ ]	6. Causal labour	[ ]
7. Hunting	[ ]		

8. Other(s) please specify _____

9. Do you know where to get advice or information on contract farming?

1. Yes	[ ]	2. No	[ ]

Section 2. Maize Production (for ALL Maize Growers)

10. Do you sell your maize to local buyers?

1. Yes	[ ] (go to Q11)	2. No	[ ] (go to Q13)

11. Which local buyer(s) do you sell your maize to?

1. Contractor agency	[ ]
2. Cooperatives	[ ]
3. Government agencies	[ ]
4. Wholesalers	[ ]
5. Local markets	[ ]
6. Middleman	[ ]
7. Other(s) please specify	

12. Why do you sell your maize to local buyers?

1. Higher price	[ ]
2. No external market	[ ]
3. Advanced credit from buyers	[ ]
4. Have a contract with them	[ ]
5. Other(s) please specify _____	

13. Do you sell your maize to external buyers?

1. Yes	[ ] (go to Q14)	2. No	[ ] (go to Q16)

14. Which country do you sell your maize to?

    1. Laos [ ] 2 Thailand [ ]
    3. Vietnam [ ]
    4. Other(s) please specify _____

15. Why do you sell your maize to external buyers?

    1. Higher price [ ]
    2. No local market [ ]
    3. Advanced credit from buyers [ ]
    4. Have a contract with them [ ]
    5. Other(s) please specify _____

16. Where is the selling point of your maize?

    1. At the farm [ ]
    2. At the buyer's warehouse [ ]
    3. Cooperative [ ]
    4. At the market in the community [ ]
    5. At my house [ ]
    6. Other(s) please specify _____

17. How long have you been growing maize? _____ (years)

18. How many cycles of maize production did have in last 12 months?

    1. One time [ ]_____ ha
    2. Two times [ ]_____ ha

19. Please describe your maize selling activities during the last 2 years

Cycle	2007				2008			
	Ha	**Production (ton)**	**Price (US$/ton)**	**Revenue (US$)**	**Ha**	**Production (ton)**	**Price (US$/ton)**	**Revenue (US$)**
1								
2								
Total								

20. How many full-time, part-time, seasonal workers, and/or family members did you employ on your farm in 2007 (including yourself)? How many did you employ in 2008?

Items	Numbers of workers (2007)	Numbers of workers (2008)
Full-time Employees	_____	_____
Seasonal Employees	_____	_____
Family (adult)	_____	_____
Family (less than 18)	_____	_____
Total		

21. Describe your production factors in the last 12 months.

Items	Personal Purchase		Contract Agreement	
	Quantity	Price	Quantity	Price
Seed				
Organic fertilizer				
Chemical fertilizer				
Pesticides				
Chemical protein				
Herbicide				
Others				

22. What is your source of water for farming and consumption?
(You may tick more than one)

1. Public well [ ]
2. Private well [ ]
3. Piped water [ ]
4. Rain water [ ]
5. Rivers/lakes [ ]
6. Irrigated water supply [ ]
7. Other(s) please specify _____

23. Do you use contract farming?

1. Yes [ ] (go to section 3) 2. No [ ] (go to section 4)

Section 3. Contract-Farming

24. Where do you learn about contract farming? (You may rank more than one)

1. Friends, other farmers [ ]
2. Newspaper/Media [ ]
3. Government agencies [ ]
4. Private agriculture extension services [ ]
5. Middleman [ ]
6. Suppliers [ ]
7. NGOs [ ]
8. Other(s) please specify

25. Who is your current contractor (buyer/processor)?

1. Local middleman [ ]
2. External (foreign) middleman [ ]
3. Local processing company [ ]
4. External (foreign) processing company [ ]
5. Other(s) please specify

26. What are the reason(s) you use contract farming? (You may rank more than one)
(Please rank the reasons on a scale of 1 to 3, where 1= Most important, 2 = important and 3 = Least important)

1. Market certainty for output [ ]
2. Reduce price risk [ ]
3. Extra services available from contractors [ ]
4. Access to technology/skills development [ ]
5. Provision of input credit [ ]
6. Reduce production risk [ ]
7. Lack of market accessibility [ ]
8. Lack of capital [ ]
9. Other(s) please specify _____

27. How long have you been in contract farming? _____ (years)

28. What is the duration of your current contract? _____ (months)

29. What is the nature of your farm contract?

    1. Oral [ ]
    2. Written [ ]
    3. Open market system with the contractors [ ]
    4. Other(s) please specify _____

30. What type of contract farming do you use in maize production?

    1. Procurement contracts [ ]
    2. Partial contracts [ ]
    3. Total contracts [ ]

31. Does the contract have an exit/termination clause for both parties?

    1. Yes [ ] 2. No [ ]

32. Are there clear penalty to mitigate breach of the contract?

    1. Yes [ ] 2. No [ ]

33. Who does the grading of your maize?

    1. Myself [ ]
    2. Contractor/processor [ ]
    3. Special graders [ ]
    4. Trained graders [ ]
    5. No one [ ]
    6. Other(s) please specify_____

34. Do you have the guaranteed price for your maize contract?

    1. Yes [ ] US$/ton 2. No [ ]

35. What is the market price for your maize contract? _____US$/ton

36. How much do you pay on average for transporting maize from your farm to the buyer's place? _____US$/ton

37. Do you receive any kinds of input support from the contracting company?

    1. Yes [ ] (go to Q 38) 2. No [ ] (go to Q39)

27. How long have you been in contract farming? _____ (years)

28. What is the duration of your current contract? _____ (months)

29. What is the nature of your farm contract?

    1. Oral [ ]
    2. Written [ ]
    3. Open market system with the contractors [ ]
    4. Other(s) please specify _____

30. What type of contract farming do you use in maize production?

    1. Procurement contracts [ ]
    2. Partial contracts [ ]
    3. Total contracts [ ]

31. Does the contract have an exit/termination clause for both parties?

    1. Yes [ ] 2. No [ ]

32. Are there clear penalty to mitigate breach of the contract?

    1. Yes [ ] 2. No [ ]

33. Who does the grading of your maize?

    1. Myself [ ]
    2. Contractor/processor [ ]
    3. Special graders [ ]
    4. Trained graders [ ]
    5. No one [ ]
    6. Other(s) please specify_____

34. Do you have the guaranteed price for your maize contract?

    1. Yes [ ] US$/ton 2. No [ ]

35. What is the market price for your maize contract? _____US$/ton

36. How much do you pay on average for transporting maize from your farm to the buyer's place? _____US$/ton

37. Do you receive any kinds of input support from the contracting company?

    1. Yes [ ] (go to Q 38) 2. No [ ] (go to Q39)

43. If impossible in Q43, please tell us why? (You may tick more than one)

1. A penalty [ ]
2. Legal binding [ ]
3. Powerless to deal with contractor [ ]
4. Other(s) please specify_____

44. Does it sometimes happen to you that the contractor did not respect the terms of the contract?

1. Yes, often [ ]
2. Yes, sometimes [ ]
3. Seldom [ ]
4. No, never [ ]

45. Has the contractor breach the terms of contract?

1. Yes [ ] (go to Q46) 2. No [ ] (go to Q47)

46. If yes in Q45, why? (You may tick more than one)

1. Contracting price is higher than market price [ ]
2. Oversupply of products in the markets [ ]
3. No demand of products for processing [ ]
4. Bankruptcy [ ]
5. Other(s) please specify

47. Can you negotiate the price with the contractor or do you have to accept the contactor's conditions?

1. Negotiate [ ] 2. Accept [ ]

48. How do you receive your payment from the contractor?

1. In cash [ ]
2. Bank transfer [ ]
3. Other(s) please specify _____

49. How long does it take on average to receive payment for your products from the contractor(s)? Please state _____ (days)

50. Based on your experienced in contract farming, what problems have you encountered in terms of the contract terms and conditions? (You may tick more than one)

1. Lack of understanding of the contract commitment [ ]
2. Slow or delay transportation from farm damaged the product [ ]
3. Lack of freedom on farm management and decision-making [ ]
4. No freedom in buying input [ ]
5. No bargaining power, low price [ ]
6. Other(s) please specify _____

51. What level of technology do you use in your farm operation before contract farming and after contract farming? (You may tick more than one)

	Before CF	After CF
1. Agricultural credit	[ ]	[ ]
2. Mechanised equipment	[ ]	[ ]
3. Improved seed	[ ]	[ ]
4. Fertiliser	[ ]	[ ]
5. Insecticides/Herbicide	[ ]	[ ]
6. Agricultural extension services	[ ]	[ ]
7. Other(s) please specify	_____	_____

52. What is the financial situation of your household before and after you engaged in contract farming?

	Before CF	After CF
1. Much better	[ ]	[ ]
2. Better	[ ]	[ ]
3. Same	[ ]	[ ]
4. Worse	[ ]	[ ]
5. Worst	[ ]	[ ]

53. What is the profitability of your farm operation before and after you engaged in contract farming?

	Before CF	After CF
1. Much better	[ ]	[ ]
2. Better	[ ]	[ ]
3. Same	[ ]	[ ]
4. Worse	[ ]	[ ]
5. Worst	[ ]	[ ]

54. Do you have a loan in the last 2 years?

1. Yes [ ] (go to Q55) 2. No [ ] (go to Q59)

55. If yes in Q54, from where?

1. Commercial banks [ ]
2. Specialized banks [ ]
3. Micro finance institutions [ ]
4. Money lenders [ ]
5. Family/relatives/friends [ ]
6. Other(s) please specify _____

56. What is your mode of payment?

1. Weekly [ ]
2. Monthly [ ]
3. Quarterly [ ]
4. Semi-annually [ ]
5. Annually [ ]
6. Other(s) please specify _____

57. Did your loan require collateral or security?

1. Yes [ ] (go to Q58) 2. No [ ] (go to Q59)

58. If yes in Q57, what kind of collateral or security is/are required?

1. Mortgage Property [ ]
2. Chattel Mortgage (i.e. vehicles, farm equipment) [ ]
3. Promissory Notes [ ]
4. Co-signor/co-guarantor [ ]
5. Deposits [ ]
6. Other(s) please specify _____

59. Which advantages do you see for you as a farmer engaged into contract farming?

1. _____
2. _____
3. _____

60. Which disadvantages do you see for you as a farmer engaged into contract farming?

1. _____
2. _____
3. _____

Section 4. Non-Contract Farming

61. What are the reason(s) you did not use contract farming in your farming activities? (You can tick more than one)

1. I am interested but wasn't offered a contract [ ]
2. Contracts are not fair [ ]
3. Contracts don't have any advantages, sales are reliable [ ]
4. Contracts give lower flexibility and increase dependency on contractors [ ]
5. Contracts are not reliable [ ]
6. Companies flout the terms stated in the contract [ ]
7. No contract scheme is available [ ]
8. Other(s) please specify _____

62. How much do you pay on average for your product transportation from the farm to the market?

_____US$/ton

63. How do you market your produce at the moment? (You may tick more than one)

1. Middlemen come to buy at my house/farm [ ]
2. Price is negotiated at the time of selling [ ]
3. Sell directly to traders [ ]
4. Sell only to small brokers/collectors [ ]
5. Other(s) please specify _____

64. Are you satisfied with your current marketing system?

1. Satisfy [ ] (go to Q66) 2. Not satisfy [ ] (go to Q65)

65. If not satisfy, what are the reasons/problems you face in marketing your produce?
(You may tick more than one)

1. Low price [ ]
2. Price is set by middlemen [ ]
3. Quality of produce is graded by middlemen [ ]
4. Market uncertainty [ ]
5. Other(s) please specify _____

66. Would you consider using contract farming in future?

1. Yes [ ] 2. No [ ]

67. What could be the reason(s) for you to enter into contractual agreements with a buyer?
(You may tick more than one)
(Please rank the reasons on a scale of 1 to 3, where 1= Most important, 2 = important and 3 = Least important)

1. Market certainty for output [ ]
2. Reduce price risk [ ]
3. Extra services available from contractors [ ]
4. Access to technology/skills development [ ]
5. Provision of input credit [ ]
6. Reduce production risk [ ]
7. Lack of market accessibility [ ]
8. Lack of capital [ ]
9. Other(s) please specify

Section 5. Demographic and Socio-economic Characteristics of Farmers (for ALL respondents)

68. What is your gender?

1. Male [ ] 2. Female [ ]

69. Which age group do you belong to?

1. 18 - 25 years olds [ ]
2. 26 - 35 years olds [ ]
3. 36 - 45 years olds [ ]
4. 46 - 55 years olds [ ]
5. 56 - 65 years olds [ ]
6. Over 65 years olds [ ]

70. Do you belong to any ethnic minority group?

1. Yes [ ] 2. No [ ]

71. What is your marital status?

1. Single/Never Married [ ]
2. Married [ ]
3. De factor relationship [ ]
4. Divorced/Separated [ ]
5. Widow/Widower [ ]

72. How many children do you have?

_____ person(s)

73. How many male and female children do you have?

Male: _____ person(s)

Female: _____ person(s)

74. What is your highest educational or professional qualification?

1. No Education [ ]
2. Literacy class [ ]
3. Primary School [ ]
4. Middle School [ ]
5. High school [ ]

6. Vocational [ ]
7. Associate [ ]
8. Bachelor [ ]
9. Postgraduate degree [ ]
10. Other(s) please specify _____

75. The number of people living in your household is (please state):

_____ person(s)

76. The number of income earners in your household is (please state):

_____ person(s)

77. What is your annual household income?

1. Up to 1,000 USD [ ]
2. 1,001 - 2,000 USD [ ]
3. 2,001 - 3,000 USD [ ]
4. 3,001 - 4,000 USD [ ]
5. 4,001 - 5,000 USD [ ]
6. Over 5,000 USD [ ]

78. Approximately what percentage of your household income comes from the farm operation?

_____ (please state the percentage)

79. What is the average total annual consumption (food and non-food) of your household?

1. Up to 1,000 USD [ ]
2. 1,001 - 2,000 USD [ ]
3. 2,001 - 3,000 USD [ ]
4. 3,001 - 4,000 USD [ ]
5. 4,001 - 5,000 USD [ ]
6. Over 5,000 USD [ ]

80. What was your farm's total gross farm sale in 2008?

1.	Up to 1,000 USD	[ ]
2.	1,001 - 2,000 USD	[ ]
3.	2,001 - 3,000 USD	[ ]
4.	3,001 - 4,000 USD	[ ]
5.	4,001 - 5,000 USD	[ ]
6.	Over 5,000 USD	[ ]

Your participation in this survey is greatly appreciated. Thank you for your time and if you wish to add any further comments about the maize contract farming, please feel free to voice them in the space available. Once again, we assure you that your identity will remain

STRICTLY CONFIDENTIAL.

About Mekong Institute

Mekong Institute (MI) has been serving the human resource development (HRD) needs of the Greater Mekong Sub-region (GMS) since 1996. The New Zealand Government conceived Mekong Institute as a development assistance project for the countries of the GMS, intended to evolve into a regionally governed, autonomous institution. The institute is situated on the campus of Khon Kaen University in Northeastern Thailand, heart of the GMS with its mission "to contribute through human resource development and capacity building to the acceleration of sustainable economic and social development and poverty alleviation in the Greater Mekong Sub-region and promote regional cooperation and integration" (MI Charter 2003).

In 2003, the six GMS governments signed a charter founding Mekong Institute as 'a non-profit, autonomous, international organization, working in close collaboration with other GMS institutions'. In July 2007, the Thai Government approved MI Headquarters Agreement in Thailand and recognized the institute as an "intergovernmental organization of the six GMS countries". MI is governed by the MI Council which is comprised of senior government representatives from the GMS countries. MI has its residential training center in Thailand and its Coordinating Agencies in all six GMS countries.

Today, Mekong Institute holds the distinction as the ONLY GMS-based learning institute founded by the six GMS Governments, offering standard and on-demand human resource development programs with focus on regional integration and cooperation issues.

Mekong Institute

RESEARCH WORKING PAPER SERIES 2010

New Zealand's International Aid & Development Agency