

EXECUTIVE SUMMARY

Impacts of Contract Farming on Poverty and Environment in Lao PDR

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The background

Poverty and environment are the two key policy issues in the Lao PDR. In 2012/13, about one-fifth of the Lao population remained in poverty (Macroeconomic report, 2013). Over the past decade, the government has focused on restructuring agriculture towards commercial agriculture. A large influx in the flow of agricultural investment has been observed. Land concessions for plantation were promoted. During this period, the government also promoted contract farming as a strategic policy to improve farm income and modernize agriculture in the Lao PDR. The government highlighted contract farming as the preferred alternative to concessions and plantations. The contract farming policy known as “2+3 or 1+4”¹ policy emphasized the sharing of cost and benefits between investors and villagers.

The promotion of commercial agriculture and the contract farming policy have led to the establishment of agriculture plantations and field crops covering large areas of productive land and a rapid rise in contract farming systems in the country.

Contract farming in general, is defined as a verbal or written agreement between farmers and agricultural processors or traders regarding the production and outputs under the agreed future prices. Most agreements also include the provisions of inputs and technologies by agricultural processors or traders. Contracts can take a wide variety of forms, ranging from a simple verbal agreement between farmer and trader to a written contract that explicitly details the obligations of each party.

Although the “2+3 or 1+4” models have promising premises, their implementation has left much to be desired. The majority of contract farming ventures in the Lao PDR are informal arrangements between farmers and small traders that operate outside legal boundaries. Over the past years, there has been a growing body of literature assessing and documenting the impacts of contract farming systems and the results are inconclusive (for example, Fullbrook 2011, WFP 2009, Setboornsang et al. 2008, Fullbrook 2007, ADB, 2007, Wiboonpongse et al. 2007, Rosset et al. 1999, Delforge, 2004, Litter and Watts, 1999, Sriboonchitta and Wiboonpongse, 2008).

This study builds on the results of existing research and links to ongoing research in contract farming to generate policy-relevant information. The overall goal of this study is to identify good business and contractual practices that can support local farmer livelihoods and national economic targets in an environmentally sustainable manner.

Contract farming policy: a strategy to reduce rural poverty

The long-term vision of Lao PDR aims at upgrading country from LDC status with the sustainable economic growth, social justice and modernization by the year 2020. The party and the government of Lao PDR give poverty eradication as a top priority in development

¹ The numbers respectively refer to the following inputs – land, labor, other inputs, technology and market. Farmers are expected to contribute land and labor, while the counterparts are expected to contribute other inputs, technology and market access.

agenda of the country. The overall development policy has led to the integration of agricultural modernization, poverty eradication and sustainable environment. The government has adopted contract farming as a strategy that lead to commercialized and modernized agriculture and reduced rural poverty in Lao DPR.

This strategy of contract farming and land-to-capital conversion policy has resulted in large inflow of investments from neighboring countries and others in agricultural production and processing as intermediate and final products for export and domestic consumption. Major crops are maize, cassava, rubber, sugarcane and vegetables. As shown in figure 1, during 2005-2012, maize area increased to more than double within few years since 2005. While other crops increased steadily, the decline of maize area has been replaced by rubber. It was estimated that agricultural commercialization in Lao PDR has increased maize and rubber to more than 0.5 million hectares in less than two decades.

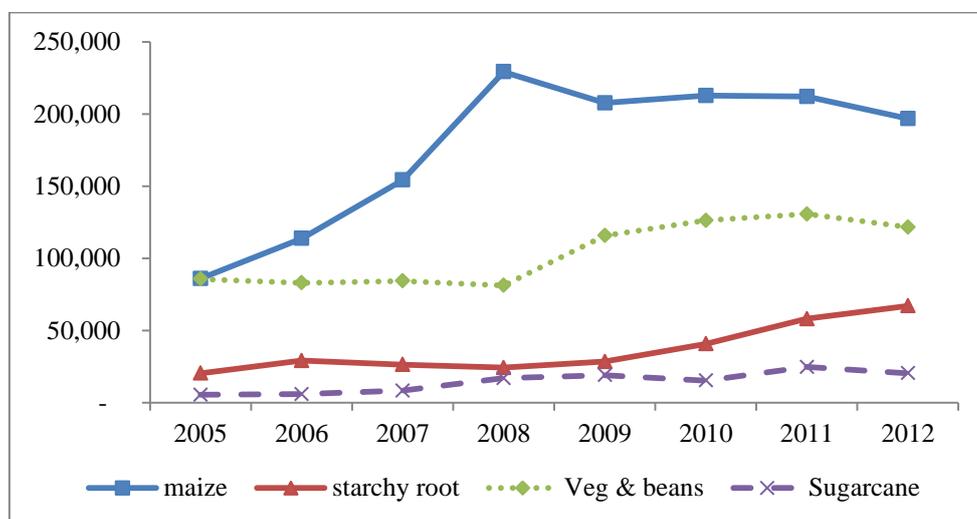


Figure 1 Planted areas of selected crops in hectares, 2005-2012

The issue: Contract farming, rural poverty reduction and environment

Contract farming is a voluntary commitment. It can be of different types, production, marketing or both. The relationship is generally in vertical form with the purposes to regulate supply both quantitatively and qualitatively. The benefits of contract farming come with responsibilities and conditions to the contract parties. Contract farming reduces production and marketing risks to the contract partners. Farmers have to produce products according to the agreed standards and absorb opportunity loss from higher market prices. Processors or traders are responsible for full access of farmers to inputs at fair costs, purchase of products at agreed prices and transfer of appropriate technology to contract farmers. The contract parties should understand and agree on terms and conditions. They should also be accountable to their actions and performances.

This form of voluntary commitments is not common among small farmers in rural areas. Review of gains and losses from participating in contract farming in this region has shown

inconclusive results. Factors contributing to the performance of the contract farming include types of agriculture, experiences in contract farming of the parties, terms and conditions and support of public sector. It was observed that in most cases, contract farming contributed positively to poverty reduction, although strong supports from public sector and financial institutions required. (see for examples, SomsakSuriyo, 1989, Litter and Watts (1999), Sriboonchitta and Wiboonpongse (2008), Da Silva (2005) and PunyaSaravan (2007)).

A PEI study on poverty and environment in the Lao PDR has alerted the government on environmental consequences from commercial crop like maize (NERI-PEI, 2012). The large areas and intensive uses of inputs, especially chemical fertilizers and pesticides in slope area are found threatening the environment in the areas and put sustainable land use and poverty eradication into questions. The promotion of large-scale agricultural investment and contract farming to reduce poverty in rural areas has shown similar trends of development. These large-scale mono crop areas like cassava and maize uses chemicals and pesticides extensively. The government has foreseen the potential threat to sustainability of this rapid expansion of monoculture system and has slowed down the implementation. This research, in response to policy query, has raised the following research question:

Is contract farming an environmentally sound rural poverty reduction strategy?

Using case study approach, this study reviews different types of contract farming business practices and their implications on socio-economic, poverty and environmental aspects in the rural areas. In particular, the objectives of this study on contract farming models in Lao PDR are to examine:

- The arrangement of different types of contract farming practices,
- The impacts of contract farming on household poverty situation,
- The impacts of contract farming on the environment.

Table 1 the three case study sites and its CF practices

Crop	Region	Business practice(s)
Banana	Bokeo, LuangNamtha	Farms are established by renting land from farmers and implemented by independent managers (1+4) or renting land and hire household labor (2+3)
Cassava	Vientiane province	The contract between farmers and company is named as loan borrowing contract. It falls to 2+3 characteristics, although input support is regarded as loan provided.
	Savannakhet	Farmers, through company coordination, directly borrowed loan from the Policy Bank. The company also acted as commissioner, facilitate land preparation of the farmers. The company signed contract with farmers to provide technology and purchase the product.
Maize	Saravan	The contract farming is in a form of 2+3. As indicated in the details of the contract, inputs provided are considered loan in kind.

This study selects three main crops that different models of contract farming have been used. The cases cover annual crops (maize and cassava) and long-term crops (banana). The

research sites are selected based on the concentration of contract farming. Table 1 summarizes the research sites for different crops.

To meet the first objective, this study employs a descriptive approach to review the business practices of contract farming for different crops in contrast to four indicators – government policy, norm of business partnership, accountability and monitoring and evaluation. Assessment of the impact of contract farming on farmers’ household poverty situation follows the government’s concerns on socio-economic and equity issues. This study estimates the financial net return from contract farming in the year 2012, in contrast to those from the alternative land uses. The differences are the impacts on poverty reduction of the crops under contract farming. To meet the third objective, economic analysis to include social and environmental costs will be applied. Due to limited information, only opportunity costs of land and labor will be included to reflect economic cost of agricultural production. To supplement the economic analysis, the potential environmental impacts on soil and water, and health will be discussed qualitatively.

Case study of contract farming and poverty reduction

The three case studies distributed across the country, following the dominants of contract farming of the crops. Banana case is in the Northern region. Cassava case is in the central while maize case is in the southern region. Household sizes of the three cases were slightly different with the smallest of 5.2 for the case of banana to the highest of 7.2 for the cassava case in Savannakhet. Education levels of the decision makers of the family in most cases were very low, except for the case of farmers in Vientiane. More than one-half of the decision makers in the household were either not finished primary education or uneducated. Labor dependence ratios were mostly less than one while most land devoted to contract farming was less than two hectares.

Table 2 General characteristics of the household samples of the case studies, 2012

Crop	Maize (Saravan)	Cassava 1 (Savannakhet)	Cassava 2 (Vientiane)	Banana (Bokeo)
Samples	121	89	109	115
HH size	6.9	7.2	6.8	5.19
Education of decision maker (interviewee)	29% finished primary school, 61% not finished primary school or uneducated	13% finished primary school, 75% not finished primary school or uneducated	65% finished primary and secondary schools; 33% not finished primary school or uneducated	31% finished primary and secondary schools; 57% not finished primary school or uneducated
Labor dependence ratio	0.82	1.19	0.78	0.57
Average land used for CF crop (ha)	1.66	1.32	1.78	1.92

Note: labor dependence ratio refer to household non-labor/household labor.

The following discussion synthesizes the results of the three case studies, following each objective of the study.

Contract farming in Lao PDR in practice

Contract farming has been designed as a strategy to modernize agriculture and reduce rural poverty in Lao PDR. This section summarizes the reviews of the contract arrangement in practices to see how it responded to government policies. Four indicators are used – consistency with government policy, norm of business partnership, accountability and monitoring and evaluation. Table 3 summarizes the main findings.

Contract farming in Lao PDR, following the broad structure of establishment was generally following the government policy and in most cases is 2+3 type. This is not surprised for the large-scale agriculture investment projects. However, review of the contracts in details show that the practices were somewhat varied from the government policy and across the crops. Except for banana case, all investors provided material inputs, as written in the contract, as loans or credits in kind and more costly than purchase from market. All costs contributed by the investors are deducted before payment for products. Hence, investors share no risk of production. Price guarantee is not standard for all cases and some purchase only at market prices. Technological supports were mentioned but limited in practices. The cassava contract farming in Savannakhet demonstrates the serious effects to farmers if contract was not transparent or governed properly. Farmers were exploited badly and in-debt while firm was not responsible for damages. This is not the case of cassava contract farming in Vientiane. The banana contract farming in the North, on the other hand, shows relatively fair deal between the two parties.

In terms of contract arrangement process, the case studies all show the lack of participation of the farmers in contract negotiation and preparation. Most of them never studied nor understood the terms and conditions before signing. Most farmers only partially understood the contract. Many of them learned from, and followed lead farmers or local official advices. Lack of education also hindered farmers' ability to participate in contract farming. This reflects the importance of social mechanism and public participation in the contract arrangement process.

The accountabilities of the large investors cover more than those stated in the contract per se. Society expects the investors to contribute to employment, rural development and environmental sustainability. The results from case studies show limited contribution to employment other than labor in crop production and transport of products. The case studies also suggest the lack of responsibility of both investors and farmers in pesticide management. Pesticides provided by the investors were no label and farmers didn't properly apply pesticide. Based on the observation and focus group discussion, potentials on-site and off-site effects are high, such as the case of banana where air pollution complaints were found. Rapidly degraded soil quality is also observed. The trends of environmental degradations are likely to continue in the future. To ensure sustainable agricultural development, stronger public role and participation in contract farming process is urgently needed.

Table 3 Summary of main indicators for contract arrangement of the case studies

Category	Maize	Cassava 1 (Savannakhet)	Cassava 2 (Vientiane)	Banana
Policy consistency	<ul style="list-style-type: none"> - Yes (2+3) - Inputs provided in the form of loan (optional) and deducted prior to payment for products - Purchase at guaranteed price or higher - Some technology support - Farmers take own production risk 	<ul style="list-style-type: none"> - No (Farmers directly borrowed from bank; contract made with company only on marketing, no inputs or technology supports) - Purchase at guaranteed price or higher - Farmers take own production risk - Both are subject to penalty if not complied to the marketing contract 	<ul style="list-style-type: none"> - Yes (2+3), - Inputs provided in the form of loan (optional) and deducted prior to payment for products - Purchase at market price - Farmers take own production risk 	<ul style="list-style-type: none"> - Yes (2+3, 1+4) - Investors take most production risks - Farmers must strictly follows the production and maintenance guidelines and partly responsible for damage - Both are subject to penalty if not complied to contract
Norm of partnership	<ul style="list-style-type: none"> - Nearly all no direct participation during preparation - More than two-thirds never studied before signing - 23% fully understand, 69% partially understand - Risk sharing is not corresponding to that of production cost 	<ul style="list-style-type: none"> - 92% no participation during preparation - More than 90% never studied before signing - 37% partially understand the contract, 63% don't understand 	<ul style="list-style-type: none"> - 89% no participation during preparation - 70% never studied before signing - 20% fully understand, 66% partially understand the contract 	<ul style="list-style-type: none"> - Most of them followed the farmer leaders or other farmers, no study of contract - Promoted by local authorities - Most of them (more than three-fourths) understand the contract

Table 3 (continued)

Category	Maize	Cassava 1 (Savannakhet)	Cassava 2 (Vientiane)	Banana
Accountability	<ul style="list-style-type: none"> - Investors do not fully advice on chemical application, soil conservation - Farmers neglect good practice on chemical application and waste control 	<ul style="list-style-type: none"> - Environmental responsibility per contract is unclear - Waste disposal is not appropriate 	<ul style="list-style-type: none"> - Factory in the areas generated employment - Followed environmental regulation, although environmental responsibility per contract is unclear - - Waste disposal is not appropriate 	<ul style="list-style-type: none"> - Investors take full responsibility of production and marketing - Farmers also share maintenance responsibility - Land clearing after contract by the investors - Investors do not follow environmental regulations (chemicals no labels)
Monitoring and evaluation	<ul style="list-style-type: none"> - No monitoring system on production, chemical application - No public involvement as third-party M&E 	<ul style="list-style-type: none"> - No monitoring system on production, chemical application - No public involvement as third-party M&E 	<ul style="list-style-type: none"> - No monitoring system on production, chemical application - No public involvement as third-party M&E 	<ul style="list-style-type: none"> - Monitoring system on production by investors existed - Waste management guideline existed - No public involvement as third-party M&E, especially on planted areas and environment

All the case studies show that no public involvement in supervision of contract farming, despite their initiatives and benefits from fees or levies collected from investors. There is no public monitoring or assessment of contract farming preparation or execution. Given the low capacity of small farmers and their high transaction cost in management, public intervention to ensure transparent and fair in contract farming is highly important. This is not the case in Lao PDR.

In summary, although contract farming in Lao PDR appears to be in line with the government policy, review of the contract preparation process to the execution indicates that there are several weak points that need special attention and actions from the public sector. Farmers solely absorbed production risks while benefits from marketing and technology know-how seemed moderate or limited. They didn't properly participate in the contract arrangement process and mostly followed village or community leaders. They are vulnerable to be exploited. On the other hand, the public sector has played negligible role the contract farming process.

Rural poverty reduction under contract farming

To address the impact of contract farming on poverty reduction in rural area, the study adopted with and without contract farming approach. Financial net returns from alternative land uses are estimated. The difference of net return between with and without contract farming indicates the impact of contract farming on rural poverty reduction.

Table 4 Net returns to contract farming and their potential net impacts to poverty reduction by type of contract farming (000 kip/hectare)

Crop	Contract farming			Alternative activity	Net impact
	Return	Cost	Net return	Net return	
Maize	4,464	1,594	2,870	1,751	1,119
Cassava1 (Savannakhet)	4,472	7,358	-2,886	3,248	-6,134
Cassava2 (Vientiane)	8,354	2,181	6,173	6,721	-548
Banana (land only)	7,154	40	7,114	3,085.6	4,028.4
Banana (land and labor)	20,073	2,258	17,815	7,714	10,101
Banana (labor only)	13,207	2,059	11,148	4,628.4	6,519.6

Note: Alternative for contract farming in case of maize was lowland rice; cassava1 were low-land and upland rice; cassava2 were upland rice and job's tear; banana (land and labor) was maize (in the North). Net impact is measured by net return of contract farming minus that of alternative activity.

Table 4 shows net return per hectare of different contract farming and its potential contribution to poverty reduction. Wide variations of net returns among different types of crops are found. The cassava case in Savannakhet was unusual. Farmers had negative return of nearly three million kip in 2012. This is due to the improper setting of the system, the

exploitation of the investors and the negligence of farmers themselves. The rest shows positive net return ranging from 2.9 million kip of maize contract farming to as high as 17.8 million kip of 2+3 system of banana contract farming (Table 4). Thus, even with somewhat disadvantages in contract arrangement, farmers still received quite a remarkable positive net return. When compared with alternative activities (without case), the net impact or marginal gain of farmers ranged from negative values of cassava to high positive values of banana cases (Table 4).

To see the impact of contract farming on poverty level, the net returns per hectare of with and without cases are transformed into net income per person per month and used to estimate the marginal effect of the contract farming on poverty reduction. As shown in Table 5, the net impact of contract farming, measured as percent of poverty line varies greatly among crops. The cassava contract farming performed poorly, the maize one performed moderately and the banana one performed extraordinary well. The extreme case of cassava in Savannakhet caused farmers even poorer by one-half of that before. On the other hand, the extremely high positive impacts of banana case caused over-use of land resources².

Table 5 Net impact in kip per person per month and as per cent of income at poverty line

Type of contract farming	Kip/person/month	% of poverty line
Maize	22,115	12
Cassava1 (Savannakhet)	-94,230	-52
Cassava2 (Vientiane)	-11,920	-7
Banana (land only)	141,100	78
Banana (land and labor)	305,800	169
Banana (labor only)	175,800	98

Overall, the case studies have shown that despite some disadvantages in contract farming, the financial gains of farmers are satisfactorily, although varied substantially among crops. The impact of contract farming on poverty is generally moderate, except very special case. Also, if not carefully overseen, contract farming could end up with exploitation of farmers and worsen their income.

The contract farming and environment

With the national policy to integrate commercialized agriculture and contract farming to address rural poverty, large scale of land use in the country has been changed and that has

² In the banana case, because very high marginal benefit, additional farmers had overwhelmingly applied and areas expanded well beyond those permitted by the government. Due to large poor farmers involved, the government had no choice but allowed this breach of agreement.

remarkable effects on economic, social and environment of Lao PDR. An extended economic discussion here is made to capture the overall welfare effect of the contract farming, especially on environment. Due to technical difficulties, environmental costs are not estimated. Only land and labor in the financial analysis are replaced by the opportunity costs and environmental effects are descriptively discussed. Environmental effects of commercialized agriculture are on-site and off-site and long-term. The agricultural restructuring in Lao PDR is at an early stage. The environmental effects could just emerge. The case studies do not show soil erosion due to slope of land to any specific extent. Limited data on soil quality suggest that with intensive uses of land for maize and cassava plantation, increasing soil quality deterioration is expected in the near future.

Although the uses of pesticides are at small scale, some environmental effects, especially on health, have been observed in all cases. Between 20-50% of the farmers complaint of headache or other symptoms because spraying pesticide. This is despite about one-half or more of the farmers acknowledged that they had received information on proper use of pesticides from the investors. The banana case demonstrates the off-site effects of large-scale pesticide application. The smell from spraying pesticides caused air nuisance to farm residence areas. In some instances, the village school had to cancel the classes. The unknown types of pesticide used made the situation even worse. These environmental effects are welfare cost to the public and part of the economic cost of the development.

To explore economic worth of contract farming, opportunity costs of land and labor are used. As a result, the average net return of contract farming reduces by one-third to four-fifths of financial cost. If economic costs of environmental effects are included, the economic return of contract farming to the society is even lower³.

Policy recommendation

Overall, contract farming is a strategy with good potential to modernize agriculture and reduce rural poverty in Lao PDR. Evidences from the three case studies have shown that contract farming followed the government policy in general, but there were several weaknesses in practices. Except for extreme cases, contract farming in Lao PDR reduced rural poverty moderately. The commercialized and large-scale agricultural investment is very likely to deteriorate land resources and environment in the areas in the near future. Unless appropriate measures are in place, economic gains of the contract farming to Lao PDR may not outweigh the economic costs to the country.

The implications of the case studies lead to the following improvement that should be met:

- A clear, fair and transparent contract content to both parties
- A contract that is sufficiently accountable for social and environmental concerns
- A system such that farmers fully participate in the whole process
- An effective monitoring system to ensure compliance

³ Due to data limitation, economic impacts of contract farming on rural poverty, in contrast to financial one, could not be assessed.

Most farmers in Lao PDR are poor and illiterate. They have no experiences in commercialized agriculture. The infrastructure and market facilities are also limited. Under these circumstances, an especially strong public support to address the above issues is required. The policy recommendations for contract farming development in Lao PDR are as follows:

- Review of contract farming of main crops by region to identify weak areas for improvement
- Strengthening the capacity of local government officials in contract farming process and management, including environmental management
- Enhancing supervision and facilitating roles of local government officials in contract farming
- Institutionalization of contract farming to ensure standards of practices are in place (clear, fair, transparent and environmentally accountable contract)
- Strengthening the capacity of the farmers to participate in contract farming effectively
- Development of a monitoring and evaluation system to assess contract farming performance, including environment