Does Large Scale Agricultural Investment Benefit the Poor?

Research Report 2

Ngo Sothath and Chan Sophal

July 2010

RESEARCH REPORT

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Phnom Penh

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FOREWORD

High international food prices represent incentives and a good opportunity to boost agricultural investment and production, especially in countries characterized by idle but good land. In Cambodia, the government intends to promote agricultural investment by granting large-scale economic land concessions to private companies for agricultural production and processing. The rationale of economic land concessions is to increase economic activities and provide employment to the people, especially the poor.

This study tries to address the contentious question of 'Does Large-Scale Agricultural Investment Benefit the Poor?', and aims to provide an overview of the operational status of existing large-scale investments in agriculture and agro-processing. It attempts to identify the social costs and benefits of the investments and how to enhance the benefits for the poor. Furthermore, the study also seeks to provide specific policy and practical recommendations to improve pro-poor benefits from the different types of large-scale agricultural investments. The study examines four cases highlighting the main crops of major importance to the Cambodian economy. The projects range from medium to large size and reflect the agro-geographical diversity. They represent investment in both plantations and processing plants.

We believe that this piece of study provides useful evidences and analysis for policy-makers, researchers, and practitioners for policy formation to improve the pro-poor benefits of large-scale agricultural investments in Cambodia. The information and views expressed do not represent those of Oxfam America, Oxfam GB, Oxfam Hong Kong, and Oxfam Novib, who provided financial support for the study.

Chan Sophal
President
Cambodian Economic Association

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ACRONYMS

CDC	Council for the Development of Cambodia
CDRI	Cambodia Development Resource Institute
CEA	Cambodian Economic Association
EIA	Environmental Impact Assessment
ELCs	Economic Land Concessions
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
KCD	Khaou Chouly Development
KPT	Koh Kong Plantation Company
KSI	Koh Kong Sugar Company Limited
LASED	Land Allocation for Social and Economic Development
MAFF	Ministry of Agriculture, Forestry and Fisheries
SRI	Systematic Rice Intensification
TTYAPD	TTY Agricultural Plant Development Co., Ltd

CHAPTER I
INTRODUCTION

Like many other countries, for a few months in 2008 Cambodia experienced soaring prices of agricultural/food commodities, pushing year-on-year inflation to above 20% during March–August, when food prices increased by more than 50% on average. This inflation was mainly caused by rising world prices and, to some extent, local demand, while supply costs also increased due to accelerating fuel prices. A study by CDRI (2008) supported by Oxfam America and other partners found that the Cambodian economy experienced both negative impacts on consumers and opportunities for producers to earn more income.[1] It was evident that the high inflation impacted more severely on the poor than other sections of the population, as the poorest 40% of the population spend 70% of their incomes on food according to the Cambodia Socio-Economic Survey 2004. The study found that surplus producers and traders received handsome profits from the hike in prices and many were willing to increase production in the following year.

High international food prices represent incentives and a good opportunity to boost agricultural production in many developing countries, Cambodia among them, where there are still underutilized lands and labour as well as potential to increase productivity. This ***in theory*** favours poverty reduction, rural development and rural livelihood improvement, which are the primary objectives of development plans in Cambodia. Whether such opportunities will be realised depends on the agrarian structure because it is primarily the landed households and large landholders that stand to primarily benefit from improved land utilisation. The above-mentioned nationally representative survey conducted by CDRI in June 2008 found that only 35% of rural households have the potential to produce agricultural surplus for sale. About 20% of the households are landless and 45% are land poor (owning less than one hectare per household).

In Cambodia, where there is a lot of virgin land (perhaps 60% of the country was covered by forests until recently), there have been increasing attempts to convert degraded forests and forests into large farmlands. This occurs mostly in the form of "Economic Land Concessions" (ELCs), which has seen large allocations of public land granted to private companies in the name of large agricultural investment projects. According to the Ministry of Agriculture, Forestry and Fisheries (MAFF), as of April 2010, 85 companies received long-term leases over a total area of 956,690 ha in 16 provinces.[2] This does not yet include the smaller concessions of land plots of less than 1,000 ha that were granted by provincial authorities before September 2008.

The current study attempts to examine whether large-scale agricultural investment of this type benefits the poor and how this investment can be implemented to increase benefits for the poor. It is arguable whether the poor need more land to grow crops to meet their food security requirements or need to benefit from large-scale agricultural investment in Cambodia. Although the poor households are capable of operating

[1] CDRI (2008) "Impact of High Food Prices in Cambodia" Survey Report (sponsored by WFP, UNDP, WB, FAO, Oxfam America and NGO Forum on Cambodia)
[2] Source: http://www.elc.maff.gov.kh/overview.html accessed on 20 May 2010.

small plots of a few hectares each, they generally lack capital and the means to work large chunks of new land with forests or degrade forests. This is taken as a reason for government to provide large allocations of virgin lands as ELCs to companies. The rationale of ELCs is to increase economic activity and create employment, especially for the poor. The question remains, then, to what extent, have the poor benefited from the large-scale agricultural investment projects?

Due to the limitation of resources, the study has chosen four cases of large agricultural investment in an attempt to answer the above question. The criteria for selecting the four cases were: (i) geographical diversity with consideration of the indigenous people surrounded by ELCs (i.e. plains, plateau and remote areas); (ii) different types of crops of major importance to the Cambodian economy (i.e. rice, rubber, cassava, sugar cane); (iii) size of projects ranging from medium to large; and (iv) investments carrying both plantations and processing plants. After reviewing the literature on agricultural investment and its effects on poverty reduction (chapter II), Case 1 represents the numerous investment projects for medium or relatively large rice plantations, which are common on the Tonle Sap plains, a region characterised by high poverty but abundance of flooded plains (chapter III). Case 2 (chapter IV) is a sugar cane plantation of 20,000 ha, including a processing factory, in Koh Kong province in the South-Western part of Cambodia. This is a large joint-venture investment project in sugar production (US$100 million project for both plantation and processing factory). Case 3 (chapter V) looks into a few rubber plantations in Mondulkiri province, the investment that has affected a large number of ethnic minority people. This remote province is among the last provinces to be opened up for agricultural development. Case 4 (chapter VI) studies a local investment project producing and processing cassava in Kampong Cham province. It is chosen from a subsector that has huge potential for growth. It should be noted that cassava is the second largest seasonal crop (second to rice in terms of quantity) but has only a few processing factories; thus most is exported in its raw form.

The study aims to improve the understanding of the various ways in which large agricultural projects actually play out. It provides specific policy and practical recommendations to improve pro-poor benefits from the different types of existing large-scale agricultural investments, and in light of this advises how best to distribute or utilise new lands. Due to the lack of resources, the study cannot conduct social and environmental impact assessment for each case or projects selected for the study. Despite this limitation, the study highlights social and environmental concerns where appropriate and feasible.

CHAPTER II.
LITERATURE REVIEW ON THE RELATIONSHIP BETWEEN AGRICULTURE AND POVERTY REDUCTION AND AGRICULTURAL INVESTMENT IN CAMBODIA

In the past, agriculture was considered as a subsidiary sector for economic development, based on the concept of zero marginal product of labour (Lewis 1954). Empirical studies confirmed the inverse relationship between GDP per capita and percentage of employment in the agriculture sector. Development and poverty reduction relied on the industry and urban sector, which encouraged structural transformation. Later, development theories were constructed around the emphasis on the industry and service sectors for development, with less attention given to agriculture.[3] Nonetheless, many millions of people remain poor. Agricultural production did not increase sufficiently, leaving an insecure food situation in the 1990s. Recently, more attention has been given to attempts to increase food production at a faster rate than population growth. The food crisis in 2008 was an alarming signal calling for an agriculture-led development paradigm. Moreover, experiences from China, Vietnam, Chile, Ghana, India and Thailand show that rapid growth in agriculture can lead to poverty reduction (World Bank 2005, 2008). In this context, Cambodia has seen large-scale projects that invest in agriculture, which raises the important question of whether or not this contributes to the crucial goal of poverty reduction.

2.1. Regional and International Literature on the Benefits of Agricultural Investment for the Poor

Poverty remains a predominantly rural problem and agriculture is generally central to rural livelihoods. Some 70% of the workforce in sub-Saharan Africa and 67% in South Asia are at least partly engaged in agriculture (Maxwell, 2001). Therefore, any improvement in rural incomes should – if only by sheer weight of numbers – have a major impact on poverty.

At the macro-economic level, growth in agriculture provides greater benefits to the poor than growth in other sectors. Furthermore, analysis reveals that increasing agricultural productivity has probably been the single most important factor in determining the speed and extent of poverty reduction over the past 40 years. Much of this evidence is derived from the Green Revolution in Asia although there are fewer examples from Africa. With respect to the pro-poor benefits of growth in agriculture, Datt and Ravallion (1996) shows that rural sector growth in India reduced poverty in both rural and urban areas, while economic growth in urban areas did little to reduce rural poverty. Warr (2001) provides evidence that growth in agriculture in a number of Southeast Asian countries significantly reduced poverty, but this was not matched by growth in manufacturing. Gallup *et al.* (1997) showed that for every 1% growth in per capita agricultural Gross Domestic Product (GDP) there was 1.61%

[3] The outcomes of this development paradigm had limited success. There were a few cases such as Hong Kong, Taiwan, South Korea and Singapore. It is likely that Thailand and Malaysia also have success stories.

growth in the incomes of the poorest 20% of the population – much greater than the impact of similar increases in the manufacturing or service sectors.

Numerous other studies reveal similar results, but emphasise the important qualification that the degree to which agricultural growth reduces poverty is usually conditional upon the initial distribution of assets (in particular land) and the initial level of inequality (Bourgignon & Morrison, 1998; Timmer, 1997; de Janvry & Saddoulet, 1996). In terms of the role of agricultural productivity in reducing poverty, Thirtle *et al*. (2001) concludes from cross-country regression analysis that, on average, every 1% increase in labour productivity in agriculture reduced the number of people living on less than a dollar a day by between 0.6 and 1.2%. No other sector of the economy shows such a strong correlation between productivity gains and poverty reduction. The routes through which growth in agriculture achieves such a potent impact on poverty are: (i) direct and relatively immediate impact of improved agricultural performance on rural incomes; (ii) the impact of cheaper food for both urban and rural poor; (iii) the contribution of agriculture to growth and the generation of economic opportunity in the non-farm sector; and (iv) the fundamental role agriculture plays in stimulating and sustaining economic transition, as countries (and poor people's livelihoods) shift away from being primarily agricultural towards a broader base of manufacturing and services.

Many development agencies may advocate investment in agriculture without paying much attention to the agrarian structure and business model that strongly extends its benefits to the poor. It is hypothesised that investment in agriculture may benefit the poor only if the business model is arranged to include the smallholder agrarian structure. A limited number of micro-empirical studies have been done to verify this hypothesis but they are only in the form of case studies.

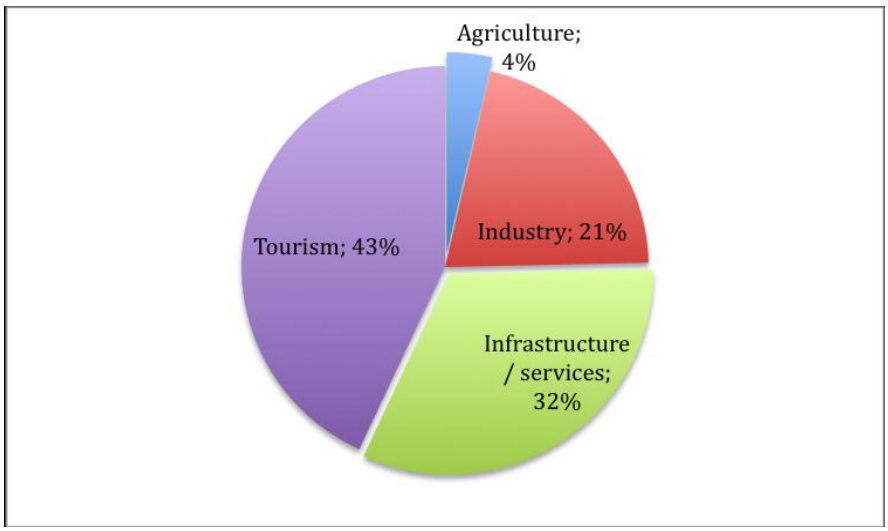
Target investment in agriculture subsectors that involves more of the poor could create more jobs and improve incomes. In mapping out the benefits of agriculture investment to the poor, it is useful to compare experiences from Latin America, where big farms dominate and Asia, where smallholders are the majority. The success in China, Vietnam and Thailand encouraged a renewed interest in the idea of agriculture-led growth. The empirical studies provide very different conclusions on efficiency of land allocation and use, and land security based on the state of reform, tradition and region. However, there is increasing evidence that farm size is inversely related to yield, that is, that small farms are more efficient than large farms.

2.2. Agricultural Investment in Cambodia

Since its reintegration into the global sphere following the United Nations-run elections in 1993, Cambodia has received a significant amount of foreign direct investment in addition to domestic investment. One indicator is the approval of investment projects by the Council for the Development of Cambodia (CDC), although for various reasons not all the projects approved have necessarily been implemented. From 1994 to mid 2009, the accumulated investment committed (in fixed assets) in the agricultural sector accounted for only 4% or US$ 1 billion (Figure 1 and Table 2.1). This explains why Cambodia's agriculture is still characterised by small-scale farms, mostly using primitive methods. Most products are exported in their raw form because of the severe lack of investment in upgrading post-harvest

technology. Figure 1 below shows the percentage distribution of total fixed assets in the large investment projects by sector approved by CDC from 1994 to 2009. The absolute numbers are provided in Table 2.1. It is important to note that approved investment in Figure 1 or Table 2.1 refers to committed projects by the domestic source and FDI. The implementation lags behind and is generally only a small fraction of this. However, it is a good indicator of investment trends.

Figure 1. Distribution of Intended Investment Projects by Sector 1994-2009 (by fixed assets approved)



Source: Council for the Development of Cambodia

Table 2.1. Investment projects approved by CDC between 1994 and 2009 (fixed assets, on approval basis)

Year	Agriculture	Industry	Infrastructure / services	Tourism	Total
			(in US$, million)		
1994	6	96	30	392	523
1995	29	296	536	1,523	2,383
1996	110	385	103	203	801
1997	75	404	224	42	744
1998	53	414	275	114	857
1999	31	209	202	39	481
2000	3	119	69	79	270
2001	6	62	94	81	242
2002	16	48	141	49	254
2003	0	115	28	159	301
2004	12	146	73	114	345
2005	27	879	42	103	1,050
2006	51	954	2,594	352	3,952
2007	160	717	694	1,101	2,673
2008	107	716	1,292	8,776	10,891
2009	446	1,043	3,734	387	5,611
Total	1,132	6,603	10,131	13,514	31,378

Source: Council for the Development of Cambodia

There has been relatively greater interest in investing in the agriculture sector since 2007, as can be seen in Table 2.1. This is particularly so for 2009, for which the total amount of approved fixed assets is US$446 million, which is more than triple the amount committed in 2008 when FDI approval peaked. It is interesting that this is the case despite the fact that the global economic downturn caused a worldwide decrease in investment, as well as in Cambodia. Cambodia has the potential to expand its agriculture sector, mainly due to the abundance of good land that can be granted as ELCs at relatively low cost. There is also a big gap in post-harvest capacity to store and process crops for export. These opportunities in part have attracted FDI to flow to Cambodia in spite of capital becoming scarce following the global financial crisis.

2.3. Economic Land Concessions for Agricultural Investment in Cambodia

Large agricultural investment essentially involves large tracts of land, often new or virgin land in forested areas. In Cambodia nowadays, the granting of large lands for agricultural development is termed Economic Land Concession. According to the Subdecree on **Economic Land Concession** (ELC), the term "Economic Land Concession" is defined as a mechanism for the government to grant private state land through a contract to a concessionaire for agricultural and industrial-agricultural exploitation. Industrial-agricultural exploitation refers to the cultivation of food crops or industrial crops, production of animals and aquaculture, construction of a plant or factory and facilities to process domestic agricultural raw materials, or a combination of some or all of the above activities.

The subdecree stipulates that the Ministry of Agriculture, Forestry and Fisheries (MAFF) must approve investment projects involving economic land concessions. It allows provincial governors to approve land concessions of up to 1,000 ha per each company. However, this authority was withdrawn in September 2008 and given to the central level (MAFF) as in the case of land concessions of larger sizes. According to interviews with MAFF officials, in practice, the MAFF always seeks approval from the Office of the Council of Ministers before it signs a contract granting a land concession to a company. The MAFF also chairs an inter-ministerial committee to make decisions on whether or not ELC applications should be approved after a prefeasibility study is conducted. ELC proposals must comply with the required environmental and social impact assessment, and must not involve resettlement of people. While only Cambodian nationals can own (freehold) land in Cambodia, ELCs may be granted to either local or foreign companies (leasehold). The 2001 Land Law permits ELCs for up to 99 years but in practice the MAFF generally allows the leasehold of land for 70 years, renewable upon justifiable request. In fact, even 70 years is too long. The companies, some foreign, will lock up the large sizes of land at the expense of more equitable land distribution. It also raises an issue of "generational justice". The next generation will have less land available for them to cultivate crops on a small or large scale.

Analysis of ELCs is limited by the incomplete data provided available. The company data in Table 2.4 does not include ELCs granted in the protected areas administered by the Ministry of Environment. It is about 500,000 ha more according an interview with a senior forestry official. As of November 2009, only ELCs approved by the end of 2006 were reported and disclosed by the MAFF. In early 2010, the list was updated

to include ELCs granted afterwards and those cancelled. However, at nine companies are listed by name only. No details are provided, which limited the full information on ELCs. As summarized in Table 2.2, the first ELC was granted in 1995 and 26 were approved in 2006, the peak in terms of number. The 2009 also saw a large number of ELCs granted (21 ELCs). The list and a number of details for each of the companies are on the MAFF website.

Even with the available information, ELCs are already numerous; 87 companies valid as of April 2010. The MAFF website reports cancellation of 45 ELCs. However, only 12 of these were recorded on the website. It suggests the other 33 ELCs cancelled never appeared on the MAFF website. The total land area for the remaining 87 ELCs is 1,081,245 ha (out of 18 million ha in Cambodia as a whole). This will be substantially larger (at 50 percent more) if (i) the ELCs in the protected areas un MoE and (ii) the land areas for the nine companies without detail information are included. This should be a big addition to the previously report agricultural land of 4 million hectares (including 2.5 million hectares of rice land) in the country.

Table 2.2. Trend in economic land concessions granted from 1995 to 2009

Year of Concession Granted	Number of Concessions	Land Size (ha)
1995	1	11,000
1996	1	2,400
1998	3	111,700
1999	5	34,500
2000	7	353,098
2001	4	128,275
2004	2	6,100
2005	9	77,043
2006	26	229,671
2007	5	29,001
2008	6	40,936
2009	21	136,130
Projects with no years reported	9	..
Projects cancelled	-12	61,451
TOTAL (valid as of April 2010)	87	1,081,245

Source: MAFF, extracted from Table 2.4 below

Table 2.3. Trend in economic land concessions granted from 1995 to 2009

	Number of companies/ELCs	Land area (ha)
Cambodian	45	664,763
Chinese	17	186,935
Vietnamese	8	47,228
American	4	36,203
Korean	5	27,622
Thai	5	37,436
Malaysian	1	7,955
Indian	1	7,635
Taiwanese	1	4,900

Source: MAFF, extracted from Table 2.4 below

Although it is very long, Table 2.4 deserves a place in the main part of the report because it lists all the companies holding ELCs and with their particulars published on the MAFF website. They are recompiled and presented by province, along with the nationality of company owners, the year of approval, land size and the purpose of the investment on the land. The Table includes 12 ELCs that have been cancelled. Out of the 87 ELCs, 45 (or 54%) were granted by Cambodian nationals. The rest was granted to foreigners: Chinese, Vietnamese, Korean, American, Thai, Malaysian, Taiwanese and Indian (Table 2.3). In terms of land size, the Cambodian nationals were granted 62% of the total area reported in Table 2.2. The actual number is higher because at least 9 companies were not reported.

Agro-industrial plantations through ELCs may be an important means of supplying large volumes of agricultural crops of consistent quantity. Plantation agriculture has the potential to contribute significantly to the national economy and to provide substantial employment. Land concessions have been offered for crops such as rubber, palm oil, sugarcane, cashew, coffee, and forest plantations. The minority projects are for food crops such as sugar cane, and fruit trees. Most economic land concessions are in non-flooded areas and degraded forests. They would be used to grow trees that take at least three years to yield returns, and require substantial investment. Among the crops planted on a few ELCs, the most successful are rubber and cashew. Palm oil plantations occupying thousands of hectares in the coastal zone have had limited success. The initial plan, to set up a refinery to produce cooking oil, was not realized, but instead seeds were collected and exported to Malaysia, and Cambodia imported tax-exempt cooking oil. Few workers were employed because wages are low and there is a lack of infrastructure for residential settlement. This example underlines the importance of commitment from investment companies, and high global prices to ensure success.

The case of a smallholder rubber plantation developed by a private company in the province of Ratanakiri illustrates how a project can have both positive and negative impacts on households. The community has benefited from new roads, a new school, a pagoda, and gifts for the local farmers, but has lost out due to the taking of land by the rubber company, the cutting of rubber trees, loss of livelihoods and environmental impacts. The analysis, however, assumed that the costs of upland cultivation and tapping of rubber trees is almost zero, and the estimate excluded both social benefits from improved infrastructure and schools, as well as the environmental costs.

However, the small concessions (below 1,000 hectares) granted by provincial governors mostly to locals by September 2008 tend to be for food production and are generally more active. In the case of Kampong Thom province, many small concessions were provided to local entrepreneurs to produce rice in the flooded plains. This generated substantial employment and benefits from sharing arrangements. A few of these rice plantations were selected for a case study presented in Chapter II.

Table 2.4. Economic land concessions granted from 1995 to 2009

No	Name	Nationality of company owner	Year of approval	Land area (ha)	Purpose of investment
	KAMPONG THOM				
	Cambodia Eversky Agricultural Development*	Cambodian	2005	10,000	Cotton plantation
1	An Mardy Group	Cambodian	2005	9,863	Agro-industry and animal husbandry
2	Mean Rithy	Cambodian	2006	9,784	Agro-industry
3	H.M.H	Cambodian	2006	5,914	Acacia plantation and other trees
4	Tabien Kampong Thom Rubber Development	Vietnamese	2007	8,100	Rubber plantation and processing factory
5	Gold Foison (Cambodia) A/C Import Export & Construction	Chinese	2007	7,000	Acacia plantation and processing factory
6	BNA (Cam) Corp	Korean	2009	7,500	Rubber and cassava plantation
	KAMPOT				
7	CAMLAND	Cambodian	2000	16,000	Oil palms
8	World Tristar Entertainment (Cambodia)	Cambodian	2005	9,800	Corn plantation and processing factory
9	First Bio-tech Agricultural (Cambodia)	Cambodian	2005	10,000	Agro-industry and animal husbandry
	UDDOR MEANCHEAY				
10	Crystal Agro	Thai	2006	8,000	Cassava and agro-industry plantation
11	Tonle Sugarcane	Thai	2008	6,618	Sugar plantation and processing factory
12	(Cambodia) Sugar and Cane Valley	Thai	2008	6,595	Sugar plantation and processing factory
13	Ankor Sugar	Thai	2008	6,523	Sugar plantation and processing factory
	BATTEMBANG				
14	LEANG HOUR HONG Import and Export	Cambodian	2000	8,000	Sugar cane and cassava
15	Rath Sambath	Cambodian	2009	5,200	Rubber plantation
	KAMPONG CHAM				
16	AGRO STAR Investment	Cambodian	1996	2,400	Fruit trees and animal husbandry
17	TTY Industrial Crops Development Imp.-Exp.	Cambodian	2000	1,070	Cassava plantation
18	VANNMA Import-Export	Cambodian	2004	1,200	Sugar cane and cassava
19	Mieng Ly Heng Investment	Cambodian	2005	3,000	Para rubber plantation
20	Men Sarun Import Export	Cambodian	2006	400	Rubber plantation and other crops
	KAMPONG CHHNANG				
21	Phea Phimex	Cambodian	2000	315,028	Trees plantation and papers factory
	KAMPONG SPEU				
	The Cambodia Haining*	Chinese	1998	23,000	Agro-plantation and processing factory
	Cambo Victor Investment and Development*	Chinese	1998	28,500	Corn, bean, soya bean, rice, cassava
	Henan (Cambodia) Economic & Trade	Chinese	1999	4,100	Agro-industry and

	Development Zone*				animal husbandry
	KIMSVILLE*	Chinese	2000	3,200	Agro-industry and animal husbandry
	China National Corporation for Overseas Economic Cooperation Laod Star Development*	Chinese	2000	8,000	Agro-industrial crops
22	C.J Cambodia (lot 1)	Korean	1999	3,000	Tapioca (cassava or manioc)
23	C.J Cambodia (lot 2)	Korean	2001	5,000	Tapioca (cassava or manioc)
24	Uk Khun Industrial Plants and Other Development	Cambodian	2001	12,506	Cashew-apple, agro-industrial crops, and animal husbandry
25	Golden Land Development	Taiwanese	2004	4,900	Agro-industry and processing factory
26	Grandis Timber Ltd	American	2009	9,820	Maysak plantation
27	Fortuna Plantation (Cambodia) Ltd	Malaysian	2009	7,955	Oil palm and jatropha plantation
	KOH KONG				
28	The Green Rich	Chinese	1998	60,200	Oil palms, fruit trees and acacia
29	Koh Kong Sugar	Thai	2006	9,700	Sugar cane plantation
30	Koh Kong Plantation	Cambodian	2006	9,400	Sugar cane plantation
31	Khema Kara**	..	..	..	..
	SIHANOUK VILLE				
	Sok Heng*	Cambodian	2006	7,172	Acacia plantation and other trees
32	Mong Reththy Investment Oil Palm Cambodia	Cambodian	1995	11,000	Oil palm plantation and factory
33	Mong Reththy Investment Cassava Cambodia	Cambodian	2000	1,800	Cassava plantation and factory
	KRATIE				
	Plantation Agricultural Development (Cambodia)*	American	2006	9,214	Plantation of Pistacia Chinasis Bunge…
	Tay Nam (K)*	Vietnamese	2006	7,560	cassava, rubber, cashew and factory
34	Asia World Agricultural Development (Cambodia)	Chinese	2006	10,000	Tectona replantation and factory
35	Great Wonder Agricultural Development (Cambodia)	Chinese	2006	8,231	Plantation of Pistacia Chinasis Bunge and other
36	Great Asset Agricultural Development (Cambodia)	Chinese	2006	8,985	Plantation of Pistacia Chinasis Bunge and other
37	Green Island Agricultural Development (Cambodia)	American	2006	9,583	Tectona replantation and processing factory
38	Global Agricultural Development (Cambodia)	American	2006	9,800	Tectona replantation and factory
39	Central First Company Ltd	American	2009	7,000	Rubber plantation
40	Doty Saigon-Binh Phouc (SBK)	Vietnamese	2007	6,436	Rubber, cassava, cashew plantation and factory
41	Mega Star Investment and Forestry Developmen	Vietnamese	2009	8,000	Rubber plantation
42	Crops and Land Development (Cambodia)	Chinese	2008	7,200	Rubber and acacia plantation
43	(Cambodia) Tong Min Group Engineering	Chinese	2007	7,465	Rubber, acacia, jatropha plantation

					and processing factor
44	Agri-Industrial Crops Development (Cambodia	Chinese	2008	7,000	Rubber and acacia plantation
45	PDA (Cambodia)	Korean	2009	5,256	Rubber, acacia and cassava production
46	Carmadeno Venture (Cambodia)	Indian	2009	7,635	Sugarcane plantation
47	Growest Trading**	..	..	..	..
48	Dong Phou**	..	..	..	..
49	Dong Nai**	..	..	..	..
50	Phou Rieng**	..	..	..	..
51	Magasta Produce**	..	..	..	..
	MONDULKIRI				
	Tay Nam BPM*		2006	7,600	Cassava, rubber, cashew and factory
52	Wuzhishan L.S Group	Chinese	2005	10,000	Merkusii plantation and factory
53	Land and Development Cambodia	Chinese	2008	7,000	Rubber and acacia plantation
54	Agro Forestry Research	Chinese	2009	7,000	Rubber and acacia plantation
55	Seang Long Green Land Investment (Cambodia)	Chinese	2009	7,000	Rubber and acacia plantation
56	D.T.C. (Group)	Cambodian	2009	4,000	Rubber plantation
57	Unigreen Resource	Chinese	2009	8,000	Rubber plantation
58	Covyphama	Cambodian	2009	5,345	Rubber plantation
59	Mondul Agri-Resource	Cambodian	2009	9,100	Rubber plantation
60	Varanacy**	..	..	..	..
61	Dak Lak**	Vietnamese	..	..	..
	PURSAT				
62	Ratana Visal Development	Cambodian	1999	3,000	Cashew-apple and oil palms
	PREAH VIHEAR				
63	Cambodia Agro Industry Group	Cambodian	2007	8,692	Rubber and agro plantation
64	Thy Nga Development and Investment	Vietnamese	2009	6,060	Rubber plantation
	RATANAKIRI				
	Pelin Group Agricultural Development (Cambodia)*	Khmer	2006	8,847	Plantation of Pistacia Chinasis Bunge and other
65	Global Tech Sdn., Bhd, Rama Khmer International and Men Sarun Friendship	Cambodian	1999	20,000	Oil palms, coffee and other crops
66	Gialani Company Limited*	Vietnamese	2005	9,380	Agro-industry, animal and factory
67	Oryung Construction (CAM)*	Korean	2006	6,866	Rubber plantation
68	Heng Development	Cambodia	2006	8,654	Agro-industry and trees plantation
69	Heng Brother	Vietnamese	2009	2,361	Rubber and acacia plantation
70	Heng Heap Investment	Cambodian	2009	7,000	Rubber and jatropha plantation
71	Kiri Development	Cambodian	2009	807	Rubber plantation
72	Hong An Mang Yang K Rubber Developmen	Vietnamese	2009	6,891	Rubber plantation
73	Chea Chanrith Development**	..	..	..	..
	SIEAM REAP				
74	Samrong Rubber Industries	Cambodian	2006	9,658	Plantation of rubber and other
75	Kain	Cambodian	2006	4,535	Rubber and agro-industry plantation
76	Sophorn Theary Peanich	Cambodian	2006	5,042	Rubber and agro-industry plantation
	STUNG TRENG				
	Sok Heng*	Cambodian	2006	7,172	Plantation of

					Acacia and other
77	Cassava Starch Production	Cambodian	1999	7,400	Agricultural and agro-industrial crops
78	Sal Sophea Peanich	Cambodian	2001	9,917	Acacia, Trincomali wood, and others
79	Green Sea Agriculture	Cambodian	2001	100,852	Trincomali plantation
80	GG World Group (Cambodia) Development	Chinese	2005	5,000	Agro-industry, animal and factory
81	Sopheak Nika Investment Agro-Industrial Plants	Cambodian	2005	10,000	Acacia, Trincomali wood, and others
82	Sekong Aphivath	Cambodian	2006	9,850	Agro-industry and animal husbandry
83	Sive Guek Investment	Cambodian	2006	10,000	Acacia, Trincomali wood, and others
84	Phou Mardy Investment Group	Chinese	2006	10,000	Acacia, Trincomali wood, and others
85	Grand Land Agricultural Development (Cambodia)	Chinese	2006	9,854	Agro-industrial crops
86	(Cambodia) Research Mining Development	Cambodian	2009	7,200	Rubber and acacia plantation
87	Un-Inter Trading and Development Group	Chinese	2009	7,000	Rubber and acacia plantation
	Total excluding projects with no land reports			**1,153,696**	
	Total excluding projects cancelled			**1,044,513**	

Notes:

* indicates the cancelled projects, which are 12 in total.

** Indicate 9 projects with only names but no other information presented on the website

All the company names are followed by "Co. Ltd."

Source: Ministry of Agriculture, Forestry and Fisheries (MAFF) compiled from www.elc.maff.gov.kh on 30 July 2009 and 7 June 2010

Some economic land concessions seem to be speculative. According the MAFF officials interviewed, some companies lacked the capital to turn their ELCs into agricultural enterprises. Some had conflicts over claims by others and could not implement their plans. The major issues in large land concessions identified so far based on the fieldwork and interviews during the study include:

- Overlapping claims by local villagers and others including the affluent people who buy land from local villagers. This is by far the single most important issue to the concessionaires; some found that more than 50% of what was granted was in the hands of others. Resolution of conflicts has been most difficult.
- Environmental impact assessments (EIA) are not serious enough. Only consulting firms acknowledged by the Ministry of Environment are allowed to conduct EIAs. However, this tends to be in the form of a box to check.
- Slow or insignificant implementation of the contract or business plan. Very few projects appear to have been serious about implementing their agricultural/agro-industry development proposal. This partly leads to grabbing by others, causing conflicts that are difficult to resolve.
- Local villagers appear to be worse off, although some receive temporary benefits from the ELC projects. The disadvantaged ethnic minorities living in the remote, plateau areas in particular have been losing their traditional livelihood practices, while alternatives are not a choice at the moment.
- Consultations with local communities to be affected have not been generally conducted as required by the Subdecree on Economic Land Concessions.

2.4. Large Scale or Small Scale?

In light of the above-mentioned problems regarding ELCs in practice in Cambodia, there is a valid question as to whether it is equitable or wise for the government to offer large economic land concessions for companies to build large plantations. Many marginal farmers and the landless poor also need land or additional land to meet the needs of their expanded families. The majority of the rural poor are smallholding farmers or landless. More than 60% of the rural residents possess less than one hectare of land, which is generally not sufficient to reduce poverty (CDRI, 2008). In recognition of this, the Royal Government of Cambodia has developed a program called Land Allocation for Social and Economic Development (LASED) to provide up to 5 hectares of land to each household selected as a beneficiary of the program. However, the implementation has been struggling, while the granting of economic land concessions has been rapid, with nearly one million hectares of land being granted by the end of 2006 and in all likelihood another substantial amount since 2006. Indeed, from a practical point of view, it is more convenient to grant large land concessions to a few companies than many small parcels to tens of thousands of households. Large plantations must invest heavily in infrastructure, research and development and are therefore geared for commercial operations due to scale economies. This implies that if well implemented, they are able to assure standards and timeliness of deliveries.

Household farming is efficient when a family has the incentive to work hard to maximize the yield to generate a marketable surplus. And the benefits will improve when all members of the family have a good knowledge of farming and good market access for inputs and outputs. Family-based operations operate under different premises of production and marketing. Lele and Agrawal (1989) cite evidence from Kenya, where small- and large-scale farmers exist alongside one another, grow the same crops and sell them in the same markets at similar prices. Rohrbach and Makhwaye (1999) report that in Botswana a high-yielding sorghum variety released in 1994 had been adopted by almost 50% of the nation's small-scale farmers, who had planted it within two years of its release. In some exemplary Green Revolution countries, the numerical importance of small farms in agriculture actually increased during the technological transformation of agriculture.

Cambodia may be able to avoid the potential conflict between large-scale farming and the development of family-based activities. Since Cambodia has the second lowest population density in the region, large-scale plantations seem to be a viable option in areas where the population pressure is low and there is lack of infrastructure and absence of research and development. Family-based farms or small farms can co-exist in the areas where there are large plantations.

CHAPTER III
CASE STUDY ON RESERVOIR RICE FARMING IN KAMPONG THOM PROVINCE

Historically, the plains around the Tonle Sap Lake, which is estimated at around 1 million hectares, experience deep flooding annually during the rainy season between August and November. Thus, the cultivation of wet-season rice is not possible, with the exception of floating varieties. In Kampong Thom, there were estimated to be 50,000 hectares of floating rice fields but most were abandoned for approximately 20 years before 2004 because of irregular annual flooding of the Tonle Sap Lake.[4] Private investment by leading farmers and affluent people from Phnom Penh opened up the possibility of re-cultivating the idle fields. Investors could build reservoirs to store water and provide seeds and technical skills to farmers who were willing to cultivate dry season rice if they did not want to rent the developed farms and cultivate the rice themselves. In some cases, small farmers could have production sharing arrangements with investors. These are considered large-scale rice plantations because the size is a few hundreds hectares each, compared to the one or two hectares of rice farm that is the norm for millions of farmers. The provincial governor granted dozens of 25-year concessions of up to 1,000 hectares each until this authority was generally withdrawn in September 2008. However, in some cases affluent people believe they own or possess freehold of the lands they purchased cheaply from farmers who claimed ownership of the area. They invested an average of around US$150,000 to build a reservoir, canals and dikes for a system of about 700 hectares. Each reservoir is between 100 and 400 hectares in size.

Because of the high potential in rice production due to the rich alluvial soil, farmers borrow from microfinance institutions to finance the expenses of rice production in this area. Credit is generally available at 3% to 5% per month. Some farmers have managed to acquire credit-financed tractors to work the land in the dry season. After one year into implementation, farmers are optimistic about the prospects of the scheme's success. Average yields have improved to 6 tons per ha and the price has been reasonably attractive at about US$200 per ton. The production cost is roughly about half the gross margin of $1,200 per ha. Therefore, this kind of large-scale rice plantation is quite profitable. It is hypothesised that this kind of investment, which is not very large, is favourable in terms of benefiting the poor because they are employed by the big farmers or share the crop or rent the land, which is productive and is able to completely control the water.

3.1. Overview of Reservoir Rice Cultivation

The practice of reservoir rice farming in the dry season in Kampong Thom emerged in the early 2000s. The construction of reservoirs and the practice of reservoir rice farming in Kampong Thom have gradually increased since the early 2000s. In 2004,

[4] According to Mr. Im Bunthan, the Director of Office of Agronomy and Agricultural Land Improvement in Kampong Thom province and Mr. Hang Sokun, the President of Dry-Season Rice Association in Kampong Thom, interviewed in May 2009.

there were about 70 reservoirs in the province. The activity of reservoir rice farming increased dramatically in 2007, and by early 2009, the number of reservoirs in the province had increased to about 110. This number excludes small-size reservoirs of 10–40 hectares in size, which are family-based. By mid 2009, 21,000 ha of the Tonle Sap flood plains in five of the total seven districts of Kampong Thom, Baray, Santuk, Stoeung Sen, Kampong Svay and Stoung, had been developed for dry season rice production. Of the five districts, Stoung is the most active district in reservoir rice farming. However, out of its 13 communes[5], reservoir rice cultivation has been practiced in only five of them, which have geographically favourable advantages. They are Chamnar Kroam, Chamnar Leu, Msar Krang, Bralay, and Samprauch. Over 60 reservoirs have been constructed in these communes, but only 54 of them are operational, irrigating 6,798 ha of rice cultivation areas. In practice, one 100 ha reservoir can irrigate on average 150 ha of one dry season crop.

Table 3.1. Number of reservoirs in Stoung District, Kampong Thom

Nº	Communes	Number of Reservoirs
1	Chamnar Kroam Commune	21
2	Chamnar Leu Commune	3
3	Samprauch Commune	17
4	Msar Krang Commune	9
5	Pralay Commune	4
	TOTAL	**54**

Source: Interview with the Office of Agriculture in Stoung District in May 2009

Stoung District of Kampong Thom is a hot spot for rice plantation investment and has been selected for the case study. In this district, two communes, Chamnar Kroam and Samprauch, were selected for detailed study.[6] Farmers in the district were reported to have practiced floating rice cultivation from the 1960s to the 1980s. After that, they abandoned it because it was not productive enough and increasingly prone to unpredictable floods, probably due to climate change, and more serious pest problems.

Innovation has made the land economically productive. In 2001, a group of businessmen from Sothnikum in Siem Reap province led by Mr. Lao Loeng came to Chamnar Kroam commune to study the feasibility of dry season rice production, so called **Reservoir Rice Cultivation**. It was proved to be possible with irrigation. The negotiation between the businessmen, the commune councils and the farmers surrounding the areas regarding the construction of the reservoirs on the un-farmed flooded plains to reserve the water for irrigation took place. A deal was then made among the stakeholders: three reservoirs were to be constructed; one of them was to be given to the communities to be freely used by the famers from the said commune and the other two would be granted to the businessmen on a 25-year contract. Later, three more reservoirs were constructed.

[5] Banteay Stung; Chamnar Kroam; Chamnar Leu; Kampong Chen Cheung; Kampong Chen Tbong; Msar Krang; Peam Bang; Porpork; Bralay; Preah Damrey; Rungroeung; Samprauch; and Trea.
[6] The profiles of the two communes are available in the Annexes.

Since then more reservoirs have been constructed under different forms of ownership. Three distinguished forms of ownership are identified: (i) **Community Reservoirs** are those constructed by private individuals or companies on the commune occupied land and they are to be shared and owned by the commune and reserved for the commune residents for the purposes of cultivating rice. It is based on an agreement that the private individual or company who constructed the reservoirs will be given the land to construct their own reservoirs under a contract of a certain duration. (ii) Private individuals or companies could just build the **private reservoirs** once they obtain the concession permission from the provincial authority without constructing any additional reservoirs to be granted to the commune. (iii) As the introduction of reservoirs proved that rice cultivation was possible, productive, and profitable, local people came up with the idea of collectively sharing capital to build reservoirs to cultivate their own rice. The initiative emerged in 2007, while the reservoir construction started in 2008. This type of reservoir is called **People's Reservoirs**. The construction of many People's Reservoirs for rice cultivation remained incomplete.

3.2. Benefits of Reservoir Rice Farming

The study found that there are 20 reservoirs in Chamnar Kroam commune. The total reservoir area is 1,812 ha and the crop area is 2,936 ha. Eleven of these reservoirs are Private Reservoirs to irrigate 1,670 ha of crop land, six are People's Reservoirs to irrigate 884 ha crop land, and other three are Community Reservoirs. In order to understand the benefit provided by reservoir rice cultivation, the impacts of each type of reservoir are discussed as follows.

3.2.1. Private reservoirs

Table 3.2 presents the 11 private reservoirs in Chamnar Kroam commune, lying on 1,038 ha. The water stored in these reservoirs is sufficient to supply one crop cultivation on 1,670 ha every year between January and May. Typically, a private reservoir is owned by 4–16 shareholders who obtained the concession of less than 1,000 hectares from the provincial authorities. Given the financial and labour constraints, the shareholders farm as individuals on some land. This type of rice farming will be referred as **own-cultivation** in this case study. A larger part of the land is rented to farmers in the commune, and also some outsiders. Some land is used for sharecrop production.

The study obtained specific data from seven of 11 privately owned reservoirs. These seven reservoirs have a cultivation area of 1,065 ha or 64% of all private reservoirs' crop land in Chamnar Kroam commune. Based on this data, own-cultivation farms make up 36% of the total land developed, rental farm shares 54%, and the remaining 9% is used for sharecrop production. The owners of the private reservoirs and the communities have enjoyed varying levels of benefits from each type of farming investment.

Table 3.2. Private reservoirs in Chamnar Kroam commune, Stoung district

N^{o}	Reservoir Owners	Reservoir Size (in hectares)	Cultivation Areas (in hectare)	Total
1	Mao Kimsong	89	136	225
2	Koim Sokhon	106	172	278
3	Koim Sokhon	66	111	177
4	Lao Loeng	102	173	275
5	Lao Loeng	106	173	279
6	Chum Savath	110	145	255
7	Chum Savath	80	164	244
8	Chea Huot	114	177	291
9	Chea Huot	71	123	194
10	Nhoek Sarith	123	174	297
11	Nhoek Sarith	71	122	193
	Total:	**1,038**	**1,670**	**2,708**

Source: Map of reservoirs and intensive rice farming of Mr. Lao Loeng in Chamnar Kroam commune and the map of proposed locations of economic concessions in Chamnar Kroam commune by KNL Investment Co., Ltd.

Own-cultivation farms

To assess the benefits for the owners of the private reservoirs, the study of one specific case in Samprauch commune was conducted. An economic land concession of 926 ha was granted to a group of better off individuals from Siem Reap province, represented by Mr. Pen Dorn. Two reservoirs were constructed in 2004, consuming 386 ha of the total area, and possessing irrigating capacity of 540 ha. The construction of the reservoirs and irrigation system cost US$180,000. Owners of sub-plots of 300 ha and 150 ha leased their land to other farmers on an annual basis and the rest of the farmland was left unused due to lack of capital.

To run such a large farm, many full-time and daily workers are required. This does not account for the management time and fees by the shareholders contributing to the production. The labour cost is estimated to be US$108 per ha of own-cultivation farm within 5.5 months. On 300 ha, 15 full-time workers were employed for 5.5 months with an average salary of US$75 per month. In addition, 95 workers were hired on a short-term basis. A daily worker was paid an average of US$2.50 (10,000 riels) per day and is estimated to have worked 20 days a month.

The production costs totalled US$522 per ha in the cultivation year 2007–08. The crop provided a substantial yield of about 6 tons per ha and was sold at US$180 per ton (US$0.18 or 700 riels per kg), which worked out at US$1,080 per ha. So the net revenue was $558 per ha, or US$167,188 for the total own-cultivated area of 300 ha. This net revenue made already 92% of the reservoir investment capital. In addition, the renting out of the 150 ha brought the owners an additional sum of $22,500 as the field was leased at an average of $150 per ha. The rent was required upfront by the leaseholders. In total, the owners of the reservoirs could recover the investment cost in just one year, which is a highly profitable business.

Table 3.3. Costs for owner-cultivation farms

No	Item Description	Unit	Quantity	Unit Cost ($)	Cost ($)/ha	Crop Land (ha)	Total ($)
1	Ploughing	Ha	1	35	35	300	10,500
2	Harrowing	Ha	1	25	25	300	7,500
3	Seed (200kg/ha)	Kg	200	0.325	65	300	19,500
4	Fertiliser: DAP	Bag	3	47	141	300	42,300
5	Fertiliser: UREA	Bag	1	25	25	300	7,500
6	Harvesting fee	Ha	1	100	100	90	9,000
7	Fuel for harvesting (own machinery)	Ha	1	20	20	210	4,200
8	Transport cost						24,000
	For Seeds	Ton	60	12.50		300	750
	For Fertiliser	Bag	4	0.625		300	750
	For Paddy	Ton	1800	12.50			22,500
	Sub-total						**124,500**
	Labour				# months		
9	Full time workers	Person	15	75	5.5		6,188
10	Daily workers (20days/month	Person	95	50	5.5		26,125
	Sub-total (Labour)						**32,313**
	Total Cost						**156,813**
	Total Revenue						**324,000**
	Net Revenue						**167,187**

Source: Interview with Mr. Pen Dorn, shareholder of reservoirs in Samprauch commune

The study found that this type of rice farming provides significant benefits to local people, especially the poor. It employed household members from the communes nearby. The case study employed a sample household survey, which randomly selected one third of the households in three villages of the commune.[7] The survey found that 46% of the households in the area engaged in wage-labour in the reservoir rice farming, which offered about US$2.50 per day, a common daily wage for farm work in Cambodia.[8] Eighty percent of the households had one or two members work on the reservoir farms, including their own farm. People liked that fact the work is near the community. A husband and wife can work in shifts to allow time to take care of the children and their family as a whole. Common day-labour work in rice production includes sowing, applying fertilizers, harvesting, drying rice grains, packaging, carrying, and transporting the rice outputs.

They did not appear to have higher opportunity costs. Without this work, they were either free or went fishing and foraging, putting further pressures on the diminishing natural resources in the province. With the emergence of the reservoir rice farming, the Director of the Provincial Office of Agronomy and Agricultural Land Improvement in Kampong Thom estimates that 80% of people in Stoung who used to primarily depend on fishing have now changed to being employed in reservoir rice farming. This shift in primary occupations was also confirmed by the village leaders interviewed.

[7] Previous studies suggested that a sample of one third the households in the village is a representative one.
[8] See for instance CDRI (2008) The Impact of High Food Prices in Cambodia: Survey Report.

Rental farms

Besides providing jobs to people in the locality, investment on economic land concessions and reservoirs opens another window of opportunity for farmers to do additional dry season rice cultivation by renting the farm from the reservoir owners. Up to 20% of the surveyed households practised this in 2008–09. On average these households rent 4 ha each but the range was between 0.5 ha and 20 ha. These households are not among the most poor as they generally need to have a significant amount of cash to cultivate the crop and pay the rent upfront. They tend to be among the average in the villages although they could be considered relatively poor. In 2007 and 2008, the tenant farmers earned a reasonable profit, averaging US$285 per hectare, as presented in the Table 3.4 below.

Table 3.4. The production cost and benefit of rental farming in typical year 2007/08

No	Farming Input	Unit	Quantity	Unit Cost ($)	Cost/ha ($)
1	Ploughing	Ha	1	35	35
2	Harrowing	Ha	1	25	25
3	Seed	Kg	200	0.3	60
4	Fertiliser	Sack (50kg)	3	47	141
5	Fertiliser	Sack (50kg)	1	25	25
6	Harvesting	Ha	1	100	100
7	Transport				25
8	Rent	Ha	1	150	150
	Total Cost				**561**
	Total Revenue				**846**
	Net Revenue				**285**

Source: Interview with rental farming households in Samproach commune

However, unlike in previous years, villagers experienced a loss in the 2008–09 production season. The survey found that in the cultivation period of 2008-09 only 6% of rental farmers, those who started the cultivation in late 2008, could enjoy the same profit as in previous years, while another 14% could afford to recover production costs. The remaining 80% ran at an average loss of US$245 per ha. The loss was due to a combination of reduced yield and decreased price of paddy. They had no drying and storage capacity so they had to sell their paddy immediately for whatever price they were given. The yield reduction was partly due to the early rain during the harvest. Some suspected that it was because of the improper use of costly fertilizers and pesticides. Farmers did not have proper knowledge about seed selection and fertilizer application. Generally, four sacks of fertilizers (3 sacks of DAP and 1 sack of urea or potassium) were used on one hectare of rice land. This practice spread from one farmer to another, however, the farmers did not know the reasons why those fertilizers were used and the advantage of applying such amounts of fertilizer.

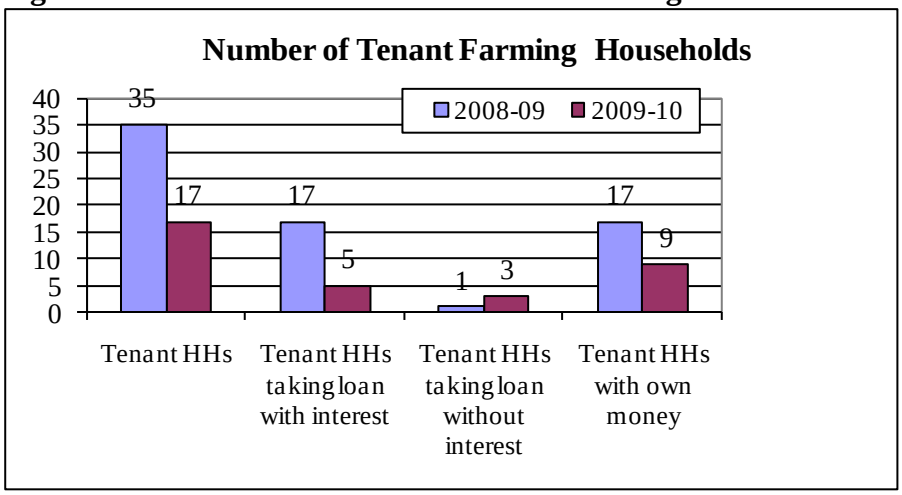
The two greatest production costs are rental and fertilizers. Other costs, such as seeds, labour, ploughing and transportation were also high due to high inflation in 2008. The fee of farm rental had continually increasing from year to year until 2009. As farming proved to lead to high yields and good profits, more and more people engaged in farming activities. Also, because the price of paddy had been rising, the reservoir owners increased the rental fee each year. The fee was US$100 or less per hectare in

2005 but this increased over time. On average farmers paid a rental fee of US$190 per hectare in 2008, while some cases farmers paid up to US$250 per ha, depending on the soil quality.

Lack of credit makes farmers more vulnerable to the high costs of rental and fertilizers. The rental fee has to be pre-paid. Right after the harvest time (the latest in May), leaseholders have to pay the fees in advance if they wish to rent the rice field for cultivation the following season (November). Many leaseholders took loans to pay the rental fee. Of the surveyed households who rented the farm in 2008–09, 49% had their own savings to pay off the rental fee, almost 49% borrowed money from moneylenders and micro-credit institutions at an average interest rate of 4% per month. About 3% could borrow money from their relatives and friends without interest.

The survey revealed that farmers bear high interest rates for fertilizer costs. On average, farmers applied 3.6 sacks (50kg/sack) of fertilizers per hectare. Often, they applied four sacks per hectare but never apply more than 4.5 sacks per hectare. However, the great majority of farmers could not afford to pay cash for fertilizers at the time of buying. Of all the surveyed households, 45% purchased fertilizers in 2008. The survey found that only 21% of farmers who obtained fertilizers in 2008 were able to pay cash for the fertilizers, while the other 79% bought fertilizers on credit. These farmers would have to pay 25% and 55% more respectively on top of the sale price for D-A-P fertilizers (US$47 per sack) and urea fertilizers (US$25 per sack) over the next four months.

Figure 3.2. Trend of tenant reservoir rice farming



Source: Survey of 169 households in three villages in Chamnar Kroam, Stoung district

Half of the leaseholders in the 2008–2009 season that were surveyed announced that they would quit farming in the 2009–2010 season even though the reservoir owners agreed to reduce the rent to an average of $130 per hectare. Only 10% of the surveyed households had rented the rice field for the following year's cultivation. The decline is mostly among households borrowing money at high interest to pre-pay the rental fee.

The experience of sharecrop farming

The study found that there were 100 hectares of Private Reservoirs' cropland used for sharecropping with poor local villagers. This model of farming in particular is practiced on Mr. Chea Huot's farm, which has a reservoir. He affirms that the model was suggested by H.E. Nam Tum, the then provincial governor of Kampong Thom. He asked the reservoir owners to act charitably towards the poor through sharecropping.

Mr. Chea Huot offered 100 hectares of his cultivated land to poor local people for sharecrop farming. The agreement was that the poor villagers cultivate the rice and the reservoir owner provides the land and water for irrigating the farm. The sharecropping households are responsible for farming activities and all the costs incurred. Upon harvest, sharecropping households are obliged to give a share of one ton of paddy per hectare to the reservoir owner. This is, in a way, like the leasing case discussed above, except that the payment of one ton of paddy is made after the harvest. In practice, however, many farmers did not follow the payment agreement. It created a lot of discontent for the reservoir owner who vowed to cease this practice in the following year. His reported that the villagers did not pay him the agreed paddy amount of one ton per hectare; instead, only 400–500 kg of paddy was paid to the owner. He blamed the farmers for being lazy and not giving sufficient attention to the crop cultivation, resulting in low yields. Although there are written agreements with these farmers, he found it difficult to enforce because they are quite poor. The study was not able to meet with these sharecropping farmers, but the low yields can also be explained by the fact that poor farmers do not have adequate resources to invest in agriculture inputs.

The three types of practice in the Private Reservoir farming above provide benefits to local people, the poor and average, through employment, day-labour wages, access to tenant farming, and sharecropping. Where farms are cultivated by shareholders of the reservoirs, the benefits go to the poor in the form of labour wages. This model of farming is the most appropriate to benefit the very poor whose main asset is labour. Reservoir rice farming provides jobs for five and a half months between November and May. In the communities nearby, 46% of the households have one or two persons engaged in the day-labour work available from reservoir rice farming. They earned about US$2.50 per day.

Private Reservoirs also provide benefits to local people through rental farming – 54% (908 ha) of the cropping land is used for this purpose. If, on average, a household rents 4 ha, these rental farms should benefit about 25% of the commune. The household survey found 20% of the households were tenants. Some people outside the commune also participated. However, only the non-poor households were able to rent the farms since it requires substantial capital that the poor cannot afford. The sharecropping model seemed to benefit the poor who tried the scheme without having to pay the rental fee upfront, but the reservoir owner was unhappy with the failure of the farmers to share the harvest as agreed and might not continue the arrangement. Thus, the poor could derive most benefit from selling their labour to the bigger farmers. People require both capital and skills when doing their own farming. Farmers need support in terms of affordable credit and skills to take the risks in farming by themselves using a rental or sharecropping model to gain greater benefits.

3.2.2. People's Reservoirs

In total there are six People's Reservoirs in Chamnar Kroam commune, occupying 570 hectares of land to irrigate 882 hectares of rice field. Table 3.5 shows that 884 families or 55% of the 1,604 families in the six villages are members of the People's Reservoirs and are entitled to have one hectare of rice field per family. However, the distribution of reservoir rice field among villagers varies from one village to another. Only 35% of the families in Chi-abb were able to share the capital to build People's Reservoirs, while about 75% of families in Sampor and Srey Ro-nget villages were able to do so and were members of the People's Reservoirs.

Table 3.5. People's Reservoirs in Chamnar Kroam commune

Nº	Villages	Total Families	Member Families	Reservoir Size (ha)	Cultivation Areas (ha)	Total Areas
1	Spean Krorng	409	186	286	440	726
2	Chi-abb	262	92			
3	Chamnak	238	146			
4	Svay Ear	259	130	140	164	304
5	Sampor	235	180	96	180	276
6	Srey Ro-ngeth	201	150	48	100	148
	Total:	**1,604**	**884**	**570**	**884**	**1,454**

Source: Interviews with village chiefs, members of reservoir management committee, and group interviews with villagers in Chamnak, Spean Krorng, and Chi-abb

Building People's Reservoirs is costly and appears well beyond the reach of the poor, even if they are simply shareholders. The construction cost of a People's Reservoir (Chamnak, Spean Krorng, and Chi-abb) cost as much as US$430 per family in 2008 and 2009. The first half was contributed in 2008 and the second half in 2009 when the reservoir was fully constructed. However, some members could not afford to pay the construction costs. The committee reported that they had difficulty in collecting money from member families. Some sold their animals, gold or other assets, while others borrowed money from moneylenders or microfinance institutions such as ACLEDA, Amreth, VisionFund, Hatha Kaksekar, and Praksak at an interest rate of 3–3.5% per month. The poor that possess no assets to use as collateral would generally not be lent any money.

This reservoir provides benefits to 439 families who are shareholders and members of the management committee, which represents 48% of all families in Chamnak, Spean Krorng and Chi-abb villages. Of this, 424 families shared the capital and the other 15 were members of reservoir management committee (5 per village). The committee members were not required to share the capital, but were entitled to one hectare of rice field in exchange for their in-kind contribution, in terms of time and effort, to run the concession proposal and take leadership over the reservoir construction.

Although the reservoirs were built, full rice cultivation in the People's Reservoir in Chamnar Kroam commune was not yet possible in 2008. This was due to the fact that their rice fields were still covered by flooded vegetation and the irrigation systems were not completed. Clearing this vegetation is difficult manually and also time

consuming. As a result, people could only farm on an area of 0.20–0.50 ha of their 1 ha of land. Villagers are delighted when their reservoirs are constructed since it gives them a sense of ownership. "Though the construction of the reservoir is rather costly for us, we are willing to pay for it, since after that we don't have to rent the rice field from the reservoir owner and pay the rental fee that has increased from year to year," said villagers in Chamnak village. "When the community reservoir is completely constructed next year, the people will be more secure with their farming occupation," added the chief of Chamnak village.

A critical challenge is the legal status of the reservoir. Although the reservoir has been built, formal approval has not yet been issued. The concession proposal passed the commune and district authorities and is now awaiting the approval by the provincial government. People are worried because of the Fisheries Administration, which contests that the land is under flooded forest which is a breeding area for fish species. However, the Office of Agronomy and Agricultural Land Improvement in Kampong Thom said that the land was a rice farming area during the 1960s and 1980s; therefore, villagers should be allowed to cultivate on those lands. The view of local people is that the reservoir only covers some vegetation, which is made up only of small trees, not forest. "If the state withdraws the land, we may flee the village since we are in debt and will be required to pay the principal and interest by creditors," said villagers in Chamnak village.

In short, the emergence of People's Reservoirs reflects a collective community action to work for their own benefits. The model represents a good distribution of benefit to local people as a result of their contribution. The six People's Reservoirs in Chamnar Kroam extend on cultivation areas of 884 hectares amounting to 30% of the total reservoir cultivation area in the commune, and provide land access to 884 families or about 55% of all families in six respective villages whose members participated in the construction of the People's Reservoirs. However, the poor could not participate since they did not have the capital to take part or could not afford to take out loans. People are particularly concerned with the legal status of their reservoirs since they have not been authorized and there has been disagreement between the relevant authorities, in particular the Agriculture and Fishery Administration, over the demarcation and supervision of the land.

3.2.3. Community Reservoirs

As a result of the construction-sharing basis, Chamnar Kroam has three Community Reservoirs with over 382 hectares of cultivation areas; however, two were rented to a private individual. When they received two reservoirs as shares from private companies in 2004, the commune invited villagers to cultivate rice. However, people did not participate as they found the allocated lands were too small, and would not be owned by them in the long-term. Furthermore, they would have to build the distribution canal system at their own cost. As a result, the rice field was left idle. Later, in 2005, the commune found a private contractor with the financial resources to invest in the cultivation. Two reservoirs (sizing 204 ha to irrigate 228 ha) were contracted on a 25-year deal. The rental fee was agreed at US$15 per hectare per year to be renegotiated every 5 years. However, after 2007 the commune councils had no mandate to enter into the contract with the businessman. "With new processes, the contract is now under the deal of the district and provincial authorities, and the rental

fee is now still US$15 per hectare per year," said the commune chief and some village chiefs. [9]

One Community Reservoir that is operated by the commune is available for 394 poor households in the commune to cultivate rice on a rotation basis. The reservoir has a cultivation area of 154 hectares, which is about 5% of the total reservoir cultivation area in Chamnar Kroam. The cultivation areas were shared among the villages based on the number of poor households. The allocated land size varied between 9 and 19 ha per village. At the village level, for example in Sampor village, the village chief and vice chief were awarded one hectare each. Then, the poor households in the village are entitled to do rice cultivation, rotating it among them on an annual basis. The cycle may repeat in 2 to 4 years according to the number of poor households in individual villages. Some poor households choose to rent out their allocated cropland because of a lack of capital to invest or lack of labour to do cultivation, or both. For example, Mrs. Hean Kheang, a villager in Sandan village, rented her hectare of cropland in the Community Reservoir to another villager at US$100. Similarly, Mr. Thaing Thor, a villager in Sampor village, leased his Community Reservoir farm at US$110.

Because the size of the reservoir is rather large, water management has been an issue, especially in a situation where the water is used by 10 villages and households from each village rotate from year to year. This somehow creates conflicts among villages. To solve the problem as well as to facilitate better water management, the commune chief proposed to split the Community Reservoir into 10 parts, one part for each village. To get those parts divided, they needed substantial capital to build the dam to split the reservoir. Therefore, it was requested that villagers forgo farming for one year in 2009 and that the rice field be rented in order to generate the capital for partitioning the reservoir and rehabilitating the current canals. The idea was agreed upon and now the rice fields are rented for 400,000 riel (nearly US$100) per hectare for 2009–10. This means that villagers can also lease the land if they can pay the rent. The irony is that a large part of the community farm was rented out by the provincial government to a private farmer for only US$15 per ha. Now, if the poor people who want to continue farming on the land, they will have to pay US$100 per ha.

[9] The rental fee of both reservoirs was used as a contribution fund for development projects in the commune such as: i) installing floor tiles in the commune office; ii) construction of one school building with three rooms; iii) 660 meters of gravel road to Preah Naingkoil pagoda; and 660 meters of gravel road to Pur Damnak pagoda in Chamnak village. The money left from these development projects was proportionally allocated to the ten villages of the commune based on their populations. Following a suggestion from Mr. Leang Norng, former chief of Chamnar Kroam commune in 2007, the share was kept as a saving account for each village. Villagers were formed into saving groups, the members of which can borrow at an interest rate of 2% per month and is obliged to repay in six months. Chi-Abb village, in particular, received a share of US$325 (1,300,000 riels). The village established ten saving groups and further split the money into ten shares: US$32.50 (130,000 riels) per group.

Table 3.6. Allocation of Community Reservoir cultivation areas

Nº	Villages	Number of Poor HHs	Share of Community Reservoir
1	Preah Naingkoil	71	19 ha
2	Sampor	51	19 ha
3	Srey Ro-ngeth	28	14 ha
4	Svay Ear	33	15 ha
5	Neang Noiy	21	12 ha
6	Sandan	53	19 ha
7	Spean Krorng	73	19 ha
8	Chi-Abb	22	14 ha
9	Chamnak	24	14 ha
10	Leap	18	9 ha
TOTAL		**394**	**154 ha**

Source: Statistics of Chamnar Kroam commune

Box 1. Household Case

Mrs. Yin Soeun is a widow living in Chi-Abb village. There are seven members in her family; five are living together in the village while the other two do fishing and work as wage labour in Pursat province. In 2008, she was offered a hectare of rice field in the community reservoir. She harvested the rice in April 2009 at a yield of 3 tons. She sold the paddy at US$0.175 per kg – she made total revenue of approximately US$525 from her one hectare of rice cultivation in that year.

Throughout the farming cycle, a number of costs are associated. Farming cost her US$475 in total. She spent US$30 for ploughing, plus US$18.75 for harrowing. The seed input was 200 kg (US$0.325 per kg). She applied four sacks of fertilizer. She bought fertilizers on credit that she had to repay upon harvest. Fertilizers cost her US$237.5. The harvest further cost her US$87.5. She spent approximately US$25 to transport the paddy rice from the field to home (US$0.75 per bag) and US$11.25 for a rice bag.

Excluding other uncounted costs such as family labor, she made profits of about US$50 from farming activities in around a four-months period.

In sum, the Community Reservoirs by nature provide benefits to the poor in particular since the use of these reservoirs is earmarked for rotating farming among 394 poor households, which represent 22% of the commune's households. The benefit would have been much greater if all three Community Reservoirs of 382 ha of cultivation areas were all available for this purpose. However, 228 ha were rented to a private individual on a 25-year contract, which only provided benefit to local people through the collection of rental fees at US$15 per ha, while the people themselves would in contrast have to pay US$100 if they rented a hectare of cropping land in the Private Reservoirs. Thus, it can be inferred that people bear the costs of the poor decision to rent out 228 ha at a very cheap price for 25 years.

3.3. Conclusion

The innovation of reservoir rice cultivation in the plain of the Tonle Sap Lake has provided a range of benefits to the poor and non-poor in the locality although the environment impact has not been studied. It yields benefits to the poor in particular through the provision of Community Reservoirs, labour wage, and sharecropping, and to both non-poor and some poor through rental farms and the emergence of People's Reservoirs. However, local people, especially leaseholders, encountered some challenges that may lead them to incur losses in the farming business. Typical challenges include: i) high production costs driven by rental fees and the cost of fertilizers; ii) lower yield of paddy partially due to improper agricultural techniques such as selection and application of chemical fertilizers; iii) lack of access to credits at low interest rates; and iv) the cheap price of paddy during harvest which is characterized by lack of access to competitive markets and absence of storage facilities. To address these challenges, efforts should be directed to:

- Improve farmers' knowledge of agricultural techniques such as seed selection, water control, and selection and application of chemical fertilizers and pesticides. Through an agricultural extension service, the innovation of SRI and organic farming should be introduced and piloted in these reservoir rice cultivation areas to demonstrate results and gain people's confidence. SRI and organic farming is very much needed in these areas since the innovation will address not only high production costs, but also the critical concern on the inflow of chemical substances into the Tonle Sap Lake.

- Promote more accessible micro-credits while at the same time continue to make more loans available to rice millers, especially at harvest time.

- Facilitate diversified access to international markets and provide incentives for domestic and foreign investment to promote value chains and qualify competitiveness of Cambodian rice at the international market.

Further, two Community Reservoirs were rented cheaply to a private individual (leaseholder) at US$15 per ha per year, while the local villagers would have to pay at least US$100 if they could rent the same farm from a private individual. Therefore, rather than the provincial government negotiating the rental of Community Reservoirs with the private individual, the deal should be between the commune councils and the leaseholder.

CHAPTER IV
CASE STUDY OF SUGAR CANE PLANTATION AND SUGAR PRODUCTION IN KOH KONG PROVINCE

In Koh Kong province, there are two economic land concessions that the government granted to private companies for agro-industry investment in sugarcane plantations. The Director of the two companies is the same person (Ly Yong Phat). The total size of the concessions is nearly 20,000 hectares, comprising of 9,400 hectares for Koh Kong Plantation Limited in Botomsarkor district, and 9,700 hectares for Koh Kong Sugar Company Limited (KSI) in Sre Ambel district.[10] The two companies are included in the Table 2.3 in chapter II. As one concession for a company cannot exceed 10,000 hectares by law, those who want ELCs with a larger area tend to create more than one company to hold the land. The total investment for the sugarcane plantation and processing factory is US$100 million. This investment includes the installation of a sugar refinery factory located within the sugarcane plantation in Chikhor Leu commune. The cost of the factory is approximately US$60 million.

4.1. Overview of Investment Project

Koh Kong Sugar Company Limited (KSI) has installed a processing factory to produce sugar. The sugar product will be packed in Cambodia and exported to EU markets. According to the interview with the company, the factory is of a big size, compared to the largest ones in Thailand, which is the third largest sugar exporting country in the world. The factory has a processing capacity of 6,000 tons of sugarcane per day, and can operate 24 hours per day. In the future, the factory capacity can be further upgraded to 20,000 tons per day.[11] At this capacity, 30,000 hectares of sugarcane plantation would be needed. Such demand can be satisfied by other plantations because even when operating at full production capacity the company's plantations will not be able to meet demand. The Managing Director of the company suggested that cancelled ELCs should be granted to the company for this purpose.

The company has the only sugarcane plantation and processing capacity in Cambodia as of 2009. The sugarcane will serve KSI's sugar production. One plantation manager supervises the operation of the sugarcane plantation in KPT's and KSI's concessions. He reported that 70% of the land can be used for sugarcane plantation while the rest are either low-lying or flooded areas which are not cultivable for sugarcanes. So far, sugarcane has been planted on 60% of the cultivable land. It is expected that planting will be completed by 2010.

It takes 12 months for sugarcane to be harvested. The best time for sugarcane planting is between November and March, so the harvest time is from mid-December to mid-

[10] According to http://www.elc.maff.gov.kh/profiles.html, accessed May 2009

[11] The factory operation was tested for 45 days during the last harvest season (February – April 2009). It was run at the capacity of 123 tons per hour or about 2,950 tons per day. In full operation, the factory will run for about 4 to 4.5 months between December and May. In addition to the sugar refinery, the factory will also produce animal feed and refine ethanol.

April. Within this time period the weather is dry and there is no rainfall, which is the time when the sugarcane provides the highest sugar content. Sugarcane in Koh Kong plantation can yield sugar content of 11.8%, while the expected productivity in Koh Kong is about 70 tons per hectare compared to the standard yield of 70–75 tons per hectare. Therefore, if the factory processes 6,000 tons of sugarcanes per day, 800–1,000 tons of sugar will be produced per day.

Chi-khor Leu is a commune in Sre Ambil district in Koh Kong where the economic land concession of the Koh Kong Sugar Company Limited primarily lies. The commune has four villages: Trapaing Kandoal; Chi-khor Leu; Chhouk; and Tanie. In total, the commune has 751 families with 3,673 people (2,032 female). The people in the commune currently earn their living by cultivating wet-season rice, raising cattle and other animals (such as pigs, chicken and ducks), working in the sugarcane plantation, and doing petty trade. Table 4.1 provides population statistics for the commune.

Table 4.1. Population statistics in Chi-khor Leu commune

No	Villages	# Families	# People	# Females
1	Chi-khor Leu	217	1,032	510
2	Chhouk	270	1,377	881
3	Tanie	178	831	425
4	Trapaing Kandoal	86	433	216
	Total:	751	3,673	2,032

Source: Commune data and interview with commune clerk

4.2. Impact on Local Communities

In addition to the qualitative methodology of this case study, a survey was conducted in Chi-khor Leu commune in order to capture a better picture of impact of the sugarcane investment on people in the locality. Three out of four villages in the commune were directly affected by the ELC. They locate along the national road and are adjacent to the ELCs. Trapaing Kandoal and Chi-khor Leu villages bordering each other were selected for this survey. The survey interviewed 143 households. Every second household was chosen for the survey to essentially assess three aspects: *employment, livelihood transformation, and land transactions.*

4.2.1. Employment

Koh Kong Sugar Company Limited started the sugarcane plantation in 2006. The plantation and the factory employed a number of administrative and technical staff to support and oversee the ongoing operations. Moreover, it has provided unskilled and semi-skilled jobs to surrounding communities and absorbs more labour from other provinces. Types of work that are available from the sugarcane plantation include land preparation, planting, applying fertilizer, pest control, weeding, harvesting, collecting and transporting. These tasks are not constantly available throughout the year, but depend on the season.

The high employment season is the time of planting and harvesting sugarcane, lasting from November to May. This is the time to harvest and transport sugarcane, and then plough land, plant the crop, and apply fertilizers. In 2009, the plantation employed up to 3,400 daily workers from November to May. The labourers from Koh Kong accounted for only 30% of the total workforce, since it is a sparsely populated province in Cambodia. The rest were migrants from other provinces such as Bantey Meanchey, Kompot, and Kampong Thom. During the low employment season, the work is limited to applying fertilizers, spraying pesticides, and weeding. Therefore, fewer jobs are available between June and October. During this season in 2009, only around 1,300 daily workers were employed, which suggests that one worker may on average take care of 6.5 hectares.

Of the 143 surveyed households, 147 people were employed in the plantation. Of these people, 86% were employed by the company as day-labourers and a few as full-time workers such as truck drivers or worker supervisors. The survey found that 66% of the respondents reported their household members had worked in the plantation – 60% of them had only one person and in another 27% two household members were engaged. The majority were employed as daily-wage workers and earned an average of US$2.50 per day, which is a common daily wage for unskilled work in Cambodia. Work was available for 15–20 days per month or as little as 5–7 days in some months. For harvesting, workers are paid based on their output at a rate of US$0.03 (120 riels) per batch of sugarcane (a batch is a collection of 13–15 canes). They generally could earn more from this work, but men are able to earn more than women. On average, while a female worker could harvest 80–120 batches, earning US$2.40–3.60 per day, a man could harvest up to 150 or 200 batches per day, collecting US$4.50–6.00 per day.

The company provides accommodation for daily migrant workers from distant places or they may choose to stay with relatives in nearby villages. During the public holidays of Khmer New Year and Pchum Ben Festival, the company has trucks to send migrant workers to their home provinces and also pick them up and return them to the plantation after the festivals.

Most of the plantation tasks can be done by heavy machinery owned by the company. However, land conditions limit the use the heavy machinery—it is suitable only for flat areas, saving jobs for light machinery owners and labourers. On the sloping areas, the company employs people from nearby and their hand-tractors (light machinery) to plough the land and apply fertilizers and they hire manual labourers to plant and harvest sugarcane. The study counted around 70 hand-tractors in Chi-khor Leu commune, particularly in Trapaing Kandoal, Chi-khor Leu, and Chhouk villages. Villagers estimated that about 25–30 (about 10%) households in Chhouk village own hand-tractors.[12]

With a capital investment on a hand-tractor of about US$1,600 in 2009 (it was US$2,300 in 2008), the owner could earn about US$36, or make a net profit of about US$24 per working day. This includes the costs of the owner's time, food and fuel.

[12] According to the commune chief, more people now own hand-tractors and therefore have access to work in the sugarcane plantation. This is one of the benefits for non-poor people, as the poor cannot afford to own hand-tractors.

The owner can, however, hire a driver to work with a hand-tractor and pay 20% of the revenue, which is about US$7 per day. One hand-tractor requires two persons to do the work. Usually the hand-tractor owner is self-employed and hires another person to work with. The hand-tractor owner pays for lunch for himself and his worker, which is about US$1.25 per lunch. A hand-tractor consumes 5 litres of fuels per day, which costs about US$3.75 per day (US$0.75 per litre). Hand-tractors work mainly during the planting season (November–May). Usually, a hand-tractor is operated 15–20 days a month, although some might be operated only 4–5 days a month. The hand-tractor owners expressed satisfaction with the jobs and earnings provided by the company although they did not seem to pay enough attention to the depreciation of their machinery.[13]

4.2.2. Administrative work

To ensure the administration and operation of the plantation and factory, the companies employed full-time staff. The Koh Kong Sugar Company (KSI) employed 135 office staff, while Koh Kong Plantation Company (KPT) hired 376 staff to work in the head office and unit offices in the plantation. The plantation had 15 unit offices. Each unit employed 8–10 persons, made up of one unit manager, two assistants, two field supervisors, and drivers of tractors and operators of other machinery. When running at full capacity in 2011 or 2012, KSI will need to hire 15 more office staff and 140 unskilled workers. An office staff member earns US$6 per day and a factory worker earns US$4–5 per day.

Staff members in these offices were Cambodian and Thai. For non-managerial or supervisory positions, a candidate should have at least a Certificate of General Education (Grade 12). Local people were employed rarely as office staff. They were mainly daily workers, drivers, and a few were field supervisors. Both the plantation manager and the factory manager were Thai nationals. All the managers of the 15 plantation units were also Thai, but the company was considering allowing Cambodian nationals to share positions as unit managers.

Many office staff earned US$150–200 per month. At the lowest level, one staff member earned US$80 a month while those with some technical skills and who could speak English or Thai were paid 700–800$ per month. A tractor driver, for instance, earned US$3.75 (15,000 riels) per day during the first four months of employment. After that the driver would earn a salary of US$120 per month. All the full-time workers earned overtime wages, 150% of their normal earnings, and were provided accommodation space nearby the offices. At the unit level, middlemen were employed to recruit additional daily workers to do jobs on the plantation. A middleman was paid US$5 when s/he recruited 15 workers to plant sugarcane. These wages compare well with the national average income. For instance, a garment worker earned an average of US$75 per month working full time.

[13] This opportunity attracted other villagers to join the business, but the lack of information on job availability appeared to be a barrier to entry by others. For instance, Mr. Po Sambath sold pigs and borrowed US$500 more from better-off family in the village in order to buy a hand-tractor of US$1,800. He then was informed that there was no work available on the plantation. His hand-tractor was then left unproductive, but he still has to pay the interest of 150,000 riels (US$37.50) per month.

4.2.3. Livelihood transformation

The main sources of livelihoods in the local community before the sugarcane plantation were wet-season rice farming, cash crop farming, and raising cattle. Villagers cultivated wet-season rice on the lowlands near the village. Of the interviewed households, 10% did not own any wet-season rice fields and 62% did not possess more than one hectare of land, and none had certificates of land ownership. People farmed one crop per year and their yields were low.[14]

After the arrival of the sugarcane plantation company, the land where the local people used to derive their main income, through growing cash crops such as watermelons, cashew nuts, maize, tubers, and mangoes, now became the sugarcane plantation area. Except in Tanie village, all the people in the commune had conflicts with the Koh Kong Sugar Company Limited that received their farmlands as their economic land concession. They now lost one of their important sources of livelihoods. In the early 2000s, people started to plant more cash crops and by 2006, when the government granted the land to the company, these trees would have been 4 to 6 years old – old enough to bear fruit. "The company is absolutely inhumane; they cleared and took all my farmland, on which our lives have been reliant over decades," said Mr. Teng Kao, a villager in Chhouk village.

Another significant source of income for villagers was raising cattle (cows and buffaloes). Before the company's arrival, 82% of the surveyed households raised cattle, on average 10 cattle per household (one household had up to 50 cattle). Approximately 30% of them had 6–10 cattle per household. People were able to raise many cattle because they had the farmland and also the forest nearby where they could free their cattle for the whole year. They caught their cattle only when they needed them for work or for sale. As a big source of income, people could sell one or two cattle per year, especially when they celebrated ceremonies or the weddings of their children. Generally, a buffalo could be sold for US$250 to $375.

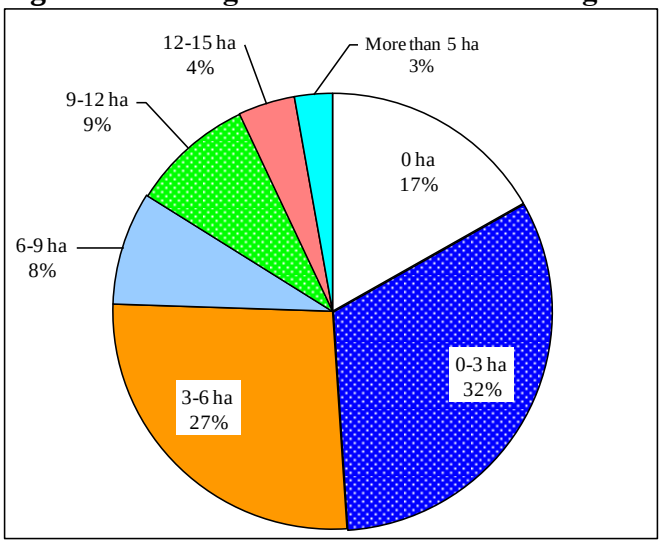
After the arrival of the plantation, the number of households raising cattle decreased and the number of cattle per household declined. Of the surveyed households, 69% continue to raise cattle; however, the number of cattle per household has significantly dropped. On average, a household now raises 3–4 cattle. Among households raising cattle, more than 80% of them do not raise more than five cattle. Before the emergence of sugarcane plantation, households of five or fewer cattle shared only 38%. The decline of the number of cattle raised in the village is explained by loss of the grassland which the farmland and other land that are now the sugarcane plantation. The company prohibited access of cattle into the plantation, villagers elaborated that in reality the company guards did not just catch the cattle that entered into the plantation, but also cattle that just went nearby the plantation. "The company detained our cattle and demanded us to pay them the fine," said the villagers. "One may have to pay more or less depends on their negotiation position or relationship with the company; it has been hard for those having land conflict with the company," said a community preventative. Since the start of the sugarcane plantation till

[14] For instance, Mr. Teng Noeun who was born in the village owns 0.75 hectare. His wet-season rice yielded 1,200 kg last year. Mrs. Sok Samnang, who was also born in the village, owns 0.25 hectares. She farmed wet-season rice and got a yield of 720 kg last year.

December 2007, according to the community's record, 11 cattle were lost and 15 were shot dead. Only one family received compensation of US$125 (500,000 riels) from the company for one shot-dead buffalo. Two cattle got injured while 66 cows and 47 buffaloes were caught by the company. In total villagers paid about US$1,200 (4,945,000 riels) to the company to get their cows and buffaloes released.

4.2.4 Land transactions

Figure 4.1. Villagers' Farmland Lost to Sugar Plantation



Source: Survey of 143 households in Trapaing Kandoal and Chi-khor Leu villages

Beside the loss of farming and grazing grounds, villagers reported two types of pollution resulting from the sugarcane plantation and sugar processing factory. – water pollution and air pollution. Nearby the villages, there is a stream flowing down from the upper land. The stream is a source of fresh water that community people depend on for their daily lives such as diving, drinking and cooking, and also for their animals. In addition to the fresh water that people can benefit from, the stream is also a source of food such as fish. It was reported that quality of the water is now getting worse. After diving, people get itchy on their skin, or fish no longer live in the stream which could be due to chemical substance discharged from the plantation and the sugar factory. When tested early this year, the sugar factory emitted bad smell. People found the smell very strong and made them hard to breathe and live.

Both economic land concessions were granted in the second half 2006 and the companies started clearing land in the same year. In September 2006, the companies were identifying demarcation points and surveying problem areas within the concession, but it was not possible since there were strong reactions from the people. "The companies came and cleared our land without any prior notice," said affected villagers in Chi-khor Leu commune. Villagers reported that the companies even cleared the land at night time.

449 families (few living in Phnom Penh and Sre Ambel) filed a joint petition about their lost farmland. According to community representatives, the total number of affected families would be about 470-480, which is about 83% of families Trapaing Kandoal, Chi-khor Leu, and Chhouk villages. Some affected families did not participate a petition; they approached the company on their own to seek solution

while some others did nothing as they did not expect the land would be returned. Therefore, over time the companies negotiated with the affected families and offered compensation for the land loss. As people accepted the compensation, the number of petitioners on the list reduced from 449 to 247 families by June 2009. The 247 families still ran petition and continued to meet on monthly basis to update the progress as well ass discuss new strategies.

The household survey revealed that 83% of respondents reported having lost their farmland to the economic land concession. On average, a household lost 6 hectares. And though some may lose more than 20 hectares (even up to 60 hectares), 60% of surveyed households did not lose more than 6 hectares. Based on the average, households in Trapaing Kandoal, Chi-khor Leu, and Chhouk villages should have lost about 2,300 hectares, which is about 11.5% of both concessions. It is worth noting that as most people in Cambodia villagers there did not have titles to the land they have been cultivating or occupying. This put them in a disadvantaged position vis-à-vis the ELC companies.

The companies acknowledged that villagers lost farmland and paid compensation, but there were no clear guidelines/procedures for solving the problem with the affected communities. The companies employed three options of compensation: i) cash payment; ii) land exchange; and iii) a combination of i) and ii). Although these options have been made available, villagers complained that the companies only offer to pay cheap in cash. Only two households were offered exchange of land in other places. The companies also chose to deal with individual households, rather than with community group as a whole. Further, although the affected households were compensated in cash, the deal is not transparent as there were no clear policies set, for example, what characteristics of farmland would be compensated and how much per hectare or per fruit tree.

When asked "did you receive any compensation from the company for your lost farmland?" the survey found that some 36% of the interviewed households received compensation. On average, the compensation was US$87 per hectare, but ranged between US$25 and US$350 per hectare. The gap implies unfairness in compensation that people have felt. Villagers view that the company offer good deal with those who are relatives or friends of the local authority or staff of the companies. On a household basis, the compensation is on average about US$880 per household. Most of them received within the range between US$500 and US$875. It is observed that one household received compensation of US$1,500 for ten-hectare farmland; another household was paid US$2,500 for the same size of farmland lost.

The companies offered compensation to other households, but villagers rejected to accept as they found the compensation unfair. In some cases, the company offered US$37.50 per hectare and other cases about US$100 per hectare, but people still did not accept as they find it too cheap. Some villagers just wanted their land back as they found the land more important to them and their future generation.

The community people found the local authority was not helpful to them. "On the one hand, they had to challenge the ELC company that they believed grabbed their land; on the other hand, they struggled to face the authorities," said a community representative. The current commune chief who was elected after the arrival of the

company viewed that "the investment is good in terms of creating jobs for people, but the people lost their land; the company should only develop the land when the disputes have been solved." This is a reasonable view.

4.3. Conclusion

The investment in sugarcane plantation and sugar production has brought both positive and negative impacts to local people. The positive impacts are in the forms of employment that is available to both local villagers and migrants from other places of Cambodia. 3,400 and 1,300 labour jobs are respectively available during November-May and June-October. While 30% of labour workers are residents in Koh Kong province, 66% of surveyed households in two villages of Chi-khor Leu commune accessed to work in the plantation. Further, the plantation and processing factory employs more than 500 office staff.

However, the investment has had negative impacts on local community. Villagers lost their farmland that had been used for cash crop farming. 83% of community households have lost on average 4 hectares of farmland. Though the companies acknowledged the issues and villagers received compensation for their lost land, only 36% have received and/or accepted the compensation though they feel unfair while no clear compensation rate is predetermined. The land loss also determines the decline of cattle-raising households as well as the number of cattle per households. The percentage of households raising cattle is now 69% compared to 82% before the investment came. Now on average a household raises only 3-4 cattle, compared to 10 cattle per households before the beginning of the sugarcane plantation.

The study could not precisely calculate the total costs and total benefits of the investment to be accrued to the poor. However, based on the evidences it could be concluded this large scale investment in sugarcane plantation and processing is not absolutely pro-poor. It clearly provides both positive and negative impacts to the villagers in the area. Job creation which makes use of the people's labour is of benefits to local people and the poor, but loss of farmland have resulted in loss of income from cash crop farming and cattle raising. However, there are ways in which the companies and government should have addressed to avoid negative impacts of large-scale investments. These include:

- The granted concession should not overlap the local people's land. Therefore, not only proper study should be conducted, but effective (either participatory or independent) follow-up mechanisms should help reinforce the company's and the government agencies' implementation and accountability.
- Compensation options should be realistic for local villagers. If compensation in land exchange is offered, location of land should be presented to the people and it should be cultivable land, which is nearby to their homes/villages, rather than companies take people's land adjacent to the village and offer villagers infertile land in far places.
- More appropriate options of compensation that suit the rural livelihoods should be made available. In addition to cash payment and land exchange, sharecropping and contract farming should have been offered. The latter two options would allow local people to secure their land and benefit from more

secure rural agricultural production while the companies should have secure supply of sugarcane on the same plantation areas to meet their sugar production demand.

- Compensation in cash payment should have been specific and fair. Procedure and criteria for acknowledging the land should have been developed and a joint committee of representatives from companies, government authorities, and local communities should have been established to qualify whether the land is actually possessed by local communities. Further, the compensation rate should have been fairly set across cases, for example, the cash payment per hectare or per fruit tree.

CHAPTER V
CASE STUDY OF RUBBER PLANTATIONS IN MONDULKIRI PROVINCE

In the past few years, as the world price of rubber has increased substantially, there has been increasing interest in obtaining virgin lands and growing rubber in Cambodia. The granting of ELCs in formerly or currently forested areas is also popular because it is believed that rubber plantations can replace the forests and provide similar environmental services in terms of carbon dioxide absorption. The north-eastern part of Cambodia, Ratanakiri, Mondulkiri and Kratie provinces, has small populations, characterised by indigenous backgrounds, and numerous virgin areas with the laterite soil most suitable for rubber plantations. A number of ELCs have been granted in this area for this purpose, which have not only resulted in the conversion of forests to rubber plantations, but also the loss of traditional livelihood pursuits of the local or indigenous people. The study selected one district of Mondulkiri for in-depth study in an attempt to assess whether this type of large-scale investment benefits the poor.

5.1. Overview of Investment Locations and Projects

Pech Chreada district has a population of 10,302 living in 2,222 households. It is located in Mondulkiri province, which had a population of about 61,000 only. According to the 2008 population census, Mondulkiri has the lowest population density (only 8 per square km) of any province in Cambodia. Pech Chreada district has four communes: Krang The, Pu Chry, Srae Ampum, and Bu Sra. The study selected two out of the four communes for scrutiny. With a population of 3,704 living in 800 households, Bousra was one of the most populated communes in Pech Chreada district. It comprises seven villages.[15] Krang Teh commune had 382 families and a total population of 1,567 (821 females). The commune comprises four villages: Kran Teh, Tramkach, Purapeith, and La-eth.

Private companies started to come to Mondulkiri and seek investment opportunities in 2006. Others followed in late 2007 and 2008. According to the Governor of the district, eight ELCs had been granted in Pech Chreada district. All of the concessions were requested for the purpose of establishing rubber plantations. Many of them were located in Bu Sra and Krang Teh communes and had a size of 3,000–5,000 hectares each (Table 5.1). All of these investment projects have been reportedly active, with the exception of Sarmala Company. By 2008, SOCFIN-KCD cleared 223 hectares and planted rubber trees on 137 hectares. Khaou Chouly Development (KCD) Ltd. cleared the land and planted rubber trees from 2006 in Krang Teh commune. In 2008, a company called Dak Lak cleared 48 hectares and planted on 45 hectares. Kovi Phama cleared 60 hectares and was able to plant rubber on 25 hectares. Varanasi and DTC have been clearing the land and also planting rubber trees. Sethei Kola Company started land-clearing activities in 2009 while Sarmala has not been active yet.

[15] Phum Muoy, Phum Pi, Phum Bei, Phum Buon, Phum Pram, Phum Prammuoy, and Phum Prampi.

Table 5.1. Overview of investment companies in Pech Chreada district, Mondulkiri

No	Companies	Land Areas of ELCs reported (ha)	Location	Type of Investment
1	Khaou Chouly Development (KCD)	3,000	Krang Teh	Rubber plantation
2	SOCFIN – KCD (Belgium-Cambodia)	10,000[16]	Bu Sra	Rubber plantation
3	DAK LAK (Vietnam)	4,000	Bu Sra	Rubber plantation
4	DTC	4,000	Pu-Chry	Rubber plantation
5	Sethei Kola	4,000	Bu Sra	Rubber plantation
6	Kovi Phama	4,500	Bu Sra	Rubber plantation
7	Sarmala	N/A	Bu Sra	Rubber plantation
8	Varanasi	N/A	N/A	Rubber plantation

Source: Interview with the Governor of Pech Chreada District, commune chiefs, representatives of SOCFIN-KCD Company, Provincial Office of Agronomy

Two companies were the most active in the district and deserve to be mentioned in some detail. Dak Lak Rubber Company is a Vietnamese company specializing in rubber plantations, rubber latex processing, and the manufacturing of rubber-related furniture. Vietnam is the world's sixth largest rubber producer, with rubber trees on 450,000 hectares, ranking below Thailand, Indonesia, and Malaysia (*Vietnam Investment Review*, 19 April 2007).[17] Dak Lak Rubber Company is a state-owned company with 16 branches in Vietnam. Due to the lack of suitable land in its home country, the company expanded its investment into the neighbouring countries of Laos and Cambodia. In Cambodia, the company arrived in November 2006 and was granted an economic land concession in June 2008 on 4,162 hectares of land.

SOCFIN-KCD is a joint venture between SOCFIN Belgium and Khaou Chouly Development (KCD) Cambodia. KCD was granted an economic land concession by the Royal Government of Cambodia; SOCFIN has technical expertise and experience in running rubber plantations. SOCFIN holds 70%, while KCD holds 30% of the shares. The company planned to install the rubber processing plant in 2011 or 2012 and will export its rubber to Japan and other countries. The concession covers 10,000 ha, and 70% of this concession is estimated to be cultivable land for rubber trees.

[16] While 2,705 ha is reported by the district and commune authorities, the representative of SOCFIN reported the concession size is 10,000 ha large.
[17] Rubber firms bounce over the border, Vietnam Investment Review, 19 April 2007 http://www.vir.com.vn/Client/VIR/index.asp?url=content.asp&doc=12893#, accessed 8 July 2009

5.2. Impacts on the Communities

The study observes that investment companies provided some material benefits to community and local authorities. The companies offered office equipment such as generators, computers and printers to the district and commune authorities. Moreover, the companies have contributed to community development in terms of road rehabilitation and school buildings. For example, DCT Company improved a road in Pu Chry commune, and Khaou Chouly Development and Viko Phama constructed two school buildings for the Bu Sra commune. Dak Lak Company also donated a school building for the Koh Nhek district. However, some people complained that the presence of investment companies also destroyed their roads, which were constructed by commune funds and their contributions. To further understand the impacts of the investment projects through the acquisition of economic land concessions from the government, the study in particular focuses on the impacts in three dimensions: employment, livelihood transformation, and land transactions. Again, this case study was carried out in Bu Sra and Krang Teh communes in Pech Chreada district.

5.2.1. Employment

The positive impact is the job creation that has been available to local people and Cambodian migrants from other provinces. The investment has transformed the way in which people live their lives traditionally. Local people now participate in economic activities through employment provided by the rubber plantation, which is much needed as they have no work to do in some months of the year.

SOCFIN-KCD started its rubber plantation in 2008. It planted rubber trees on 1,500–2,000 ha per year, employing about 2,000 workers between May and August and about 800 workers during the other months. According to the company, local labourers share about 20–25% of the total employment, and 60% of these local workers are female. Other workers are migrants from lowland provinces such as Kampong Cham, Kampong Thom, and others. SOCFIN estimates that when fully planted, the rubber plantation could employ at least 1,500 workers.

On a daily basis, unskilled workers, or those that do not possess particular skills in rubber planting, earn an average of US$5 per day. There is no difference between the payment for male and female workers. Local workers are employed to do labouring jobs such as weeding and applying fertilizers. They can choose to work 10–15 days or less per month for eight hours a day. They leave home at 7:00am, return for lunch at 11:00am, and work again from 1:00 until 5:00pm.

On an output basis, skilled workers earn about US$6.50–8.00 per person day. These workers possess skills in rubber planting; all of them are migrant workers and have experience working in the rubber industry, for example, in Kampong Cham. They are hired to do jobs such as transplanting and also work in the nursery. For nursery work, they are paid US$0.0325 (130 riels) per rubber seedling. In a day, a skilled worker might finish a nursery of 200–250 rubber seedlings. Though they have to be away from home, migrant workers expressed their satisfaction with their earnings. They spend about US$1.25 on food per day.

While the company may find importing labour workers more efficient, some local villagers are not willing to work or the company does not intend to employ them due to land conflicts. In other cases, villagers are not accustomed to full-time employment and they find it difficult to adapt to it. They prefer their traditional way of living. Then, some local villagers work in the plantation for a week, after which they quit for a while. With such habits, the company finds it difficult to manage their plantation work. Thus, KCD in Krantes commune in particular does not hire local villagers as daily workers, but prefers to employ them as full-time workers with a salary of US$75 plus 20 kg of milled rice per person per month.

5.2.2. Livelihood transformation

Villagers in Bousra and Krantes are mainly indigenous people. Some are new settlers who have migrated from lowland provinces. Before the arrival of the investment projects villagers were dependent on a range of sources, including: rice cultivation on both lowlands and highlands, cash crop farming (such as maize, potatoes, bean, cashew, mangoes, bananas, jackfruits, sugarcane, papayas and so on), collecting forest by-products (such as resins, beehives/honey, vines, and leaves), raising animals such as cattle, pigs, chicken and ducks, fishing, hunting, collecting gold and sales of groceries. With the presence of large-scale investments since 2006, these sources of livelihoods have been affected.

While villagers can still practise rice cultivation on lowlands near the village, both rice cultivation and cash crop farming on the highlands are affected by the ELCs. Community people across Bousra commune, with the exception of some new settlers and villagers of Phoup Buon village, have lost their farmlands to the concession. Villagers confirm that at least two hectares of farmland were lost per household. Many have lost all their land; some still own a smaller area of farmland, while the farmland of others are being threatened by the inactive [parts of] economic land concessions. Coping with subsistence, villagers in Purapeith village, in particular, sought other cultivable areas in the lowlands, which is about 1.5 or 2 hours walk away from their homes. People have found that the land is cultivable for wet-season rice, but they have only small plots and the land is unfertile and the yields are low. This has threatened villagers' food security. "We never had food shortage from our farming in the past, now the loss of farmland threatens our food security," said Mr. Nhem Thay, a villager in Purapeith.

Loss of forestland threatens the livelihoods of local people. With more economic land concessions granted to investment companies, local people in Bousra and Krantes commune have continued to lose the forestland that has been a source of their livelihoods. The forest provided foods, medicines, and cash incomes through non-timber forest products. Although people can still collect forest products, they have to go to other, more distant places and into Namlear Sanctuary, but earn less money and in more difficult situations. In the past, a family could earn US$10–15 in income from the collection of forest products in a week. For example, the collection of a quantity of resins could take a week's time and yield cash income of about US$12.50 (50,000 riels). However, these indigenous people habitually do not earn to get rich, they do not go into the forest every week; they only go there when there is a need to.

Raising cattle has become more difficult due to the loss of grassland. The grassland is now granted to a private company as economic land concessions. As the land is now developed for a rubber plantation, the company prohibits access of cattle and imposes a policy of fines for any cattle entering the plantation area. People then had to sell off their cattle or send them out to relatives in other villages, and kept as few as possible. In Purapeith village of Krantes commune, in particular, in the past about half of the village households left home to seek gold minerals at a mountain near the village after farming work in the wet season; the rest enjoyed collecting forest products. But now, people no longer have access to gold-bearing minerals since the mountain was licensed to a private company to exploit the gold-bearing minerals.

Villagers involved in running businesses appear better off as their sales increase. Many of these business villagers are migrants from lowland provinces. They earn their living from the sale of groceries, repairing electronic goods or motorbikes and so on. Cash incomes earned by local villagers and migrant workers from work in the plantation and from sales of land and animals have increased demand for food and other consumption goods and have led to more economic activities in general.

5.2.3. Land transactions

Traditionally, farming activities practiced by indigenous people in Mondulkiri are characterized by shifting cultivation, which means people do not farm on the same land every year – they farm on one piece of land, then shift to another piece and repeat the cycle every few years. With land abundance due to low population density in Mondulkiri, villagers could continue the shifting cultivation extensively. Many of the households utilized 5 to 10 hectares in total. Indeed, they did not have certificates of land ownership formally issued by the government or the local authority. The villagers recognized each other's land based on tradition and mutual respect.

In general, each household has lost at least two hectares of their traditional farmland to ELCs, but those who settled in the area in five years or less are not affected by the ELCs. This is because these new settlers mostly depend for their living on small businesses such as grocery sales or repairing electronic goods or motorbikes, or they might purchase some land by the roads and close to the villages, which are outside the economic land concession. In order to understand the implications of land transaction determined by the presence of ELCs in the local communities, the study observed the ways in which land possessions have shifted in the following cases.

KCD in Krang Teh

According to group interviews with villagers in Purapeith, the presence of KCD had resulted in land transactions across the villages in Krang Teh commune, with the exception of La-eth village. They reported that the company actually bought their land, but they were cheated by intermediaries, comprised of company staff, members of the local authority and some villagers. KCD agreed to buy the people's land at US$200–250 per hectare. Following negotiation and agreement on the sale price, facilitated by intermediaries, villagers in Purapeith were asked to thumbprint the sale agreement. Following this, they were paid only US$25 per household and in the agreement it was a condition that people had to repay 10 times the sale price if they

violated the agreement. However, 24 households who strongly resisted accepting the payment were later offered land in exchange.

SOCFIN-KCD (in Bu Sra)

In Bu Sra, all villagers have been affected by the investment projects of the SOCFIN-KCD and Dak Lak Rubber Company. The exception is Phoup Buon village. SOCFIN-KCD started developing the land earlier than Dak Lak Rubber Company and is more controversial with villagers. When SOCFIN-KCD developed the land, people reacted as the company cleared their farmlands (sometimes with crop trees on them). It was a big shock for the land-owners when the company cleared their land without giving any prior notice, but a SOCFIN-KCD representative presented the map and explained that except for the spiritual forests, no community land was identified on the granted concession. The controversy between the community people and company staff led villagers to burn the company's tractors in December 2008. Following the violent conflict, a Land Conflict Resolution Committee was set up and headed by the provincial deputy governor, while district and commune authorities are members of the committee.

While the people said villagers across Bu Sra commune have been affected by SOCFIN-KCD Company, the commune authority cannot tell how many households have actually lost their land to the concession. CLEC, an NGO active in the local community, reported that 362 households in Bu Sra were initially affected in 2008, and that the number may have increased when the company continued to further develop the land. In contrast, SOCFIN-KCD confirmed that 172 affected households were on the list endorsed by the government. The company agreed to compensate the affected households, giving them the following options:

1. Cash payment: the company agreed to pay US$200–250 per hectare based on the actual type of land and US$2.50 per fruit tree such as cashew, mango, jackfruit, etc. However, a fruit tree is paid only if it has yielded by the time of the land clearing.
2. Land exchange: the company reserves land in another place for exchange with villagers' land that was lost to the concession.
3. Land exchange and development: the company exchanges the land for local villagers, then plants rubber trees on the land. All planting costs are recorded as loans while local villagers are obliged to repay these loans from the 9th to the 20th years.[18] The villagers can choose to sell their latex as they wish when they get it.

Although options are available, people have no better choice than to accept the cash payment. The people said the location of land for the exchange is a great distance from the village and the soil is not fertile for cultivation, while the farmlands that were taken by the company are near the villages. While the company reported that people only chose the first option (cash payment), the people explained that when

[18] By the time of field research, the company said the interest rate was not yet known, but the company liked the model in Kampong Cham, where the interest was charged at 9% per year in Cambodian riels.

they opted for third option, the company prolonged the solution process and thus they simply chose the cash payment option.

Dak Lak Rubber Company (in Bu Sra)

On the 4,162 hectares of its granted concession in Bu Sra, a representative of Dak Lak Rubber Company said that 40–50% of the concession is the local people's land. Mr. Vann Soeun said that local people were initially worried that the company would grab their farmland, but this is what Dak Lak experienced with community people in Vietnam. Mr. Vann Soeun explained that Dak Lak does not want the land, but is there to earn a profit from its investment and business and also shares benefits with the local people.

Dak Lak negotiates with land-owners before developing the land. Villagers and Dak Lak agreed to share 50% of the land. The entire 50% of individual villagers' lands are placed in one location close to the village, which allows local people to easily access and look after their plantation. Also, it is convenient for them to raise the cattle and guard them from accessing the company's plantation. Further, it is easy for the company when there is a need to build infrastructure such as roads in the future.

On the villager's 50% share, the company develops the land and plants rubber trees. The company then trains villagers on how to take care of their rubber trees. The incurred costs are accumulated and recorded as a loan that people are obliged to repay later. As the company borrowed from Agri Bank in Vietnam, villagers will pay the same interest rate. The loan has a grace period of 10 years. People can harvest the rubber latex in year 7 and sell it to the company, while the company guarantees to buy the latex at 80% of the international market price. The people will repay the loan from year 10 to year 20.

Although villagers may want to sell their lands to Dak Lak, the company does not have a policy to buy them. In the meantime, if villagers have no land for crop farming, the company allows them to cultivate crops in the spaces between the young rubber trees. Local villagers express their satisfaction with the model offered by Dak Lak Company and suggested other companies follow this model. This method of implementing ELCs makes use of coexistence, and appears to be the best model, a win-win situation, in Cambodia.

5.4. Conclusion

There have been increasing numbers of investments in Pech Chreada district of Mondulkiri, particularly in Bu Sra commune, to make use of the abundance of land for rubber plantations. However, the presence of these investments represents both positive and negative impacts to the communities. An investment project makes employment available to Cambodians and local people in particular, allowing them to participate in economic activities through their labour. However, the investment has negatively impacted the livelihood of the local community. Local villagers find that their food security has been threatened and their income has declined due to loss of farmland, forestland, and grassland, which were previously sources of food crops, cash crop farming, the collection of forest products and areas for cattle raising.

With a mixed picture of positive and negative impacts resulting from investment projects, it cannot conclusively be said that these large-scale agricultural investments have yielded or will yield net benefits to the poor. Villagers have more cash from selling their land and labour leading some to increase their levels of consumption at present, but local villagers lost conventionally owned land, which means they have lost an asset that created household wealth, and the loss of common property resources means the loss of their traditional incomes.

However, there are ways in which the investment projects could have reduced the negative impacts on local communities.

- The granted concession should not overlap with local people's land. Therefore, not only should proper studies be conducted, but also effective (either participatory or independent) follow-up mechanisms should help reinforce the company's and the government agencies' implementation and accountability.
- Land reserves for exchange should have been cultivable land located closest to the people's community.
- Although compensation options are made available and people should have the freedom to choose, the government or NGOs should have explained the pros and cons of each option. Local people have limited education, hence they may choose option that is worthwhile for them now, but which may be worse in the long run and cost government effort to help them.

A good model of co-existence has been implemented by Dak Lak company. Local people were consulted and agreed to a solution before development activities took place. Local villagers gave away half their land in exchange for the rubber plantation provided by the company on the other half of the land. They were willing to give up the land since they never used all the land for farming. It permits efficient use of the land. The villagers' half of the land is close to their home and will provide them with a secure income when the plantation yields outputs. While people lack capital, the company provides soft loans with a reasonable grace period and gradual repayments. Moreover, people can earn more income from labour work in the rubber plantation. Meanwhile, the company can still access rubber latex for its production demands.

CHAPTER VI

CASE STUDY OF TTY AGRICULTURAL PLANT DEVELOPMENT CO., LTD. (MEMUT DISTRICT, KAMPONG CHAM)

6.1. Profile of the Company/Project

Historically, cassava starch was not processed in Cambodia until 2001, and all fresh cassava grown in Kampong Cham province was exported to Vietnam. The TTY Agricultural Plant Development Co., Ltd. (TTYAPD) factory was purchased from Thailand and installed in Memut district in Kampong Cham. The TTYAPD factory was located at a strategic site in the middle of production areas. This advantageous location allows TTYAPD to have a reliable supply of fresh roots to process into super high quality, high-grade tapioca starch.

Over the past several years, from 2002 to 2006, the cassava factory required 200 MT of fresh cassava per day, which can produce 50 MT tapioca starch per day. The cassava plant was not operational in 2008 due to the upgrading of production lines from 1 line to 2 lines. It is now able to produce up to 200–240 MT of tapioca starch per day, requiring 800–900 MT of fresh cassava per day. With a proper production schedule, the factory can run at full capacity for up to 9 months per year (Jan.–Sep.) and reduce to half capacity for about 3 months (Oct.–Dec.). The factory expected to produce about 40,000 to 50,000 MT of tapioca starch in 2009, requiring 160,000–2000,000 MT of fresh cassava. According to the 2008 statistics of the Kampong Cham Provincial Department of Agriculture, in Memut district alone, the production of cassava was about 332,000 MT. Thus, TTYAPD can absorb half of the total production in the district.

TTYAPD was registered on 23 July 1996 at the Ministry of Commerce, Cambodia. The new TTYAPD structure in 2008 consists of four main divisions: agribusiness, processing plant, tractor unit, civil engineering (including tracks). When at full running capacity TTYAPD employs about 1,000 unskilled labourers and 200 skilled staff. TTYAPD is a leading tapioca starch manufacturer located in Memut district, Kampong Cham province, Cambodia where the majority of cassava roots are produced.

There are four types of production under the operation of TTYAPD: cassava starch, natural fertilizer, raw material for producing animal feed and a biogas power plant. The cassava starch production is exported to various countries such as China, Vietnam, Indonesia, Malaysia, Philippines, Korea and the European Union. At present, most of the tapioca starch is exported to China.

At full operation, the factory employs a total of 300 workers per day, working in three shifts of eight hours each. Each worker earns an average wage of 10,000 riels, or $2.50 per day. TTYAPD also employs about 20 additional staff to take care of non-production work. Most workers come from nearby areas and districts. TTYAPD also has an agribusiness division of 4,000 ha of land borrowed from Memut rubber plantation. This agribusiness division now employs about 1,000 unskilled labourers

per day mainly for planting, weed control and harvesting. In addition, the factory owns concession land of about 1200 ha located about 100 km from the factory, which is being planted with cassava to supply to the factory.

The main market for cassava starch is the international market, particularly China. The order for domestic consumption was about 3,000–4,000 MT of tapioca starch per year. The cassava starch is a close substitute for potato and corn starch, and it is also a very important raw material in manufacturing; these are the reasons for the rising demand for the starch.

Logistic costs were very high and remain very high. The company also complained about the high cost of fuel, much of which is due to high taxes. With higher marketing costs, the company did not expect to do well in competing with Vietnamese enterprises to increase its export share. In addition, TTYAPD reported that it could not be as competitive as the factories in Vietnam, although their technology and production efficiency were comparable. These are due lack of still labour, high fuel costs and illegal fee.

Although cassava has become an increasingly attractive option for farmers when choosing among other cash crops, its cultivation and production face several challenges. The most important difficulties farmers always complain about is the significant rise in labour costs and the price of agricultural inputs and services brought about by high inflation. There is a shortage of labour, especially in the wet season when farmers are also busy with rice production, causing a hike in the cost of labour.

6.2. Profile of Memut District – the Project Location

Memut soil is suitable for cassava production and cassava cultivation still attracts attention from farmers in spite of the cassava price being low. Memut district is the largest cassava production area in Kampong Cham province, followed by Tom Be and Steung Trong districts. Memut produced one third of the cassava production of Kampong Cham province in 2008, which was about 332,000 MT. Kampong Cham is the largest cassava production area in Cambodia, and produced about 1 million tonne in 2008 (MAFF agricultural statistics 2008). A selected basic profile of Memut district is provided in Table 6.1.

The yield of cassava in Memut district has dropped significantly over the past five years. For new land the yield of cassava is about 20–30 MT per ha and after growing cassava for several years, the yield dropped to about 10–15 MT per year. The TTYAPD company has employed a Thai agronomist to improve the yield, but with limited success. Four bags of fertilizer can improve yield from 12 MT per ha to 22 MT per ha.; however, none of the farmers did not use fertilizer for cassava production because they could not afford it.

Table 6.1. Basic profile of Memut district

Description	Unit	Amount
Total number of families	Family	1,053
Total population	Person	5,700
Total number of males	Person	2,886
Total number of females	Person	2,814
# Female-headed households	Person	130
# Illiterate men from 15–60yrs	Person	714
# Illiterate women from 15–16yrs	Person	823
Number of families whose main occupation is rice farming	Family	175
# Of families whose primary occupation is cultivating long-term crops	Family	363
# Of families whose primary occupation is cultivating short-term crops	Family	466
# Families using chemical fertilizer in the past year	Family	292
# Of families who are affected by natural disasters	Family	244
# Houses with thatched roof	House	362
# House with zinc or fibro roof	House	313
# Houses with tiled roof	House	346
# Thatched roof house with battery-powered light	House	172
# Zinc or fibro roof house with battery-powered light	House	120
# Tiled roof house with battery light	House	150
# Of families using drinking water from an clean/safe sources	Family	451
# Of families using drinking water from an unsafe sources	Family	602
Total dry-season rice land	Ha	490
Cultivated dry-season rice land	Ha	214
Rice production in dry season	Ton	364
Total area of wet-season rice land	Ha	8,907
Total area of cultivated wet-season rice	Ha	8,583
Area of wet-season rain-fed rice land	Ha	7,642
Rice production in wet season	Ton	18,510
Soya bean cultivation area (estimate)	Ha	406
Cassava cultivation area (estimate)	Ha	20,987
Cultivated cassava land *	Ha	20,740
Average yield *	Ton/ha	16
Total cassava production *	Ton	331,840

*Sources: Data from commune database 2008 and * Kampong Cham provincial department of agriculture statistics 2008*

The border fee also has a negative effect on cassava exports. Border fees exist in Memut district between Cambodia and Vietnam in spite of the AISP (ASEAN Integrated System of Preferences) Agreement, which was signed in 2003 between Thailand, Vietnam, Malaysia, Indonesia and Brunei. Agricultural commodities for exporting are not officially subject to tax but in practice agricultural exports are subject to informal fee collection carried out by government employees who are seriously underpaid. Interviews revealed that the border fee early this year was 40 US dollars per truck and was then reduced to 12 US dollars recently after the Prime Minister called to reduce the border fee. Under the AISP Agreement, there is to be no tax for exporting agricultural commodities from Cambodia to those countries. The only cost is an administration fee to be levied by the Ministry of Commerce for an

AISP certificate. However, even if an export company obtains the AISP Certificate, apparently they are still required to pay fees to the Khmer and Vietnam border authorities. One of the exporters said there was no benefit for AISP.

6.3. Project Benefits for Local Communities

Cassava cultivation is quite labour intensive and even farmers need to hire labourers for the whole production process. With a shortage of labour, it costs farmer an average of USD 2.50–3.00 per person day. Labourers are mainly needed during planting, weeding and harvesting. These create job opportunities for local communities, both for skilled and unskilled labour.

The main benefits of TTYAPD for cassava producers are employment, agribusiness development and market opportunity. The TTY cassava processing plant provides work for 300 labourers, 20 skilled staff and managers. It produces 900 MT of fresh cassava per day and offers a market place for cassava producers although its capacity can procession only a small percentage of what is produced in the district. TTY agribusiness provides work for about 1000 unskilled labourers per day and sharing of re-harvest and post harvest information to farmers.

TTYAPD also provides market opportunity for cassava producers**.** Before 2000, there were a small number of cassava producers in the area and all produce was exported to Vietnam. During that time, Vietnamese traders paid only a very low price and farmers had to sell their cassava product. Now, the factory needs about 900 MT of fresh cassava per day. Its own farm can supply only half the amount, so the other half has to be purchased from cassava producers in the district or other area nearby.

Box 2: Market opportunity for a cassava producer in establishing a cassava plantation

Mr. Kim Heng, 40 years old, is a cassava grower who lives with his wife and four children in Memut district. He has two hectares of land for cassava production. Before the factory was installed in the locality, he harvested cassava and made cassava chips. The chips were sold to Vietnamese traders after four days of sun drying. He complained that the price was very low because there was no competition. He is now happy that with the processing plant in the locality he can sell his product at a better price and he has the freedom to either sell it to the factory or to Vietnamese traders depending on who gives the better price.

There are also opportunities for farmers emerging in cassava production. First, productivity could be further improved with the introduction of better seedling varieties and if critical production problems such as herbicide and agricultural inputs were better addressed. However, an extension service is nonexistent; farmers cultivate cassava based on knowledge learned from older generations and from each other. Dissemination of information about better cassava cultivation practices could be done relatively easy by the government and NGOs, and such intervention would be very useful for farmers to increase the productivity and quality of their cassava outputs. The study team's observation in the field suggests that there is a considerable amount

of idle land that could be used to expand the cultivation areas. The quality of new areas is more fertile and gives higher yields.

6.4. Other Project Benefits

A few reasons triggered the company to embark on the bio-gas technology to benefit from the global carbon trade scheme. (i) The electricity cost of operating the cassava processing plant was very high. (ii) There was bad smell of wastewater from the cassava plant for about 1km around the factory. (iii) there was a need to manage the impact from the wastewater discharged from lagoons outside the factory onto agricultural crops such as rice or other plantations. Thus, a TTY biogas plant was being built to treat the waste and produce electricity for the processing plant.

The TTY biogas project will also contribute to sustainable community development by:

- Improving the local and global environment, particularly by treating wastewater, and reducing air pollution and greenhouse gas emissions. The project will not result in any increases in air, soil or water pollution.
- Directly creating three new jobs and ensuring the continuing employment of 180 staff and, indirectly, hundreds of farmers who sell cassava root to the factory.
- Contributing to the national economy by reducing Cambodia's 100% dependence on imported fossil fuels.
- Transferring technology from developed countries – particularly important as no other starch factory in Cambodia uses anaerobic digestion to produce biogas.
- Improving human capacity and diversity of employment opportunity, by training project managers, lab technicians and operators

The project will reduce carbon emissions in three ways – it will reduce methane emissions from the wastewater which is now in the lagoons and releasing methane. Those emissions will now be captured in the closed biogas system. It will also reduce carbon dioxide emissions by replacing the burning of heavy oil that is now used for drying tapioca starch with biogas. Further, it will replace carbon dioxide emissions from the onsite electricity generators.

6.5. Project Benefits for the Poor

The cassava factory has already provided about one thousand unskilled jobs every day to the poor. The factory also has about 250 tractors and trucks which need about 300 labourers working with tractors and trucks every day. The daily wage is about $2.50 per day. Key informant interviews suggest that every village in Memut and nearby districts has several poor villagers who are working for the factory and some villages have up to 20 persons working for the factory. Most of the labourers are young, aged between 18 and 30 years.

However the factory could provide further benefit to the poor and cassava producers, if the factory could play a greater role in production and marketing services. Key challenges facing farmers now is the lack of support in introducing more productive seedling varieties. There is neither an extension service to help farmers address technical issues arising during the production process, nor sufficient marketing information about the development of the cassava price on the regional and national

market. In a setting such as this, farmers in most circumstances accept the price while the traders are the price setters. As a result, the farm gate price is relatively low and thus farmers' margins are also small. The other constraints for farmers include heavy dependence on rainfall, shortage of land preparation service providers, unpredictable closure of border gates and limited access to microfinance at reasonable interest rates.

The main issues for cassava production for farmers are summarized below:

- Lack of credit for farmers
- Lack of extension services
- Lack of access to high yielding seedling varieties
- Lack of pre-harvest technologies (weeding, farm management) and post-harvest technologies (cleaning, drying and storage)
- High transportation costs (due to official and unofficial fees)
- Lack of market information.

The factory has already provided job opportunities for the poor. With the current financial crisis, they are happy with the daily rate but the factory has some cash flow problems and there have been delays to monthly payments, which affects labourers who live from hand to mouth. By improving punctuality of wage payment, the poor will have enough money for their daily expenditure. Another important thing is that cassava farmers face production and marketing challenges for their own production. The current extension systems are under-resourced and do not have the capacity to provide appropriate support to poor farmers in the cassava sector. Therefore, improved models for the delivery of extension and farmer support activities should be piloted at a local level, including the testing of market oriented delivery. Its activities could include facilitation of: (i) the development of farmer marketing groups/associations/cooperatives; (ii) access of farmer groups to available low-interest credit programs and quality inputs; and (iii) the development of contacts between sellers and buyers.

Box 3: Job opportunity for the poor

Ms. Sang, 55 years of age, and with five children living in Memut, reported: "My family owns three hectares of land. Last year we grew cassava on two hectares; at the time we were planting everything was very expensive. Unfortunately, at the time of harvesting, the price of cassava was very low – about 100 riel per fresh cassava." Her family lost about 4 million riels in the production of cassava in 2008, harvesting in early 2009, and is now in debt. In such circumstances, she sent two children to work at the cassava processing factory. The two children earn 20,000 riel per day, sufficient to satisfy the food needs for the household, and a small amount is allocated to pay for the interest and pay off the debt.

CHAPTER VII
CONCLUSIONS AND RECOMMENDATIONS

Cambodia has large areas of land granted as economic concessions generally for an initial period of 70 years to numerous local and foreign firms with the aim to increase agricultural production, economic growth, employment and also to alleviate poverty. International literature as to whether this model is most effective in meeting the overarching goal of poverty reduction is rather inconclusive. In many cases, small family farms are more efficient and serve the goal better than large farms or plantations. This paper does not argue against large-scale agricultural investment as it recognises that Cambodia has remote or abundant land areas that are suitable for private sector investments in large plantations and processing factories. In addition, the Cambodian government has limited resources to provide necessary conditions to ensure the success of family-based farming. The paper looks for ways to maximize the benefits of large-scale agricultural investment and promote the co-existence of small, family farms alongside or within the large plantations. In this model, small farmers can provide labour to the plantations and also maintain their farming base to build their household productive assets to reduce poverty and perhaps even become prosperous. This would help them avoid resorting to the exploitation of the over stressed natural resources sector or relying on short term employment in land clearing and planting seedlings of long term trees for investors from elsewhere.

The study found that the innovation of reservoir rice cultivation in the plains of the Tonle Sap Lake, which is on a considerable scale, has yielded substantial benefits to the local poor and non-poor although the environment impact has not been studied. However, in addition to the legal risks due to the unclear legal status of the land, there are market risks in terms of varying prices of inputs and outputs, the high cost of credit and unpredictable buyers. Furthermore, the small farmers lack information and techniques to improve their yield. To address these challenges, efforts should be directed to improving farmers' knowledge of agricultural techniques such as seed selection, water control, and the selection and application of chemical fertilizers and pesticides. Experimentation with SRI methods and organic farming are recommended in the area, especially for small family farms, because these can reduce the high production costs and cut down on chemical application which may affect fisheries in the locality and in the nearby Tonle Sap Lake. While Royal Government of Cambodia will sort out the legal status of the land in the Tonle Sap Plains, expansion of credit to farmers, processors and traders, and export facilitation will enhance the benefits from rice cultivation in the area.

It cannot be conclusively said whether or not the investment in rubber plantations in Pech Creada district of Mondulkiri province has benefited the poor. The presence of the plantations has had both positive and negative impacts on the communities. The investment projects bring employment opportunities to the local, indigenous people, who had been mostly subsistent farmers and harvesters of non-timber forest products. However, the investment has negatively impacted the livelihood of the local communities because it has to clear the forests or degraded forests that have provided them with livelihoods and economic safety nets. On the one hand, the local communities face the loss of farmland, forestland and grazing land that were sources of food crops and cash crop farming, and where they have

collected forest products and by-products. On the other hand, some villagers now have more cash from selling their land and labour, and as a result, they have increased consumption and are currently upgrading their houses and household durable assets.

However, there are ways in which the investment projects could reduce the negative impacts on local communities. The granted concession should not overlap the local people's land, or should allow sufficient land for communal purposes and for local villagers to not just make a living but also prosper. Therefore, not only should proper studies be conducted, but effective (either participatory or independent) follow-up mechanisms should be introduced to help reinforce the company's and the government agencies' implementation and accountability. A mistake would be to allow only existing farms and homestead lands to the local villagers. They traditionally depend on areas beyond these sites. They also need to expand farmland as their families grow and the marketability of their products increases.

Cash compensation for the local villagers to give up their traditionally owned land to concessions provides only a very short term benefit. Villagers should have the freedom to accept the compensation or keep their land. However, they tend to lack knowledge or have a vision for the long-term use of their land. NGOs or other organizations should explain the pros and cons of each option. A good model of co-existence has been implemented by the Dak Lak rubber plantation company; it appears to have the best approach for a long term win-win situation for both local people and the company. Villagers were consulted before they agreed on a solution for development activities to take place on their claimed land. They agreed to exchange half their land for a free rubber plantation on the other half which they still own. Often, the half belonging to the villagers is close to their home and will provide them with a secure income when the plantation yields a return. In this model, the villagers can earn more income from working as labourer for the company and can possess a farm asset for the longer term.

It is also inconclusive to say whether or not the investment in a sugarcane plantation in Koh Kong will benefit the poor since it provides them with both positive and negative impacts. Job creation benefits the local people and the poor, but the loss of farmland has resulted in the loss of income from cash crop farming and cattle raising. It has not been possible to measure the net benefits in the current study due to its limitation. Nevertheless, the study could identify the problems that the company and government should address to avoid the negative impacts of large-scale investments. The granted concession should not overlap the local people's land, whether or not they had land titles to prove ownership of it. Therefore, there should be proper feasibility studies and social and environmental assessments. The granting of concession should then be followed by effective follow-up mechanisms to reinforce the company's accountability.

Compensation options should be realistic for local villagers. If compensation by land exchange or swap is offered, the location of the new land should be cultivable land, which is close to their homes/villages, rather than companies taking people's land adjacent to the village and offering villagers infertile land in distant places. More appropriate compensation options that suit the rural livelihoods should be made available. In addition to cash payment and land exchange, sharecropping and contract farming should have been offered. The latter two options would allow local people to

secure their land and benefit from more secure rural agricultural production, while the companies should have a secure supply of sugarcane on the same plantation areas to meet their sugar production demand.

Compensation through cash payment should be specific and fair, i.e. the cash payment should be per hectare or per fruit tree on the land to be taken away from villagers. Procedures and criteria for acknowledging the land should be developed and a joint committee of representatives from companies, government authorities, and local communities should be established to qualify whether the land is actually possessed by local communities.

It is evident that the cassava processing factory in Memut provides benefits to the poor and cassava producers. It plays an even more important role on production and marketing services. There should be many more processing factories in Cambodia. The TTY factory has already provided job opportunities for the poor. Unfortunately, cassava farmers face production and marketing challenges with their own production. The current extension systems are under-resourced and do not have the capacity to provide appropriate support to poor farmers in the cassava sector. Improved models for the delivery of extension and farmer support activities should therefore be piloted at a local level, including the testing of market oriented delivery. Its activities could include facilitation of: (i) the development of farmer marketing groups/associations/cooperatives; (ii) access of farmer groups to available low-interest credit programs and quality inputs; and (iii) the development of contacts between sellers and buyers.

Overall, it is recommended that the Cambodian government strike the right balance between allocating large parcels of land for plantations under the ELC system **and for** small farms under the LASED system, which provides the poor with a direct means of managing their own production. Small farms tend to yield greater economic efficiency and social equity. There should be more emphasis on pro-poor and sustainable use of land, which would require a more careful study before concessions are approved. Providing more land to the rural households that are most in need of land or in need of more land will contribute to improving the economic base of rural areas and the domestic economy. The land distribution policy so far has favoured bigger investors. About 85 companies have obtained nearly one million hectares of land under the economic land concession, aside from the land concession within the protected areas under the administration of the Ministry of Environment.

Most of the companies have made little or no progress in cultivating the land, for various reasons, including speculative purposes, and the encroachments and cultivation by households that existed in the concession area. The influx of foreign investment intentions in agriculture and food production from a number of countries through this window of economic land concessions should be carefully reconsidered to ensure measures for better access to food and livelihood for Cambodians living in poverty. More equitable distribution and sustainability of the benefits from these investments should be promoted.

As many economic land concessions have villages within them, there should be win-win solutions or co-existence within the villages/communes. Villagers should have adequate farms to secure their living and also prosper. For instance, large-scale

agricultural investment firms benefit from smaller suppliers in and around their plantations. They can efficiently communicate information to smallholders through a number of mechanisms including the use of contracts that stipulate interaction with firm extension agents. Large-scale agriculture enterprises are in a good position to act as lenders because they can withhold repayments from the production returns.

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Initiated by a group of highly committed intellectuals and young professionals, the Cambodian Economic Association (CEA) has now come into existence with a view to the equitable and sustainable development of Cambodia.

CEA aims at promoting debates on social and economic affairs and to participate in the development of the country.

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