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CAMBODIA LAND TITLING RURAL BASELINE SURVEY REPORT

A CDRI Publication

December 2007

Cambodia Land Titling Rural Baseline Survey Report

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CDRI
Cambodia's Leading Independent Development Policy Research Institute

in collaboration with the

Ministry of Land Management, Urban Planning, and Construction (MLMUPC)

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Phnom Penh, December 2007

Acronyms

Acleda	Association of Cambodian Local Economic Development Agencies
ADB	Asian Development Bank
BSP	Baseline Survey Project
CDRI	Cambodia Development Resource Institute
DK	Democratic Kampuchea
ha	hectare
HCA	High Capacity Area
HPI	High Potential Impact
LCA	Low Capacity Area
LPI	Low Potential Impact
LAMDP	Land Administration, Management, and Distribution Program
LMAP	Land Management and Administration Project
MFI	Micro-Finance Institution
MLMUPC	Ministry of Land Management, Urban Planning, and Construction
MT	Metric Ton
NGO	Non-Governmental Organization
NPRS	National Poverty Reduction Strategy, 2003-05
PAD	Project Appraisal Document
RGC	Royal Government of Cambodia
SES	Socio-Economic Survey

Cambodian Words

Chamcar	*ចំការ*	Land that is used for growing crops other than rice.
Khum	*ឃុំ*	Commune
Krom Samaki	*ក្រុមសាមគ្គី*	'Solidarity groups' formed during the 1980s as a form of collective farming.
Moeun	*ម៉ឺន*	10,000
Riels	*រៀល*	Unit of Cambodian Currency (4,000 riels/US$)
Sangkhat	*សង្កាត់*	an administrative territorial subdivision equivalent to a commune.

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Executive Summary

The Ministry of Land Management, Urban Planning and Construction (MLMUPC), with support from international donors, is implementing a Land Management and Administration Project (LMAP) to improve land tenure security and strengthen land administration systems. Among other activities, the project has established a systematic land-titling program that will issues one million titles over a five-year period. The project expects that land titles will help: (a) increase farmer access to formal credit; (b) stimulate agricultural and commercial investments in rural and urban areas that will increase productivity and employment; (c) promote more efficient land markets, and (d) promote the use of the official registry to facilitate land transactions and transfers. The LMAP land-titling program is also expected to help achieve the Royal Government of Cambodia's poverty reduction objectives as outlined in the National Poverty Reduction Strategy, 2006 – 2010 (NPRS).

The Cambodia Development Resource Institute (CDRI) has recently collaborated with MLMUPC to collect baseline data that will be used to assess of the economic and social impact of land titles after three years. The Baseline Survey Project interviewed 1,232 rural households in 40 villages in 10 communes of five provinces during 19 January – 29 February 2004. The four LMAP provinces include Kompong Cham, Kompong Thom, Sihanoukville, and Takeo. The fifth province, Kompong Chhnang, is not in LMAP and serves as the control province for comparison with the four project provinces. Households were randomly selected from village lists according to landholding size and gender. An additional 99 urban households were interviewed in Sihanoukville city (Sangkhat 2) and will be referred to the findings of the urban phase of the baseline survey project in and around Phnom Penh, Siem Reap, and Serei Saophoan (Banteay Meanchey).

The rationale for land titling programs ultimately rests on property rights theories and research that link secure land tenure to investment incentives as well as land values and use. These theories generate a series of hypotheses that can be tested using quasi-experimental methods that compare household and village data from the current BSP (T_0) with data that will be collected at a later point (T_{0+x}) in both project and non-project areas. Some of the key hypotheses guiding the baseline survey include the following:

- ***Access to Credit***: People will use land titles as collateral with which to obtain credit from formal lending institutions;
- ***Investment:*** People in rural areas will increase investments in agricultural production and diversification, thus increasing yields and income;
- ***Land Markets:*** As land values increase and transaction costs decrease, land markets will direct land use toward more economically efficient uses;
- ***Land Administration:*** A greater percentage of transactions (e.g., sales; inheritance) will be facilitated through the official registry;
- ***Disputes:*** Secure land titles will reduce the volume and frequency of land disputes by clarifying ownership, parcel boundaries, and transaction procedures.

Distribution of Landholdings

Households with smaller landholdings have fewer agricultural plots that are also smaller in size compared to households with larger landholdings. Indeed, the number *and* size of plots steadily increases from one landholding interval to another. The most often cited explanation for this pattern begins with the land distribution of 1989 when efforts were made to divide

good quality land equally according to the number of working age household members. According to this formula, households with more working members received additional land, and as a result, there was already a degree of structural variation in the 1989 land distribution when one considers landholding size by household.

This land distribution pattern holds for both male- and female-headed households. Male-headed households, however, average 4.4 plots per household and 0.39 hectares per plot, while female-headed households average 3.8 plots and 0.30 hectares per plot. Thirty-four percent of the female-headed households own less than one half hectare of agricultural land, while 18 percent of male-headed households own less than one half hectare. Conversely, 17 percent of the households headed by women own more than 2 hectares of land, while 31 percent of the households headed by males own more than 2 hectares of land.

Households with larger land holdings have a higher percentage of agricultural plot acquisitions through both purchase and clearing than do smaller households, while smaller households have a larger percentage of acquisitions from the Sate and through inheritance. Part of the reason is that larger landholders also have higher average incomes and more potential labour than smaller landholders. Female-headed households have a higher percentage of plot acquisitions from the State (i.e., 1989 land distribution) than do male-headed households. At the same time, the percentage of plots acquired through inheritance is much lower for female-headed households (11.2 percent) than male-headed households (24.6 percent). The percentage of plot acquisitions by purchase and clearing is also lower for female-headed households. The lower percentages for inheritance, purchase, and clearing suggest that female-headed households are less able to acquire additional plots than male-headed households.

Access to Credit

The LMAP survey group reported a total of 743 loans during the six-month period prior to the survey. About 60.0 percent of loans were obtained in the informal sector, which includes relatives and friends (43.7 percent), as well as moneylenders (16.0 percent). The remaining 31.0 percent of loans were obtained in the formal sector, either from Acleda (6.1 percent) or an MFI (24.9 percent). About 9.0 percent of loans were obtained in the "semi-formal" NGO sector (e.g., small savings and loan groups).

Productive investments accounted for 36.0 percent of all credit activity within the survey group, including small businesses (12.0 percent), agricultural production (14.4 percent), and animal raising (9.6 percent). Male-headed households borrowed more for agriculture and business activities, while female-headed households borrowed more for animal raising activities. Healthcare (21.7 percent) and food shortages (17.9 percent), however, accounted for almost 40.0 percent of all loans. A similar percentage of male- and female-headed households borrowed for health care, while a greater percentage of female-headed households borrowed to cover food shortages. The remaining loans (24.5 percent) were for other activities, including social ceremonies, home construction, and transportation.

Land titles are expected to stimulate an increase in the number and average amount of loans for investment in agricultural production and other income generating activities (e.g., animal raising, small business). This assumes that credit markets perform reasonably well in a particular area and that people have the propensity and capacity to borrow. All other factors being equal, we expect to see a larger volume of credit activity in areas where formal credit institutions are more accessible to local farmers. We also expect to see some variation in credit activity according to landholding size and sex of household head in terms of frequency, size, and use of loans.

Agricultural Investments, Productivity, and Land Use

The average amount of agricultural expenditures per household increases along with landholding size. For example, the lowest two smallest landholding intervals have average household expenditures of 13.03 and 21.57 *moeun riels* respectively, while the upper two intervals expend 31.6 and 51.98 *moeun riels* respectively. Male-headed households expended about 50 percent more than female-headed households for rice production. Nearly 90 percent of rice production expenditures are financed by "own sources," followed by loans from relatives and friends (8.3 percent), and credit from "programs," including semi-formal NGO projects, MFIs, and commercial banks (2.3 percent).

Productivity

The survey data affirms the inverse relationship between farm-size and productivity observed elsewhere in Asia and Cambodia; namely, small farms tend to be more productive in terms of rice yields per hectare than large farms, irrespective of the gender of the household head. One frequently cited reason for this pattern is that small plots are often subdivisions of more fertile land. Another reason is that family labour and other owned inputs are applied more intensively on small farms in the absence of modern farming techniques. According to the survey data, small farmers also appear to apply purchased inputs more intensively than do the larger farms for rice production. For example, the two smallest landholding groups expended 51.3 and 32.4 *moeun riels* per hectare respectively, while the two largest expended 18.5 and 19.5 *moeun riels* per hectare respectively.

Although small farms may be more productive in terms of land (i.e., kg per hectare) than larger farms, they are not as productive in terms of investment (i.e., kg per *moeun riels*). For example, farms with less than 0.5 hectares of land get 39.98 kgs per every *moeun riels* of expenditure, while farms with 2.0 – 2.99 ha and more than 3.0 ha get 61.89 kgs and 52.1 kgs of rice, respectively, from every *moeun riels* of expenditure. This suggests that investment efficiency is just as important, if not more so, than the actual level of investment. In terms of land titling impacts, then, increased access to formal credit for agricultural investments needs to be complimented with extension services and infrastructure development that can improve the productivity of capital.

The higher productivity of small farms does not translate into higher amounts of household rice production. Households with less than 0.5 ha of land produced only 640.3 kg of rice, despite their productivity advantage. Meanwhile, the largest farms produced a total of 3.27 MT of rice per household, even though they were only half as productive as the smallest farms. Smaller farms are at a comparative disadvantage, as they must continue to use remaining household financial resources (after farm expenditures) to make up for food shortages rather than invest in other activities. Moreover, if small farmers borrow money to invest in farming that does not produce sufficient rice for home consumption or surplus for sale, they will sink deeper in debt over time. This again highlights the need for extension services and infrastructure development in order to optimize land-titling benefits in specific areas.

Land Use

The survey data affirms the research hypothesis that land use patterns become more diversified as landholding size increases. For example, the percentage of plots allocated for wet-season rice production steadily decreases as landholding size increases, while the percentage for dry-season rice steadily increases along with landholding size. The percentage of plots allocated for *chamcar* production remains fairly constant across all landholdings, while the percentage of plots that are idle increases along with land size. The percentage of plots allocated for plantation (trees crops) and mixed crops is quite low across all

landholdings. As a result, there appears to be considerable scope for crop diversification in many LMAP areas.

It terms of the actual utilization of plots, about 90 percent of all plots are cultivated, though the percentage decreases along with land size. The percentage share of cultivated plots among male- and female-headed is similar across land holding size. Not surprisingly, the percentage of idle plots (7.6 percent) increases with land size, while the percentage of leased plots (1.6 percent) is fairly constant across all land holdings. Female-headed households tend to have a slightly higher percentage of idle land, and they also lease out a higher percentage of their plots than do male-headed households.

We expect that secure land tenure will extend farmer investment horizons. We should observe more diversification of land use involving *chamcar* production, as well as longer term mixed and plantation crops. We expect that the scope and scale of diversification will increase at a faster rate along with land holding size. We also expect to observe increases in the rate of land utilization across all landholdings sizes as farmers begin to borrow more for agricultural investment. The impact of land titles in this regard may, however, vary according to location and situational factors, including the availability of credit and extension services, infrastructure investments, and market prices.

Land Markets: Values and Transactions

According to the survey data, land values (*moeun riels* per hectare) decrease as landholding size increases for both male- and female-headed households. However, some variation in land values should also be expected according to plot location (e.g., access to main road, distance from home). Despite the higher value of land per hectare, the average reported value of each plot is less among smaller farms than among larger farms. This is a direct function of the average size of plots on small and large farms. One implication of this pattern concerns access to credit. If the size of a loan depends in part on the amount of collateral that is available, larger farms may be able to obtain larger loans than smaller farms.

Generally speaking, we expect that land values will increase as farm households improve their land utilization rates and diversify in the direction of more economically efficient land uses. Land values will increase at a faster rate along main roads and near administrative and market centres.

Land Transactions

A total of 201 households reported 303 land sales reported since 1989, or 7.8 percent of all the plots in the sample. There is a disproportionate number of sales among the two smallest landholding intervals compared with the three upper intervals. The two lower intervals own 33.7 percents of all the plots in the LMAP survey areas, yet they report selling 50.8 of the total number of plots sold. Meanwhile, the two upper intervals own 38 percent of the plots, but sold only 29 percent of the plots sold.

The most often cited reasons for land sales were health care (24.9 percent), followed by business investments (18.6 percent), and then plot characteristics, including “too small, not profitable,” “poor soil”, or “too far away” (9.7 percent). Another 8.5 percent involved sales to offset food shortages. We expect land sales for these reasons to continue at a similar, if not higher, rate in areas where credit, extension, and affordable health care services are lacking. Other reasons for land sales include loan repayments, funerals, migration costs, and climate-related shocks.

The four areas with the highest average reported land sale prices are all located in areas close to Phnom Penh or provincial towns and/or with infrastructure development projects planned or underway. Land prices are likely to increase in these areas with the advent of more secure land titles. The two communes that have been located off main roads and somewhat away

from market and administrative centers have the two lowest reported sale prices. We expect land prices to increase in areas where highway construction currently underway is completed.

Land titles alone, however, will neither slow nor accelerate the rate of land sales among any of the landholding intervals. For example, if lower cost health care services are not available in the survey areas, we can expect to see at least a similar rate of land sales for this reason. If people use land titles in the future to secure loans with which to invest in business or other activities, we may expect to see a decrease in land sales for this reason, unless the investments fail and people sell land in order to repay loans. In either case, land titles may enable people to obtain a better value for their land, though this may be small consolation for those who have no viable alternatives after farming.

Land Management and Administration

About 62.7 percent of the agricultural land plots covered in the LMAP survey areas have never been documented with any kind of paper. Of the documented plots, 61.6 percent have receipts for certificate applications, while another 14.9 percent have land survey investigation papers. Only 8.1 percent have acquired actual land certificates or titles. Another 6.3 percent involve the use of other types of paper. The use of unofficial documentation is consistent across all land holding sizes.

Respondents provided a variety of reasons for not registering their land, including 23 percent who said they did not know the procedures, while another 21 percent said they thought registration was unnecessary. Yet another seven percent said they thought the registration process was too complicated. These represent process-related reasons that suggest a high degree of confusion among people concerning various aspects of the land registration system. This in turn suggests that any increase in the use of the land registry system will depend in large part on the amount and quality of information available to people at the local level, and the degree to which they understand the land registry procedures. It will also depend on the accessibility and efficiency of the system.

Planners expect an increase in the percentage of transactions that are facilitated through the official registry system, particularly in more active land markets where land values are increasing. Such expectations assume that (1) transaction costs associated with official registration will be lower than current costs, (2) people have more confidence in the security of tenure than they do now, and (3) people have sufficient knowledge of the proper procedures and capacity to access the system.

The degree to which people use the official registry to facilitate and record land transfers also depends on the capacity of public administration to govern and enforce property rights effectively. In this sense, people in the baseline survey areas have expressed a great deal of initial faith in the land titles that LMAP is currently providing. The degree to which people use the official system may also vary according to their capacity and willingness to pay related fees and taxes. People will continue to avoid the official registry if they feel tax rates are too high and/or that such measures are not properly or fairly managed.

Land Conflicts

A total of 61 land conflicts were reported in the LMAP survey area since the Commune Council elections. The type of land involved was evenly divided between agricultural and residential land. Boundary conflicts with neighbors accounted for 38.3 percent of the cases, followed by conflicts with other villagers, (21.6 percent), conflicts with relatives (20 percent), and six cases involving encroachment or grabbing on the part of authorities or powerful people. The distribution of land dispute type affirms an earlier observation (So et al., 2002) that most land disputes so far are local in nature, involving boundary conflicts with neighbours, or ownership disputes with relatives. However, other studies have reported higher

incidences of land grabbing and encroachment elsewhere in Cambodia, suggesting that the scope and scale of land conflicts may be highly situational.

Households used a variety of methods for resolving disputes, which in several cases required multiple rounds of negotiation. For example, in the first round of resolution, 21 households negotiated directly with the other party, while 23 went to the village chief. Eight households went to the commune chief and three went to the district dispute resolution committee. The clear preference for trying to resolve disputes at the local level can be explained by the fact that the disputes themselves are generally local in nature and that the transaction costs associated with dispute resolution increase once people go outside the village for mediation. Slightly less than half (28) of the first round cases were resolved, while 31 cases were not resolved.

Twenty-seven of 43 households (62.8 percent) indicated they were satisfied with the way their dispute was resolved, while the remaining households were not satisfied. Not surprisingly, 26 of the satisfied households thought the outcome was fair, and the rest thought it was not fair. There is obviously a clear relationship between one's satisfaction with the outcome and one's feeling about the fairness of the outcome.

Summary

Landholding size and the gender of the household head tend to be a good predictors of labour, assets, and income, and provide a good indication of a household's potential capacity to benefit from land titling programs. We therefore predict that households with larger landholdings are in a more favourable position to benefit from LMAP's systematic land titling projects than smaller landholdings. At the same time, male- headed households also tend to be in a more favourable position to benefit from land titles than female-headed households. High Potential Impact (HPIs) households have more available larger landholdings, more labour, more capital assets, and higher incomes. Low Potential Impact (LPIs) households tend to have less labour, smaller landholdings, fewer capital assets, and lower incomes. The LPIs also include more vulnerable households, such as those headed by single women.

Village location relative to paved roads and local commercial and administrative centres tends to be a good predictor of market access, credit access, and extension services, as well as social services such as health care. We predict that households located near such centres are in a better position to benefit from LMAP's systematic land titling projects than those located further away. Villages with good soil conditions, access to water resources, diverse land use patterns, and employment opportunities, as well as development inputs are also potential High Capacity Areas (HCAs). Low Capacity Areas (LCAs) include villages that are located some distance from paved roads and/or commercial and administrative centres, have poor soil, lack water resources, and have more homogenous land use patterns and few employment alternatives to farming.

We predict that High Potential Impact (HPI) households will benefit most from land titles in HCA villages, while Low Potential Impact (LPI) households will benefit least in Low Capacity Area (LCA) villages. In between, HPI households in low capacity areas are in a better position to compete for land titling benefits as development occurs. Meanwhile, LPI households will be less able to compete for land titling benefits in high capacity areas unless they are somehow able to access or link up with high capacity factors.

The impact of land titles on social and economic development and poverty reduction in the rural sector can be optimized by targeting land-titling efforts in areas where government agencies, NGOs, and private investors are actively engaged. The benefits for disadvantaged households can also be increased by policies that specifically link land-titling efforts to pro-poor development objectives. In this sense, active consultation and collaboration among all development actors in support of LMAP's efforts would enhance the benefits from land titles for all landholders.

The research methodology employed in the baseline survey has been quasi-experimental in nature using quantitative data collected in household interviews with a structured, close-ended survey instrument (See Annex A). The follow up survey should incorporate qualitative research approaches and tools into the overall methodology in order to provide more substance and texture to the household survey data, as many of the subtle yet important nuances concerning the economic and social impacts of land titles cannot be effectively captured by a standard household survey instrument.

Chapter 1.
Introduction

The Royal Government of Cambodia has embarked on a reform agenda designed to achieve sustainable economic and social development, poverty reduction, and good governance. The RGC, along with donor partners, recognizes that secure land tenure in both rural and urban areas is one of the key foundations for achieving such goals. In this sense, secure land tenure rights are expected to play an important role in promoting social development and economic growth. Such expectations include, though are not limited to: (a) increasing farmer incentives and capacities to invest in agricultural production; (b) promoting business investments that provide more employment opportunities in both urban and rural areas; and (c) promoting more efficient land markets and land management and administration systems.

There is considerable support for such expectations in both the theoretical and empirical literature concerning property rights and land tenure. For example, Brandao and Feder (1996) assert that "secure individual (or corporate) property rights are critical in establishing a structure of economic incentives for investments in land-based activities." Others have observed that countries investing in more efficient and equitable land tenure administration tend to develop faster than those that do not make such investments. Moreover, a lack of equitable access to land and the benefits of secure tenure contribute to extreme poverty, dependence, and unsustainable patterns of rural migration.[1] Studies concerning the impacts of land titling in Thailand and other countries also suggest that the observed impacts on social and economic development and growth can be significant (Onchan and Aungsumalin, 2002).

The degree to which access to land and secure tenure rights can contribute to socio-economic growth and development depends, however, in large measure on the capacity of public institutions to govern property rights efficiently and effectively. The Ministry of Land Management, Urban Planning and Construction (MLMUPC) is now implementing a Land Administration, Management and Distribution Program (LAMPD) under the auspices of the Council of Land Policy within the context of the New Land Law of August 2001. The World Bank, along with the German and Finnish governments, are supporting this process through a Land Management and Administration Project (LMAP).

The LMAP objectives are to improve land tenure security and promote the development of efficient land markets. Among other activities, the project has established a systematic land-titling program that will issue one million titles during the first five-year phase, 2003 - 2007.[2] Key performance indicators in the rural sector include improved land tenure security, increased investment in agricultural production and diversification, and increased access to formal credit. Key indicators also include benchmarks concerning more efficient land markets, such as an increase in the number of land transactions facilitated through the official

[1] For example, see Munro-Faure, Paul (2003); "Regularization of Property Rights and Rural Development: Challenges for Latin America," http://www.for.nta.gob.nx/ponencias/Faure.PDF.

[2] The provinces of Battambang, Kompong Cham, Kompong Thom, Kampot, Takeo, Kompong Speu, Prey Veng, Rattanakiri, Siem Reap, Sihanoukville, Kandal, and the municipalities of Kep and Phnom Penh are included in the first phase of the project.

registry and improved land management and administration as reflected in a reduction in the scope and scale of land conflicts.

The LMAP Project Appraisal Document (PAD)[3] stipulated that a baseline survey should be conducted prior to the full implementation of the program in order to assess the social and economic impact of the land-titling program. The primary objective of the Baseline Survey Project (BSP) is to generate data of analytic significance that will provide a basis for a systematic comparative *ex-post* assessment of the economic and social impact of the Land Titling program after three years. Given that LMAP is in the first phase of a long-term program, the findings and analysis from the baseline survey project may help identify ways that project implementation can be made more efficient and to justify possible follow-up projects.

With a loan from the World Bank, MLMUPC contracted the Cambodia Development Resource Institute (CDRI)[4] to implement the Baseline Survey Project. The BSP conducted 1,232 rural household interviews in five different provinces during the period 19 January – 29 February 2004. These included the four LMAP provinces of Kompong Cham, Kompong Thom, Sihanoukville, and Takeo that are in the first phase of the LMAP Land Titling program. The fifth province, Kompong Chhnang, is not included in LMAP and serves as the control province for purposes of comparison with the four project provinces.[5]

1.1. LMAP Process

The LMAP process was first tested in a pilot phase in Takeo and Kompong Thom in 2001-2002. The LMAP pilot projects, financed by the German, Finnish, and French governments, tested several mapping and survey technologies employed elsewhere in the region. These pilots differed, however, as they produced digital mapping and computerized title products from the outset. During the pilot phase, titles were issued free of charge. Titles are now issued for a nominal fee based on area and land use classification.

The LMAP work was designed to be transparent and participatory and involves several complex stages before the actual titles are issued. The first step is a public awareness campaign in which LMAP teams meet with local community leaders and people to inform them about the land-titling program. The second step involves a household inventory of land assets, including field surveys of the household plots. Working with aerial photographs, the LMAP teams then begin the painstaking work of drawing by hand the boundaries of the individual plots and assigning preliminary plot numbers. At this point, people receive a numbered receipt for each of their plots. These boundaries are then transposed on to the maps using GIS technology. The plot boundary maps are then publicly displayed in the village for thirty days. Disputes about boundaries are referred to a local committee for resolution. The boundary maps are then finalized and individual titles are issued for each numbered plot when people in the community agree on the plot boundaries. Each title portrays an outline of the plot, along with adjoining numbered plot boundaries.

1.2. Structure of the Report

Section 2 presents a brief history of land administration in Cambodia and looks at some of the more salient features of the current rural land situation in Cambodia. Section 3 discusses the conceptual framework guiding the BSP, including a brief review of the literature concerning property rights and governance. Section 4 reviews in some detail the research methodology that was employed in the rural baseline survey. Section 5 describes the rural LMAP survey

[3] Prepared by the World Bank, 2002.

[4] CDRI and MLMUPC have previously collaborated on the Land Titling Social Assessment in 2001.

[5] Another 99 household interviews were conducted in Sangkhat 2 in Sihanoukville. A summary of this data, along with survey data from Phnom Penh, will be included in the report covering the urban phase of the Baseline Survey Project.

population in terms of key attributes concerning landholding distribution and gender of household head. Section 6 then goes into a more detailed presentation of the key findings concerning the rural LMAP survey areas and a discussion of the expected impacts of land titling program. Section 7 then presents the key finding from the Kompong Chhnang control areas and compares the data to the findings from the LMAP survey areas. Section 8 concludes the report with a summary of the main points and discusses several observations concerning project implementation and baseline survey methodology, as well as planning and policy.

Chapter 2.
Background: Land Administration and Current Land Situation

Most accounts of land rights and administration in Cambodia usually refer to the fact that land was once owned by a sovereign king whose subjects cultivated land with his permission. As population was small relative to available land, people could use as much land as they could physically manage. As a result, the amount of land that people could cultivate depended in large part on household labour resources and assets, such as draft animals. The principles guiding such use rights are generally associated with extensive farming systems characterized by low population densities, in which use rights are governed informally according to local customs and traditions.

A formal system of land management that recognized the private ownership of land was first introduced by the Land Act of 1884 during the French colonial period, but was not fully implemented until around 1930.[6] According to an ADB report, this system remained in effect until 1975, and as a result, Cambodia had a formal law and accompanying practices for land administration in operation for approximately four generations. The report suggests that this was a period sufficiently long enough for the system to have been firmly established, institutionalized, and accepted into "societal memory". However, the World Bank's PAD suggests that this system was largely confined to the more densely populated rice growing areas of the country. Moreover, following independence in 1954, the Cambodia government made only limited progress on formally registering property.

The current problems associated with land tenure rights and land administration in Cambodia, however, can be largely traced to the civil conflict, war, and the radical collectivisation polices implemented by the Khmer Rouge during the period of Democratic Kampuchea from 1975-79. These problems include the mass dislocation of both urban and rural populations: first when many people were forced to abandon their land to seek refuge in Phnom Penh as fighting intensified prior to 1975, second as a result of brutal policies of forced migration following the Khmer Rouge victory, third when people sought refuge in Thailand and overseas following the defeat of the Khmer Rouge, and fourth when refugees from Thailand and elsewhere in the region were repatriated in the early 1990s.

In terms of land management and administration during this period, cadastral records and maps were destroyed and most professionals either died or eventually fled the country. The physical infrastructure supporting private land ownership was also either damaged or destroyed in order to implement collective farming. For example, in certain wet-season rice growing areas of Kompong Thom and Kompong Cham provinces, the small dikes that served both as boundary markers between individual plots and water management structures were destroyed to form larger areas that were farmed collectively. Although some land was also collectively farmed in small groups (*krom samaki*) after the defeat of the Khmer Rouge regime in 1979, dike systems were gradually re-established or repaired, primarily for purposes of water management, under the Peoples Republic of Kampuchea.

[6] Asia Development Bank: Cambodia Sectoral Policy Implementation Assessment (2003). The World Bank's PAD uses the Civil Code of 1920 to date the recognition of private property as well as land management and administration.

During the post-DK period, residential use rights were allocated on the basis of occupation, while the State retained ownership of land. In 1989, the government re-introduced private property rights through Instruction Number 3, along with Sub-decree 25, while at the same time nullifying all land rights and claims prior to 1979. The decree established ownership rights for residential land up to 2,000 sq. meters, possession rights for cultivated land for less than five hectares, and concession rights for plantation land greater than 5 hectares.

Agricultural land was also distributed to families according to the number of adults and other potential working members of the household. Concerted efforts were made to divide land equally so that people would receive equal shares of good quality land, such as low-lying fertile land near water resources. Larger households also received additional plots of remaining land that was perhaps less fertile or located further from favourable conditions. In terms of area, then, larger households tended to receive a larger number of plots as well as larger areas of land than did smaller households. Meanwhile, in rice growing areas, the dike systems that marked individual plots and facilitated water management were further strengthened and expanded.

After the enactment of the 1992 Land Law, people were able to apply for land tenure certificates that confirmed occupancy and use rights, although the law allowed only possession rights rather than ownership in rural areas. As many as 4 million applications have been submitted, but the cadastral system has been ill-equipped and under-resourced to manage even modest work loads since then. Nevertheless, there has been some demand for land certificates and, as a result, markets have developed within the formal land registry system to serve those willing and able to pay informal fees to obtain them. In the absence of formal titles, however, nascent land markets in which transactions increasingly took place still required mechanisms to facilitate contractual exchange of property rights in land. Such transactions combined elements of both formal and informal exchange, as people began exchanging application receipts and other papers (e.g., land survey receipts) in order to document transactions that were recognized at the local level by village leaders or commune chiefs. As a result, many land transactions in Cambodia have been officially recognized but are not necessarily legal.

The New Land Law of 2001 was passed largely in recognition of the fact that progress toward economic and social development would require a system of strengthened land tenure rights as well as improved land management and administration. The law recognizes three domains of land ownership in Cambodia, including the public domain of the State (i.e., State public), the private domain of the State (i.e., State private), and the private domain. Within the private domain, ownership can be individual, communal, undivided, and co-ownership. Other rights to land include use and habitation rights, usufruct rights, easements, mortgages, pledges and charges, as well as specified contractual rights agreed upon by interested parties.

2.1. Current Land Situation

The current land situation in Cambodia is characterized by increasing demographic pressures, insecure tenure and land rights, unequal land holdings, increasing landlessness and near landlessness, and low levels of productivity and investment.[7] This situation is of particular concern in rural areas where 80-85 percent of the Cambodian population is engaged in subsistence farming. Moreover, most of the 36 percent of Cambodia's population who live below the poverty line are in the rural sector. Most Cambodians will continue to rely on agriculture for their primary means of livelihood, as industry and service sector growth is not expected to keep pace with labour force growth in the near future.[8]

[7] See, for example, Van Acker, Frank (1999); Biddulph, Robin (Oxfam GB, 2000); So et al, (2001); Sophal et al (2003).

[8] Kang Chandararot and Chan Sophal (CDRI, 2003)

The problems associated with rural land tenure also affect urban areas in a variety ways. The most visible impact concerns the large number of people migrating to the cities in search of employment. This migration, along with other factors, is placing significant pressure on housing markets as well as public utilities (e.g., water and sanitation), and is a source of potential social instability. Conflicts over land involving landless people encroaching on state public land as well as private land are also increasing. In this sense, planners observe that ambiguities about land rights also inhibit business and industrial investments that would help provide off-farm employment.[9] Urban land markets are also inefficient in the absence of development master plans and enforceable zoning regulations. As a result of these and other problems, land and property rights reform in both the rural and urban sectors feature prominently in the government's development agenda as outlined in the Socio-Economic Development Plan II (2001-2005) and the National Poverty Reduction Strategy (2003-2005).

The remainder of this section discusses in more detail some of the more salient features of the current land situation in both the rural sector that are relevant to the Baseline Survey for the Land Titling program. These include agricultural investments and production, land inequality, land tenure, land transactions and conflicts.

2.1.1. Agricultural Investments and Production

Productivity of land in terms of yields in Cambodia is among the lowest in the region,[10] and farm incomes are generally quite low. Most farmers lack capital resources with which to invest in variable inputs (e.g., seeds, fertilizers), equipment (e.g., water pumps, hand tractors), or land improvements (e.g., small-scale irrigation). One problem concerns a lack of access to formal credit institutions because of location, the absence of collateral with which to obtain more affordable loans, or insufficient information about the rules and procedures governing credit (e.g., payment schedules, default). As a result, farmers often borrow money in the informal sector, sometimes at high interest rates from moneylenders, for emergencies (e.g., health care, food shortages) and seasonal agricultural inputs (e.g., seed, fertilizer). With so few credit options available, borrowing for emergencies tends to crowd out investments.

Most farmers also lack secure land rights, which makes them vulnerable to land grabbing, encroachment, and other types of conflicts. This in turn reduces investment incentives, even when capital resources way be available. Many farmers are also unable or otherwise reluctant to assume the risks associated with variable soil and climate conditions, especially drought and floods. Farmers also face low output prices for their products relative to input costs and high transactions costs associated with marketing. Moreover, many farmers do not have access to relevant extension services in cropping, animal husbandry, and fisheries as well information about market conditions and pricing trends.

As for productivity, Sophal and Acharya (2002b) observed that the general proposition concerning the higher productivity of smaller farms in Asia also holds in Cambodia when farmers use traditional methods of wet-season rice cultivation. This relationship tends to break down, though, "when modern methods of farming are introduced during dry- season farming." They also observed that total production tends to be lower on small farms, so productivity does not necessarily mean food security. This raises important questions about optimal farm size in Cambodia.

2.1.2. Land Inequality

According to the Socio-Economic Survey (SES) of 1999, there are approximately 2.88 million agricultural land parcels in Cambodia. This gives an average of 1.37 parcels per

[9] For example, see National Poverty Reduction Strategy Paper (2003)
[10] Sophal, Chan, Kim Seadara, and Sarthi Acharya (CDRI, 2003)

household, with an average size of 0.9 hectares (ha). Several recent studies[11] point to rising land inequality in Cambodia, citing Gini co-efficients in the range of 0.50 – 0.61 for agricultural lands. The reasons include demographic pressures, large unsettled populations, weak credit markets, and speculative land purchases by wealthy urban residents who may have exhausted other investment alternatives.[12]

It is important to bear in mind, though, that in terms of land equality among households, land distribution has never been equal since the distribution of land in 1989. As mentioned above, land was distributed according to the share of working family members. As a result, larger households almost by definition received more land and more plots than did smaller households. Smaller families with a smaller labour pool, especially those headed by women, have subsequently been at a greater disadvantage in terms of sustaining productive farming practices. As a result, they are more vulnerable to emergencies and shocks, and tend to lose land at a faster rate than other households due to distress sales.

Landlessness/Near Landlessness

Researchers estimate that 12-15 percent of rural households are without agricultural land.[13] It is also estimated that absolute landlessness may be increasing by about two percent each year.[14] The rate of landlessness is also higher among female-headed households than among male-headed households.[15] For example, an Oxfam GB survey of 30,000 families found 21 percent of landlessness among female-headed households, as opposed to an overall rate of 13 percent. In terms of "near landlessness," it has been estimated that about 25 percent of households own less than 0.5 hectare of land, which is insufficient to sustain livelihoods. Acharya et al (2001: 2) observe that "the small land size coupled with low application of modern technologies is the principal reason for rural poverty."

The reasons for increasing landlessness and "near landlessness" involve a complex set of factors. Many of the landless have never possessed land, at least since the early 1990s. For example, many former refugees who were repatriated to rural areas in 1992-93 did not receive land because land was already claimed or mine-affected. Many people who once had land have since lost it for a variety of reasons. One often cited reason concerns the lack of affordable credit that pushes some people to sell land in times of crisis. For example, of the landless households in the Oxfam GB study, 43.6 percent previously had land, but subsequently lost it. Nearly 87 percent of these cases were because of distress sales, almost half of which involved health care.[16]

Other factors include low productivity and low incomes, which compel some farmers to switch out of agriculture in order to migrate elsewhere to sell labour. Land grabbing and speculative purchases also account for some landlessness. In the Oxfam sample, for example, 13 percent of the landless reported that land was taken from them without compensation. Demographic pressures and the ensuing atomization of land parcels are also contributing factors.[17] For example, Biddulph (forthcoming) observes that the number of new families is growing more rapidly than the overall population due to the distortion of the population profile caused by the genocide during 1975-79. This suggests that families must sub-divide land plots at a faster rate in order to meet the inheritance needs of their children, including

[11] RGC (1999), *Report of the Cambodia Socio-economic Survey 1999*, (Phnom Penh, Ministry of Planning).
[12] See for example, So Sovannnarith, Chan Sophal, and Sarthi Acharya (CDRI, 2001)
[13] Biddulph, Robin (Oxfam GB, 2000); So et al (CDRI, 2001)
[14] Ibid.
[15] Ibid.
[16] Biddulp, Robin (2000)
[17] Biddulp, Robin (2000); So et al, 2001)

newly wedded couples. When sub-division is no longer feasible, young people must seek employment elsewhere.

2.1.3. Land Tenure

According to the Department of Cadastre and Geography, not more than 14 percent of the estimated 4.5 million applicants have received formal certificates of ownership since the early 1990s. A disproportionate share of titles has been issued in Kandal, Takeo, Kampot, as well as other more populated provinces in the south and Siem Reap. Many more titles were issued between 1989-95 than in the period 1995-2000, in part perhaps because the easiest cases (i.e., easy access, no conflicts) were dealt with first.[18] There is some evidence that suggests that a smaller proportion of female-headed household possess land certificates than male-headed households.[19] This can be explained by the fact that poorer households, which include many single female-headed households, cannot afford the high costs associated with obtaining land certificates (So et al, 2002).

The demand for formal land documents appears to be higher in areas situated along roads and near urban market centres where titles can be used to "facilitate land transactions, clarify boundaries, and avoid disputes with would-be claimants." In urban areas, such as Sihanoukville, people must also have land titles to obtain building permits. However, the high transaction costs (e.g., time, official/unofficial fees) associated with obtaining titles precludes most people from seeking them.[20] Moreover, some people lack trust in the ability of government officials to enforce land rights, especially when powerful actors are involved. As a result, people with wealth and rank are far more likely to seek land titles than people without such resources.

Instead of certificates, most people use other documents to demonstrate ownership, such as receipts for land certificate applications and/or land surveys. Such papers are frequently exchanged to facilitate land transactions. In transactions involving both receipts and actual certificates, people routinely just scratch out names and write in new ones. This system seems to work in many areas as long as the relevant parties involved with such transfers accept this kind of documentation. This has usually been the case when transactions are carried out at the local level between people who know each other or otherwise have some common bond. The potential for misunderstanding and disputes, however, tends to increase when transactions involve people from outside the community.

2.1.4. Land Transactions/Markets

According to official data, the number of registered land transactions in both residential and agricultural lands peaked in 1996, which was also the year of highest economic growth. This observation has lead Sophal and Acharya (2002a) to suggest that the volume of land transactions is at least in part a function of macro-economic activity.

The data also affirms the above impressions that land parcels of high commercial value are more likely to be registered and traded. Sophal and Acharya (ibid.) hypothesized that provinces with large towns or cities are more populated and economically dynamic, while provinces that have only small towns or cities are likely to be less developed. They found that 62 percent of residential land transactions and 66 percent of agricultural land transactions took place in large-town provinces. Such transactions mainly involve relatively larger sized land parcels, plots located near advantageous points (e.g., near markets, urban areas, along main roads), and land purchased by those who can afford the costs of registration and transfers.

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[18] Sophal et al., (CDRI, 19: 2001).

[19] See Boreak, Sok (CDRI:16 – 2000). However, the observation is based on data from a relatively small sample. Nevertheless, it seems to reflect a pervasive sense among observers that female headed hosueholds are especially vulnerable when it comes to matters regarding land.

[20] So et al (CDRI, 2001)

The actual number and frequency of land transactions in both urban and rural areas, however, is believed to be considerably higher than what is officially recorded. People tend to avoid the official registry system because of the high transaction costs associated with informal fees and time spent on the process, as well as the four percent land sale tax. As with unregistered land, so many unrecorded transactions represent a significant loss of potential revenue for the government (So et al., 2001).[21]

In their analysis of official transactions, Sophal and Acharya (ibid.) found that between 1995 and 2001, 80 percent of the 6,637 land transactions outside Phnom Penh, involved purchases by Phnom Penh residents. This can be partly explained by the fact that Phnom Penh residents usually reside away from the land they buy and want more secure tenure. In this sense, they are more willing, and able, to incur the high costs associated with formal transfers.

Almost half (47 percent) of the formal transactions involved land amounts of 3.0 – 5.0 ha, and 14 percent of the transactions involved land amounts of 1- 3 ha. In both rural and urban areas, the price per square meter of residential and agricultural land varied according to land size, with smaller areas fetching more than larger areas. Urban residential land prices increased dramatically between 1995 and 2001. There was a similar trend in the rural areas, though the increase is not as sharp. In rural areas, the variation in prices of agricultural land often depends on location. For example, the highest prices were observed in Sihanoukville and Kompong Speu where preferred land is located along National Route 4.

2.1.5. Land Conflicts

The frequency and nature of land disputes is now increasing in rural areas as (1) land use patterns evolve from subsistence to commercial farming systems, and (2) more diverse interests compete for scarce land resources. For example, an increasing number of land disputes involve village people and people from outside (e.g., individuals, companies) in areas close to urban and commercial centres (So et al, ibid.). Farmers and other people also report more instances of land grabbing by powerful local and external actors in certain areas. In urban areas, conflicts over land also occur as people and businesses compete for commercially valuable land. Another source of conflicts concerns private individuals, including migrants, who encroach upon land in either the private or public domain.

As the World Bank's PAD points out, many land disputes can be attributed to a lack of clearly demarcated boundaries between private individual owners and state entities and between private individuals, which often involve competing claims for the same land. Moreover, as the value of land increases in the context of expanding land markets, people and organizations recognize that even small amounts of land represent potentially significant value. As a result, boundaries are increasingly important and therefore contested.

The problems associated with land conflicts are exacerbated by the lack of effective mechanisms for dispute resolution and enforcement of property rights. As land disputes become increasingly contentious and involve people from different areas, more cases are taken to court for resolution. There is now a growing backlog of cases that require considerable time to sort out. This leads to potential inefficiencies in land markets as people or businesses may be reluctant to invest in contested land. People with more power or wealth are also better able to wait out such cases than those with fewer resources. This has contributed to a "crisis of confidence" in governance among people who feel the land administration system "favours those with more resources and power, while precluding the full and equal participation of disadvantaged people" (So et al., ibid: 41).

[21] Even when transactions are processed through the official registry, there is still some loss. Sophal and Acharya (ibid.) observed that land was consistently under-valued, representing perhaps as much as a 60 percent leakage of potential revenue.

Chapter 3.
Conceptual Framework

The assumptions and predictions that planners make about the expected outcomes from any land-titling program are derived from general theories of property rights, as well as empirical evidence from research in countries where such programs have been implemented. It will therefore be useful to briefly discuss some of the more salient issues found in the general literature on property and land rights before going on to a more detailed discussion of the BSP framework that incorporates lessons from other projects into the research methodology.

Property rights are generally defined in terms of a "bundle of rights" to consume, obtain income from, and dispose of a particular asset (Barzel, 1989). The value of any asset is defined in terms of (1) the expected future benefits that may be derived from the asset, and (2) the security of one's control over the rights to an expected stream of benefits (Alchian and Demsetz, 1973). However, the use, control, and ownership over tangible assets such as land are not necessarily congruent. For example, we have already seen that individuals in Cambodia once had the right to use land for productive purposes, but not the right to own land as a tradable commodity.

The effective governance of property rights requires a system of rules to regulate the negotiation and enforcement of ownership, use, and control rights. As a type of contractual relationship, the exchange of property rights is governed by both informal and formal institutions. Informal institutions, such as social norms and culturally defined codes of expected behaviour, can be an effective means of governance when exchange is highly personalized, as in traditional rural Cambodian villages. Formal institutions, which entail mechanisms and rules that are codified through a political process and enforced by the State, are more efficient in situations where exchange is more complex and impersonal (North, 1991). This characterizes the emerging land markets in more densely populated and economically dynamic areas in and around Cambodia's larger cities and towns.

Informal and formal institutions of governance are also not necessarily congruent with one another, resulting in high transaction costs associated with ambiguity and tension in the formation and enforcement of property rights rules between various jurisdictions. Such ambiguities increase during periods of rapid social and economic transitions characterized by either changes in technology or local prices that affect the expected value of wealth producing assets such as land (Libecap, 1989; North, 1990). The tensions associated with uncertainty often creates both the demand and opportunity for a more efficient redefinition and redistribution of property rights among community members, as well as among outside claimants who may be attracted by the creation of new assets. A good example of this in Cambodia concerns the fact that urban people who purchase land in rural areas prefer certificates or titles rather than application receipts for proper documentation (CDRI, 2001).

In rural areas, extensive modes of agricultural production are characterized by low population densities and frequencies of cultivation in a particular area.[22] When land is abundant relative to population, property rights can be effectively governed informally at the local level according to the ethics and logic of tradition and custom. Intensive modes of agricultural

[22] Boserup (1965) provides an early discussion of extensive and intensive farming systems.

production are characterized by higher population densities and frequencies of cultivation. In such areas, the relative scarcity of land eventually stimulates a demand for more formal governance institutions to protect control and use rights, as well as provide predictable procedures for transferring property rights (e.g., sale, inheritance).

As the value of land increases as a productive asset (e.g., as in urban areas characterized by more active real estate markets), the need for permanent and transferable rights further stimulates demand for more diversified governance structures that rely on the authority of the State. For both descriptive and analytic purposes, it is useful to consider rural and urban land markets in Cambodia in the context of the various transitions from extensive to more intensive land use patterns.

The rationale for land titling programs, therefore, ultimately rests on theories that link investment incentives to secure property rights. The basic argument is that people are more likely to invest resources in productive activities when they are confident that they, or their heirs, will enjoy the benefits of such investments in the future. In the agricultural sector, for example, farmers may invest more in variable inputs, equipment and machinery, and infrastructure improvements. In the urban sector, people may invest more in housing improvements or small or medium business enterprises (SMEs). In both sectors, increased investments in productive activities are expected to increase household income and welfare over time.

Such investments may also generate increased demand for credit. In this sense, land titles are expected to increase people's access to formal credit institutions. This is especially important in terms of poverty reduction as land titles may enable poorer community members to access lower cost loans for productive purposes. As the demand for credit increases, so should the supply of credit also expand. In this sense, then land-titling programs may also be expected to stimulate a more efficient financial services sector, which is a key component for macro-economic growth in the long run.

Land-titling programs also support efforts to govern land markets more efficiently so that scarce resources are eventually allocated to their most productive use. Land markets characterized by poor information, unpredictable procedures, and various conflicts, as in Cambodia, are economically inefficient because of the high transaction costs associated with the negotiation and enforcement of property rights and contractual exchange. Secure and predictable property rights help reduce procedural uncertainties and provide more accurate information about actual land values.

Land markets characterized by various conflicts and ineffective governance are also socially inefficient. This is especially so in cases where people lose their land without fair and adequate compensation and are forced to migrate elsewhere in search of income opportunities. In this sense, another set of potential social costs concerns the distribution of land ownership. Over time, more efficient land markets may in fact result in a greater concentration of land in the hands of fewer households. However, the social costs associated with such a distribution may be offset by fair and adequate compensation for land, along with viable employment opportunities created by productive investments.

3.1. Research Hypotheses

These theories, along with land-related research in Cambodia and elsewhere, generate a series of testable hypotheses that structure the research methodology. These hypotheses can be tested using quasi-experimental methods that compare household data from the current BSP (T_0) with data that will be collected at a later point in time (T_3) in both project and non-

project areas.[23] The remainder of this section summarizes some of the more significant expected economic and social impacts from the land-titling program and identifies key variables and indicators that will be used in the impact assessment. The data collection process and analysis is then discussed in more detail in the following section.

3.1.1. Economic Impacts

The economic impacts of the land titling program may be observed at both the community and individual level. Such effects may vary according to factors such as landholding size and use (e.g., farming system), village location, physical infrastructure, including development projects, and the sex of household head.

3.1.1.1. Access to Credit

The research theory predicts that people in both rural and urban project areas will use land titles as collateral with which to obtain credit from formal lending institutions. We should observe changes in borrowing behaviour as farmers shift from informal institutions (e.g., family, moneylenders, SHGs) to more formal institutions (e.g., MFIs, Acleda). We should also observe a shift in the number, size, and intended use of loans as people take out larger loans more frequently for productive investments. The theory also predicts that an increase in the demand for credit will stimulate the supply of credit. As a result, we may observe an increase in the number of branch offices of formal institutions in project areas, and/or an increase in the number and size of loans. These hypotheses assume formal credit markets perform reasonably well in a particular area (i.e., transaction costs are low).

3.1.1.2. Investments in Agricultural Production/Land Improvements

The research theory predicts an increase in production expenditures for either rice and/or other crop production in the project areas. Production expenditures may include variable inputs such as fertilizers and pesticides, as well as labour, machinery, or land improvements (e.g., irrigation). Increased investment expenditures should in turn stimulate observable increases in yields, as well as land and labour productivity. This assumes market conditions (e.g., relative prices for produce and inputs), soil quality, and climate (e.g., adequate rainfall, absence of floods and drought) are more or less constant. In addition to the availability of credit, the degree to which extension services are available to farmers in a particular area is another important factor that may influence investments.

3.1.1.3. Land Markets

The research theory predicts that titled parcels will be transferred through land markets to more economically productive uses. We should expect to see shifts over time in land use patterns, as well as productive investments.

Land Prices

As land use shifts in the direction of greater economic productivity, the value of residential and/or agricultural parcels, as reflected in land prices (e.g., sales, rentals), will tend to increase. We expect to observe that land prices will increase at a faster rate where land is situated near market/administration centres and along main roads. The rate of such increases, however, should be higher in project areas than in control areas, as prices for titled land tend to be higher than untitled land.

[23] The Terms of Reference guiding the Baseline Survey Project explicitly referred to a three-year period. Some flexibility in such a time frame may, however be required to accommodate a variety of circumstances.

Transactions

The research theory predicts that land markets located near commercial and administrative centres and/or along main roads will be more active in terms of the frequency and volume of land transactions of greater value than markets located further away from commercial and administrative centres, and/or paved roads. This prediction assumes that macro-economic and political conditions remain stable.[24]

Note on Land Distribution

The degree to which such transactions result in a more or less socially efficient distribution of land ownership is an important question in the Cambodian context. The experience to date suggests that as agricultural land prices increase relative to productivity and income in rural and peri-urban areas, some farm households will sell some or all of their agricultural land in favour of non-farming occupations. Farm households may also sell land to cover household emergencies in the absence of affordable credit.

3.1.1.4. Land Administration

The research theory predicts an increase in the percentage of transactions (e.g., sales, inheritance) facilitated through the official registry system, particularly in more active land markets where land values are increasing. However, the degree to which people use the official system may vary according to their capacity to pay related fees and taxes. As a result, households with more income and wealth may be more inclined to use the official registry than those with less income and wealth. These predictions assume that (1) transaction costs associated with official registration will be lower than current costs (e.g. official and unofficial fees, transportation), (2) people have more confidence in the security of tenure than they do now, and (3) people have sufficient knowledge of the proper procedures and capacity to access the system.

3.1.1.5. Land Conflicts/Disputes

The research theory predicts that secure land titles will, over time, reduce the volume and frequency of land disputes by clarifying ownership, parcel boundaries, and transaction procedures. The experience in Cambodia[25] and Thailand,[26] however, suggest that the very act or process of clarifying boundaries and ownership may initially stimulate conflicts and disputes. In the short to medium term, it is therefore expected that the volume of disputes, particularly regarding boundaries and inter-family transfers, will increase. However, the number of such disputes will decline with the passage of time.

3.1.2. Social Impacts

The social impacts of the land-titling program may also be observed at both the community and household level. At the community level, land titling may affect land distribution patterns as well as migration patterns. However, the direction of such changes may depend on the characteristics of each particular situation. At the individual level, we should expect to see changes in incomes and household expenditures in areas such as education and health, even though such changes may also depend on demographic factors such as the size and composition of the households and the gender of the household head. In terms of governance, we expect to see positive attitude shifts with respect to the government's land management administration.

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[24] As discussed above, Sophal and Acharya (2002) have observed that the volume of land transactions seems to mirror macro-economic growth patterns.

[25] So et al (CDRI, 2001)

[26] Onchan, Tongroj and Saroj Aungsumalin (2002)

3.1.2.1. Household Income/Expenditures

The research theory predicts that more productive land will, over time, lead to higher farm incomes as a result of increased yields from agricultural activities or land transactions (e.g., rents, sales). Household income from non-farming activities (e.g., small businesses) may also increase as some households obtain credit for investment.

Increased income levels may in turn lead to increased household expenditures for certain activities, including health care, education, housing improvements, and social activities (e.g., ceremonies). Increased household incomes should also have a positive impact on social welfare expenditures. Significant events (i.e., emergencies, shocks) might affect households in ways that distort "land titling effects."

3.1.2.2. Gender

Land titles may have a significant and positive affect on women, especially those who are single heads of households, to the extent they help protect vulnerable people from losing their land due to grabbing or other forms of expropriation. If so, we might observe that the rate of increased landlessness among female single heads of households is lessened over time. Land titles would also have an important impact on women to the extent that they are able to secure loans with which to invest in agricultural production or other income generating activities (e.g., small businesses). Moreover, to the extent that higher household incomes promote increased expenditures on education, we might expect to observe that school enrolments among female students increase over time.

Some women, however, may wish to invest in other income generating activities in addition to farming, or switch out of agriculture altogether. In this sense, then, land titles may enable more single women to gain access to larger amounts of credit at more favourable terms, though this would not necessarily imply an increase in agricultural investments. At the same time, land titles may enable other women to sell their land more easily for a better price, while switching to non-farm opportunities. Although this might show up as an increase in landlessness among single women, it may not necessarily represent a negative outcome if viable employment alternatives are available.

3.1.2.3. Migration

It is not likely that land titles alone will directly affect migration patterns one way or another. Rather, the effect on migration patterns will depend largely on how titling interacts with other factors, including household composition (i.e., available labour) and land use (e.g., crops vs. fruit trees). This observation is supported by evidence from Thailand, [27] which shows that decreases or increases in migration vary according to circumstances.

The situation in Cambodia is complicated by the scope, scale, and nature of poverty in the rural sector. For example, in situations where land investments and/or income increase as a result of land titling, or where land grabbing is reduced, one might observe that the rate of out-migration decreases. At the same time, the remittances from migrant workers in garment factories and elsewhere may be a source of capital that families will use to invest in agriculture when they have secure land titles. In situations where titles facilitate land transactions such as distress sales, one might observe that the rate of out-migration increases. Either effect may be distorted by shocks or crises in the household, as discussed above.

3.1.3. Governance

People's perceptions and assessments of public sector performance will vary according to the manner and timeliness of dispute resolution and the issuance of land titles. In situations where

[27] Ibid.

disputes are effectively resolved and land titles are issued promptly, people's trust and faith in government may be enhanced. A key aspect of people's trust and faith in governance concerns their understanding and perceptions of fairness. A key component of fairness in this sense concerns the costs and quality of services for all people. Another important factor concerning trust and faith is the transparency with which the land titling is project conducted. This places a great deal of responsibility on the LMAP staff who implement the project at the village level.

Chapter 4.
Research Methodology

The basic design of the Baseline Survey Project has borrowed heavily from the research framework used in the Thailand Land Titling study,[28] while adapting the model to test specific hypotheses relevant to Cambodia. The BSP employs a quasi-experimental design to evaluate the economic and social impact of land titles on individual households, which is the primary unit of analysis. The secondary unit of analysis is the community, and additional data has been collected in order to gauge community level impacts. The research is structured in a way to provide analytic comparisons between changes in the experimental and control groups between two points in time (i.e., before the project and after the project), as follows:

O^{C}_{t0} = the value of indicators/measures of the control group before the issuance of land titles;

O^{C}_{t3} = the value of indicators/measures of the control group after three years of issuing the land titles;

O^{E}_{t0} = the value of indicators/measures of the experimental group before the issuance of land titles;

O^{E}_{t3} = the value of indicators/measures of the experimental group after three years of issuing the land title.

As in the Thailand study, the basic approach to the analysis is to eventually compare the percentage change between the experimental group and the control group, as follows:

$$\frac{O^{E}_{t3} - O^{E}_{t0}}{O^{E}_{t_0}} \times 100 \quad \text{with} \quad \frac{O^{C}_{t3} - O^{C}_{t0}}{O^{C}_{t_0}} \times 100$$

In some instances, we may also wish to analyze data in which:

$\frac{OEt3}{O^{C}_{t_3}}$ differs significantly from $\frac{OEt0}{O^{C}_{t_0}}$, or not.

The Thailand study proposed that "the change in the experimental group that differs from the control group would then be considered the impact of the project." In Cambodia, however, it

[28] Ibid.

will also be necessary to consider other possible intervening factors in the analysis, as it is not likely that a land title in and of itself will produce significant impacts in any of the above-mentioned areas. In this sense, an important component of the analysis will be to consider how land titles interact with, or compliment, other factors to produce observable differences. For example, for land titles to enhance people's ability to obtain formal credit, such institutions must in fact be physically accessible. The impact of agricultural investments is also enhanced by access to better technical and market information. In this sense, the availability of crop, animal, and fisheries extension services is an important variable. According to this point of view, land titles act as catalysts for change when combined with other factors and enabling circumstances.

For the time being, standard statistical tools, such as means, frequencies, percentages, and cross tabulations, will be used to used analyze the baseline survey data regarding various key socio-economic characteristics of farm households in the project and non-project areas. This analysis will also examine recent trends of key indicators and then formulate likely predictions about land-titling impacts in the form of testable hypotheses.

4.1. Survey Site Selection and Sampling

Given the complexity of the overall research process, including both concept and implementation, it will be useful to provide a more detailed account of the methodology for site selection and household sampling, as well as a brief account of the implementation strategy.

4.1.1. Site Selection

4.1.1.1. LMAP Project Provinces

Four provinces were chosen from among the current LMAP project provinces following discussions with various project stakeholders. The final selection was based on a variety of factors, including: strategic location and infrastructure (e.g. roads), farming systems, and potential development trends that might impact on land markets and land use patterns.

Sihanoukville was selected because of its strategic location along the National Route 4 Development Corridor and the fact that tourism and infrastructure development (e.g., the port development project) will have profound impacts on land markets in that area. **Takeo** was selected because of relative homogeneity of traditional rice cultivation and its proximity to Phnom Penh along National Route 2, which could be a source of demand that stimulates more diverse and productive farming systems in the future if farmers receive timely support and extension and infrastructure development. **Kompong Cham** was chosen because of its strategic location along National Route 6, including the Japan-Cambodia Friendship Bridge across the Mekong River, linking much of Northeast Cambodia to the rest of the country, as well as many Cambodian products to markets and ports in Vietnam markets and ports. **Kompong Thom** was selected because of its distance from Phnom Penh and its strategic location along National Route 6, linking Siem Reap to Phnom Penh. Tourism and trade traffic along the highway are both likely to increase once it is improved in the near future.

4.1.1.2. Control Province

Kompong Chhnang was the fifth province chosen to serve as the control province with which to compare and contrast the LMAP provinces. Kompong Chhnang was chosen largely because of its strategic location along Route 5, as well as its logistical proximity to Phnom Penh. Every effort was made to select villages that reasonably approximated other survey villages.

4.1.1.3. LMAP Communes

The commune site selection was largely influenced by the LMAP project work sites and schedules. For example, the LMAP project in Kompong Thom is currently working in only two communes, so the BSP selection was essentially determined by this factor. In Kompong Cham, LMAP was currently working in one commune (Sra Nghe) with plans to add a second team to work in second commune (Sambo) in the near future. As in Kompong Thom, commune site selection in Kompong Cham was based on LMAP work locations.

4.1.1.4. Village Selection

Except for Sihanoukville, BSP chose four villages per commune. Initial selection was based on discussions with commune council members, as well as visual observations. Final decisions were taken following discussions with village chiefs and/or other community members. BSP's objective was to achieve as much diversity within the village sample as possible, while favouring potentially dynamic areas over less dynamic areas.

The criteria for village selection included land market development and activity, land use and farming systems (e.g., wet/dry season rice cultivation, *chamcar*, tree crops), infrastructure (e.g., roads, irrigation), population density, proximity to markets and administrative locations, and other economic activity (e.g., employment). Efforts were also made to avoid surveying in adjoining villages in order to achieve geographic diversity within the commune.

Finally, the BSP selection was also influenced by LMAP work schedules in areas where there was overlap with BSP work. For example, in Takeo, land titles had already been issued in several villages of the project commune, leaving only more remote villages to be completed. As BSP wished to avoid areas that had already received titles for a period of time, the decision was made to conduct surveys in Rovieng commune, which was scheduled next after *khum* Chumras Pen. A similar situation existed in Sihanoukville where LMAP had already completed work in some of the potentially dynamic areas along Route 4, including the pilot area in Prey Nup. In order to include villages along Route 4 in the sample, the BSP selected one commune where LMAP survey work had been completed (Prey Nup) and two communes where LMAP work was underway (Cheung Ko, Tik Lah).

In Sihanoukville, BSP also included Sangkhat 2 in the survey as it provided the only opportunity to survey households in an urban area. However, working in an urban setting represented a different kind of conceptual and logistical challenge requiring special preparation. BSP therefore decided to wait until the rural surveys were completed before initiating work in Sangkhat 2.[29]

4.1.2. Household Sampling

BSP usually selected 30 households with agricultural land per rural village, though this number sometimes varied according to village size. For example, 40 households were chosen in significantly larger villages (e.g., Sambo has 800 households), while 20 were chosen in smaller villages (e.g., Samraung has 50 households). Four different approaches were used to randomly select households in response to the varying quantity and quality of information available at the village level.

4.1.2.1. Land Area

The preferred sampling method was to select households on the basis of the area of landholdings. Households were divided into four categories: <0.5; 0.5 - .99; 1.0 – 1.99; and ≥ 2.0. A corresponding proportion of households were then randomly selected from each

[29] The urban survey in Sangkhat 2 in Sihanoukville is referred to in the urban baseline survey project report (CDRI, forthcoming).

category. In some cases, adjustments were made in favour of households with larger or smaller landholdings in the sample, depending on land distribution patterns.

4.1.2.2. Number of Plots

In eight villages where LMAP teams had already worked, there were village lists with household names and the number of residential and agricultural plots for each household. Households were divided according to the number of plots they had, and a corresponding proportion of households were then randomly selected from each category. In some cases, adjustments were made to include more plots in the sample.

4.1.2.3. Counting Names from Village Lists

In one village where there was no information about the area of landholdings or the number of plots, households were randomly selected by counting off a certain number of names on the village list, selecting every *n*th name. The proximate area of landholdings for each name selected was then confirmed with the village chief in order to assess whether the sample provided a reasonable distribution of landholding areas.

4.1.2.4. Counting Houses

In nine villages where there was no information about land area or plots, nor a village list, the field enumerators simply walked along and counted off a certain number of houses in the village, selecting every *n*th house.

4.1.2.5. Landless Households

The BSP has primarily focused attention on households with both residential and agricultural land. However, given the fact that landlessness is a growing source of concern for government planners and development organizations in Cambodia, the BSP also interviewed as many families without agricultural land as possible within the time frame allowed by the work schedule. Depending on the time available, each survey team was asked to add 2-3 interviews with people with no agricultural land in each village. A total of 76 households with no agricultural land were interviewed. [30] Though this sub-group of households is not intended to be representative of landless households in general, it may help serve as a kind of internal control for comparative purposes.

4.1.2.6. Female-headed Households

Given the fact that female heads of households are widely believed to be among the most vulnerable social groups in Cambodia, special effort was to ensure that this group was appropriately represented in the rural survey sample. Based on the reported number of female heads of households residing in each village, a corresponding proportion were selected for interviews. A total of 324 female heads of households were interviewed in the rural household survey, representing about 26.3 percent of the total sample. This closely corresponds to the national average of about 22.4 percent. Of the 324 women, 34 women did not have agricultural land, about 10.5 percent.

4.3. Implementation Strategy

4.3.1. Field Enumerators

Twenty-four field enumerators were selected based on experience, ability, and willingness to work under difficult conditions in the field. The field enumerators came from a variety of

[30] In some villages, households that were originally identified as landless turned out to own one or more plots of agricultural land.

backgrounds, though preference was given to those who were already familiar with CDRI's research methods and commitment to quality. Special effort was made to provide opportunities for qualified women. The field enumerators included 10 women and 14 men.

4.3.2. Survey Instruments

The BSP employed two different survey instruments: the Rural Household Questionnaire and the Village Chief Survey Questionnaire. A third tool that was used for data collecting involved village chief/commune council focal group discussions.

4.3.2.1. The Rural Household Questionnaire is a close-ended survey instrument designed to gather quantitative data concerning the household economy. The questionnaire was adapted from the survey instrument used in CDRI's earlier Rural Livelihoods study. [31] This tool included sections on household demographics and assets, land ownership and conflicts, land use, credit, agricultural production, and household expenditures. Each of these sections were adjusted, and sometimes expanded, to address relevant research hypotheses outlined in the BSP conceptual framework that guided this phase of the project preparation. Other questionnaires containing relevant sections were also reviewed.

4.3.2.2. The Village Chief Survey Questionnaire is also a close-ended survey instrument used to complement the Rural Household surveys with additional village-wide information concerning local land markets (e.g. land area and use, transactions, and conflicts), as well as other relevant factors (e.g., demographics, land distribution). Other factors included in the Village Chief Survey concerned the location of nearest credit institutions, availability of extension services, and the introduction of significant development projects, such as irrigation and road construction.

4.3.2.3. The Village Chief/Commune Council Focal Group discussions were convened in seven of the ten LMAP project communes included in the BSP. These discussions were designed to provide qualitative texture to the quantitative data collected with the survey instruments. The topics addressed in these discussion groups varied from one group to another depending on the local situations. However, nearly all the discussions included references to (1) the evolution of land distribution and use since the 1989 land distribution, (2) the evolution of land markets (e.g., transactions, conflicts), and (3) expectations of development trends that might affect land use and markets in the future. The focal group discussions also provided an opportunity for BSP to cross check initial impressions and observations from working in the villages.

4.3.3. Training and Pre-Test

The field enumerators attended a 5-day workshop designed to help them master the survey instrument. They also spent one day in Kompong Tralach district in Kompong Chhnang province conducting interviews to pre-test the survey instrument. [32] Afterwards, several adjustments were made during a detailed review of the questionnaire. After the first two weeks of interviewing in Takeo and Sihanoukville, BSP convened a de-briefing session in order to review the survey instrument with field enumerators prior to the next round of fieldwork.

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[31] See Sophal, Chan and Sarthi Acharya (2002), "Facing the Challenges of Rural Livelihoods," CDRI Working Paper No. 25.

[32] CDRI wishes to thank World Vision staff at the Kompong Tralach APD for their help with the pre-test exercise, as well the Commune Council members of *Khum* Ta Ches, and Village Chiefs and people of Trapaeng Priel, Svay Bakhau, and Svay Krom villages.

4.3.4. Field Work

In order to expedite the fieldwork, BSP "decentralized" as much responsibility to the enumerators as appropriate. The enumerators were divided into two groups of twelve, both of which were in turn sub-divided into 3 teams of four, including a team leader for each group. Team leaders were selected according to experience and potential leadership qualities. The team leaders were responsible for liaising with local officials and BSP monitors, organizing local transport, overseeing the household sample selection with support from BSP, and – most importantly – reviewing all completed questionnaires to check for accuracy. At least one BSP staff member was available in the field for support and supervision on a daily basis.

The interviews required one hour and 45 minutes on average, with some variation according to people's ability to recall time and numbers, as well as the complexity of their landholding and other factors. Field enumerators rated each interview according to how they perceived the quality of information and the process itself (Table 4.3a). Most interviewers rated their interviews as either "Very Good" (4.4 percent) or "Good" (56.3 percent). Another 34.6 percent of the interviews were rated "Medium), while 4.7 of the interviews were rated "Weak."

Table 4.3a: Interview Quality Assessment

HH Head	Very Good	Good	Medium	Weak	Total *
Male	41	535	302	33	911
Female	13	158	123	25	319
Total	54	693	425	58	1,230

* N = 2 missing

4.3.5. Debriefing

Following the completion of the rural household surveys, a one day workshop was convened with all the enumerators. They were asked to summarize their impressions of each village they worked in, placing particular emphasis on farming systems, land use patterns, demographic patterns, and other issues relating to land (e.g., transactions, conflicts). Their observations are reflected in the analytical sections of the final report as relevant.

4.3.6. Data Entry

Following the field surveys, several field enumerators were engaged to review data coding variables. BSP then chose six of the more diligent enumerators who were available to enter the data from the questionnaires onto computers. The fact that the data entry people were already familiar with the questionnaire helped expedite the process as well as promote better quality data entry. About 7.5 percent of the survey forms were then randomly selected for review to ensure that data had been accurately recorded and correct any errors.

4.3.7. Plot Identification

As the follow up study will collect household data on plots, the process of identifying plots in the future will be important. Plot ID has been facilitated in those villages where people have already received numbered plots, or where they have received numbered receipts, from LMAP. In other villages where plot numbers are not available, enumerators were asked to draw rough sketches on the back of the questionnaires which may help follow up surveyors identify specific plots.

Chapter 5.
Rural Survey Population: Preliminary Observations and Discussion

This section discusses preliminary observations of the rural household and village survey data for the four LMAP provinces of Kompong Cham, Kompong Thom. Sihanoukville, and Takeo. The survey data covers 970 household interviews and 32 village surveys. The discussion of the household data focuses on landholding sizes and gender, while the discussion of the village data focuses on location as well as development infrastructure and services that may influence potential village wide impacts of land titling.

5.1. Household Characteristics

Residential Landholdings

Of the 970 households in the LMAP area, 917 (about 94.5 percent) households own 1,018 plots of residential land, including 49 of 58 (79 percent) households without agricultural land. Among residential and owners, there are 1.1 plots per household. Of the 53 households that report not owning any residential land, 13 also do not own any agricultural land, 21 own less than 0.5 ha of agricultural land, and 11 own one hectare or less of agricultural land. In this sense, the percentage of households owning residential land then steadily increases along with agricultural landholding size. The percentage of male- and female-headed households that own residential land is fairly consistent across each landholding size.

About 39.3 percent of households acquired their residential land from the State, while 34.8 percent acquired residential land through inheritance. Another 17.6 percent purchased their residential land, and 6.8 percent acquired residential land by clearing. The percentage of residential plots acquired from the State generally increases along with landholding size, while the percentage acquired through inheritance decreases. The percentage acquired through purchase is fairly constant across all land holding sizes, except for those with no agricultural land who purchased 46.2 percent of their residential plots. This suggests that many of the landless (i.e., no agricultural land) in the LMAP survey group may never have acquired residential land from the State, or they lost their original plots and subsequently bought another one. The percentage of residential plots acquired through clearing is highest among the largest land holding households (11.1 percent).

In terms of the sex of household head, about 51.6 and 35.3 percent of female- and male-headed households respectively acquired their residential land from the State. The percentages for female-headed households are higher than male-healed household in each land holding interval. The opposite is true, however, concerning residential land acquired through inheritance. Male- and female-headed households acquired 37.7 and 25.8 percent of residential land respectively through inheritance, and the trend held for each landholding interval. A similar pattern also holds for residential land acquired through purchase, except for the largest landholding interval where there is only small variation. Oddly enough, a greater percentage of female-headed households reported acquiring residential land through clearing than did male-headed households. We would have expected a higher percentage of residential land acquisition through clearing among male-headed households given their potential advantage in available household labour resources.

Agricultural Landholdings

Of the 970 survey households, 907 report owning a total of 3,889 agricultural plots of land. The LMAP survey sample shows that large landholders own a disproportionate share of the agricultural land. For example, households with less than one half of hectare make up 21.9 percent of the survey sample, but own only 3.8 percent of the land. Households with less than one hectare make up about 46.2 percent of the sample, but own 14.5 percent of the land. Meanwhile, households with 3 or more ha make up 14.4 percent of the households, but own 43.4 percent of the land. Households with 2 or more ha account for 27.7 percent of the households, yet own 63.5 percent of the agricultural land.

Another striking feature of the survey data is that households with smaller landholdings have fewer agricultural plots that are smaller in size relative to households with larger landholdings that have a greater number of larger-sized plots. In fact, Table 5.1a below shows that the number and size of plots steadily increases from one landholding interval to another. This pattern is consistent across 35 of the 40 villages, and in the five remaining villages, there is actually very little deviation from the general pattern.

Table 5.1a: Household Agricultural Landholding Summary (ha)

Landholding	No. HH	Total Plots	Total Area	Area/HH	Plots/HH	Area/Plot
< 0.5 (ha)	201	465	55.37	0.27	2.31	0.11
0.5 – 0.9	223	843	156.11	0.70	3.78	0.18
1.0 – 1.9	229	1,092	322.66	1.41	4.76	0.29
2.0 – 2.9	122	653	294.25	2.41	5.35	0.45
> 3.0 (ha)	132	826	634.50	4.80	6.25	0.76
Total Sample	907	3,879	1,462.89	1.59	4.23	0.37

The most often cited explanation for this pattern begins with the land distribution of 1989 when efforts were made to divide good quality land (defined in terms of productivity and location) equally according to the number of working age household members. According to this formula, households with more working members received additional plots of land, some of which were of lesser quality though larger size. As a result, there was already a degree of structural variation in the 1989 land distribution when one considers landholding size by household.[33]

Table 5.1b: Mode of Acquisition (% of total plots)

Land Size	State	Inherit	Purchase	Cleared	Total N
< 0.5	53.6	32.1	12.0	2.2	567
0.5 – 0.99	57.8	23.5	15.5	3.0	779
1.0 – 1.9	62.6	18.0	14.0	5.4	1,075
2.0 – 2.9	55.9	17.0	16.2	10.8	666
> 3.0	45.4	21.8	17.6	15.3	785
Total N	2,155	842	586	286	3,872*
% of Total	55.7	21.7	15.1	7.4	

* Includes 3 cases “friends”; and Missing N = 4

[33] This explanation is based on focal group discussions with Commune Council members and village chiefs, as well as provincial LMAP officials.

The legacy of the 1989 land distribution is reflected in the fact that over 55 percent of households have acquired their agricultural land from the State. However, the data concerning the mode of acquisition also sheds slight on how households with larger initial landholdings have since been able to acquire additional land. For example, the data suggests larger families with more household labour are better able to expand their holdings over time by clearing more land (Table 5.1c). This proposition is supported by the data in Table 5.1b below showing that households with larger landholdings and more labour have a higher percentage of plot acquisitions through clearing.

Table 5.1c below also shows that on average larger households possess more capital assets and have higher incomes as well as more potential labour. This in turn suggests that households with more resources are better able to purchase additional land than smaller landholders. This proposition is also supported by the data in Table 5.1b above, which shows that larger households have a higher percentage of land acquisitions through purchase than do smaller households. In this sense, the buying and selling of land seems to play an important role in sustaining, and enlarging, the original gap in land holdings.

Table 5.1c: Household Assets & Labour*

Landholding	Livestock	Durable Assets	Non-Farm Fix Assets	Farm Assets Non-machine	Farm Assets Machine	HH Labour
0						(4.3)
< 0.5	85.69	33.31	18.31	3.58	6.65	3.3
0.5 – 0.9	149.22	39.96	8.82	9.86	17.87	4.1
1.0 – 1.9	186.88	52.47	18.90	13.67	30.72	4.0
2.0 – 2.9	220.04	47.78	11.46	21.98	37.21	4.8
> 3.0	318.83	58.38	24.34	37.59	43.61	5.0
Average	179.45	45.49	16.63	15.75	25.78	4.1

* Potential HH Labour includes male and female, aged 10 to 60 years, following SES of Cambodia.

Another set of explanations for the observed plot distribution pattern concerns the atomization of land through sales and/or inheritance, as cited in other studies (Biddulph, 2004). At the level of local transactions, larger households are purchasing additional plots from smaller households, who sell land in response to household crises or other reasons. Among households with smaller plots, the size and number of plots also decreases as families sub-divide their land to pass on to children. This proposition is also supported by the data in Table 5.1b, which shows a greater frequency of land acquisitions through inheritance among households with smaller landholdings.

The strategies people use when buying and selling land, as well as making inheritance decisions, require further study. At first glance, it appears that larger landholders tend to buy land from small landholders in order to expand and consolidate landholding, while buyers from outside the community buy land based on favourable market locations (e.g. road access). Meanwhile, smaller landholders sell land to acquire cash as needed. Agricultural land is often the last asset to be sold (except for residential land), and the decision concerning which plot to sell, or sub-divide and sell, often depends on how much cash is required at a given point in time. The implication of this is that as smaller landholders sell land plot by plot, they reduce their production capacity while approaching landlessness at an increasing rate.

5.1.1. Gender

Another striking feature of the data concerns the relationships between (a) landholding size, land acquisition, household assets and income, and labour resources and (b) the sex of household head. Generally speaking, the same pattern observed above concerning plot

distribution in the LMAP survey areas holds for both male- and female-headed households. However, the average number and size of plots is less for female-headed households than for those headed by males. Male-headed households average 4.44 plots per household and 0.39 hectares per plot, while female-headed households average 3.78 plots that average 0.30 hectares in size (Table 5.1d).

Table 5.1d: Agricultural Land Summary by Gender

Land Size	No. HH		Plots		Area		Area/HH		Plots/HH		Area/Plots	
	M	F	M	F	M	F	M	F	M	F	M	F
< 0.5	123	78	281	184	34.9	20.5	0.28	0.26	2.28	2.36	0.12	0.11
0.5 – 0.99	164	59	616	227	114.9	41.2	0.70	0.69	3.78	3.89	0.18	0.18
1.0 – 1.99	180	49	876	216	253.7	69.0	1.40	1.40	4.86	4.40	0.28	0.31
2.0 – 2.99	102	20	540	113	248.4	45.9	2.43	2.29	5.29	5.65	0.46	0.40
> 3.0	113	19	714	112	547.3	87.2	5.36	4.59	6.32	5.89	0.76	0.77
Total	682	225	3,027	852	1,199	263.8	1.75	1.17	4.44	3.78	0.39	0.30

The data also shows that 34 percent of the female-headed households own less than one half hectare of agricultural land, while 18 percent of the households headed by males own less than one half hectare. Moreover, 60 percent of female-headed households own less than one hectare, while 42 percent of those head by males own less than one hectare. Conversely, 17 percent of the household headed by females own more than two hectares of land, while 31 percent of the households headed by males own more than two hectares of land.

The mode of acquisition also reveals several important factors concerning the relationships between gender and land ownership. For example, female-headed households have a much higher percentage of plot acquisitions from State authorities (70.9 percent) than do male-headed households (51.3 percent). At the same time, the percentage of plot acquisitions by inheritance is much lower for female-headed households (11.0 percent) when compared to male-headed households (24.7 percent). This difference is, however, not surprising given traditional practices in rural Cambodia where land tends to be passed along to sons.

Table 5.1e: Land Acquisition by Gender

Land Size	State		Inherit		Purchase		Cleared		Total *	
	M	F	M	F	M	F	M	F	M	F
< 0.5	39.5	73.1	43.1	19.4	14.9	6.5	2.5	1.1	344	223
0.5 – 0.9	52.0	71.6	29.6	6.7	15.7	16.4	2.6	4.9	569	210
1.0 – 1.9	58.7	77.9	21.5	6.9	14.9	8.3	4.9	6.9	869	206
2.0 – 2.9	51.5	73.5	18.5	12.4	18.5	6.2	11.4	8.0	543	123
> 3.0	46.1	50.0	22.1	12.5	16.7	22.3	15.2	15.2	696	89
Total	1552	603	748	94	487	99	232	54	3021	851
% of Total	51.3	70.9	24.7	11.0	16.1	11.6	7.8	6.3	3,872	

* Includes 3 cases "friends"; and Missing N = 4

Table 5.1e above also shows that the percentage of plot acquisitions by purchase and clearing are also lower for female-headed households than for male-headed households. Taken together, the lower percentages for inheritance, purchase, and clearing suggest that female-headed households are less able to acquire additional plots than male-headed households. Table 5.1f below helps explain why this observation may be accurate. It shows that female-headed households at each land interval have, on average, fewer assets and income than do male-headed households. Fewer assets, especially farm-related assets, suggest a constraint on

the amount of land than can be farmed, while less income suggests a constraint on buying new land.

Table 5.1f: Household Assets and Labour (*moeun riels*)

Land Size (ha)	Livestock		Durable Assets		Non-Farm FixAssets		Farm Assets Non-Machine		Farm Assets Machine		No. of HH Labour	
	M	F	M	F	M	F	M	F	M	F	M	F
0											4.1	4.6
< 0.5	111.8	87.6	36.4	28.1	29.9	2.4	3.7	3.4	9.2	2.0	3.6	2.9
0.5 – 0.99	167.0	150.7	40.7	37.8	10.4	3.3	11.2	5.8	22.1	3.4	4.2	3.8
1.0 – 1.99	212.2	127.0	62.4	14.1	23.9	0.8	14.8	9.5	36.7	5.2	4.5	2.2
2.0 – 2.99	245.9	129.9	51.7	27.8	12.8	5.3	23.5	13.2	41.5	11.6	4.9	4.4
> 3.0	309.4	318.7	60.6	43.5	24.6	22.3	40.2	20.2	45.9	29.6	5.1	4.4
Average	197.4	128.7	50.7	28.8	20.4	4.1	18.2	7.8	31.4	6.7	4.4	3.4

These patterns corroborate other studies that highlight the many disadvantages that female-headed households face in terms of land tenure and maintaining sustainable livelihoods. [34] However, there is insufficient data with which to trace such patterns over time. For example, at what point do women become single household heads, and what then happens to their landholding? We can assume that female-headed households probably received less land during the 1989 distribution based on the survey data regarding labour in male- and female-headed households, but what has happened to those who were widowed or abandoned since then?

5.1.2. Rice Sufficiency

A commonly used indicator for rural household welfare concerns food security as measured by the number of months for which the household produces enough rice for home consumption or surplus for possible sale. Generally speaking, households that produce enough rice for sale are considered better off than households that produce only enough rice for three months consumption. Rice sufficiency data can also be a good indicator of various household crises or shocks, such as drought or flood that can result in crop damage.

Within the LMAP survey group, 28. 2 percent of the household produced a surplus that could be used for sale, while 12.9 percent produced enough for home consumption. About 18.9 percent produced enough for 7-10 months of home consumption, which means they had to buy rice for 2-5 months, while another 15.3 percent produced enough for 3-6 months. About 10 percent of the households only produced enough for three months or less, while 14.5 percent had to buy rice for the entire year (Table 5.1g).

Table 5.1g: Rice Sufficiency

Landholding (ha)	Surplus		Enough		7-10 mos		3-6 mos		< 3 mos		buy all		total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0	5	0	3	0	0	0	0	0	0	1	32	20	40	21
< 0.5	9	5	13	4	32	21	33	20	19	17	17	11	123	78
0.5 – 0.9	52	12	17	13	45	16	25	9	14	3	11	5	164	58
1.0 – 1.9	65	12	33	7	30	7	24	9	15	8	13	6	180	49
2.0 – 2.9	40	10	15	1	13	3	13	0	7	3	14	3	102	20
> 3.0	56	7	17	2	15	1	11	4	9	2	5	3	113	19
Total N	227	46	98	27	135	48	106	42	64	34	92	48	722	245
Total	273		125		183		148		98		140		967*	

*** N = 3 missing**

[34] Recall Biddulph, Robin (2000) and So et al (2001).

As expected, rice sufficiency corresponds closely to landholding size. Generally speaking, the percentage share of households producing enough rice or a surplus tends to increase along with landholding size, while the percentage share of households that must buy rice for 9 or more months out of the year decreases sharply as landholding size increases. Larger landholding households also seem to have an advantage over smaller landholders in other respects as well. For example, households with three or more hectares of land account for 23 percent of the surplus-producing households, even though they account for only 13 percent of the households in the survey sample. Households with 0.5 hectares or less (including the landless) account for 6.9 percent of surplus producers, while accounting for 27 percent of the households in the survey population. Meanwhile, landless households account for 37.1 percent of households that must buy all their rice, yet they represent 6.3 percent of the survey households.

Interestingly enough, households with two or more hectares account for 24 percent of the households that must buy all rice. At first glance this does not appear correct, as one would expect households with that much land to produce at least some rice. One possible explanation for this concerns crop losses due to pest, flood, or drought. This would also help explain why the smaller landholders had to buy all their rice as well. This proposition is supported by the data concerning household crises and shocks showing that 67 households in the LMAP survey group experienced at least some crop damage from pests, including 15 households with three hectares or more of agricultural land. A total of 398 households also reported crop damage from flood or drought, including 71 with three or more hectares of land.

The rice sufficiency data concerning the sex of household head shows that male-headed households tend to have an advantage over female-headed households. For example, male-headed households account for 83.2 percent of surplus producing households, while accounting for 74.6 of all households. Meanwhile, female-headed households account for 34 percent of the households that must buy rice year round, although they account for 25 percent of all households. Female-headed households also account for 53.1 percent of households that only produced enough rice for three months or less, and 39.6 percent of the households that produced enough for 3-6 months.

5.1.3. Summary

Landholding size and the sex of household head are good predictors of household labour, assets, income, and rice sufficiency. As a result, landholding size also provides a good indication of a household's potential capacity to benefit from land-titling programs. We observe that households with larger landholdings are generally in a more favourable initial position to benefit from land titling than households with smaller landholdings. In this sense, we can refer to households with large landholdings, more capital assets, and higher incomes as High Potential Impact (HPIs) households. Conversely, Low Potential Impact (LPIs) households have smaller agricultural land area and fewer plots, as well as less income, less labour, and fewer assets, and include more vulnerable households, such as those headed by women.

5.2. Village Characteristics

As discussed above, access to credit, input and output markets, and administrative services are important factors that affect the potential impacts of land titling in a given area. In this sense, location relative to paved roads and markets is a good indicator of access to credit and extension services, markets, and administrative centres. Location is also a good indicator concerning land prices and the development of land markets.[35] Holding all other factors constant, the impact of land-titling in villages located along national highways and closer to

[35] Recall Sophal and Acharya's (2002) discussion of official land transactions in the context of large and small town provinces.

market and administrative centres is likely to be greater than in villages located off main highways and further away from markets and administrative centres.

A good example of this concerns the observed contrast between the two LMAP communes in Kompong Thom province (Table 5.2a below). *Khum* Sra Yov straddles National Route 6 just five kilometers from the provincial centre. Given its access to credit services, including Acleda and other sources, as well as its proximity to local markets and the availability of some extension services, the four villages in Sra Yov [36] are located in a High Capacity Area (HCA). *Khum* Tipo is, however, located well off the main road and lacks easy access to credit services and markets, and only receives occasional extension services. Though the tertiary roads in Tipo are good, the distance places it at a disadvantage in terms of ready access to rural development services. In this sense, the four villages in Tipo [37] are in a Low Capacity Area (LCA).

Table 5.2a: Credit Access by Commune

Commune	Acleda	MFI/NGO	Other	Average Distance
Trapaeng Sab	yes	two reported	one SHG	5
Roveang	yes	two reported	one source reported	7.5
Choeung Kor	yes	yes		10
Prey Nup	yes	yes		13
Tuek Laah		yes		13.5
Sra Yov	yes		yes	7
Tipo				
Sambo	yes	yes	one SHG reported	18.75
Sraghe				12
Roleap'ear*	yes	one reported	one source report	10
Chres*		yes	one source report	~ 5.0

* Kompong Chhnang: Control Province

Another example concerns the three communes in Kompong Som. Two communes, Cheung Ko and Prey Nup, are located along National Route 4 and are well situated with respect to local markets. Cheung Ko is close to the vibrant market town of Veal Rieng where an Acleda branch office is located, while Prey Nup itself has a thriving local market. An international NGO, GRET, also provides crop and other extension services in these areas, and has helped establish EMT,[38] a prominent MFI serving people in the area. These two communes therefore appear to be HCAs.[39] Tuek Laah commune also straddles the recently improved main road connecting Veal Rieng and Kampot. As a result, people in Tuol and Kompong Smach Touch villages now have easier access to markets and credit services in Veal Rieng, though the latter village is located somewhat off the main road.

[36] The four villages are Pukyuk, Maniev, Trapaeng Veng, and Sra Yov Chheung.
[37] The four villages are Trapheak, Chhuk Rumduol, Samraung, and Phlong.
[38] EMT has since been renamed Amret Micro-finance.
[39] The four villages in this area are Chamcar Kaosuor, Trapaeng Kea, Prey Nup 1, and Bai Krang.

Table 5.2b: Extension Services, Support, and Road Access

Commune	Ag. Extension Score	NGOs/Village	Road Access
Trapaeng Sab	2.0	2.0	HW-3, 2nd
Roveang	4.5	2.0	HW-3, 2nd
Choeung Kor	5.0	2.5	HW-4
Prey Nup	3.5	3.0	HW-4, 2nd, Canal
Tuek Laah	5.5	.75	HW, 2nd
Sra Yov	8.25	3.0	HW-6, 2nd
Tipo	3.5	6.25	2nd, 3rd
Sambo	5.85	1.5	HW, 2nd
Sraghe	3.0	2.7	HW-6, 2nd
Roleap'ear *	2.75	2.0	HW-5, 2nd, 3rd
Chres *	5.75	3.0	HW-5, 2nd, 3rd

* Kompong Chhnang: Control Province

This general pattern of village characteristics is, however, subject to a wide range of factors, including soil quality, water resources, land use patterns, diversity of employment opportunities, local demographic features, and development inputs. For example, the soil fertility and the availability of water resources are both major factors influencing land productivity. Generally speaking, landowners are more likely to invest in land that is more productive. In this sense, low-lying villages that have at least some capacity for irrigation (yet protection from flooding) may have more impacts from land titling. This may, however, depend on prices for productive inputs as well as outputs. In Tipo, for example, some landowners may eventually switch out of rice farming in favour of planting cashew trees if cashew prices increase relative to rice. In this sense, there could be some observable impact from land titling over time despite Tipo's disadvantaged location.

The diversity of income and employment opportunities is also another important factor. People with diverse income sources may be better able to manage larger loans than those who must rely solely on rice farming, and as a result, may invest more in agricultural production. For example, many people in the village of Krong Thanong in *Khum* Rovieng (Kompong Thom) weave raw silk, which represents an additional source of income that can be used to invest in agricultural production. Land titles could also be used to obtain loans with which to invest in silk production. Similarly, most households in Kompong Smach Touch (*Khum* Tuek Laah) are engaged in fishing as either a primary or secondary occupation. Land titles in this village could enable fisher folk to obtain credit with which to invest in upgrading their fishing capacity.

In terms of demographic features and land use patterns, the villages in the sample show a wide range of population densities in terms of average agricultural landholding per family, with some villages as low as 0.4 ha/hh, and others as much as 6.2 ha/hh. The baseline survey data affirms the earlier observation that small farms in Cambodia tend to be more productive in terms of yields per area, perhaps because they are on better soil, though this does not necessarily represent a strong basis for food security (Section 6.2 below). As a result, some small farmers may be reluctant to invest more in farm production in order to maintain versatility in cash resources for supplemental food purchases and household emergencies. Larger landholdings, however, may feature more diverse patterns of land use, which in turn may suggest a more diverse base of income from agricultural activities. For example, some households in Khum Tipo, where the average household landholding size is high, raise cashews in addition to wet-season rice farming. In Pukyuk, some households cultivate inundated rice land away from the village. Villages with larger land areas will also probably include some *chamcar* land that can be used for commercial crops (Section 6.2 below).

Development inputs, including infrastructure and capital equipment, are another factor that may influence the scope and scale of land titling impacts in certain areas. Perhaps one of the potentially most dynamic areas in terms of current infrastructure development in the sample is *Khum* Sambo in Kompong Cham province. This area straddles a section of the road that connects National Route Six between Phnom Penh and Kompong Cham with the ferry crossing at Prey Khdam on the Tonle Sap river, and then Route 5. This road is currently being upgraded and a [private] developer may invest in a large dike for flood control.

The amount of equipment available, as well as the number of draft animals, in any given village is also a good indicator of the degree to which agricultural production is mechanized. People in areas where there is already more capital investment in agricultural production may be more likely to use land titles for access to credit with which to make further investments. In this sense, a village in *Khum* Sra Nghe may be considered a potential HCA village. However, areas where there is a large number of livestock per household may also have a potential high production capacity as there would be sufficient draft power to farming, as well as assets that could be used to offset periodic shocks and emergencies.

5.2.1. Summary

Village location relative to paved roads and local commercial and administrative centres are good indicators of market access, as well as access to credit, extension, and social services. We argue that households located near such centres are in a more favourable position to benefit from land titles than households located further away. Other factors, however, must also be taken into account. We can also refer to villages with favourable location, water resources, diverse land use patterns and employment opportunities, as well as development inputs, as High Capacity Areas (HCAs). Conversely, Low Capacity Areas (LCAs) include villages located some distance from paved roads and/or commercial and administrative centres, lack water resources, and have more homogenous land use patterns and fewer alternative employment opportunities other than farming.

Chapter 6.
Findings and Analysis of Rural Households: LMAP Survey Areas

When village and household factors are combined, a simple model can be constructed with which to make predictions about the potential impacts from land titling. According to this model, High Potential Impact (HPI) households will benefit most in high capacity areas characterized by intensive agricultural and or active land markets. Conversely, Low Potential Impact (LPI) households will benefit least in low capacity areas characterized by extensive farming methods and less active land markets. In between, are high potential impact households in low capacity areas and low potential impact households in high capacity areas. The degree of impact in these two categories may depend on the rate at which key factors change or evolve. Over time, for example, HPI households in low capacity areas may be in a better position to compete for land titling benefits as more development takes place. Meanwhile, LPI households may be less able to compete for land titling benefits in high capacity areas, unless they are somehow able to gain access to high capacity factors (e.g., credit, extension services).

The analytical framework that emerges from a consideration of potential high and low impact households within the context of high and low capacity villages provides a robust tool with which to assess the potential economic and social impact of land titles as predicted by theory and empirical research elsewhere. For the sake of convenience and consistency, the following discussion will follow the same general outline that was used in the earlier section (Section 4.2.1.) discussing the research theory.

6.1. Credit: Borrowing and Lending Activity at the Household Level

Within the LMAP survey group, 531 households (about 54.7 percent of the households) reported a total of 743 loans during the six-month period prior to the survey. This represents about 1.40 loans per borrowing households. Male- and female-headed households accounted for 79 and 21 percent of the loans, respectively. Table 6.1a shows that about 60 percent of the loans were obtained in the informal sector, including relatives and friends (43.7 percent) and moneylenders (16.0 percent). The remaining 31 percent of the loans were obtained in the formal sector, either from ACLEDA (6.1 percent) or an MFI (24.9 percent). About nine percent of the loans were obtained in the "semi-formal" NGO sector.

Table 6.1b below shows that loans for productive investments accounted for 36 percent of all credit activity within the LMAP survey group, including small business-related activities (12 percent), agricultural production (14.4 percent), and animal raising (9.6 percent). Male-headed households borrowed more for agriculture and business, while female-headed households borrowed more for animal raising.

Health care (21.7 percent) and food shortages (17.9 percent), however, account for almost 40 percent of all credit activity among the survey group. A similar percentage of male- and female-headed households borrowed for health care, while a greater percentage of female-headed households borrowed to cover household food shortages. This suggests that male- and female-headed households may be similarly affected by illness, while female-headed

households have less capacity to produce sufficient food. Twenty-four and one half percent of the loans were for other activities, which included social ceremonies, home construction, and transportation. The percentage share of the other loans is more or less consistent across gender and landholding size.

Table 6.1a: Credit Sources (% of total number loans)

Landholding **(ha)**	Relatives/ Friends		Moneylender		NGOs		Acleda		MFIs		Total No. Loans	
	M	F	M	F	M	F	M	F	M	F	M	F
0	13.3	25.0	26.7	33.3	10.0	0	10.0	25.0	4 0.0	16.7	30	12
< 0.5	43.5	41.5	20.2	13.2	4.8	15.1	4.0	1.9	29.4	28.3	124	53
0.5 – 0.99	53.7	38.9	13.6	11.1	8.6	25.0	8.6	2.8	5.4	22.2	162	36
1.0 – 1.99	48.1	46.9	15.3	15.6	5.3	3.1	3.8	0	27.4	34.4	131	32
2.0 – 2.99	36.0	30.0	12.5	40.0	15.6	10.0	9.4	0	27.6	20.0	64	10
> 3.0	43.2	28.6	10.8	28.6	12.2	7.1	8.1	7.1	25.8	28.5	74	14
Total %	45.0	38.9	15.6	17.8	8.4	12.7	6.7	3.8	24.5	26.7		
Total Loans	263	61	91	28	49	20	39	6	143	42	585	157
Total	324		119		69		45		185		742*	
Tot. % Loans	43.7		16.0		9.3		6.1		24.9			

* N = 1 missing

Households in the upper two landholding intervals tended to borrow less often than the other households, perhaps because they are better able to rely on their resources. The upper three landholding households tend to borrow more for production related purposes than do the lower landholding groups. The level of borrowing for food shortages appears somewhat consistent across all households, though smaller landholders tend to borrow more for health care than larger landholders.

Table 6.1b: Loan Use by Landholding

Land Size	Agriculture		Business		Food Shortage		Health		Livestock		Other		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0	3.3	0	33.3	33.3	20.0	8.3	10.0	33.3	10.0	8.3	23.3	16.8	30	12
< 0.5	9.5	3.8	8.7	9.6	15.9	25.0	31.7	19.2	7.9	15.4	26.3	27.0	126	52
0.5 – 0.99	12.3	19.4	13.0	2.8	15.4	30.6	18.5	11.1	9.3	16.7	31.5	19.4	162	36
1.0 – 1.99	15.8	0	10.5	0	21.8	28.1	27.1	31.3	5.3	21.9	19.5	18.7	133	32
2.0 – 2.99	28.1	20.0	10.9	0	20.3	10.0	15.6	10.0	4.7	20.0	20.4	40.0	64	10
> 3.0	25.0	42.9	20.8	7.1	6.9	0	15.3	14.3	12.5	0	19.5	35.7	72	14
Total %	15.3	10.9	13.3	7.1	16.7	22.4	22.1	19.9	8.0	15.4	24.6	24.3		
Total Loans	90	17	78	11	98	35	130	31	47	24	144	38	587	156
Tot. Purpose	107		89		133		161		71		182			
Tot. %	14.4		12.0		17.9		21.7		9.6		24.5		743	

Table 6.1c below shows that the average size of loans from ACLEDA was about 89 *moeun riels*, which is considerably higher than each of the other sources. Somewhat surprisingly, the average size of loans from MFIs, 28.13 *moeun riels*, was slightly less than the average size of loans from relatives and friends, 29.5 *moeun riels*. The average size of loans from moneylenders and NGOs is similar at 23.77 *moeun riels* and 25.19 *moeun riels,* respectively. Generally speaking, the average amount of loans for production activities (i.e., business,

agriculture, animal raising) were significantly higher than the average size of consumption loans for food shortages and health care. However, the average size of "other loans" (42.72 *moeun riels*) is second only to loans for business activities (53.26 *moeun riels*).

Table 6.1c: Credit Sources by Loan Use

Purpose	Relative/ Friends		Moneylender		NGOs		Acleda		MFIs		Total Loans	
	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Agriculture	36	21.97	22	22.39	14	20.71	6	59.2	28	33.07	106	26.9
Business	18	72.57	14	24.46	14	20.79	14	137.9	28	29.14	88	53.26
Food Shortage	70	13.61	25	19.98	3	10.67	10	27.7	26	12.36	134	15.55
Health	82	24.88	22	21.05	7	24.00	7	45.0	42	15.16	160	22.65
Livestock	15	36.53	5	14.8	17	19.82	4	140.0	34	28.59	75	33.23
Other	103	38.07	31	30.87	14	44.22	6	124.2	30	53.93	184	
Total	324	29.5	119	23.77	69	25.19	47	89.00	188	28.13	747*	31.60
% of Total	43.40		15.9		9.2		6.3		25.2			

* N = 4 more that 743 reported loans, suggesting 4 multiple responses.

It is useful to compare this data with other studies. For example, Sophal and Acharya (2002) found that the largest source of credit was relatives and friends (44.5 percent), followed by moneylenders (33.1 percent), institutional sources (15.7 percent), and then other sources. Though the percentage of loans from relatives and friends is remarkably similar, the percentage of loans from moneylenders (16 percent) and formal institutions (31 percent) is practically the reverse of the baseline survey sample. One possible explanation for this may be due to a greater availability of formal credit institutions in many of the BSP survey areas (see Table 5.2a above) relative to those found in the areas that Sophal and Acharya studied earlier. The baseline survey data may therefore reflect the growing prevalence of MFIs in various parts of Cambodia since 2001. It may also suggest that in areas where they are available, people may prefer formal institutions over moneylenders, *when they can afford the interest rates and meet the formal requirements for collateral.*

As for the average size of loans, the baseline survey data corresponds closely with the rural livelihoods data. In both studies, the average size of the loans was largest from Acleda, the most prominent MFI operating in Cambodia at the time of the rural livelihoods study, followed by moneylenders and then relatives and friends (Sophal and Acharya, 2002). The main difference concerns the fact that other MFIs were not mentioned in the livelihoods studied. Although we would expect that the average size of these loans would fall somewhere in between Acleda and moneylenders, the baseline survey found the average size of loans from MFIs was actually less than those of family and friends.

The research theory predicts that the number and average amount of loans for investment in agricultural production and other income generating activities (e.g., animal raising, small business) will increase relative to loans for consumption and other activities. The research theory also predicts that as the volume and amount of loans increase, the source of loans will shift more from the informal to the formal sector. This assumes that the demand for loans for health care and supplemental food will decrease relative to production loans.

This set of hypotheses also assumes that credit markets perform reasonably well in a particular area (i.e., credit is available, transaction costs are low), and that people have a propensity and capacity to borrow. It also assumes that interest rates at formal institutions are relatively more favourable than those of local moneylenders. All other factors being equal, we should expect to see a larger volume of credit activity in areas where formal credit institutions are relatively more accessible to local farmers. This suggests that farmers located closer to

district and/or market centres along roads are more likely to obtain formal credit than those located in more distant or remote areas.

We should, however, also expect to see some variations in credit activity according to landholding size and sex of household head in terms of frequency, size, and loan use. For example, the distribution of credit may vary according to the capacity of households to manage and service loans of various sizes. Poorer households that can only manage small loans in terms of collateral (e.g., plot size) or their ability to repay according to fixed schedules may continue to use other sources of credit. Meanwhile, households endowed with more land, capital assets, and income may use their land titles to obtain larger loans with which to expand upon or diversify their farming and/or business activities.

6.2. Agricultural Investments, Productivity, and Land Use

Table 6.2a below shows that expenditures for rice production during the cropping season prior to the survey were dominated by labour for land preparation, transplanting, and harvesting, as well as chemical fertilizers. These inputs are then followed by water pumping fees, threshing, and land rental. The average amount of expenditures per household tends to increase along with landholding size. For example, the lowest two landholding intervals have average expenditures of 13.03 and 21.57 *moeun riels* per household, respectively, while the upper two intervals have 31.6 and 51.98 *moeun riels* per household, respectively. The middle interval has 31.77 *moeun riel* per households. Not only do the larger landholding households have more land in which to invest, they also tend to have more available resources with which to invest.

There is also a clear pattern of expenditures according to the sex of household head. On average, male-headed households expended about 50 percent more than female-headed households for rice production. Moreover, male-headed households consistently expended more than female-headed households for nearly every input in each interval. This can be attributed to the fact that (1) female-headed households tend to have, on average, smaller land holdings (Table 5.1d above), and (2) differences in the amount of resources, including labour, available to male- and female-headed households (Table 5.1f above). The only difference is in the largest landholding interval where female-headed households expended more than male-headed households. Much of this difference comes from expenditures for chemical fertilizers and labour for transplanting and harvesting. One possible explanation is that female-headed households use such investments to compensate for the lack of labour.

Table 6.2a: Rice Production Inputs (*moeun riels*/hh)

Input	**< .5**		**0.5 – 0.99**		**1.0 – 1.99**		**2.0 - 2.99**		**≥ 3.0**		**Total Ave.**	
	M	F	M	F	M	F	M	F	M	F		
Ch. Fert.	5.8	5.7	10.6	8.7	12.0	8.3	13.6	8.9	17.6	32.7	11.21	
Pesticide	1.4	.8	2.1	1.2	2.0	1.1	1.5	1.5	3.1	3.1	2.06	
Pumping	3.2	2.7	4.0	4.0	5.1	4.1	7.5	3.0	11.5	15.0	5.59	
Lbr: Prep	4.6	3.1	6.7	5.2	11.6	7.1	10.6	5.5	18.4	17.3	9.01	
Lbr: Tran	6.8	5.7	9.2	8.3	11.8	8.8	14.5	11.1	22.5	33.5	12.2	
Lbr: Harv	5.3	3.4	6.2	4.0	8.3	5.4	12.1	9.9	13.5	18.3	8.46	
Threshing	2.7	2.3	2.8	2.3	3.9	3.2	5.8	3.6	6.7	9.3	4.2	
Repairs	1.5	1.1	2.2	1.6	2.3	2.4	1.7	.95	1.9	15.0	2.07	
Transport	1.8	2.0	2.7	2.6	3.2	2.6	3.5	1.9	6.6	3.9	3.23	
Rent.land	7.5		6.1	1.7	10.8		6.0		10.9		7.7	
Rent. Live	.2	5.0	4.9		3.2	5.0		6.0	10.0	1.5	4.48	
Other	4.6	.97	4.4	5.5	10.6	20.0	3.1	10.0	7.4	6.3	7.2	
Total	14.4	10.8	23.1	17.0	34.4	20.0	32.8	25.0	50.7	60.2	30.7	19.8
Total	13.03		21.57		31.77		31.6		51.98		28.2	

6.2.1. Financial Sources for Expenditures

Table 6.2b below shows that nearly 90 percent of agricultural expenditures for rice production are financed by "own sources," followed by loans from relatives and friends (8.3 percent), and then credit from "programs," which include semi-formal savings and loans groups supported by NGOs, MFIs, and commercial banks (2.3 percent). The most significant exception to the overall trend concerns chemical fertilizers, which is financed by 79 percent of own sources and 21 percent with loans from family, friends, and credit programs. Labour inputs for land preparation, transplanting, and harvesting involve 92-96 percent financing from own sources.

Table 6.2b: Expenditure Sources for Selected Agricultural Inputs

Input	Own Sources		Relative/Friend		Credit Program		Total
	N	%	N	%	N	%	N
Chem. Ferlizer	473	79.0	106	17.7	20	3.3	599
Pesticide	195	96.1	4	2.0	4	2.0	203
Pumping	250	89.6	24	8.6	5	1.8	279
Land Prep.	355	92.4	19	4.9	10	2.6	384
Transplanting	387	92.6	23	5.5	8	1.9	418
Harvesting	357	95.5	12	3.2	5	1.3	374
Totals	2,017	89.4	188	8.3	52	2.3	2,257

There is, however, some variation when one considers the distribution of financing sources for various inputs across landholding size. For example, in order to finance labour inputs the two largest landholding households borrow more from family and friends and credit programs than do smaller landholders. This observation suggests that the shift away from "own sources" in the direction of credit initially begins with borrowing from family and friends before progressing on to borrowing from formal credit institutions (see Section 7.1 below). It also suggests that such a trend may be initiated by larger landholding households.

Table 6.2c below shows that both the smallest and largest landholding intervals rely on family and friends for more than 20 percent of financing for chemical fertilizer inputs, while the second largest interval uses credit programs for 7.7 percent of financing. Part of the explanation for this may concern the relatively high expenditures for chemical inputs, which on average is about 11.21 *moeun riels* per household (including about 5.8 *moeun riels* for the small landholders). Households with smaller landholdings may tend to have fewer resources available with which to finance such inputs from own sources, so more tend to rely on financing from family and friends. Although the larger landholding households may have more resources, they also have more land, and so more of these households may need to obtain loans from other sources.

Table 6.2c: Finance Sources for Chemical Fertilizer Inputs

Input	Own Sources		Relative/Friend		Credit Program		Total
	N	%	N	%	N	%	N
< 0.5	99	75.0	30	22.7	3	2.3	132
0.5 – 0.99	131	82.4	23	14.5	5	3.1	159
1.0 – 1.99	112	78.9	26	18.3	4	2.8	142
2.0 – 2.99	64	82.1	8	10.3	6	7.7	78
> 3.0	67	76.1	19	21.6	2	2.3	88
Totals	473	79.0	106	17.7	20	3.3	599

6.2.2. Productivity

The research theory predicts that secure land tenure will stimulate increases in production expenditures in rice and/or other crop production in the LMAP project areas. Increased expenditures should in turn stimulate increased productivity in terms of rice yields.

The data in Table 6.2d below affirms the farm-size-productivity relationship observed elsewhere in Asia and Cambodia (Sophal and Acharya, 2002); namely, small farms tend to be more productive in terms of [rice] yields than large farms, irrespective of the sex of the household head. One reason for this pattern is that small plots are usually subdivisions of more fertile land. This seems to fit the general pattern of land distribution in 1989 in Cambodia as discussed above. Another reason may be that small farmers tend to use better techniques and exercise better management in the absence of modern farming methods. Small farmers may also apply family labour and other owned inputs more intensively.

Table 6.2d: Average rice yields of total harvested areas (kg /ha)

Landholding	Male		Female		Total	
	HH	Yield	HH	Yield	HH	Yield
< 0.5	123	2,035	78	1,757	210	1,943
0.5 – 0.99	164	1,544	58	1,626	222	1,563
1.0 – 1.99	180	1,360	49	1,033	229	1,302
2.0 – 2.99	102	969	20	758	122	939
≥ 3.0	113	832	19	764	132	825
Totals	682	1,113	224	1,1038	906 *	1,112

* N = 1 missing

Small farmers in Cambodia also appear to apply purchased inputs more intensively on a per hectare basis than do the larger farms. Table 6.2e below provides a detailed summary of agricultural expenditures per hectare for selected inputs. Generally speaking, the two smaller landholding households expend more per hectare for each of the inputs than do the two larger landholding households. In terms of all inputs, the two smallest landholding households expended 51.3 and 32.4 *moeun riels* per hectare, respectively, while the two largest landholding households expended 18.5 and 19.5 *moeun riels* per hectare, respectively.

Table 6.2e: Rice Production Inputs (*moeun riels*/ha)

Input	< .5		0.5 – 0.99		1.0 – 1.99		2.0 - 2.99		≥ 3.0		Total Ave.	
	N	Amt	N	Amt	N	Amt	N	Amt	N	Amt	N	Amt
Ch. Fert.	131	23.0	159	15.7	139	10.7	77	8.5	87	8.4	593	14.1
Pesticide	23	3.1	45	4.4	53	1.6	35	0.9	46	1.4	202	2.23
Pumping	54	17.2	74	5.6	74	4.6	29	4.5	45	5.1	276	7.4
Lbr: Prep	91	14.8	90	9.9	88	9.7	55	5.1	54	6.1	378	9.8
Lbr: Tran	51	27.8	83	12.2	99	11.0	35	7.4	51	8.7	319	13.2
Total Input	169	51.3	202	32.4	185	29.4	104	18.5	121	19.5	781	31.9

Although small farms may be more productive in terms of land (kg per hectare) than larger farms, small farms are not as productive in terms of investment (kg *per moeun riels*). Table 6.2f below shows that farms with less than 0.5 hectares of land get 39.98 kgs per every *moeun riels* of expenditure, while farms with 2.0 – 2.99 ha and more than 3.0 ha get 61.89 kgs and 52.1 kgs of rice, respectively, from every *moeun riels* of expenditure. In terms of helping small poor households increase their livelihoods and move out of poverty, this suggests that

investment efficiency is just as important, if not more so, than the level of investment. In terms of land-titling impacts, then, access to credit that can be used for investments needs to be complemented with extension services than can improve the productivity of capital.

Table 6.2f: Productivity and Costs*

LandHolding (ha)	Yield (Kg/ha)	Expenditure (moeun riels/ha)	Cost (kg/moeun)	Cost [40] (moeun/hh)
< 0.5	2,051	51.3	39.98	16.01
0.5 – 0.99	1,676	32.4	51.72	22.81
1.0 – 1.99	1,464	29.4	49.80	34.31
2.0 – 2.99	1,145	18.5	61.89	33.37
≥ 3.0	1,016	19.5	52.10	62.81

* Most recent cropping season (2003) prior to survey in January/February 2004

The higher land productivity of small farms also does not translate into higher levels of average household production. Although small farms have higher yields, they also have much less land. Table 6.2g shows that households with less than 0.5 ha of land were able to produce only 640.3 kg of rice, despite their productivity advantage. Meanwhile, the largest farms produced a total of 3.27 MT of rice per household, even though they were only half as productive as the smallest farms.

Nor does the higher land productivity of small farms translate into higher levels of average production per potentially active labour. When we look at productivity measured in terms of household product per potentially active household labour, we see that average output per potentially active labour is much less in smaller landholding households than in larger landholding households. For example, households with less than 0.5 hectares produce 194 kgs per potentially active household members, while households with more than 3 hectares produce 654 kg per potentially active households members.

Table 6.2g: Household Production

Landsize (ha)	HH Labour	Yield (Kg/ha)	Area (ha/hh)		Total Prod. (kg/hh) & kg/lbr	
			Owned	Harvested	Yield x AreaHarv	kg/hh/ lbr/hh
< 0.5	3.3	2,051	0.27	.3122	640.3	194.0
0.5 – 0.99	4.1	1,676	0.70	.704	1,180.0	287.8
1.0 – 1.99	4.0	1,464	1.41	1.167	1,708.5	427.1
2.0 – 2.99	4.8	1,145	2.41	1.8037	2,065.2	430.0
≥ 3.0	5.0	1,016	4.80	3.2208	3,272.3	654.4

In terms of investment capacity, this suggests that smaller farms are at a great disadvantage over the long run as they must continue to use scarce household resources to make up for food shortages rather than invest more in production or other important activities, such as education for their children. It also underscores the problems associated with inefficient expenditures mentioned above. If farmers were to borrow to invest in production that does not produce a surplus for sale, they may in fact be sinking deeper in debt over time. This again

[40] These figures contrast with the figures for *moeun riels*/hh costs shown in Table 6.2a above. The figures in Table 6.2a were derived directly from interview responses to questions about costs, while the figure in Table 6.2f were calculated based on interview responses to questions about area and total production. That the two sets of figures are reasonably close to one another provides a kind of internal cross check on the accuracy of the data. If anything, the differences may suggest that respondents tend to underestimate yields and/or over estimate expenditures. This is not uncommon in rural Cambodia.

highlights the need for complementary extension services and infrastructure development in order to optimize land-titling benefits in specific areas.

6.2.3. Land Use

As elsewhere in Cambodia, land in both the LMAP survey areas and the control areas of Kompong Chhnang are generally categorized as (1) residential land, (2) cultivable, agricultural land, and (3) common and/or state land, including forests and inundated areas where fishing and cropping are practised, depending on the season. One critical challenge of poverty alleviation in Cambodia is to develop sustainable ways to allocate land use for more economically efficient uses. The diversification of land use can be one indicator of such efficiency for both residential and agricultural land.

Residential Land

The productive use of residential land is discussed in terms of land titling impacts and registration because in Cambodia's agrarian society, residential land is not only used for housing, but also for tree crops and small businesses, including livestock raising and home gardening to supplement household incomes. Table 6.2h summarizes the range of uses for residential plots in the LMAP survey areas. About 92 percent of the LMAP survey group live on the residential land they own. About 24.9 percent of the household use their residential land for living only, while 64.20 percent use such land for both living and other activities, including crops (50.0 percent), business (9.8 percent) and small agri-business (4.4 percent). About 3.8 percent leave the residential land they own idle.

The diversification of residential land use seems to increase along with landholding size, as larger landholding groups appear to use a much smaller percentage of their residential land only for living. For example, only 18 and 17 percent of the two largest landholding households, respectively, use their residential land solely for living, while 37 and 26 percent of the two smaller landholding groups respectively use their residential land only for living.

Table 6.2h: Utilisation of Residential Plots (% of total)

Land Use	0	< 0.5	0.5-0.99	1-1.99	2-2.99	> 3.0	Total
leave it idle	6	2	4	3	5	7	4
Leasing out or rent out house	0	0	1	0	0	0	0
Allowing relatives to temporarily stay w. charge	2	1	0	2	3	2	2
Living & plantation	37	44	50	54	53	53	50
Plantation / vegetable (no-resident)	4	3	3	6	7	6	5
Living and business	8	13	16	15	14	14	14
Business only	0	0	0	0	1	0	0
Living only	43	37	26	20	17	18	25
Other	0	1	0	0	0	0	0
Total Number	51	187	227	256	139	153	1,013

Agricultural Land

The survey data affirms the research hypothesis that land use patterns become more diversified as landholding size increases. For example, the percentage of plots allocated for wet-season rice production steadily decreases from 89.1 percent for households with less than 0.5 hectares to 70.0 percent for household with more than 3 hectares. At the same time, the percentage of plots allocated for dry-season rice production steadily increases along with land size, from 28.8 percent for households with less 0.5 hectares to 12.7 percent for households

with more than 3 hectares. The percentage of plots allocated for *chamcar* production (6.7 percent) remains fairly constant across all landholdings, while the percentage of plots allocated for plantation (trees crops) and mixed crops is quite low across all landholdings, 0.1 percent. There appears to be considerable scope for future crop diversification in many of the LMAP survey areas.

It terms of the actual utilization of plots, about 90 percent of all plots are cultivated, although the percentage decreases along with land size. The percentage of cultivated plots among male- and female-headed households is similar across all landholding intervals. The percentage of leased plots out (1.6 percent) is also fairly constant across all landholdings intervals. Not surprisingly, the percentage of idle plots (7.6 percent overall) increases along with land size from 3.2 percent for households with less than 0.5 hectares to 11.5 percent for households with more than 3 hectares. Female-headed households have a slightly higher percentage of idle land, and also lease out a higher percentage of their plots than do male-headed households.

Of the 3,891 cultivable plots, 295 plots were left idle by 175 households during the last cropping season. The three main reasons that were cited included a lack of labour (34 percent), no profit (16 percent), and a lack of investment capital (9 percent). The remaining 42 percent of responses covered a wide range of additional reasons. A greater percentage of female-headed households (38 percent) than male-headed households (33 percent) cited a lack of labour. On the other hand, a greater percentage of male-headed households (18 percent) than female-headed households (9 percent) cited a lack of profit. The percentage shares for plots left idle because of a lack of investment capital was equal for both male- and female-headed households.

These household responses seem compatible with reasons given by key informants during focal group discussions, which also identified crop damage due to weather and climate as a main reason for leaving land idle. Idle land can also be explained in part by fluctuating prices and other market distortions, as well as low yields because of poor soils and low investment in modern agricultural inputs, especially chemical fertilizer (Chan and Acharya, 2002). Speculation may be another reason, especially in cases where idle land is owned by people from outside the village.

As for cropping patterns, about 79 percent of the plots were used for wet-rice production one time per year, while 7.3 percent were used for dry season rice production one time a year. Not surprisingly, this cropping pattern closely corresponds with land use allocation pattern described above; namely, that the percentage of plots used for one wet season rice crop decreases somewhat as land holdings increase, while the percentage plots used for one dry season crop increases with landholding size. About four percent of the plots were used for two wet-season rice crops and 3.8 percent were used for fruit and other trees.

Secure land tenure is expected to extend farmer investment horizons. Indeed, the evidence from Thailand[41] suggests that land titling may stimulate some change in land use as cultivation moves away from low cost-low return crops (e.g., paddy production for home consumption) in the direction of commercial crops and, in some cases, fruit or other tree crops that require more investment but have potentially higher returns over time. Although agricultural and market conditions are different in Cambodia, we expect farmers to also begin diversifying land use (e.g., *chamcar,* tree corps), even though the full impact may require more than three years to observe. We also expect that the scope and scale of diversification will increase at a faster rate along with landholding size. The rate of land utilization may also increase as farmers begin to invest more in agricultural production, though perhaps slowly in the absence of policy measures that promote higher land utilization rates (e.g., taxes on larger

[41] Onchan, Tongroj and Saroj Aungsumalin (2002); Socio-Economic and Environmental Impact of the Land Titling Program; Kasetsart University: Thailand.

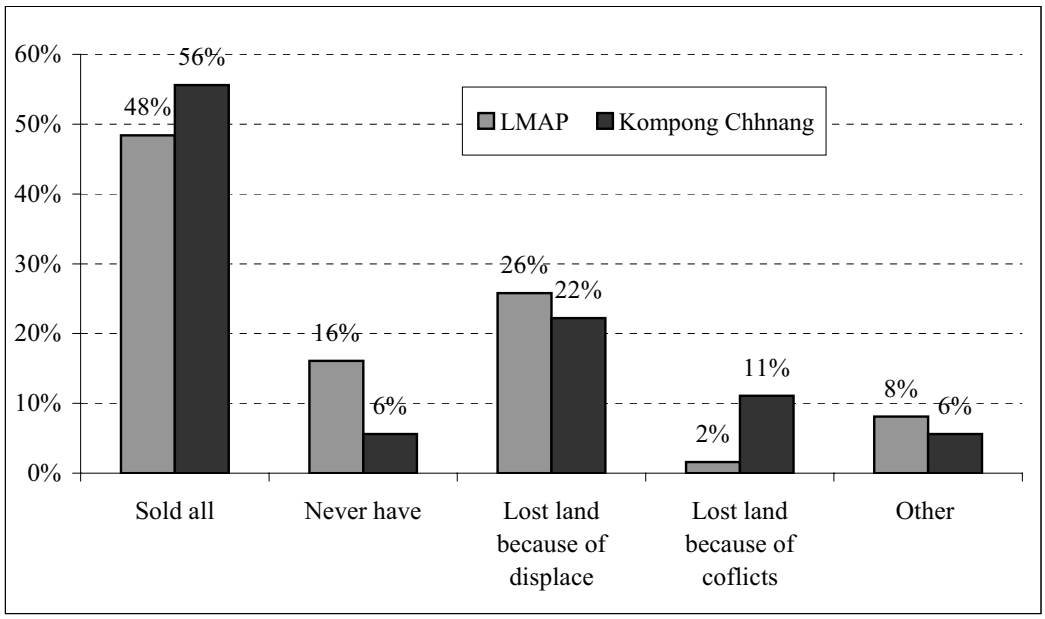
idle plots). The impact of land titles in this regard may, however, vary according to location and situational factors, including the availability of credit and extension services, market access (e.g., transportation and transaction costs, barriers) and product prices, as well as seasonal variations in climate (e.g., flood, drought).[42]

The impacts of land tiling on land size are also an important consideration. Evidence from Thailand shows that the number and size of land plots per family tended to decrease along with titling. As noted above, the average size of landholdings may currently be insufficient for food security in Cambodia. While farmers may continue to invest in variable inputs on smaller plots, smaller plot sizes may obviate larger- scale investments, such as machinery and infrastructure improvements.

Note on Landlessness

Eighty landless households (62 households in LMAP area and 18 household in controlled area of Kompong Chhnang) identified three main reasons for becoming landless: distress sales, displacement, and never having land. Female-headed households seem more susceptible to becoming landless through distress sales given their relative lack of assets and income when compared to male-headed households. Although the sample is too small for generalizing, the data suggests small landholders (less than 1 ha of land) are more subject to becoming landless if they are faced with family crises. This is especially so in areas where development and social service are not affordable or otherwise not available.

Figure 1. Reasons reported for landlessness in LMAP and Controlled area of Kampong Chhnang



Note on Common/State Land

During the fieldwork, it was observed that common/state lands in some areas are being encroached upon and/or converted into agricultural lands. Although the actual size of such areas in the baseline survey area is not known, no common lands are reported to be available for communal activity, except in *Khum* Tipo in Kompong Thom. Large areas of forestlands along new rural roads and irrigation projects were being cleared for mixed purposes. For

[42] See Chandararot, Kang and Chan Sophal (2003) for a discussion concerning transaction costs in the agricultural sector.

example, large areas of forestlands in Tipo have been converted into cashew plantations or left idle. In *Khum* Chress in Kompong Chhnang (the survey control area), inundated coverage has been converted in recent years to dry season rice production. There are a number of reasons for this phenomenon, including insufficient land holding and low productivity combined with the current rate of population growth.

Since people now believe that the LMAP project represents the final process of state's recognition of private ownership of land, people may try to encroach or convert common and/or state lands prior to project implementation. This may be happening in Tipo in Kompong Thom. Such activities, however, may decrease once all private and state lands are titled or otherwise demarcated.

6.3. Land Markets: Values, Prices, and Transactions

Table 6.3a below shows that reported land value (in terms of moeun riels per hectare)43 decreases as landholding size increases. This pattern holds for both male- and female-headed households. Recalling our earlier discussion concerning the 1989 land distribution, this may be explained in terms of the greater concentration of better quality land on small farms. The link between better quality land and higher land values on small farms is reflected in the higher level of productivity (Table 6.2d). Small farms may also have a greater concentration of plots that are favourably located, while larger land holdings probably include more plots of less productive land in less favourable locations.

Despite the higher reported land values per hectare, the average value of each plot is less among the smaller farms, and greater among the larger farms. This is a direct function of the average size of plots on small and large farms. One implication of this pattern concerns access to credit. If the size of a loan depends in part on the amount of collateral that is available (i.e., titles are issued separately for each plot), larger farms may be able to obtain to larger loans that smaller farms, all thing being equal. Aside from interest rate effects, this could crowd out small farmers from tight credit markets.

Table 6.3a: Land Values by Hectare and Plot (*moeun riels*/ha)

Landholding	No. Plots	Ave. Size	Male HH	Female HH	Total Ave.	Value/Plot
< 0.5	467	0.11	1,077	866	993	109.2
0.5 – 0.9	836	0.18	691	702	694	124.9
1.0 – 1.9	1,089	0.29	511	347	478	138.6
2.0 – 2.9	660	0.45	324	345	328	147.6
> 3.0	824	0.76	238	220	223	169.5
Total	3,876	0.37	502	536	510	188.7

6.3.1. Transactions

Table 6.3b shows that a total of 201 households reported selling 303 agricultural plots since 1989, representing about 7.8 percent of all the plots in the LMAP survey area. There is a disproportionate number of sales among the two smaller landholding households compared with the three larger landholding households. The two smaller landholding households report owning a total of 1,308 plots, or 33.72 percents of all the plots (3,879) in the sample. However, they report selling a total 128 plots, which represents 50.79 of the total number of plots sold. Meanwhile, the two larger landholding households own 38.13 percent of the plots, but account for only 24.1 percent of the plots that were sold. About one third of the sales among the two smaller landholding households involved female-headed households, even

[43] The data for reported land values is based on the interviewees' own assessments.

though female-headed households own about 54 percent of all the plots in the two smallest landholding intervals. The distribution of land sales and plot ownership among female-headed households is consistent within the two upper intervals.

Table 6.3b: Agricultural Land Sales by Landholding & Gender

Land Size	T.Plots	T.Sales	Sales		Ave. Area		Price (m/ha)		Tot. Area (ha)	
			M	F	M	F	M	F	Price	Area
0		50	33	17	.50	.21	698	1,618	1,011	.40
< 0.5	465	65	43	22	.17	.14	727	1,750	1,074	.16
0.5 – 0.9	843	63	42	21	.21	.32	5,605	1,276	4,162	.24
1.0 – 1.9	1,092	52	37	15	.27	.32	1,061	224	819	.28
2.0 – 2.9	653	29	25	4	.39	.25	337	6,373	1,169	.37
> 3.0	826	44	38	6	.57	.41	211	692	277	.55
Total	3,879	303	218	85	.34	.25	1,585	1,480	1,555	.34

The distribution of land sales by commune shown below in Table 6.3c supports predictions that link land sales with location and development activities. For example, about 29 percent of all reported transactions are in Sambo, which is located near Phnom Penh along the main road to Kompong Cham. There are also several large scale infrastructure projects now being planned or implemented. In Takeo, Trapaeng Sab and Roveang together represent an additional 29 percent of land sales. These two areas are also located near Phnom Penh and are close to the main road leading to Takeo provincial town. Sra Yov, with 11.6 percent of reported transactions, is situated near Kompong Thom provincial town along highway Route 6. Meanwhile, the two communes reporting the fewest number of sales, Tuek Laah (2.3 percent) and Tipo (4.6 percent), have both been located off main roads and have been relatively isolated compared to other communes. However, land sales may increase in Tuek Laah as a new road connecting Sihanoukville and Kampot has been recently completed and runs through this commune.

Table 6.3c: Land Sales by Commune

Commune	No. Sales	Ave. Plot (ha)	Price (*moeun riels*/ha)	Province
Trapaeng Sab	39	.151	1,535	Takeo***
Roveang	48	.120	6,088	Takeo
Choeung Ko	18	.461	333	Sihanoukville
Prey Nup	19	.697	728	Sihanoukville
Tuek Laah	7	.515	153	Sihanoukville
Sra Yov	35	.314	910	Kg. Thom
Tipo	14	.400	130	Kg. Thom
Sambo	90	.405	382	Kg. Cham
Sraghe	33	.162	911	Kg. Cham
Total	303	.314	1,555	

The data concerning land sale prices[44] also supports a link between emerging land markets, location, and development. The four areas with the highest average reported land sale prices are all located in areas close to Phnom Penh or provincial towns and/or with infrastructure development projects planned or underway. Khum Sraghe is also characterized by intensive

[44] As with reported land values, the data for land sale prices is based on the interviewees' own assessments.

land use as some land is currently being triple-cropped (i.e., three crops per annum). Land prices are likely to increase in these areas with the advent of more secure land titles. Moreover, the two communes mentioned above (Tipo and Tuek Laah) that have been located off main roads and somewhat away from market and administrative centers have the two lowest reported sale prices. We expect land prices to increase at least in Tuek Laah following the completion of the new highway. The reported average sale price in Sambo, however, is much lower than we would expect given the relatively high volume of reported land sales. This figure either represents an error, or suggests that people are selling unproductive land (e.g., poor soils, flooding). In fact, we would expect land prices to be at least similar to those in nearby Sraghe.

The link between emerging land markets, location, and development infrastructure is further supported by the data in Table 6.3d below which shows that 62 percent of all reported land sales have taken place since 1998. Of particular interest is the fact that 67 percent of the sales in Sambo and almost 78 percent of the sales in Roveang (Takeo) have taken place since 1998, half of which have taken place since 2002. It is also interesting to observe that land transactions appear to have either increased or remained somewhat steady along National Highway Route 4 in Sihanoukville in Cheoung Ko and Prey Nup. Given their strategic location, we predict that land sales will probably increase over the next several years as more people from Phnom Penh and elsewhere (e.g., Sihanoukville) consider investing in emerging land markets.

Table 6.3d: Land Sales by Year

Commune	< 1989	1989-93	1994-97	1998-2001	2002-2004	Total
Trap. Sab	0	7	16	8	5	36
Roveang	0	3	9	22	14	48
Ch. Ko	0	4	1	7	6	18
Prey Nup	0	2	9	6	2	19
Tuek Laah	1	2	1	3	0	7
Sra Yov	0	5	9	18	3	35
Tipo	0	1	5	6	2	14
Sambo	0	16	13	33	28	90
Sraghe	0	4	7	18	4	33
Total	1	44	70	121	64	300*

* N = 3 missing

Finally, Table 6.3e below shows that households sell land for a variety of reasons. Not surprisingly, the single most often cited reason concerns health care, at 25.0 percent. Unless lower cost health care services are improved in the project areas, we can expect to see a similar rate of land sales for this reason. The second most often cited reason concerns business investments at 24.3 percent. If people use land titles in the future to secure loans with which to invest in business or other activities, we may expect to see a decrease in land sales for this reason. About 8.1 percent of the responses concerned plot characteristics, including "too small, not profitable," "poor soil", or "too far away". Another 7.4 percent involved sales to offset food shortages. We can expect land sales for these reasons to continue at a similar, if not higher, rate in areas where extension and credit are lacking. The "other" category includes loan repayments, funerals, migration costs, and climate-related shocks.

Land titles alone, however, will neither slow nor accelerate the rate of land sales among any of the landholding intervals. As noted, we expect land sales for the above reasons to continue at a similar, if not higher, rate in areas where affordable health care, extension, and credit services are lacking. On the other hand, if people use land titles to secure loans with which to

invest in business or other activities, we may expect to see a decrease in land sales for this reason, unless of course investments fail and people sell land to repay loans. In such cases, land titles may enable people to obtain a better price for their land, although this may be small consolation for those who have no viable alternatives after farming.

Table 6.3e: Land Sales, Reasons for Selling

Commune	Business	Health Care	Buy Food	Plot Features	Other	Total
Trap. Sab	6	11	2	8	13	40
Roveang	10	7	8	7	13	45
Ch. Ko	3	5	2	1	7	18
Prey Nup	3	4	0	0	11	18
Tk Laah	1	1	1	0	4	7
Sra Yov	8	12	4	1	10	35
Tipo	5	5	1	1	1	13
Sambo	24	22	4	6	33	89
Sraghe	12	7	0	0	12	31
Total	72	74	22	24	104	296*

*N = 7 no responses

Overtime, land titles may increase the efficiency of land markets by reducing transaction costs associated with contractual exchange (e.g., information, enforcement costs). As the costs associated with insecure exchange are reduced, the volume and frequency of land transactions may be expected to increase, especially in areas where the productive and/or speculative value of land increases. As noted above, the degree to which land markets direct land use in more productive directions will depend on a variety of factors, not the least of which concerns the degree of confidence people have in the land tenure security provided, and enforced, by the government.

6.4. Land Management and Administration

Of the 1,018 residential plots covered in the survey, a total of 667 (65.6 percent) have never been documented with any kind of paper. A greater percentage of male-headed households (67.0 percent) than female-headed households (61.3 percent) have never had documentation of any kind. Thirty-one (about three percent) of the plots have been documented but the paper has since been lost. Of the 320 documented residential plots, 70.6 percent use land certificate application receipts, while another 15.6 percent use land survey papers. About 13.8 percent have actual land certificates. The absence of any documentation and the use of certificate application receipts as the preferred mode of documentation are more or less constant across all landholding intervals.

Agricultural Land

Of the 3,879 agricultural plots covered in the survey, a total of 2,426 (62.5 percent) have never been documented with any kind of paper. The plots that have been documented one way or another include 1,287 plots for which there is currently some paper available, and another 166 plots for which paper, either informal or formal, has been lost. This means that at one time or another 37.5 percent of the plots have had some kind of paper documenting or otherwise claiming ownership.

Of the 1,286 documented plots, 67.3 percent are documented with receipts for certificate applications, while another 16.7 percent have land survey investigation papers. Only 9 percent have acquired actual land certificates or titles. Another 6.9 percent involve the use of other types of paper. Table 7.4a below shows, somewhat surprisingly, that an equal number of

male- and female-headed households rely on certificates, while a much higher percentage of male-headed households rely on application receipts. It is also somewhat surprising to observe that landholding size does not appear to significantly influence the type of documentation. In this sense, the preference for using land certificate application receipts is shared by households across all land holding sizes.

Table 6.4a: Documentation of Agricultural Land

Landholding	App. Receipt		Survey Paper		Certificate		Other		Total	
	M	F	M	F	M	F	M	F	M	F
< 0.5	74	39	18	15	5	1	5	9	102	64
0.5 – 0.9	177	54	43	19	3	20	7	1	230	94
1.0 – 1.9	210	50	46	7	28	28	12	8	296	93
2.0 – 2.9	112	33	23	11	6	8	22	1	163	53
> 3.0	101	17	29	4	16	1	23	1	169	23
Total	674	193	159	56	58	58	69	20	960	327
Total *	867		215		116		89		1,287	

In terms of land administration, perhaps the most relevant aspect of this set of data concerns the reasons that respondents gave for not registering their agricultural plots. Table 7.4b below shows that 22.1 percent of the plots were not registered because the respondent said they did not know the procedures. Another 19.8 percent of the plots were not registered because the respondents did not think it was necessary, while 7.2 of the plots have gone unregistered because the system was too complicated. And 4.9 percent of the plots have not been registered because of conflicts. These represent process-related reasons that suggest a high degree of confusion among people concerning various aspects of the land registration system. This in turn suggests that any increase in the use of the land registry system will depend in large part on the amount and quality of information that is made available to people at the local level, and the degree to which they understand the procedures associated with the land registry. It will also depend on the accessibility and efficiency of the system.

Somewhat surprisingly, only 2.6 percent of the plots were not documented because of informal fees, while 3.2 percent of plots were undocumented because people thought the process was not fair. Very few people referred to taxes or fees as a reason for not documenting their land. Based on other survey's, including CDRI's Social Assessment of Land (2002), we expected more respondents to refer to the costs associated with informal fees and taxes. It is possible that additional such references are included in the "Other" category, which unfortunately covers almost 46 percent of the plots in the survey sample.

Table 6.4b: Reasons for Not Registering Agricultural Plots

Land Size	Don't Need		Don'tKnow Process		Conflicts		Complex System		Other		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
< 0.5	38	28	49	23	6	10	10	3	71	38	174	102
0.5 – 0.9	86	29	66	28	17	9	35	5	162	45	366	116
1.0 – 1.9	99	25	112	38	17	2	56	8	259	39	543	112
2.0 – 2.9	42	15	91	18	35	1	24	2	181	24	373	60
> 3.0	98	30	107	14	23	0	18	18	290	28	536	90
Total	363	127	425	121	98	22	143	36	963	174	1992	480
Total	490		546		120		179		1,137		2,472*	

*N = 46 more than 2,426 plots never documented. This suggests 46 multiple answers.

6.4.1. Land Transfers

Table 6.3c below shows that at least percent of agricultural land sales are documented by changing names on land certificate application receipts. The number of reported sales that go unrecorded at the official registry is undoubtedly higher, as the 101 "other" probably includes a number of agreement letters and other informal methods. It is interesting to note that the number of reported name changes on receipts decreases with distance. For example, over half (51.8 percent) of the sales are documented with name changes at the village level, while 11.8 percent are documented at the commune level. Only three sales are documented at the district level, and one at the provincial level. This suggests that the transaction costs associated with travel and time represent significant obstacles for accessing the official land registry system.

Table 6.4c: Land Sales, Documentation

Commune	ChangeName, Village	ChangeName, Commune	ChangeName, District	ChangeName, Province	Other	Total
Trap. Sab	25	5	0	0	10	40
Roveang	30	4	3	0	11	48
Ch. Ko	7	9	0	0	2	18
Prey Nup	14	2	0	0	3	19
Tk Laah	1	0	0	0	6	7
Sra Yov	19	0	0	1	14	34
Tipo	8	0	0	0	5	13
Sambo	44	5	0	0	40	89
Sraghe	13	8	0	0	11	32
Total	161	33	3	1	102	300*

* N = 3 missing

The research theory predicts an increase in the percentage of transactions (e.g., sales, inheritance) that are facilitated and recorded by the official registry system, particularly in more active land markets where land values are increasing. These predictions assume (1) transaction costs (e.g., informal fees, travel) associated with official registration will be lower than current costs, (2) people have more confidence in the security of tenure than they do now, and (3) people have sufficient knowledge of the proper procedures and capacity to access the system.

The degree to which people use the official system may, however, vary according to the capacity and willingness of the household to pay related fees and taxes. Generally speaking, households with more income and wealth may be more inclined to use the official registry than those with less income and wealth, in part because they have more land to secure with official titles. At the same time, they may also be as inclined as smaller households to avoid tax payments if they feel the rates are too high and that such measures are not properly or fairly enforced.

Note on Governance, People's Perception of Land Titling Benefits

Generally speaking, people in the survey areas have a very positive perception of the LMAP process. One reason is that the LMAP teams in their areas appear to be working in a transparent and objective manner. Also, people feel that the process for resolving conflicts that arise during the process is fair. As a result, people seem to have a great deal of faith in the security of the land titles they expect to receive.

A significant majority of households, 79.6 percent, felt that security of tenure was the most important benefit from land titling. About 53.7 percent indicated that reduction of land conflicts was the second most important benefit. As for the third most important benefit, 40.3 percent indicted land titles would make it easier to borrow money, while another 40.3 percent said that land titles would make it easier to transfer land.

6.5. Land Conflicts and Resolution

A total of 60 land conflicts were reported to have occurred in the LMAP survey areas since the Commune Council election. Of the 60 conflicts that involved agricultural landholders, 48 cases (80 percent) involved male-headed households and 12 cases (20 percent) involved female-headed households. About 48 percent of the reported conflicts (29 cases) involved households with one hectare of agricultural land or less, while 28 percent (17 cases) involved households with two or more hectares (Table 7.5a). The type of land involved in the conflict was almost evenly divided between agricultural land (31 cases) and residential land (29 cases).

Table 6.5a: Reported Land Conflicts

HH Head	< 0.5	0.5-.99	1.0 – 1.99	2.0 – 2.99	≥ 3	Total
Male	8	14	11	9	6	48
Female	6	1	3	1	1	12
Total	14	15	14	10	7	60

Boundary conflicts with neighbours accounted for 23 cases (38.3 percent), followed by 13 cases involving other villagers (21.6 percent), and 12 cases of conflict with relatives (20 percent). Six cases (10 percent) involved reported "encroachment" on the part of authorities or powerful people, and another 6 cases involved "other" reasons. This distribution of land conflict type affirms the observation from an earlier study [45] suggesting that most land disputes are local in nature, involving boundary conflicts with neighbours or others in the villages, or ownership disputes with relatives. Other studies have reported higher incidences of land grabbing and encroachment elsewhere in Cambodia, suggesting that the scope and scale of land conflicts are highly situational. In this sense, it should be kept in mind that the areas selected by provincial LMAP authorities for land-titling tend to be areas where intensive rice cultivation is the prevailing mode of agricultural production and where land tenure has been traditionally governed according to customary rights. As a result, the number or type of reported land conflicts in the LMAP survey areas is not surprising.

6.5.1. Conflict Resolution

The 61 households involved in the conflicts reported using a variety of approaches for resolution, and many of the conflicts involved more than one step in the resolution process. With respect to the first step, 21 households tried to negotiate a solution directly with the other party, while 23 households went to the village chief. Eight households went to the commune chief and three went to the district conflict resolution committee. Two households went to someone else in the village (e.g., neighbour, monk) and four reported using some other means. Given the fact that most disputes involved people within the same village, the clear preference for solving disputes at the village level is not surprising. Another factor concerns the transaction costs associated with time, travel, and various fees involved with using more distant authority (see Section 7.4). Nevertheless, slightly less than half the cases (28) were resolved during the first negotiations, while 31 cases were not resolved.

Of those 31 cases, 21 households reported a second round of negotiation, leaving ten cases unaccounted for. It is possible that at least some of these 10 households simply left the conflict in an ambiguous state, or did not report any subsequent steps to the interviewers. Of the 21 second round cases, seven reported going to the village chief, while one person involved a neighbour. The remaining 11 cases involved outside authorities, including the commune leader (eight), the provincial conflict resolution committee (two), and the national

[45] See Social Assessment of Land in Cambodia Land Titling (So eta al, 2002).

conflict resolution committee (one). Although the number of cases is relatively small, it suggests that people tend to appeal to higher authorities when their case cannot be resolved locally. Of these 21 cases, however, only five households reported that their case was resolved, leaving 16 cases unresolved after a second round of negotiation.

Of these 16 cases, ten households reported a third round of negotiation. One case involved direct negotiation, while eight cases involved outside authorities, including the commune leader (two cases), district conflict resolution committee (three cases), and the national conflict resolution committee (two cases). The remaining two cases involved other means. Six of the disputes were resolved after the third round, while four remained unresolved.

In terms of the reported costs for negotiating conflicts, 58 households involved in first round negotiation reported an average cost of 0.79 *moeun riels*, while the 21 second round negotiations reported average costs of 2.21 *meoun riels*. The ten households involved in a third round of disputes reported average costs of 3.5 *moeun riels*. Although the number of cases is again relatively small, the data suggests that each successive round of negotiation becomes in increasingly costly, perhaps in part due to the fact that subsequent rounds tend to involve outside authorities (e.g., transportation and other costs). As a result, the ten households that went through three rounds of negotiation reported average expenditures of about 6.5 *moeun riels*. Some households spent considerably more.

Households were also asked if they had lost any land as a result of the conflict resolution. Of the 55 households included in the data set, 14 indicated "idea/no response", leaving 41 households. This closely approximates the 39 cases cited above in which there was some resolution. Of the 41 households, 18 reported that they did not lose any land, while 14 reported they lost some land. Nine households reported losing all the land, which probably means the parcel or parcels involved in the conflict, not necessarily their entire landholding.

Households were then asked if they were satisfied with the way, or with whom, the conflict was resolved. Twenty-seven of 43 households (62.8 percent) indicated they were satisfied, while the remaining 16 households (37.2 percent) were not satisfied. Not surprisingly, 26 households said they thought the resolution was fair, while 13 thought it was not fair and four households did not know. There is obviously a clear relationship between one's satisfaction with the outcome and one's feeling about the fairness of the solution, or the process.

6.5.2. Summary

Generally speaking, we expect that land titles will lead over time to a significant reduction in the number of land disputes in the LMAP survey areas. One reason is that the tilting process itself requires that any land disputes must be resolved before land titles can be issued. However, because so many people appear to perceive that the LMAP land titling process is final, long dormant issues or unresolved conflicts may emerge when the titling program is first announced in a particular area. Some people may also take the opportunity to encroach on or otherwise grab land prior to the LMAP process. In this sense, the LMAP process may actually stimulate an upsurge in the number of reported conflicts at or around the time of the LMAP titling process. Once titles are issued, however, we expect to observe a decline in the number of disputes, particularly those involving boundary disputes between neighbors. The number of ownership disputes may also decline, but perhaps not entirely disappear, especially in cases involving inheritance and other family matters. It remains to be seen how local authorities and the courts will enforce land tenure security represented by LMAP land titles in cases of conflict after titles are issued.

It should also be noted that the current level of rural infrastructure development projects has had a tremendous impact on the rural economy and has increased the potential productive value of lands. In response, outsiders - mostly from urban areas - have been purchasing rural land along the main roads, and near urban and market centres before and after the implementation of infrastructure development projects. Many poor households who have sold

their residential lands, along with newly married families, have moved to, or otherwise converted their arable lands away from the main road into homestead lands.

There do not appear to be a large number of cases in the survey areas where outsiders have left land idle while denying people access. Such cases, however, are a primary concern of the commune council members with whom BSP researchers spoke. In this sense, the commune council members who were interviewed in the course of this study believe that the formal land-titling and registration procedures will facilitate the enforcement of existing laws and regulations, and help reduce land conflicts in their jurisdictions. Their actual level of responsibility, however, is not entirely clear to many members.

Chapter 7.
Kompong Chhnang: Control Areas

Kompong Chhnang, which is not included in the first phase of the LMAP land-titling project, was selected to serve as the control province because its strategic location along Route 5 resembled all four LMAP project provinces where surveys were conducted. Its geographical proximity to Phnom Penh also resembled Takeo and Kompong Cham provinces. A total of 260 household interviews were conducted in *Khum* Roleapéar and *Khum* Chress. The following section follows the outline used above for the LMAP provinces. The objective of the following discussion is to briefly identify similarities and differences in certain key indicators of interest in the data collected in the experimental (i.e., LMAP project areas) and control areas.

7.1. Household Characteristics

Residential Land

Of the 260 households in the control sample, 250 own a total of 291 residential plots of land, including all 18 households with no agricultural land. This represents about 96.2 percent of the households in the control areas, compared to 94.5 percent in the LMAP survey areas. About 56.7 percent (165 plots) of the residential plots were acquired from the State, while another 30.2 percent (88 plots) of the plots were acquired through inheritance. This compares to 39.3 percent acquisition from the State and 34.8 percent acquisition through inheritance in the LMAP survey areas. About 7.9 percent of the plots were purchased, and another 4.8 were acquired by clearing. This compares to 17.6 percent by purchase and 6.8 percent by clearing in the LMAP survey areas.

In terms of the sex of household head, 53 percent of the plots owned by male–headed households were acquired from the State, while 67.1 percent of the plots owned by female-headed households were acquired from the State. About 26.3 percent of the plots owned by female-headed households, and 31.6 percent of the plots owned by male-headed households, were acquired through inheritance. About 8.8 percent of the plots owned by male-headed households, and 5.3 of plots owned by female-headed households were acquired through purchase. Finally, 6 percent of male-headed household plots and 1.3 percent of female-headed plots were acquired by clearing. In general, this pattern of residential land acquisition according to the sex of household head is similar to the pattern found in the LMAP survey areas.

Agricultural Landholdings

Of the 260 households interviewed, 242 reported owning agricultural land. The distribution of ownership within the control groups is similar to the LMAP survey sample in that large landholders own a disproportionate share of the agricultural land. For example, households with less than 0.5 hectare make up 26.9 percent of the survey sample, but own only 6.6 percent of the land. Households with less than one hectare make up about 60 percent of the sample, but own 27.1 percent of the land. Households with two or more hectares account for 15 percent of the households, yet own 43 percent of the agricultural land. Meanwhile, households with three or more ha make up 7.4 percent of the households, but own 26.5 percent of the land.

Table 7.1a below also shows a similar pattern of relationships between land size, number of plots, and area per plot in Kompong Chhnang as in the LMAP project sample. Households with smaller landholdings have fewer plots that are smaller in size relative to households with larger landholdings that have a greater number of larger-sized plots. Indeed, the data shows that the number and size of plots steadily increases from one landholding category to another, as does Table 5.1a above concerning the LMAP survey sites.

Table 7.1a: Household Agricultural Landholding Summary

Landholding	No. HH	Total Plots	Total Area	Area/HH	Plots/HH	Area/Plot
< 0.5	65	167	18.18	0.280	2.569	0.109
0.5 – 0.9	81	368	56.29	0.695	4.543	0.153
1.0 – 1.9	59	376	81.08	1.374	6.373	0.216
2.0 – 2.9	19	144	46.21	2.432	7.579	0.321
> 3.0	18	177	72.66	4.037	9.833	0.411
Total	242	1,232	274.42	1.13	5.09	.2200

Although the figures vary somewhat from one landholding interval to another, a pattern similar to the LMAP areas also emerges concerning the mode of land acquisition in the control areas (Table 7.1b). Households with smaller landholdings have acquired a somewhat larger percentage of their plots from the State and inheritance than have households with larger landholdings. As in the LMAP survey areas, the middle interval has a greater percentage of State acquisitions than any of the other intervals. At the same time, households with larger landholdings have acquired a larger percentage of their plots through purchase than households with smaller landholdings. Moreover, 24.0 percent of the plots owned by landholders with three or more hectares have been acquired by clearing, as opposed to 4.6 and 6.7 percent for the two smallest landholding intervals.

Table 7.1b: Agricultural Mode of Acquisition by Landholding

Landholding	State	Inherit	Purchase	Cleared	Total N
< 0.5	45.1	44.6	5.7	4.6	175
0.5 – 0.9	55.2	25.1	13.1	6.7	359
1.0 – 1.9	60.1	15.8	15.5	7.9	368
2.0 – 2.9	41.7	22.9	27.8	7.6	144
> 3.0	40.6	15.4	20.0	24.0	175
Total Plots	632	286	189	114	1,221*
% of Total	51.8	23.4	15.5	9.3	

* N = 11 missing

The households in the Kompong Chhnang control area and the LMAP survey area also share other similar characteristics. For example, Table 7.1c shows that larger landholders in Kompong Chhnang tend to own more non-farm and farm-related assets. This is particularly so concerning livestock, non-machine farm assets, and farm machinery. These factors help explain why and how household income levels increase steadily along with landholdings, as they do in the LMAP areas. Presumably, increased ownership of key factors of production, in this case land and farm assets, should lead to higher incomes. The higher income levels of the two largest landholding interval may also help account for their relatively high share of land acquisitions through purchase. As in the LMAP survey areas, this kind of cycle suggests that the more land one has, the more land they may be able to acquire.

Table 7.1c: Household Labour & Capital Assets

Land Size	Ave. Labour	Ave. LStock	Dur. Assets	Non-Farm Fixed Assets	Farm Assets Non-Mach.	Farm Assets Mach	HH Income
0	(2.7)						
< 0.5	3.1	112.5	27.0	5.1	11.4	25.7	80.3
0.5 – 0.99	4.0	170.9	56.8	7.7*	12.9	24.5	125.6
1.0 – 1.99	4.8	233.1	46.7	4.2	18.2	28.7	152.0
2.0 – 2.99	4.7	242.9	67.3	3.6	17.1**	53.35	216.3
> 3.0	4.0	434.0	55.1	10.1	20.1	77.86	166.5

7.1.1. Gender

The landholding patterns for male- and female-headed households in the control areas are also similar to the general patterns in the LMAP survey areas. On average, male-headed households tend to own more land than female-headed households in terms of total area as well as the total number of plots. However, the average size of each plot (.22 ha) is similar for male- and female-headed households (Table 7.1d). This differs from the LMAP survey areas where the average size of plots for male- and female-headed households is .39 ha and .30 ha, respectively.

Table 7.1d: Landholdings by Gender

	No. HH		Tot.Plots		Total Area		Area/HH		Plots/HH		Area/Plots	
	M	F	M	F	M	F	M	F	M	F	M	F
< 0.5	44	21	120	47	12.0	6.2	0.27	0.29	2.72	2.23	0.10	0.13
0.5 – 0.99	61	20	272	96	42.4	13.9	0.69	0.69	4.45	4.80	0.15	0.14
1.0 – 1.99	45	14	286	90	61.3	19.8	1.36	1.41	6.35	6.42	0.21	0.22
2.0 – 2.99	14	5	120	24	34.8	11.4	2.48	2.27	8.57	4.80	0.29	0.47
> 3.0	15	3	147	30	60.6	12.1	4.03	4.02	9.80	10.0	0.41	0.33
Total	179	63	945	287	211.1	63.4	1.18	1.00	5.27	4.55	0.22	0.22

The data shows that 33 percent of the female-headed households own less than 0.5 hectare of agricultural land, while 24.6 percent of male-headed households own less than 0.5 hectare. About 65 percent of female-headed households and 58.7 percent of the male-headed households own less than 0.5 hectare. Such gaps in distribution are smaller than those found in the LMAP survey areas. About 12.7 percent of female-headed household own more than two hectares, while 10.6 percent of male-headed households own more than two hectares. This differs from the LMAP survey areas where 17 percent of female- and 31 percent of male-headed households owned two or more ha of agricultural land. The number of households in the sample, especially female-headed households is, however, small.

The pattern of agricultural plot acquisition according to the sex of the household head in the Kompong Chhnang control area also resembles the patterns in the LMAP survey area. For example, female-headed households have a higher percentage (67.2 percent) of plot acquisitions from the State than do male-headed households (47.2 percent). At the same time, the percentage of plot acquisition by inheritance is much lower for female-headed households (13.9 percent) when compared to male-headed households (26.1 percent). The percentage of plot acquisition by purchase (9.8 percent) and clearing (9.1 percent) are also lower for female-headed households than for male-headed households, 17.3 and 9.5 percent, respectively. As in the LMAP survey areas, the lower percentage figures for inheritance, purchase, and clearing suggest that female-headed household are less able to acquire additional plots than male-headed households (Table 7.1e).

Table 7.1e: Land Acquisition by Sex of Household Head

Land Size	State		Inherit		Purchase		Cleared		Total	
	M	F	M	F	M	F	M	F	M	F
< 0.5	35.2	75.6	52.3	19.5	6.3	2.4	6.3	2.4	124	48
0.5 – 0.9	47.4	74.5	33.8	10.0	13.9	10.9	4.9	4.5	264	95
1.0 – 1.9	61.2	64.6	14.0	14.6	16.1	8.5	8.7	12.2	278	90
2.0 – 2.9	41.5	58.3	23.2	8.3	26.8	16.7	8.5	16.7	120	24
> 3.0	37.7	43.3	13.2	23.3	25.8	13.3	23.2	20.0	145	30
Total Plots	439	193	243	40	161	28	88	26	931	287
% of Mode	47.2	67.2	26.1	13.9	17.3	9.8	9.5	9.1	1,218 *	

* N = 14 missing

In terms of landholding size, the two smallest landholding intervals have acquired well over half their plots from the State and through inheritance as opposed to purchase and clearing. In this sense, the percentage of land acquisitions from the State tends to decline as landholding size increases, especially for female-headed households, while the percentage of plot acquisitions by purchase and clearing tends to increase along with landholding size for both male- and female-headed households.

Table 7.1f below shows that female-headed households at each landholding interval have, on average, fewer assets and less income than do male-headed households. This closely corresponds with the pattern of asset and income distribution in the LMAP survey areas. The only exception to this pattern concerns the fact that female-headed households with more than two ha of land reported higher incomes than did male-headed households. One possible explanation is that these households may be engaged in off-farm employment such as trade or business. It should also be kept in mind that the number of female-headed households in this interval is relatively small. As in the LMAP survey areas, fewer farm-related assets suggest a constraint on the amount of land that can be cultivated, while less income suggests a constraint on capacity for purchasing new land.

Table 7.1f: Labour, Assets, and Income by Gender of HH Head

Land Size (ha)	Households		Labour		Ave Livestock		Non-farm Durables		Non-farm Fixed Assets	
	M	F	M	F	M	F	M	F	M	F
0			2.8	2.7						
< 0.5	44	2 1	3.4	2.5	132.6	60.6	37.7	4.6	5.6	3.3
0.5 – 0.99	61	20	4.4	3.0	187.3	113.8	66.2	28.1	9.2	2.6*
1.0 – 1.99	45	14	5.2	3.4	239.0	212.5	53.1	26.1	3.6	5.9
2.0 – 2.99	14	5	4.4	5.6	256.2	200.0	83.0	23.4	4.0	1.7
> 3.0	15	3	5.0	3.0	488.1	163.3	64.0	10.7	11.4	2.0

Land Size	Farm Assets/Non-M		Farm Assets/Machine		HH Income	
	Male	Female	Male	Female	Male	Female
0						
< 0.5	12.3	7.7	32.1	0	93.0	53.7
0.5 – 0.99	14.5	7.9	32.5	7.8	137.0	90.8
1.0 – 1.99	19.3	14.9	36.5	9.6	166.4	105.9
2.0 – 2.99	20.5	7.3**	63.7	15.3	206.8	243.0
> 3.0	19.2	24.2	91.2	20.0	165.5	171.1

7.1.2. Rice Sufficiency

Within the Kompong Chhnang control areas, 27.3 percent of the households produced a surplus that could be used for sale, which is similar to the LMAP survey areas where 28.2 percent of the households produced a surplus. Another 20 percent produced enough for home consumption, compared to 12.9 percent in the LMAP areas. About 20.3 percent produced enough for 7-10 months of home consumption, while another 13.1 percent produced enough for 3-6 months. About 9.3 percent produced enough for only 3 months or less, while 10 percent had to buy rice the entire year (Table 7.1g).

Table 7.1g: Rice Sufficiency

Land	Surplus		Enough		7-10 mos		3-6 mos		< 3 mos		buy all		total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0	0	0	0	0	0	0	1	0	1	0	6	10	8	10
< 0.5	4	3	7	2	15	4	11	5	7	3	1	3	45	20
0.5 – 0.9	22	5	17	3	12	5	4	3	4	2	1	3	60	21
1.0 – 1.9	14	5	12	1	9	5	3	3	4	0	1	0	43	14
2.0 – 2.9	9	2	4	0	1	0	0	1	2	1	0	1	16	5
> 3.0	6	1	4	2	2	0	3	0	0	0	0	0	15	3
Total N	55	16	44	8	39	14	22	12	18	6	9	17	187	73
Total	71		52		53		34		24		26		260	

Of the 71 surplus producing households, 34 (47.9 percent) own less than one hectare, while the remaining 37 (52.1 percent) households own one hectare or more. Of the 52 households that produced enough rice, 65 percent owned one hectare or more, while the remaining 35 percent owned less than one hectare. Only two households with one hectare or more had to buy rice all year round, while the remaining 23 households that bought rice year round had less than one hectare.

Female-headed households account for 65.4 percent of the households that had to buy rice year round, even though they account for 28.1 percent of the household in the control sample. All ten female-headed households that are landless must buy rice all their rice year round, and they represent 62.5 percent of the landless households that buy all their rice. At the same time, they account for 15.5 percent of the households that produced either enough for home consumption or a surplus.

7.2. Credit Activity at the Household Level

About 45.6 percent (115) of the households in the Kompong Chhnang control group reported taking 155 loans during the six-month period prior to the survey, averaging about 1.35 loans per borrowing household. This compares to a rate of 1.40 loans per borrowing household in the LMAP survey areas. Male- and female-headed households accounted for 73.5 and 26.5 percent of loans, respectively. This compares to 79 percent and 21 percent for male- and female-headed households, respectively, in the LMAP survey areas.

About 74.8 percent of the loans were obtained in the informal sector (e.g., family, friends, and moneylenders), which is higher than the LMAP areas (60 percent). The remaining loans were divided among the formal sector (14.9 percent) and the semi-formal sector (10.3 percent). The low percentage of loans from the formal sector relative to the LMAP survey areas (31 percent) suggests that formal institutions may not be as prevalent in Kompong Chhnang as they are in at least some LMAP areas.

Table 7.2a: Credit Sources by Landholding

Land Size	Relative/ Friend		Moneylender		NGO		Acleda		MFIs		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
0	1	0	0	0	0	0	0	0	1	2	2	2
< 0.5	17	4	6	0	5	1	1	0	4	1	33	6
0.5 – 0.99	22	16	8	2	3	1	1	1	3	1	37	21
1.0 – 1.99	16	5	2	1	2	1	1	0	6	0	27	7
2.0 – 2.99	4	4	2	0	1	0	0	0	1	0	9	4
> 3.0	3	1	1	0	2	0	0	0			6	1
Total %	57	73	16.7	7.3	11.4	7.3	2.5	2.4		9.8		
Total Loans	64	30	19	3	13	3	3	1	11	4	114	41
Tot. Purpose	94		22		16		4		19		155	
Tot. Loans	60.6		14.2		10.3		2.6		12.9			

Table 7.2b below shows that loans for productive investments accounted for 42 percent of all credit activity in the control group, compared to 36 percent in the LMAP survey areas. Eleven percent of the loans were for small business-related activities, 25.2 percent were for agricultural production, and 5.8 percent were for animal raising. These percentages are somewhat similar to those in the LMAP survey areas. Male-headed households accounted for 88 percent of the loans for productive investments, compared to 83.6 percent in the LMAP survey areas.

Health care and food shortages account for about 29.7 percent of the loans in the control group, compared to 40 percent in the LMAP survey areas. Male-headed households account for about 60 percent of these loans. The remaining 27.7 percent of loans were for "other" purposes, including repaying loans, home construction, and transportation. Male-headed households account for about 75 percent of these loans.

As in the LMAP survey areas, the two largest landholding size intervals tend to borrow less often than the remaining interval groups. This pattern is fairly consistent across all landholding size intervals, including production purposes (e.g., agriculture, business, and livestock) that were dominated by the upper two intervals in the LMAP survey area.

Table 7.2b: Loans Uses by Landholding Size

Land Size	Agriculture		Business		Food		Health		Livestock		Other		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
0	0	0	1	1	0	1	0	0	0	0	1	0	2	2
< 0.5	7	0	0	0	6	1	9	2	1	0	10	3	33	6
0.5 – 0.99	9	6	4	3	2	3	6	5	5	0	10	5	37	21
1.0 – 1.99	9	1	3	1	2	2	3	2	2	0	6	1	27	7
2.0 – 2.99	2	1	4	0	0	0	0	2	1	0	2	1	9	4
> 3.0	3	1	0	0	0	0	0	0	0	0	3	0	6	1
Total %														
Total Loans	30	9	12	5	10	7	18	11	9	0	33	10	114	41
Tot Purpose	39		17		17		29		9		44		155	
% Loans	25.2		11.0		11.0		18.7		5.8		28.4			

Table 7.2c below shows that the largest average size of loans are from relatives and friends, followed by Acleda and then moneylenders. The size of loans from the semi-formal sector and from MFIs is fairly equivalent. This pattern differs somewhat from the pattern in the LMAP survey areas, where the average size of Acleda loans was the largest, followed by family and friends. This further suggests that the formal credit sector in Kompong Chhnang, at least in the areas included in the survey control areas, is not yet as developed as in certain LMAP project areas.

Table 7.2c: Credit Sources by Loan Use

Purpose	Relative/ Friends		Moneylender		NGO (SHGs)		Acleda		MFIs		Total Loan	
	No	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.	No.	Amt.
Agriculture	26	11.9	5	12.00	9	7.07	1	20.0			41	11.0
Business	11	33.6	1	10.00	0		2	60.0	3	11.2	17	31.4
Food Shortage	14	6.0	2	15.5	1	90.00			2	60.0	19	12.5
Health	17	52.9	2	15.50	2	77.50			8	16.0	29	42.1
Livestock	5	82.6	2	19.50	2	20.00					9	54.7
Other	24	73.5	11	43.46	2	6.48	1	10.0	6	26.8	44	55.1
Total	97	39.4	23	28.22	16	22.6	4	37.5	19	23.7	159	34.1
									9.4			
% Total Loans	61.00		14.5		10.1		2.5		9.4			

7.3. Agricultural Investments, Productivity, and Land Use

Table 7.3a below summarizes agricultural expenditures for rice production during the most recent cropping season prior to the survey in the Kompong Chhnang control areas. As in the LMAP survey areas, the average amount of expenditures per household tends to increase along with landholding size. The one difference is that the expenditures for the households with three or more hectares decrease to a level similar to the middle landholding interval. The level of expenditures in the LMAP projects and the control areas is similar among the three smallest landholding intervals, although there is significant difference among the two largest intervals.

Table 7.3a: Rice Production Inputs (*moeun riels*/hh)*

Input	**< .5**		**0.5 – 0.99**		**1.0 – 1.99**		**2.0 - 2.99**		**≥ 3.0**		**Total Ave.**	
	M	F	M	F	M	F	M	F	M	F		
Ch. Fert.	4.4	3.2	8.2	5.2	10.9	6.5	14.9	8.2	9.3	1.3	7.7	
Pesticide	0.8	3.1	0.9	.59	1.5	1.2	1.7	1.2	1.4	4.6	1.3	
Pumping	6.3	2.2	8.2	4.4	9.8	7.7	9.4	9.4	10.9	2.0	7.8	
Lbr: Prep	4.0	3.0	4.3	3.6	4.1	4.1	11.9	3.0	2.7	3.0	4.5	
Lbr: Tran	8.0		8.1	4.1	14.8	22.0	18.4	25.0	9.4	7.0	11.0	
Lbr: Harv	4.7	1.0	8.2	6.5	8.7	7.7	13.5	20.0	5.7	8.0	8.3	
Threshing	1.8	1.4	3.9	2.3	3.8	3.0	6.4	6.8	5.3		3.5	
Repairs	0.2	3.0	.86	.33	1.6	1.8	15.0	16.5	2.3		2.7	
Transport	1.9	1.3	2.9	2.2	2.6	2.0	6.1	1.0	6.2		2.8	
Rent.land	7.2	3.0	9.9	22.4							11.1	
Rent. Live		.45	1.8	.30			3.5		8.0		2.8	
Other	.75	.75	2.75		3.0		15.5	10.0	2.5		4.3	
Total	15.1	7.2	22.9	13.0	31.3	20.0	54.2	32.4	28.7	12.1	26.2	14.9
Total	12.9		20.6		28.7		48.6		26.8		23.5	

* Note: Data gaps (e.g., Female/.3.0 hectares) to be resolved.

As in the LMAP areas, there is also a clear pattern of expenditures according to the sex of the household head. On average, male-headed households expended about 75.8 percent more than female-headed households, compared to about 55 percent in the LMAP areas. Female-headed households expended more than male-headed households only for certain inputs (e.g., labour for transplanting and harvesting) in certain land size intervals (e.g., 2.0-2.99 ha).

As in the LMAP areas, the expenditures for rice production are dominated by labour inputs, primarily for transplanting and harvesting, as well as chemical fertilizers and water pumping fees. It is interesting to note that land rentals only involved the lower two land size intervals, which may account for the fairly high rate of land utilization seen in Table 7.3h.

7.3.1. Financial Sources for Expenditures

Table 7.3b below shows that over 94 percent of expenditures for rice production in the control area are financed by "own sources," compared to 89.4 percent in the LMAP areas. Relatives and friends follow with almost five percent, leaving only a small percentage (0.9 percent) of inputs financed with loans from credit programs. Except for chemical fertilizers (85.9 percent), there is a clear pattern of financing both labour and other inputs with own sources. This again reinforces the impression that credit markets may not be as well developed in Kompong Chhnang as in other areas, including LMAP survey areas.

Table 7.3b: Expenditure Sources for Selected Agricultural Inputs

Input	Own Sources		Relative/Friend		Credit Program		Total
	N	%	N	%	N	%	N
Chem. Ferlizer	165	85.9	24	12.5	3		192
Pesticide	64	100.0					64
Pumping	115	95.0	4	3.3	2	.83	121
Land Prep.	73	97.3	2	2.6			75
Transplanting	93	100.0					93
Harvesting	76	98.7	1	1.3			77
Totals	586	94.2	31	4.9	5	.90	622

The data also shows that the strong tendency to finance agricultural inputs with own sources across all land holding intervals includes all major inputs, except for chemical fertilizer. Table 7.3c below shows that about 15 percent of inputs were financed with support from relatives and friends among the three lowest land size interval. The upper two intervals, however, primarily relied on "own source" financing. This pattern differs from the pattern found in the LMAP areas.

Table 7.3c: Finance Sources for Chemical Fertilizer Inputs

Input	Own Sources		Relative/Friend		Credit Program		Total
	N	%	N	%	N	%	N
< 0.5	43	84.3	7	13.7	1	1.9	51
0.5 – 0.99	54	84.4	10	15.6			64
1.0 – 1.99	37	82.2	7	15.5	1	2.2	45
2.0 – 2.99	17	100.0					17
> 3.0	14	93.3			1	6.6	15
Totals	165	85.9	24	12.5	3	1.6	192

7.3.2. Productivity

As in the LMAP areas, the data in Table 7.3d affirms the inverse relationship between farm-size and productivity in which small farms tend to be more productive in terms of rice yields per hectare than large farms. Generally speaking, the average yields for each of the landholding size intervals in the LMAP and control areas, except for the second interval, closely approximate each other.

Table 7.3d: Average rice yields of total harvested areas (kg /ha)

LandHolding	Male		Female		Total	
	HH	Yield	HH	Yield	HH	Yield
< 0.5	44	2,114	17	1,821	61	2,032
0.5 – 0.99	57	2,126	19	1,743	76	2,032
1.0 – 1.99	42	1,593	13	1,105	55	1,478
2.0 – 2.99	16	1,296	4	819	20	1,200
≥ 3.0	15	1,046	3	975	18	1,034
Totals	174	1,836	56	1,511	230	1,757

As in the LMAP areas, one possible reason for their higher land productivity is that small farmers appear to apply purchased inputs more intensively per hectare than larger farms. In terms of all inputs, for example, the two smaller landholding intervals expended 38.1 and 39.0 *moeun riels* per hectare respectively, while the two larger intervals expended 25.7 and 17.5 *moeun riels* per hectare respectively (Table 7.3e).

Table 7.3e: Rice Production Inputs (*moeun riels*/ha)

Input	< .5		0.5 – 0.99		1.0 – 1.99		2.0 – 2.99		≥ 3.0		Total Ave.	
	N	Amt	N	Amt	N	Amt	N	Amt	N	Amt	N	Amt
Ch. Fert.	50	12.8	62	12.1	45	8.9	16	7.2	15	6.2	188	10.6
Pesticide	13	3.1	17	2.9	20	1.9	6	1.4	7	1.9	63	2.4
Pumping	28	18.1	35	21.2	31	11.8	13	4.8	12	6.3	119	14.7
Lbr: Prep	28	12.7	20	8.3	16	5.7	7	5.6	4	2.1	75	8.8
Lbr: Tran												
Total Prod.	57	38.1	74	39.0	53	27.8	19	25.7	17	17.5	220	33.3

The difference between land productivity (yields per ha) and investment productivity (yields per *moeun riels*) found in the LMAP areas is also observed in the Kompong Chhnang control areas. Table 7.3f shows farms with less than 0.5 hectares get 53.3 kg per every *moeun riels* of expenditure, while farms with more than three hectares get about 59 kg of rice for every *moeun riels* of expenditure. As in the LMAP areas, this is despite the amount of investment per hectare tends to decrease as land size increases.

Table 7.3f: Land and Investment Productivity

Land Size (ha)	Area Harvested	Yield (kg/ha)	Expenditure (moeun/ha)	Cost (kg/moeun)	Cost (moeun/hh)
< 0.5	.4041	2,032	38.1	53.3	15.40
0.5 – 0.99	.6267	2,032	39.0	52.1	24.44
1.0 – 1.99	1.071	1,478	27.8	53.2	29.77
2.0 – 2.99	1.812	1,200	25.7	46.7	46.57
≥ 3.0	2.493	1,034	17.5	59.1	43.63

As in the LMAP survey areas, higher land productivity does not translate into higher levels of total rice production per household. Table 8.3h shows that households with less than 0.5 hectares produced 821.13 kg of rice, despite their productivity advantage. Meanwhile, households with three more hectares produced 2.58 MT per household, even though they were only about half as productive as the smallest farms in the control areas.

These production discrepancies also occur despite the higher rate of land utilization among the smaller farms. For example, the smallest farms reported owning an average of .28 hectares per households, but harvested over .4 ha, a utilization rate of 143 percent, which suggests some degree of leasing. The largest interval owned 4.04 ha, but harvested only 2.493, a utilization rate of about 62 percent. Nevertheless, the production gap (measured as the ratio of small/large minus 1) between the smallest farms and the larger farms is much smaller in the control area (68.2) than in the LMAP projects areas (80.4). This suggests a wider variation of production capacities and conditions in the LMAP survey areas than in the control areas.

Table 7.3g: Household Production

LandHolding (ha)	**Yield (Kg/ha)**	**Area (ha/hh)**		**Total Prod. (kg/hh)**
		Owned	Harvested	Yield x Area Harvested
< 0.5	2,032	0.28	.4041	821.13
0.5 – 0.99	2,030	0.70	.6267	1,272.2
1.0 – 1.99	1,478	1.37	1.071	1,582.9
2.0 – 2.99	1,201	2.43	1.812	2,176.2
≥ 3.0	1,035	4.04	2.493	2,580.3

7.3.3. Land Use

As in the LMAP survey areas, residential land in the control areas is used for multiple purposes. Unlike the LMAP areas, the diversification of residential land use shows a somewhat mixed pattern of uses according to landholding size. For example, the use of residential land for housing and tree crops is fairly consistent across all landholding groups. Meanwhile, households with three or more hectares do not appear to use any residential land solely for housing, while 15 percent of their residential land is left idle. The use of residential land for housing and vegetables and small business also varies according to landholding size, though not consistently.

Table 7.3h: Residential Land Use

Land Use	Landless	< 0.5	0.5-0.99	1-1.99	2-2.99	> 3.0	Total
	%	%	%	%	%	%	%
Leave it idle	0	0	8	8	0	15	6
Relatives temporarily stay without charge	0	2	1	2	0	0	1
Living & plantation	58	52	48	45	52	58	50
Plantation /veg. only	5	7	10	8	5	15	8
Living & business	21	31	29	30	33	12	28
Business only	0	0	0	2	0	0	0
Living only	16	8	4	6	10	0	6
Other	0	2	0	2	0	0	1
Total Plots	19	62	93	67	21	26	288*

* N = 3 missing

Agricultural Land

The survey data for Kompong Chhnang shows a pattern of land use similar to the LMAP survey areas. In general, the percentage of plots allocated for wet-rice cultivation tends to decreases with landholding size, while the percentage of plots allocated for dry-season rice increases. However, the percentage of plots allocated for wet season rice (72 percent) is much lower than in the LMAP survey areas (80.4 percent). There is a corresponding difference in the percentage of plots allocated for dry season rice production between Kompong Chhnang (17 percent) and the LMAP survey areas (6.6 percent). The percentage of plots allocated for *chamcar* production (4 percent overall) and the percent of plots left idle (4 percent overall) increases slightly according to land size.

In terms of the actual utilization of plots, 91 percent of all agricultural plots were cultivated. Unlike in the LMAP survey areas, however, the utilization rates are fairly constant across all land holding sizes. The cultivation rates for female-headed households tend to be somewhat lower than male-headed households. About two percent of the plots are leased out and five percent are left idle. As in the LMAP survey areas, female-headed households have a slightly higher percentage of both leased and idle plots than male-headed households. As in the LMAP survey areas, the percentage of plots used for plantation and other crops increases along with landholding size, although the overall percentage is low at three percent.

Of the 47 main reasons for leaving agricultural land idle include lack of labour (28 percent), no profit (32 percent), and lack of investment capital (11 percent). “Other” accounts for 31 percent of the reasons. Although the actual number of responses is small, a greater percentage of female-headed households cited a lack of labour, while a greater percentage of male-headed households cited both a lack of profit and a lack of investment capital. This pattern is similar to that found in the LMAP survey areas.

7.4. Land Markets: Values, Prices, and Transactions

The pattern of reported land values in Kompong Chhnang differs somewhat from the LMAP survey areas, where reported land values (*moeun riels* per hectare) steadily decrease as landholding size increases for both male- and female-headed households. In Kompong Chhnang, however, this pattern holds only for the female-headed households, while the pattern for male-headed households is mixed. This results in a mixed pattern for all households, as the survey group includes mostly male-headed households. Nevertheless, the pattern of average plot values is similar to the LMAP areas as plot values decrease as landholding size increases. The one exception concerns the largest landholding interval, which shows a decrease from the previous interval (Table 7.4a).

Table 7.4a: Land Values by Hectare and Plot (*moeun riels/ha*)

Landholding	No. Plots	Ave. Size Plot	Value/ha Male	Value/ha Female	Value/ha Total	Value/Plot
< 0.5	128	0.109	583	695	610	66.6
0.5 – 0.9	266	0.153	820	490	724	110.8
1.0 – 1.9	242	0.216	716	494	660	142.6
2.0 – 2.9	142	0.321	712	466	677	217.3
> 3.0	151	0.411	357	292	346	142.2
Total	929 *	.2200	669	498	628	138.2

*n = 303 plots not reported

Forty-seven households reported selling 65 plots of agricultural land since 1989, representing about 5.3 percent of the plots in the control area. This is less than the 7.8 percent of all the plots in the LMAP survey group. As in the LMAP areas, there is a disproportionate number of

sales among the two lower landholding households compared with the upper two intervals. The two lower intervals report owning a total of 535 plots, or 43.4 percent of all the plots (1,232) in the sample. However, they report selling 32 plots, which represents 49.2 percent of the total number of plots sold. Meanwhile, the two upper intervals own 26.1 percent of the plots, but sold only 9.2 percent of the plots that were sold. About one third of sales among the lower two intervals involved female-headed households. Overall, about 33.8 percent of the land sales involved female-headed households.[46]

Table 7.4b: Plot Sales by Landholding & Sex of HH Head

Landholding	Plots	Sales	Sales		Ave. Area		Price (m/ha)		Tot. Area (ha)	
			M	F	M	F	M	F	Price	Area
0		14	4	10	.11	.32	944	202	414	.26
< 0.5	167	16	12	3	.26	.20	420	567	449	.25
0.5 – 0.9	368	17	9	8	.15	.18	618	301	469	.17
1.0 – 1.9	376	13	12	1	.18	.10	1,213	1,000	1,197	.17
2.0 – 2.9	144	3	3	0	.13		858		858	.13
> 3.0	177	3	3	0	.60		289		2289	.60
Total	1,232	65	43	22	.22	.24	753	324	608	.23

Generally speaking, the average reported price for land sales is much lower in the control areas in Kompong Chhnang (608 *moeun riels*/ha) than in the LMAP survey areas (1,555 *moeun riels*/ha). The average price of land is somewhat similar for Rolepéar (590 *moeun riels*/ha) and Chress (630 *moeun riels*/ha). Roleap'ear is closer to Kompong Chhnang provincial town, while Chress is closer to Phnom Penh. Both communes have land that lies along National Route 5. In comparing the average sale price in these two communes with those in the LMAP survey areas, Roleapéar and Chress fall between Sambo (382 *moeun riels*/ha) and Prey Nup (728 *moeun riels*/ha). It is interesting to note that the average reported land sale price of 608 *moeun riels*/ha (Table 7.4b) closely approximates the average reported land value of 628 *moeun riels*/ha (Table 7.4a).

Table 7.4c: Plot Sales by Commune

Commune	No. Plots	Ave. Plot (ha)	Price (moeun/ha)	Province
Roleapéar	36	.20	590	Kg. Chhnang
Chress	29	.25	630	Kg. Chhnang
Total	65	.23	608	

In the LMAP areas, 62 percent of the reported land sales took place since 1998, while 64 percent of land sales took place in the Kompong Chhnang control areas during the same period. As in most LMAP survey communes, land sales in both Roleapéar and Chress appear to have peaked during the 1998-2001 period.

Table 7.4d: Plot Sales, Year

Commune	< 1989	1989-93	1994-97	1998-2001	2002-2004	Total
Roleapéar	1	8	7	16	4	36
Chress	4	1	3	15	6	29
Total	5	9	10	32	10	65

[46] However, among the landless households that reported selling land, seventy percent are female-headed households.

Finally, the single most often cited reason for selling land concerns health care (23) at 35.0 percent of all reasons cited, which is higher than in the LMAP project areas (i.e., 24.9 percent). The second most often cited reason concerns food shortages (nine) at 13.8 percent. This differs from the LMAP areas where the second most often cited reason was business investment, which accounted for 28.6 percent of the reasons. As in the LMAP areas, the "other" category includes reasons such as loan repayments, funerals and other social events, migration costs, and climate-related shocks. In terms of the reasons for land sales, the two control areas in Kompong Chhnang resemble the two LMAP project survey areas in Takeo.

Table 7.4e: Plot Sales, Reasons

Commune	Business	Health Care	Buy Food	Plot Features	Other	Total
Roleapéar	4	9	1	4	18	36
Chress	1	5	7	1	15	29
Total	5	23	9	5	33	65

7.5. Land Management and Administration

Of the 291 residential plots covered in the control areas, 148 (50.9 percent) have never been documented with any kind of paper. This is much lower than the figure of 65.6 percent found in the LMAP survey areas. About 5.8 percent have been documented at one time or another, but the paper has since been lost. Of the remaining 99 residential plots, 67 are documented with land certificate application receipts, while another 52 have land certificates. The percentage of land certificates for residential land in Kompong Chhnang (52.5 percent) is much higher than in the LMAP areas (4.2 percent). The seven remaining residential plots are documented with land survey papers.

Agricultural Land

Of the 1,232 agricultural plots in the covered in the control areas, a total of 692 (56.2 percent) have never been documented with any kind of paper. The plots that have been documented one way or another include 479 plots for which there is currently some paper available, and another 61 plots for which paper, either informal or formal has been lost. At one time or another, 43.8 percent of the agricultural plots have had some kind of documentation certifying or otherwise claiming ownership. This percentage is higher than the 37.3 percent found in the LMAP survey areas.

Table 7.5a: Documentation of Agricultural Land

Landholding	App. Receipt		Survey Paper		Certificate		Other		Total	
	M	F	M	F	M	F	M	F	N	F
< 0.5	24	1	0	0	12	4	4	0	40	5
0.5 – 0.9	65	24	19	4	16	4	2	0	102	32
1.0 – 1.9	64	18	13	0	19	12	19	0	115	30
2.0 – 2.9	40	9	10	0	14	7	1	0	65	16
> 3.0	38	1	1	0	17	4	13	0	69	5
Total	231	53	43	4	78	31	39	0	391	88
Total	284		47		109		39		479	

Of the documented plots, 59.3 percent are documented with receipts for certificate applications, which is similar to 61.6 percent rate found in the LMAP areas. Another 22.8 percent are documented with actual certificates, which represents a much higher percentage than the 8.1 percent in the LMAP survey areas. This may be attributed to the provinces's active efforts to provide certificates in certain areas, which may be reflected in the fact that

the distribution for certificates is fairly consistent across the various landsize intervals. Meanwhile, 9.8 percent have land survey papers and 8.1 percent use other means of documentation.

Table 7.5b concerns the reasons that respondents gave for not registering their agricultural plots. According to the responses, about 20.4 percent of the plots were not documented because of the high informal fees involved with the process. This is very different from the LMAP survey areas where very few respondents mentioned informal fees. About 14.8 percent of the plots were not registered because respondents thought it was unnecessary. Another 12.2 percent of plots were not registered because respondents did not know the procedures, while 5.4 of plots were not registered because respondents thought the process was too complicated. Unfortunately, about 47.2 percent of the plots were not documented for a variety of "other" reasons about which there is no specific data. This figure resembles the figure of 46 percent for other in the LMAP survey areas.

Table 7.5b: Reasons for Not Registering Agricultural Plots

Land Size	Unnecessary		Don't Know Procedures		Informal Fees		Complicated System		Other	
	M	F	M	F	M	F	M	F	M	F
< 0.5	18	6	16	4	10	5	4	0	39	18
0.5 – 0.9	25	6	44	0	19	27	12	2	63	36
1.0 – 1.9	24	2	7	4	30	18	8	0	49	28
2.0 – 2.9	8	1	3	4	14	0	13	0	39	3
> 3.0	16	0	5	0	14	9	0	0	47	16
Total	91	15	75	12	87	59	37	2	237	101
Total *	106		87		146		39		338	

* Total N = 716, with 692 unregistered plots. This suggests 24 multiple responses.

The percentage of land transactions that are documented by changing names on certificate application receipts is almost identical in the control and survey groups (i.e., 65 percent). As in the LMAP survey areas, the number of reported sales that go unrecorded at the official registry is certainly higher, as the 21 "other" probably includes agreement letters and other informal methods. Again, as in the LMAP survey areas, the number of reported name changes on receipts decreases with distance, suggesting that the transaction costs associated with travel and time are significant obstacles for accessing the official land registry system.

Table 7.5c: Plot Sales, Documentation

Commune	ChangeName, Village	ChangeName, Commune	ChangeName, District	ChangeName, Province	Other	Total
Roleapéar	17	11	1		6	35
Chress	12	2			15	29
Total	29	13	1		21	64*

* N = 1 missing

7.6. Land Conflicts and Disputes

A total of 15 households reported land conflicts that have occurred in the control areas since the Commune Council election of 2002. This represents 5.77 percent of the 260 households, which is slightly lower than the rate 6.3 percent found in the LMAP survey areas. Of the 15

conflicts, nine cases (60 percent) involved male-headed households and six cases (40 percent) involved female-headed households. Eight cases 53.3 percent) involved households with one hectare of less of agricultural land, while two cases involved household with two to three or more hectares. There were no reported conflicts among households with more than three hectares of land. As in the LMAP areas, the type of land involved in the conflict was evenly divided between agricultural land (seven cases) and residential land (eight cases).

Table 7.6a: Reported Land Conflicts since 2001

Gender	< 0.5	0.5-.99	1.0 – 1.99	2.0 – 2.99	≥ 3.0	Total
Male	1	3	4	2	0	9
Female	1	4	1	0	0	6
Total	2	7	5	2	0	15

Boundary conflicts with neighbours accounted for seven cases (46.6 percent), followed by four cases involving other villagers, and one case of conflict with relatives. There were three cases for "other." Unlike the LMAP survey areas, there were no reported land conflicts involving authorities or powerful people. The distribution of land conflict types corresponds to the observation made above with regard to the LMAP survey areas; namely, most land disputes are local in nature, involving boundary disputes with neighbors or ownership conflicts with relatives.

7.6.1. Conflict Resolution

The 15 households involved in the conflicts used fewer approaches for resolving the conflict than did the LMAP survey households. This may be due to the fact that there are far fewer conflicts in the Kompong Chhnang sample than in the LMAP sample. With the respect to the first round of negotiation, six households tried to negotiate directly with the other party, while five households went to the village chief, and four households went to the commune chief. Eight of the cases were resolved during the first round, while seven cases were not resolved.

Of the seven unresolved cases from the first round, five households reported a second round of negotiation. Three reported going to the village chief and two went to the commune leader. Of these five cases, only one was resolved. Of the four unresolved cases from the second round, three households reported a third round. One case went to the commune leader while the remaining two went to the district conflict resolution committee. Of these three cases, one was resolved and two were not resolved.

In terms of the reported costs associated with negotiating conflicts, the 15 households involved in the first round of negotiations reported average costs of 1.48 *moeun riels*, while the 5 second round households reported average costs of .14 *moeun riels*. The three third round households reported an average cost of 1.07 *moeun riels*. This pattern varies from the pattern found in the LMAP survey areas. One reason for the variation could involve the small sample of conflicts in Kompogn Chhnang.

As in the LMAP survey areas, households were asked if they had lost any land as a result of the conflict. Of the 14 households included in the data set, six reported that they did not lose any land, while four reported they lost some land. Two households reported losing all land, which probably refers to parcels or plots involved in the conflict, not the entire landholding, as in the LMAP areas. Two households reported no idea or no response.

Finally, households were asked if they were satisfied with the way, or with whom the conflict was resolved. Seven households answered yes, and five answered no. As in the LMAP area, the same number of household said they thought the process was fair, while a similar number indicated they thought the process was unfair.

Chapter 8.
Conclusions and Observations

The degree to which secure land tenure rights can contribute to socio-economic growth and poverty reduction in rural Cambodia depends in large measure on the capacity of public administration to govern and enforce property rights effectively. The impact of land titles is likely to be strongest when people believe in the government's capacity and commitment to upholding and enforcing land rights in a fair and transparent manner. In this sense, people in the baseline survey areas have expressed a great deal of initial faith in the land titles that LMAP is currently issuing.

The benefits from land titles also depend on household characteristics. In this sense, landholding size and the gender of the household head are good predictors of a household's labour, assets, and income, and provide a good indication of a household's potential capacity to benefit from the land titling program. We expect that larger landholding households are in a more favourable initial position to benefit from land titles than smaller landholders. At the same time, male-headed households also appear to be in a more favourable initial position to benefit more from land titles than many female-headed households. Generally speaking, High Potential Impact households have larger land holdings, more labour, more capital assets, and higher incomes. Low Potential Impact households tend to have less land, less labour, fewer assets and lower incomes. The LPIs include more vulnerable households, such as many female-headed households.

The benefits from land titles also depend on area circumstances, including (a) the level of land market activity, (b) the availability of credit, extension, affordable health care and other social services, (c) the level of infrastructure development, and (d) location in terms of transport and marketing. The benefits for households and society are likely to be greatest in High Capacity Areas characterized by active land markets, easy access to development services, good soil conditions, access to water, diverse land use potential, and employment opportunities. Low Capacity Areas include villages that are located some distance from paved roads and/or commercial and administrative centres, have poor soil, lack water resources, and have more homogenous land use patterns and few employment alternatives to farming.

Land titles are expected to affect access to credit, agricultural investment and land use, the development of land markets, the use of the official registry, and the frequency of land disputes. The following paragraphs summarize some of the key predictions based on the above discussion of the baseline survey data.

Credit

We predict a larger volume of credit activity in areas where formal credit institutions are relatively more accessible. Farmers located closer to district and/or market centres along roads are more likely to obtain formal credit than those located in more distant or remote areas. We also expect to observe some variations according to landholding size and the sex of household head in terms of frequency, size, and loan use. Generally speaking, smaller landholding households with fewer resources will take out smaller loans and less frequently, while larger landholding households will take out larger loans more frequently. Along with

these trends, we also expect to observe a shift toward more loans for productive purposes, such as agricultural investments and housing improvements.

Agricultural Investments and Land Use

We predict that the rate of agricultural investments will vary according to landholding size, with larger landholding households investing more than smaller landholding households. The rate and type of investments, however, may depend on the availability of credit and extension services in a given area. The rate of investments will also depend on local conditions, including weather, soil conditions, and the availability of water resources. We expect to observe increased levels of productivity along with increased investments, though this will depend on local conditions. The rate of land use diversification will also depend on a variety of factors, including market prices and information. We expect that larger landholders will begin to diversify land use and increase their utilization rates of land over time, although the actual impact may not be observable after only three years.

Land Markets

We expect that land titles may improve the efficiency of emerging land markets, particularly in areas along main highways and near market and administrative centres, by reducing the transaction costs associated with contractual exchange. Land prices that reflect a more accurate value of land will eventually direct land use to more economically productive uses. We expect to observe an increase in the volume of land transactions, particularly in areas where infrastructure is strengthened and the productive value of land increases. Land titles will, however, neither slow nor accelerate the rate of land sales, as such sales depend on a variety of factors. In areas characterized by poor health care and other social services, the volume of distress sales among the poor may even increase, while in areas where formal credit is more easily available, land sales may diminish.

Land Administration

We predict an increase in the use of the official registry to facilitate and record land transfers (e.g., sales, inheritance), especially in areas with emerging land markets along main roads and near administrative and commercial centres. This assumes (1) transactions costs associated with the official registry will be lower than current costs; (2) people have increased confidence inland tenure security, and (3) people will have sufficient knowledge of the procedures and capacity to access the system.

Land Conflicts

We expect that dormant land issues or unresolved conflicts may emerge when the land-titling program is implemented in particular villages because people perceive the LMAP land titles as final. Once titles are issued, we then expect a decline in the number of disputes, particularly those involving boundary disputes between neighbours. The number of ownership disputes may also decline, although not entirely disappear in cases involving inheritance. People's long-term confidence in land tenure security and land administration will depend in part on the degree to which they perceive conflict resolution to be fair and impartial. It will be important to observe how local authorities and the courts enforce land tenure security represented by the LMAP titles once they are issued, including cases involving women

Methodology

The research methodology employed in the baseline survey has been quasi-experimental in nature using quantitative data collected in household interviews with a structured, close-ended survey instrument (See Annex A). The follow up survey should incorporate qualitative research approaches and tools into the overall methodology in order to provide more

substance and texture to the household survey data, as many of the subtle yet important nuances concerning the economic and social impacts of land titles cannot be effectively captured by a standard household survey instrument.

8.1. Observations

As part of its brief from LMAP, baseline survey researchers were asked to observe and make recommendations on project implementation as well as policy formulation. The following comments are made with the objective of strengthening project efficiency and effectiveness.

8.1.1. LMAP Survey Teams

The BSP received good co-operation and support from provincial LMAP officials. The BSP has also been favourably impressed by the diligence and professionalism displayed by the LMAP teams working in the field in Kompong Thom and Kompong Cham where both projects overlapped. These teams appear to be working in an open and transparent manner with local officials and people. The BSP appreciates the complexity of the LMAP process and is generally impressed by the efficiency of the process, especially considering the technical, logistical, and administrative requirements.

8.1.2. Co-ordinating the Baseline Survey with Project Implementation

LMAP had already started work in several provinces while the Baseline Survey project was being formulated and put into place. In terms of the survey work, this precluded the selection of some of the more dynamic and potentially interesting areas where some land titling effects could be reasonably expected. This highlights the potential efficiency gains derived from integrating baseline survey plans into the overall planning framework for project implementation from the outset.

8.1.3. People's Perceptions of LMAP Process

Generally speaking, village people have expressed confidence in the security of their LMAP titles, which they believe are more secure than the previous certificates. This is born out by evidence that people view this process as somewhat final. For example, many people are taking advantage of the process to divide and pass on land to their children. [47] Also, people have a generally positive feeling about how LMAP and local officials have resolved disputes that emerged in the course of the adjudication process. The public displays of plot boundaries using digital mapping technology have also helped create an impression of scientific objectivity rather than arbitrariness. People also appreciate the fact that the costs of LMAP titling are much lower than costs associated with sporadic titling.

8.1.4. Commune Councils

Commune Council members also expressed positive impressions of the LMAP process and consistently stated their expectations and hopes that the LMAP land-titling process would help reduce their workloads involving conflict resolution over boundary disputes and ownership issues within families. This appears to reinforce the impression that such titles are somewhat final, as they believe that once such problems are resolved they will not come up again.

[47] Onchan and Aungsumalin (2002) found a similar pattern in Thailand. They observed that the land titling project there might have caused a faster division of lands for children, as it appears parents wanted to take such opportunities while the project was in operation.

8.1.5. User Fees

BSP staff have, however, observed some degree of confusion concerning the user fee payments in several locations. In Kompong Thom, for example, village chiefs in Sra Yov expressed concern that people in their villages were expected to pay a fee for their titles, while people in another area that had been titled earlier did not pay such fees. [48] Meanwhile, commune council members in Sra Nghe in Kompong Cham, for example, indicated they are not clear about how such fees were to be collected and managed.

8.1.6. Use of the Land Registry System

While people have a favourable impression of the LMAP process and expressed a high degree of confidence in the security of their titles, there also appears to be a lack of clarity about how land transactions (e.g., sales, inheritance) are to be managed in the future. In this sense, a lack of information about such procedures could undermine people's tendency to use the formal land registry system in favour of resorting to previous practices of informally exchanging various documents.

8.1.7. Local Property Rights Traditions

As noted above, people value the land titles and generally understand that the titles grant basic land rights concerning use, control, and ownership. However, in some areas, rights concerning land may not necessarily be congruous with rights over other property associated with the land. For example, in Sra Nghe commune in Kompong Cham, people have traditionally earned a significant proportion of their livelihood from palm sugar production, which of course makes palm trees a valued factor of production. Over time, people acquired use rights to certain trees that were not necessarily on their own land. However, people began cutting down their trees on land that was not theirs as the LMAP process unfolded. Such relationships between different forms of property may require special attention and adjudication procedures.

8.2. Planning and Policy

8.2.1 Optimal Impacts

The BSP predicts that “land titling effects” will likely vary from one location to another according to a variety of factors and circumstances. As a result, people in some areas, including the poor, are likely to benefit more under certain conditions than people in other areas where such conditions do not exist. This suggests that optimal impacts can be achieved in areas more likely to benefit than in areas less likely to benefit from land titles. The data analysis from the BSP may help planners in the future better target scarce resources in the direction of more optimal locations. In this sense, the identification of “success factors and conditions” may enable project planners and donors to develop more specific guidelines with which to advise local and provincial officials in their future site selection procedures.

This observation also underscores the potential for optimizing benefits arising from a more integrated approach with other development actors concerning the planning and implementation of LMAP titling efforts. For example, land-titling benefits may, over time, be greatest in areas where other development inputs are currently available, or are being planned. Such inputs could include extension services and rural infrastructure, such as tertiary roads.

Lands titles are also rightly viewed as a potentially important invention for poverty reduction in rural areas, where landlessness, or near landlessness, appears to be closely associated with poverty and food insecurity. This is particularly true for vulnerable households such as those headed by women. In many cases, landlessness and near landlessenss are synonymous with

[48] The other area referred to may have been included in the pilot phase of the project.

poverty. This is most clearly illustrated by the fact that many households sell land to pay for health care. This suggests that optimal land titling benefits can be obtained in situations where affordable health services are available to people. In the absence of affordable and effective health care and other social services for people, land titles may not have the desired effect on reducing poverty associated with landlessness.

The contribution of land titles to social and economic development and poverty reduction in the rural sector can be optimized by targeting land titling efforts in areas where government agencies, NGOs, and private investors are actively engaged. In this sense, the benefits for disadvantaged and vulnerable households can be enhanced by specifically targeting areas where social services and development resources are focused on the poor. This is of particular concern for those households that subsist on the precipice of landlessness.

The benefits for disadvantaged households can also be increased by policies that specifically link land titling efforts to pro-poor development objectives. Two potential policy areas include credit and public finance. For example, policies and practices that sustain higher interest rates in the formal sector undermine potential benefits from land titles by discouraging people from obtaining credit. Policies aimed at reducing interest rates would improve credit access among small landholders. Meanwhile, large, untaxed idle landholdings encourage land speculation and conflicts, as well as impede land use diversification and higher land utilization rates. A tax on unused land of a certain amount would help reduce speculation and promote higher utilization rates, as well as provide revenue for the government.

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Questionnaire on Rural Land Titling, Registration & Livelihood

Interviewer code:…… **Ordinal Number of Questionnaire: .....**

Interview time: started at: ..... Ended at:.....

Geographical Identification

Province:……	Distance of house to:
District:……..	Province:……. (km)
Commune:…….	District:…… (km)
Village:……	Commune:…….... (km)

Interview Record

Interviewee's name:..... Age:..... Sex:..... Sex: 1 = male 2 = female
Household head? 1= Yes or 2 = NO
Or what relation to hh head?…….....
Interviewer's name: ..... Date/Month of Interview: .....…...../…..... 2004

Interviewer's Signature after reviewing the completed questionnaire: .....

Interviewer's Remarks (according to your feeling, how do you rate your interview process):
1= very good 2= fairly good 3= moderate 4= low

Quality Control Record

Survey Team Leader's Name: .....

Signature after checking all the questions: ..... Checked on:..... /……. 2004

Remarks by Survey Team Leader:

.....

Questions that Survey Team Leader ordered call back: .....

Supervision by CDRI Researcher

CDRI Researcher checking the questionnaire: .....
Date: ...…..…./…… 2004
Questions that were clarified: .....
Questions that need call back: ....

Records on Data Cleaning and Entry

Name of Data Cleaning Person: ..... Signature ..... Date: ...../…..2004

Remarks, questions with problems: .....

Data entry by ..... Signature ..... Date ...../..... 2004

I. Household Demography and Individual Work

1.1. How many members are in your household (both children and adults)? .....

1. 2.1. Full name of household head.....(household head is the principal in the household)

1. 2.2. Sex of household head: 1= Male 2= Female

1. 2.3. What is the location of your house:
   1. On the side of National Road or paved road.
   2. Close to National Road or paved road.
   3. On the side path (lateritic or soil)
   4. Close to the path (lateritic or soil)
   5. Away from the road.

⏩ Detailed information about household members aged 7 and above. *(Write in the number 0 where there are no answers)*

No	Name (first names only)	Rela-tionship with hh. head	Sex 1=M 2=F	Age	Martial status	Years of education (for tertiary education, please use code 99)	Econo-mically active?	Household Crop Cultivation (rice, *Chamkar*, and other farm work, which belongs to your household) Last rainy season		Household Livestock Raising (poultry, cow,etc.) Last rainy season	Other jobs that earn monthly or daily wages or other income (beside household farm work) Codes: 1= farm work within the village, 2= work off village in Cambodia, 3= work in Thailand, 4= small trade, 5= palm juice/sugar production, 6=fishing, 7= collect other resources from water or fields, 8= collect resources from forests, 9= Motodup, 10 = other..... (government official, ect...) **(the question should be asked to cover the last rainy season or over 6 months. Convert all earning into Moeun Riels)** Please fill in with N/A if there is no respond for the below collum.							
		(codes below)			(codes below)		(codes below)				Income-earning Job 1				Income-earning Job 2			
								On average, how many hours worked per day?	On average, how many months worked per year?	On average, how many hours worked per day?	What job? (codes above)	On average, how many hours worked per day?	How much earned per day?	How much earned since the beginning of wet-season	What job? (codes above)	On average, how many hours worked per day?	How much earned per day?	How much earned since the beginning of wet-season ls
1.3	**1.4**	**1.5**	**1.6**	**1.7**	**1.8**	**1.09**	**1.10**	**1.11**	**1. 12**	**1. 13**	**1. 14**	**1.15**	**1.16**	**1. 17**	**1. 18**	**1. 19**	**1.20**	**1.21**
01														.....*				.....*
02														.....*				.....*
03														.....*				.....*
04														.....*				.....*
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11														.....*				.....*
12														.....*				.....*
13														.....*				.....*
14														.....*				.....*

* in *Moeun* riels or 10,000 Riels

Codes:

For question 1.5: 1= Household head, 2= husband or wife, 3= in law siblings, 4= son or daughter, 5= in-law son/daughter, 6= grandchildren, 7= step children, 8= parents, 9= Grandparents, 10=nieces/nephew, 11=Other relatives

For question 1.8: 1= married, 2= single 3= Divorced, 4= widow/widower, 5= deserted

For question 1.10: 1= can do some work, 2= study and work, 3= Only study, 4= Disabled, 5= Too old to work, 6= too young to work (Only with Code 1 or 2 that you continue in the rest of the columns)

II. Housing Conditions, Household Amenity and Durable Assets

2.1. The situation of the house?

Roof	Wall	Floor	Fense
1–Thatched house	**1**–Thached	**1**–On the ground	**1**–None
2–Zinc roof	**2**–Zinc	**2**–wood / timber	**2**–Tree branches
3–Tile roof	**3**–wood	**3**–Concrite/bricked	**3**–Small cut tree / bamboo
4–Concrete / bricked house	**4**–Concrete/bricked house	**4**–Other	**4**– Wood
5–other:.....	**5**–Other:.....	**5**–Other	**5**– Wire
			6– Concrite
			7– Other

2.2. How lone have you been living here?: .....

2.2. What is the measurement of your house?
width.....m x length.....m = ... m²

2.3. How much is your house worth at present?
1.....million Riels, or 2. ..... *Damloeung,* or 3..... US$

2.4. Have you repaired or improved your house since the election of commune council (last 3years)?
1. Yes (if yes, answer question 2.5)
2. No (skip question 2.5)

2.5. a) How much money did you spent?:.....…… in which year?.....……
b) From which sources of income:
1. own source (saving and personal income)
2. remittance from relative(s) overseas or urban areas in Cambodia
3. selling own agriculture produces
4. Loan / credit
5. Other (specify):……..

2.6. What is your household's main source of drinking water?
1. piped in dwelling
2. hand pump / bore hole
3. dug well
4. pond / stream
5. (big) river
6. other (specify) .....

2.7. In general (mostly), does your household drink boiled or unboiled water?
1. *Unboiled water*
2. *Boiled water*

2.8. Do you have a toilet?
1 .Yes Inside the house:..... Outside the house:.....
2. No

2.9. What type of fuel does your household use for cooking?

1. firewood self-collected
2. firewood bought
3. charcoal
4. Gas, electric cooker
5. other (specify) .....

Other non-land assets of the household: (Convert from gold or US$ to riels.)

	Number	Current value (i.e. if sold now) [ten thousand = *moeun*]
2. 10 Motorbike		*moeun Riels*
2. 11 bicycle		*moeun Riels*
2. 12 TV		*moeun Riels*
2. 13 cassette player		*moeun Riels*
2. 14 radio		*moeun Riels*
2. 15 sewing machine		*moeun Riels*
2. 16 boat (with engine if any)		*moeun Riels*
2. 17 *roeumak*		*moeun Riels*
2. 18 generator		*moeun Riels*
2. 19 water pump		*moeun Riels*
2. 20 threshing machine		*moeun Riels*
2. 21 Rice mill		*moeun Riels*
2. 22 Oxcart (traditional or modern)		*moeun Riels*
2. 23 Horse cart		*moeun Riels*
2. 24 plough and harrow		*moeun Riels*
2. 25 Hand-tractor		*moeun Riels*
2. 26 Vehicle		*moeun Riels*
2. 27 other major asset (specify).....		*moeun Riels*
2. 28 other major asset (specify).....		*moeun Riels*

About the animals you have now:

Animals you own (including shared out ones but excluding shared in ones)	Number	Total Value (if sold now)
2. 29 cow		*moeun Riels*
2. 30 buffalo		*moeun Riels*
2. 31 pig		*moeun Riels*
2. 32 horse		*moeun Riels*
2. 33 chicken (from weight that is saleable)		*moeun Riels*
2. 34 duck (from weight that is saleable)		*moeun Riels*
2. 35 other (specify).....		*moeun Riels*
2. 36 other (specify).....		*moeun Riels*

III. Land Ownership Assets and Land Transactions

About Residential Land

3.1. Do you own the residential land you are living on now (the one Plot you are residing)?
1. Yes (Continue to 3.3)
2. No (go to Question 3.9)

3.2. Do you have any residential land?
1. "Yes", How many residential plots do you own? (including your purchased plots).....
2. "None", (skip to 3.9)

	Plot 1	Plot 2	Plot 3	Plot 4
3.3. What is the size? (in sqare metter)				
3.4. If you sold this residential land now, how much would you get in *Tamloeung Gold? (Do not simply put in their quote)*				
3.5. When did you acquire this Plot? 1. Before 1979 2. Between 1979 and the 1993 (UNTAC Election) 3. After the 1993 (UNTAC Election)	 1 2 3	 1 2 3	 1 2 3	 1 2 3

3.6. How did you acquire it?				
1. given by the State (or local authority)	1	1	1	1
2. inherited it or donated by relatives (parents / brother / sister)	2	2	2	2
3. donated by friends	3	3	3	3
4. own purchase	4	4	4	4
5. cleared land / occupied for free	5	5	5	5
6. other (specify)	6	6	6	6
3.7. Do you have any paper to certify your ownership of this residential land?				
1. application receipt	1	1	1	1
2. land investigation paper	2	2	2	2
3. certificate (or title)	3	3	3	3
4. no (or no document available in the house)	4	4	4	4
5. lost application receipt (Go to Question 3.29, after completing this question)	5	5	5	5
3.8. If you haven't registered, what was the main reason?				
1. Thought it was not necessary.	1	1	1	1
2. To avoid paying tax.	2	2	2	2
3. Too much under table (un-official) paid.	3	3	3	3
4. Unknown how to register.	4	4	4	4
5. Land on conflict.	5	5	5	5
6. Unbelieved on land tittle.	6	6	6	6
7. Too conplicated on administration processing.	7	7	7	7
8. No justify	8	8	8	8
9. Other (specify)	9	9	9	9
3.9. If you do not own any residential plot at present, why?				
1. sold residential land	1	1	1	1
2. never had any residential land	2	2	2	2
3. lost residential land due to grabbing by other	3	3	3	3
4. lost residential land due to displacement (just settled in this village)	4	4	4	4
5. other (specify)	5	5	5	5
3. 10 What do you use your residential plot for?				
1. Leave it idle.	1	1	1	1
2. Lease it out.	2	2	2	2
3. Rent out the house.	3	3	3	3
4. Let relative stay / use it without any charge.	4	4	4	4

Non-residential Land, Owned and Leased-in

(When asking about the size of land, convert *any unit* to *hectare*)

3.10. Do you have own or leased-in any agricultural land? 1. Yes 2. No (go to Question 3.38)

3.11. How many plots? .....
Total area owned by your household (including your land that is left idle, shared out and/or rented out).

3.12 Wet rice land .....ha
3.13 Dry rice land .....ha
3.14 *Chamkar* land .....ha
3.15 Land left idle.....ha
3.16 Mixed…….....ha
3.17 Other land (if any).....ha
3.18 Total area .....ha
3.19 Area leased in.....ha
3.19 Area leased out .....ha
3.20 Area cultivated more than once per year..... ha (including the leased-in land)

<u>Specific data about agricultural land that is owned by the household</u> (regardless of where they are)

(For all the questions in this table, please focus on specific plot or area. Write in or circle a number).

	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7
3.21 Area (ha)	.....	.....	.....	.....	.....	.....	.....
3.22 What kind of land is the plot?							
1. Wet-season rice land	1	1	1	1	1	1	1
2. Dry-season rice land	2	2	2	2	2	2	2
3. Wet and dry season rice land	3	3	3	3	3	3	3
4. Chamkar land	4	4	4	4	4	4	4
5. Plantation (for growing tree)	5	5	5	5	5	5	5
6. Mixed growing land	6	6	6	6	6	6	6
7. Land in idle	7	7	7	7	7	7	7
3.23 How much if it is sold now? (*moeun Riels)*	.....	.....	.....	.....	.....	.....	.....
3.24 When did you acquire the plot? (year)	.....	.....	.....	.....	.....	.....	.....
3.25 How did you acquire it?							
1. given by the State (or local authority)	1	1	1	1	1	1	1
2. inherited it or donated by relatives	2	2	2	2	2	2	2
3. bought it	3	3	3	3	3	3	3
4. cleared land/occupied for free	4	4	4	4	4	4	4
5. donated by friends	5	5	5	5	5	5	5

3.26 If you bought the plot, when? (what year?) **3.27** how much did you pay?	..... ……	..... ….	..... ……	..... ……	..... ……	..... ……	..... ……
3.28 Do you have paper to certify your ownership? 1. Yes 2. Never had paper 3. Lost paper	 1 2 3	 1 2 3	 1 2 3	 1 2 3	 1 2 3	 1 2 3	 1 2 3
3.29 What kind of paper do you have? 1. Application receipt for real estate 2. Land investigation paper 3. Land tittle/certificate 4. No paper 5. Other	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5
3.30 If you did not register the plot, what was **the main** reason? 1. Think it is not necessary 2. Avoid paying tax 3. Too high unofficial payments 4. Do not know the registration procedure 5. Disputed 6. Not confident of tenure security 7. Too complited in admin. procedure. 8. No justify. 9. Other (specify)	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9	 1 2 3 4 5 6 7 8 9
3.31 What do you do with the plot? 1. cultivate it 2. lease it out 3. leave it idle (go to Q3.35) 4. Other (please specify)	 1 2 3 4	 1 2 3 4	 1 2 3 4	 1 2 3 4	 1 2 3 4	 1 2 3 4	 1 2 3 4
3.32 If cultivate, what crops do you grow on the plot? 1. rice 2. other crops (eg. watermelon, pumpkins, vegetables, maize, beans,...) 3. rice and then other crops 4. Tree crops / plantation 5. Other (please specify) …….	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5	 1 2 3 4 5

3.33 How many crops can you grow per year? 1. one wet-season rice crop 2. one dry season rice crop 3. one wet-season and one dry-season rice crop 4. two dry-seasons rice crops 5. wet-season rice and then other crops 6. dry-season rice and then other crops 7. Perennial plantation	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7	1 2 3 4 5 6 7
3.34 Is the plot irrigated? 1 = Yes (Go to Q3.36) 2 = No (Go to Q3.38)	1 2	1 2	1 2	1 2	1 2	1 2	1 2

5. 35 Why do you leave idle?

1. Not enough labour
2. Not profit
3. Rotation
4. Lack of investment capital
5. Other (specify):……..

5.36 How did you irrigate? (can be multi answers)

1. Government / NGO dam / cannel
2. Group water management
3. Individual well
4. Other (specify):……..

5.37 If you do not own any <u>agricultural lands</u> now, what is the reason? ***(circle appropriate code)***

1. sold it
2. given all to children
3. never had land (e.g. new marriage)
4. lost due to displacement (just moved in to this village)
5. lost in dispute
6. other reason (specify) .....

3.38 Have you sold any lands since 1989? (1989 is an important year of tenure and land transactions. Circle an appropriate code)

1. Yes
2. No (go to Question 3.47)

(Ask by plot)	Plot 1	Plot 2	Plot 3	Plot 4
3.39 What was the size of the plot you sold? (ha)	.....	.....	.....	.....
3.40 What kind of land was the plot?				
1. Residential land	1	1	1	1
2. Rice land	2	2	2	2
3. Chamkar land	3	3	3	3
4. Plantation (growing tree)	4	4	4	4
3.41 How much did you get? (moeun Riels)	.....	.....	.....	.....
3.42 When did you sell it? (year)	…….	……..	…….	……..
3.43 How did you document your transaction				
1. changing name by making receipt at the village level	1	1	1	1
2. changing name by making receipt at the commune level	2	2	2	2
3. changing name by making receipt at the district level	3	3	3	3
4. changing name by making title at provincial level	4	4	4	4
5. changing name of ownership by making title at the the MLUPC	5	5	5	5
6. Other (please specify)……	6	6	6	6
3.44 How much did you pay for:				
1. changing name by making receipt at the village	…….	…….	…….	…….
2. changing name by making receipt at the commune	…….	…….	…….	…….
3. changing name by making receipt at the district	…….	…….	…….	…….
4. changing name by making title at provincial level	…….	…….	…….	…….
5. changing name by making title at the the MLUPC	…….	…….	…….	…….
6. Other (please specify)……	…….	……..	…….	……..
3.45 Why did you sell it? (select the **one main reason**)				
1. needed cash for doing other business	1	1	1	1
2. to pay for health treatment	2	2	2	2
3. needed cash for consumption needs	3	3	3	3
4. to pay debts	4	4	4	4
5. death of family member (for funeral)	5	5	5	5
6. the land is too small for profitable farming	6	6	6	6
7. to migrate out	7	7	7	7
8. to change occupation	8	8	8	8
9. poor soil	9	9	9	9
10. not productive	10	10	10	10
11. flooded	11	11	11	11
12. too far	12	12	12	12
13. other (specify)	13	13	13	13

Land conflicts

3.46 Have you ever had land conflicts since the commune council election?
1. Yes
2. No (go to Section IV. Credit Market)

3.47 When did it happen? in the year of .....

3.48 On which land

1. Residential land
2. Agricultural land

3.49 How much land was in conflict? .....ha

3.50 What was the type of the land conflict? (can be multi answers)
1. the land was grabbed by authorities
2. the land was grabbed by soldiers / armed officials
3. boundary conflict
4. ownership conflict with non-relatives
5. ownership conflict with relatives
6. other (specify) .....

3.51 If you have land conflict, where and / or who did you go to ask for solving your conflict?
(Tick ✓ on appropriate Question "1st , 2nd and 3rd time" and use appropriate code for the question sovled?)

	1st time	Solved? (1= yes, 2 = no)	Cost? (in Riels)	2nd time	Solved? (1= yes, 2 = no)	What was the cost? (in Riels)	3rd time	Solved ? (use code 1= yes, 2 = no)	What was the cost? (in Riels)
1. Mutual agreement									
2. Neighbour, family or friends									
3. Monk, buddhist layperson (Achar)									
4. Village leader									
5. Commune leader									
6. Dispute settlement committee (district)									
7. Dispute settlement committee (province)									
8. Dispute settlement committee (Phnom Penh)									
9. Court at the province									
10. Appeal court in Phnom Penh									
11. Other (specify)….									

3.52 In the event that your land conflict was resolved, did you loose land (any or all)?
1. Lost some of it
2. Lost all of it
3. Didn't lose any land.
4. No answer or no idea

3.53 Are you satisfied with how it was solved? 1= yes or 2 = no

3.54 Do you think the resolution was fair? 1 = yes 2 = no or 3 = no idea

3.55 If yes, why?….....…….

3.56 If no, why?…….....……..

IV. Credit Market

4.1 Since the beginning of the rainy season in 2003, has your household obtained any loans in cash/gold?
1. Yes (Go to 4.2)
2. No (Skip to 4.7)

4.2 If yes, how many outstanding loans do you have?..... (number of loans) *(If the loans are in currency or gold (US$, Gold please convert it into Riels*)

Loan No.	Who did you borrow from? (circle the right code)	Amount in *Moeun* Riels (If 5,000, write 0.5 *Moeun)*	For how many months (from when you borrowed to when promised to repay)	For what purpose?	Do you use collateral to obtain loan?	Interest rate per month (Calculate percentage)	Both principle and interest to be repaid (in *Moeun* riels)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
4.3 Loan 1	1.relative 2.friend 3.money lender 4.NGO 5. ACLEDA 6. Other	..... *Moeun* Riels	..... months (If less than 1 month: 0.7 month = 20 days 0.5 month = 15 days 0.2 month = 6 days)	1.farming 2.buying input for business 3.food shortage 4.health 5.education 6.solving hh conflict 7.animal raising 8.paying off loan / credit 9.home improvement 10. ceremony 11. Transportation means 12. build a house 13. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... % in a month	..... *Moeun* Riels
4.4 Loan 2	1.relative 2.friend 3.money lender 4.NGO 5. ACLEDA 6. Other	..... *Moeun* Riels	..... months (If less than 1 month: 0.7 month = 20 days 0.5 month = 15 days 0.2 month = 6 days)	1.farming 2.buying input for business 3.food shortage 4.health 5.education 6.solving hh conflict 7.animal raising 8.paying off loan / credit 9.home improvement 10. ceremony 11. Transportation means 12. build a house 13. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... % in a month	..... *Moeun* Riels

Loan No.	Who did you borrow from? (circle the right code)	Amount in *Moeun* Riels (If 5,000, write 0.5 *Moeun)*	For how many months (from when you borrowed to when promised to repay)	For what purpose?	Do you use collateral to obtain loan?	Interest rate per month (Calculate percentage)	Both principle and interest to be repaid (in *Moeun* riels)
4.5 Loan 3	1.relative 2.friend 3.money lender 4.NGO 5. ACLEDA 6. Other	..... *Moeun* Riels	..... months (If less than 1 month: 0.7 month = 20 days 0.5 month = 15 days 0.2 month = 6 days)	1.farming 2.buying input for business 3.food shortage 4.health 5.education 6.solving hh conflict 7.animal raising 8.paying off loan / credit 9.home improvement 10. ceremony 11. Transportation means 12. build a house 13. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... % in a month	..... *Moeun* Riels
4.6 Loan 5	1.relative 2.friend 3.money lender 4.NGO 5. ACLEDA 6. Other	..... *Moeun* Riels	..... months (If less than 1 month: 0.7 month = 20 days 0.5 month = 15 days 0.2 month = 6 days)	1.farming 2.buying input for business 3.food shortage 4.health 5.education 6.solving hh conflict 7.animal raising 8.paying off loan / credit 9.home improvement 10. ceremony 11. Transportation means 12. build a house 13. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... % in a month	..... *Moeun* Riels

⏩ For loans in paddy to be repaid in paddy or rice to be repaid in rice

4.7 Since the beginning of last rainy season in 2003, has your household had outstanding loans that are in paddy to be repaid in paddy or rice to be repaid in rice?

1. Yes (Go to next question 4.8)
2. No (Skip to question 4.13)

4.8 If yes, how many loans? ..... (number of loans)

	Source (circle code)	**Amount borrowed**		For how many months (from when you borrowed to when promised to repay)	For what purpose? (circle appropriate code)	Do you use collateral to obtain loan?	Interest and loan to be paid for this duration	
		Amount	Unit (circle code)				Amount	Unit (code)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4.9 Loan 1	1. relative 2. friend 3. money lender 4. NGO 5. Other.	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other.....	.....months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan/credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other .....
4.10 Loan 2	1. relative 2. friend 3. money lender 4. NGO 5. Other.	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other.....	.....months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan/credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other .....

4.11 Loan 3	1. relative 2. friend 3. money lender 4. NGO 5. Other.	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other.....	.....months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan/credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other .....
4.12 Loan 4	1. relative 2. friend 3. money lender 4. NGO 5. Other.	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other.....	.....months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan/credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	..... (Write number)	1= sack of paddy 2= Taov of paddy 3= sack of rice 4= Taov of rice 5= other .....

⏩ For loans in paddy, rice, fertilizer to be repaid in cash or labour OR Loans in cash to be repaid in paddy or labour (transplanting etc)

4.13 Since the beginning of the last rainy season in 2003, has your household had outstanding loans in paddy, rice or fertilizer to be repaid in cash or labour OR loans in cash to be repaid in paddy or transplanting labour? 1. Yes (Go to the question 4.15) 2. No (Skip to question 5.1)

4.14 If yes, how many loans? ..... (number of loans)

Loan No.	Amount borrowed		For how many months (from when borrowed to when to repay)	For what purpose?	Do you use any collateral to obtain loan?	How much to repay?	
	In kind (Write number and unit. e.g. 2 Taov of paddy, or 1 sack of paddy) Then convert to cash and write in column (1)	In cash or calculate the good borrowed to Riels (Please price at borrowing time)				In kind (Write number and unit. e.g. 3 Taov of paddy, or 3 days of transplantating) Then convert to cash and write in column (6)	In cash or calculate the good or labour to be paid in Riels (Please price at paying time)
		(1)	(2)	(3)	(4)	(5)	(6)
4.15 Loan 1	.....	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	.....	.... Riels (Write all digits)

Loan No.	Amount borrowed		For how many months (from when borrowed to when to repay)	For what purpose?	Do you use any collateral to obtain loan?	How much to repay?	
4.16 Loan 2	……	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	……	..... ….. Riels (Write all digits)
4.17 Loan 3	……	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	……	..... ….. Riels (Write all digits)

Loan No.	Amount borrowed		For how many months (from when borrowed to when to repay)	For what purpose?	Do you use any collateral to obtain loan?	How much to repay?	
4.18 Loan 4	……	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	……	..... ….. Riels (Write all digits)
4.19 Loan 5	……	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	……	..... ….. Riels (Write all digits)

Loan No.	Amount borrowed		For how many months (from when borrowed to when to repay)	For what purpose?	Do you use any collateral to obtain loan?	How much to repay?	
4.20 Loan 2	……	..... Riels (Write all digits)	..... months	1. farming 2. buying input for business 3. food shortage 4. health 5. education 6. solving hh conflict 7. animal raising 8. paying off loan / credit 9. home improvement 10. ceremony 11. Other……	1 = no 2 = gold 3 = animal 4 = land receipt 5 = land title 6 = other assets 7 = group loan 8 = Other:….	……	..... ….. Riels (Write all digits)

V. Household Expenditure

Since the beginning of the last rainy season in 2003, expenditure on non-food items by all members of household:

	Amount	From which source
5.1 clothes and footware	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.2 Medical care / health treatment	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.3 Pay for others' wedding	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.4 Ceremony	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.5 Expenditure on house repairs	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.6 Expenditure on visits / tourism	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.7 Education	.....*moeun* Riels	1. loan/credit 2. own sources 3. Gift
5. 8 Donations to relatives	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.9 Some contribution to development programme	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.10 other expenditure (beside production and food)	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.11 Expenses on water, fire/Electric	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift
5.12 Expenditure on hygiene	.....*moeun* Riels	1. loan / credit 2. own sources 3. Gift

5.13 Total (sum of Q5.1-Q5.120) .....*moeun* Riels

On average in this last rainy season, in one moth how much has your household spent on:
(you may ask for one day or one week if it helps before putting in a month's term but do not forget to take the average)

	amount	from which source
5.14 soaps, shampoo, make up	..... *moeun* Riels	1. loan / credit 2. own sources
5.15 Education (pay for extra courses, teachers and eating at school)	..... *moeun* Riels	1. loan / credit 2. own sources
5.16 purchasing food beside rice	..... *moeun* Riels	1. loan / credit 2. own sources
5.17 Eating outside home	..... *moeun* Riels	1. loan / credit 2. own sources

5.18 Total in one month (sum of Q5. 14 – Q5. 17) ..... *moeun* Riels

5.19 Total since the beginning of the last rainy season in 2003
i.e. Q.5.18 x 6 months: .....*moeun riels*

5.20 Total Expenditure since the beginning of the last rainy season in 2003
(Q5. 13 + Q5. 19: ..... *Moeun riels*

VI. Agricultural Production and Income

According to the last complete crop season in 2003, please tell me about your crop production and revenue:

6.1 The last season completed or harvested ended on Month ..... Year.....?

	Month of last harvest	Total area harvested (convert to ha)	Quantity Produced	Unit price (Riels/ kg / any unit)	Quantity Sold (kg/any unit)	Total value sold
	(1)	(2)	(3)	(4)	(5)	(6)
6.2 Rice (irrigated)	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.3 Rice (non-irrigated)	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.4 Maize	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.5 Beans	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*

6.6 Sesame	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.7 Cucumber	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.8 Water melon	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.9 Vegetables	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.10 Trees/Plantation	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.11	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6. 12.....	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*
6.13.....	Month.....03	.....	.....	.....	.....	..... *Moeun Riels*

⏩ **For the month, please write in number e.g. for May, write 5. Also, please convert the land area to hectare. e.g. for 10 ars, write 0.1 hectare.**

<u>Since the beginning of the last rainy season in 2003</u>, what has been your household income from all members of households?

(Always remember to ask him / her to recall since the last rainy season in 2003)	Convert to *Moeun Riels*
Income from selling paddy, livestock, raised fish and fruits	
6.14 Total income from selling paddy, maize, beans, water melon, vegetables, fruits	.....*Moeun Riels*
6.15 Pig:	.....*Moeun Riels*
6.16 Cow/buffalo:.....	.....*Moeun Riels*
6.17 Poultry	.....*Moeun Riels*
6.18 Fish culture:.....	.....*Moeun Riels*
6.19 Trees / plantation:……	.....*Moeun Riels*
Off-farm Income (*Gross Income*)	

6.20 Palm juice / sugar production:	.....*Moeun Riels*
6.21 Wage labour:	
a. selling labour in Cambodia (in other urban or PNP)	.....*Moeun Riels*
b. cross border migration (e.g. to Thailand)	.....*Moeun Riels*
	.....*Moeun Riels*
6.22 Small business/petty trade.....	
a. Other (specify)	.....*Moeun Riels*
b. ……	.....*Moeun Riels*
	.....*Moeun Riels*
Gathering from Common Property Resources	
6.22 Fishing:	.....*Moeun Riels*
6.23 Hunting:.....	.....*Moeun Riels*
6.24 Collecting vegetables / roots / fruits:	.....*Moeun Riels*
6.25 Other (specify)	.....*Moeun Riels*
Other Incomes	
6.27 Land/house rental:.....	.....*Moeun Riels*
6.28 Equipment/animal rentals.....	.....*Moeun Riels*
6.29 Interest from lending money	.....*Moeun Riels*
6.30 Remittances.....	.....*Moeun Riels*
6.31 Commission from facilitating land transaction……	.....*Moeun Riels*
6.32 Other (specify)	.....*Moeun Riels*

6.32.1 Total (sum of 6.14 to 6.32) ..... *Moeun Riels*

6.33 How sufficient is the yearly supply of rice from your land for the whole year consumption for your family? *(Select only one answer)*

1. more than sufficient and have surplus to sell, lend
2. just adequate
3. good for 7-10 months; have to buy some
4. good for 3-6 months; have to buy a lot
5. good for only less than 3 months (not sufficient); have to buy
6. entirely dependent on buying rice

VII. Production Expenditures (If the household does not produce rice, go to Part B.)

A. Current Expenditure on rice production in the last cropping season (excluding exchanged or own labour) (If expenditure was in paddy, convert to Riels)

	Please convert and write in Moeun *Riels*				From which source (circle appropriate code)
	Plot 1	Plot 2	Plot 3	Plot 4	
7.2 chemical fertilisers					1. own source 2. loan from family/relative 3. rural credit
7.3 Pesticides					1. own source 2. loan from family/relative 3. rural credit
7.4 water fees or pumping cost (not the capital cost)					1. own source 2. loan from family/relative 3. rural credit
7.5 soil preparation expenses					1. own source 2. loan from family/relative 3. rural credit
7.6 hired labour for transplanting					1. own source 2. loan from family/relative 3. rural credit
7.7 hired labour for harvesting					1. own source 2. loan from family/relative 3. rural credit
7.8 threshing					1. own source 2. loan from family/relative 3. rural credit
7.9 repair and maintenance of farm equipment					1. own source 2. loan from family/relative 3. rural credit
7.10 transportation of inputs and produce					1. own source 2. loan from family/relative 3. rural credit
7.11 rental of land (if applicable)					1. own source 2. loan from family/relative 3. rural credit
7.12 rental of equipment / animals					1. own source 2. loan from family/relative 3. rural credit
7. 13 other (specify)					1. own source 2. loan from family/relative 3. rural credit

B. Total Expenditure on **other crop production** (fruits or vegetables) **in the last complete season**

	Please convert and write in Moeun Riels				From which source (circle appropriate code)
	Plot 1	Plot 2	Plot 3	Plot 4	
7.14 chemical fertilisers					1. own source 2. loan from family/relative 3. rural credit
7.15 Pesticides					1. own source 2. loan from family/relative 3. rural credit
7.16 water fees or pumping cost (not the capital cost)					1. own source 2. loan from family/relative 3. rural credit
7.17 soil preparation expenses					1. own source 2. loan from family/relative 3. rural credit
7.18 hired labour for transplanting					1. own source 2. loan from family/relative 3. rural credit
7.19 hired labour for harvesting					1. own source 2. loan from family/relative 3. rural credit
7.20 threshing					1. own source 2. loan from family/relative 3. rural credit
7.21 repair and maintenance of farm equipment					1. own source 2. loan from family/relative 3. rural credit
7.22 transportation of inputs and produce					1. own source 2. loan from family/relative 3. rural credit
7.23 rental of land (if applicable)					1. own source 2. loan from family/relative 3. rural credit
7.24 rental of equipment / animals					1. own source 2. loan from family/relative 3. rural credit
7.25 irrigation					1. own source 2. loan from family/relative 3. rural credit
7.26 Extension services					1. own source 2. loan from family/relative 3. rural credit
7.27 Land improvement					1. own source 2. loan from family/relative 3. rural credit
7.28 other (specify)					1. own source 2. loan from family/relative 3. rural credit

C. Total expenditure on other non crop production and other investment in other business in the last rainy season?

Type of business activities	**Input expenditure (please convert and write in *Moeun* Riels)**	**From which source**
7.29……		1. own source 2. loan from family/relative 3. rural credit
7.30……		1. own source 2. loan from family/relative 3. rural credit
7.31……..		1. own source 2. loan from family/relative 3. rural credit
7.32……..		1. own source 2. loan from family/relative 3. rural credit
7.33…….		1. own source 2. loan from family/relative 3. rural credit

VIII. Pattern in Land Use:

8.1 Since the commune ellection, has any plot of your lands been used for different purpose?

	8.2 Which plot?	**8.3** When?	**8. 4** Any reason (choose more than one reason is possible)
1. no			
2. from rice to vegetable, fruit tree or other cash crop			1. no idea 2. better benefit 3. more marketing demand 4. better supply of input 5. better access to credit Other:……
3. from cropping to pig or poultry or cattle farm			1. no idea 2. better benefit 3. more marketing demand 4. better supply of input 5. better access to credit Other:……
4. from cultivation to lease out			1. no idea 2. better benefit 3. more marketing demand 4. better supply of input 5. better access to credit Other:……
5. converting residential land from farming land			1. no idea 2. better benefit 3. more marketing demand 4. better supply of input 5. better access to credit Other:……
6. Other (specify)			1. no idea 2. better benefit 3. more marketing demand 4. better supply of input 5. better access to credit Other:……

IX. Shocks / Crises Affecting Household and Coping Strategies

Since the last rainy season in 2003, have you ever faced with any of the following crises?

		1 = No	2 = Yes	If yes, how much is spent?
9.1	loss of household member (number)	1	2	..... *Moeun Riels*
9.2	household member very sick or badly injured	1	2	..... *Moeun Riels*
9.3	fire	1	2	..... *Moeun Riels*
9.4	crop failure due to pest	1	2	..... *Moeun Riels*
9.5	crop damage due to 2003 drought / flooding	1	2	..... *Moeun Riels*
9.6	other damage due to 2003 drought / flooding	1	2	..... *Moeun Riels*
9.7	animal deaths / theft	1	2	..... *Moeun Riels*
9.8	theft or being cheated	1	2	..... *Moeun Riels*
9.9	household member lost wage employment	1	2	..... *Moeun Riels*
9.10	business shut down	1	2	..... *Moeun Riels*
9.11	land conflicts	1	2	..... *Moeun Riels*
9.12	other (specify)	1	2	..... *Moeun Riels*

[If the answers to all are "No", go to Section X.]

9.13 How did your family cope with the incidence(s) above? *(multiple answers permitted)*

9.14 spent past savings

9.15 reduce consumption

9.16 borrow money (including gold)

9.17 sold cattle

9.18 sold transport, farm or household equipment

9.19 rented out land or home to others

9.20 sold residential land / house

9.21 sold agricultural land

9.22 got help from relatives / friends

9.23 got help from NGOs

9.24 household member(s) migrated to look for jobs

9.25 placed any of children in labour service

9.26 other (specify) .....

X. Information about Household Food Consumption

10.1 Normally in the last cropping season, how many meals does you household have per day?
1. 2 meals, 2. 3 meals, 3. 1 meal

How many have eaten in the household in the past week (7 days)?

10.2 Members aged 15 and above .....…..

10.3 Members aged 14 and below.....…

What was the total value of food, beverage, tobacco etc. consumed in your household during the past week? **(Fill in the Table below accounting for those who have eaten in the household in the past 7 days)**

Food Items	Quantity	Purchased (riels)	Own produced or collected or given (Riels)
10. 4 Rice / other staple food	..... kg	..... Riels	..... Riels
10. 5 Fruits / Vegetable	..... kg	..... Riels	..... Riels
10. 6 Meat (fish, pork, beef, egg. etc)	..... kg	..... Riels	..... Riels
10. 7 Other:.....	..... kg	..... Riels	..... Riels

XI: Feeling of people on the land tittling and land registration:

11.1 As per your idea, what are the benefit from the land titling and land registration?

1 – Having stability in owing the land.
2 – End conflict.
3 – Ease in borrowing money or credit.
4 – Ease in transfering inheritage.
5 – Nothing different.
6 – No ide.

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Cambodia Land Titling Programme: Baseline Survey Project

Rural Phase I

The Ministry of Land Management, Urban Planning and Construction (MLMUPC), with support from international donors, is implementing a Land Management and Administration Project (LMAP) to improve land tenure security and strengthen land administration systems. Among other activities, the project will establish a systematic land-titling program that will issues one million titles over a fifteen-year period. The project expects that land titles will help: (a) increase farmer access to formal credit; (b) stimulate agricultural and commercial investments in rural and urban areas that will increase productivity and employment; (c) promote more efficient land markets, and (d) contribute to poverty reduction.

The Cambodia Development Resource Institute (CDRI) has recently collaborated with MLMUPC to collect baseline data that will be used to assess of the economic and social impact of land titles after three years. The Baseline Survey Project interviewed 1,232 rural households in 40 villages in 10 communes of five provinces during 19 January – 29 February 2004. The four LMAP provinces include Kompong Cham, Kompong Thom, Sihanoukville, and Takeo. The fifth province, Kompong Chhnang, is not in LMAP and serves as the control province for comparison with the four project provinces. Households were randomly selected from village lists according to landholding size and gender. An additional urban 99 households were interviewed in Sihanoukville city (Sangkhat 2) and will be included in the final report along with the findings of the second phase of the baseline survey project in and around Phnom Penh.

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