CGIAR systemwide program on COLLECTIVE ACTION AND PROPERTY RIGHTS

CAPRi Working Paper No. 89 **June 2008**

ESCAPING POVERTY TRAPS?

Collective Action and Property Rights in Post–War Rural Cambodia

Anne Weingart, Ministry of Economics, Brandenburg State, Potsdam, Germany

Michael Kirk, Marburg University, Germany

CGIAR Systemwide Program on Collective Action and Property Rights (CAPRi)
C/– International Food Policy Research Institute, 2033 K Street NW, Washington, DC 20006– 1002 USA
T +1 202.862.5600 • F +1 202.467.4439 • www.capri.cgiar.org

ABSTRACT

This paper introduces and applies an analytical framework to study how formal and informal institutions influence socio–economic change and poverty reduction in rural Cambodia, giving specific reference to property rights and collective action. It focuses on emerging endogenous mechanisms of cooperation as well as on the role of external actors and instruments in forming or enhancing collective action institutions, and enforcing use and ownership rights among the rural poor. Within this framework key contextual factor, such as asset endowments, legal structures, and power relations, have an impact on poverty and rural livelihoods, but are also mediated and changed by property right regimes and local cooperation. Findings indicate that access to and use of natural capital still contributes significantly to rural incomes. Access to natural resources is, however, defined by multiple and overlapping rights, both private and common ones, which are, in turn, governed by formal and informal patterns of cooperation. Collective action also contributes to improve livelihoods. Nevertheless, depending on asset endowments, differences exist in the degree of participation. Owing to Cambodia's recent history of genocide, forced collectivization and resettlement, property rights regimes have been severely affected, remain contested, and are re–established only slowly. In this context, the mutual trust necessary for successful cooperation in common property issues is severely undermined.

Keywords: collective action, property rights, Cambodia, poverty traps, natural resources, rights, common property

Table of Contents

ESCAPING POVERTY TRAPS?

Collective Action and Poverty Rights in Post–War Rural Cambodia

Anne Weingart and Michael Kirk[1]

1. INTRODUCTION

Collective action and property rights are able to shape peoples' livelihoods. Property rights shape peoples' claim on benefit streams out of their owned resources and have an impact on peoples' asset base. In a cross–country study Heitger (2003) shows that improved property rights have a strong positive impact on living standards. The better property rights are suited to address people's needs, the better their chance to shape their livelihoods and to escape poverty traps. Secure access to resources increases a household's capital base and will broaden (poor) people's capacities to engage in activities to improve their well–being. Effective collective action can also enable households to improve their well–being. Engaging in activities collectively can, for example, increase people's access to resources, secure against idiosyncratic shocks, or achieve common goals that are impossible to achieve at individual level. Thus collective action also becomes part of people's strategies to shape property rights and increase well–being.

Both property rights and collective action were severely challenged in Cambodia by the Khmer Rouge regime. After democratic consolidation, attempts to (re-)create a legal framework that secures access to land and natural resources were made by the Royal Government of Cambodia (RGC) and strongly supported by all major donors. Nevertheless the introduction of laws, decrees and sub decrees created new uncertainties among the rural poor and advantaged the more powerful (Global Witness, 2007). Resource degradation and conversion of natural resources into arable land leaves Cambodia's rural poor with ever less options to derive income from these resources. Furthermore, a relatively slow rate of land titling in rural areas or clear demarcations leaves the poor, less powerful people vulnerable to land grabbing and exclusion from benefit streams out of common property. Collective action also still suffers from the Khmer Rouge legacy as large parts of traditional social ties such as mutual help, religious institutions and even family ties have been destroyed (Mehmet, 1997). Collectivization under the communist regime of the People's Republic of Kampuchea also left marks on Cambodians' willingness to cooperate at a larger extent in agriculture.

The objective of this case–study is to identify effective practices and policies that enhance the way in which cooperation/collective action and property rights are used to build up secure assets and income streams for the rural poor in Cambodia. In order to provide policy makers, community groups, civil society organizations

[1] Corresponding author: kirk@staff.uni-marburg.de

*This research was funded by the Federal Ministry for Economic Cooperation and Development, Germany.

and researchers with a better understanding on the property rights systems in place, the project assesses existing property rights systems in rural Cambodia to identify what benefit streams poor people can rely on for their livelihood. The project identifies forms and mechanisms of economic and social cooperation, how they influence property rights systems, and to what extent rural poor are part of village networks. Based on this assessment, the linkages between property rights, collective action, and poverty are analyzed. In addition, it explores what resources poor households use, by what property rights systems these resources are governed, and if collective action helps poor people to address their needs.

This study shows that mutual help, religious activities, and small scale associations are regaining ground in Cambodia. However, these associations, even though aiming to help the rural poor, actually cannot reach them properly. Poor people lack confidence to take part in those associations and sometimes are unable to use the services offered by them.[2] In addition, collective action to secure natural resources is not yet successful to address ongoing resource degradation. Formal, legally backed institutions lack local recognition and are thus unable to enforce rules set to protect the resource. Villages that mange their resources following traditional principles tend to cooperate better across village boundaries and are thus more successful in natural resource management. Nevertheless, they too are unable to protect them against interventions of outsiders.[3] Another explanation for low degrees of cooperation in natural resource management are low degrees of trust. Missing trust will have to be considered when implementing development projects on the ground.

2. THE CAMBODIAN BACKGROUND

Cambodia is a South– East Asian country with a Gross National Income per Capita of US$380 (World Bank, 2006). Its main income source is agriculture (19.1 percent of GDP, 2005 current prices)[4] growing at a below average rate. Around 80 percent of the Cambodian population lives in rural areas, where 72.5 percent are employed in the agricultural sector.[5] In 2004, 35 percent of the Cambodian population lived below the national poverty line of US$0.45 per capita per day, with highest poverty incidence in rural areas. Based on 2004 data, 39 percent of the rural population are classified as poor, compared to 5 percent in Phnom Penh and 25 percent in other urban areas (World Bank, 2006). Cambodians living in rural areas account for nearly 91 percent of the overall country's poor (World Bank, 2006). This high level of poverty incidence has largely resulted from high population pressure in the rain fed lowlands on limited natural resources,[6] inadequate job opportunities and low capabilities, insecurity on access to land and other productive assets, continuing exclusion of poor communities from economic growth, and high vulnerability due to

[2] As an example: Rice banks are not suited to generate extra income for landless or land– poor households. They provide rice for a lower interest as the surplus gained through the harvest. However, landless and land– poor often are not able to generate the surplus but rather borrow for consumption purposes. They are only able to pay back the loan if they are able to generate enough money from other income sources.

[3] People considered to be outsiders can be understood as people that migrate temporarily to other districts or provinces or powerful people that do not have close ties to the villages.

natural disasters, violence, and economic shocks (EIC, 2005; World Bank, 1999).[7] Although more than 70 percent of Cambodia's population are employed in agricultural production, large shares of them do not have access to arable land. Landlessness among rural households rose from 12.6 percent in 1997 to 19.6 percent in 2004 (RCG, 2002; Sophal et al., 2001; World Bank, 2006).

Rural Economy

Most of the population lives in low arable plains crossed by many rivers, with the two most important being the Mekong River and the Tonle Sap. Natural resources play an important role in securing livelihoods for those poor as they contribute to a large share to household incomes (World Bank, 2006) and are able to contribute to poverty reduction if secure access and sustainable use is given (Hach and Sothea, 2004). In Cambodian rural areas natural resources contribute to multiple uses for income generation of multiple users, ranging from collecting non– timber forest products for subsistence to additional income generation through logging at different scales. Access to these natural resources is, however, defined by multiple and often overlapping rights, both private and common, which are in turn governed by formal and informal patterns of cooperation. Therefore, the ability to decide and act together plays an important role in improving rural livelihoods. Privately owned parcels of forests do not inhibit villager's rights to gather mushrooms, hunt animals, or graze cattle within the forested area as long as timber or other commercially used products remain untouched. Flooded rice fields are open to villagers to catch crabs or small fish in the fields and become common grazing ground after they have been harvested. There are also concession systems in place that are granted to private parties by the state for economic exploitation. Here, access and extraction rights are regulated through different legal texts.[8] There are overlapping

---

[4] Agriculture is followed by garment industries (13.2 percent of GDP) and fisheries (9.8 percent of GDP).

[5] Employment in the agricultural sector includes employed rural laborers as well as self employed and unpaid family workers. The share of people employed in overall Cambodia is 67.6 percent.

[6] According to UNFPA (2005) Cambodia's population growth rate is 2.4 percent, which is relatively high compared with neighboring countries where population is growing by 1.4 percent in Vietnam and 1.0 percent in Thailand. Furthermore, Cambodian population is less concentrated in the cities than its neighbors' population.

[7] Such shocks are consumer or oil price shocks and deteriorating terms of trade for exported goods.

[8] In the fishery sector, for example, a fishing concession system is in place, where the Department of Fisheries (DoF) as part of the Ministry of Agriculture, Forestry and Fishery (MAFF) grants concessions for commercial fishing. The Fisheries Law (2006) defines rules of access, boundaries, user rights, authorities, and enforcement. It is based on the separation of the fishery domains into industrial fishing, preserved fishing, and subsistence fishing areas. Fishing lot "owners" who lease those lots for a two years period do have the right to exclusively fish in their lot, excluding the area that is reserved as "open access area". Medium scale fishing is allowed in public domains (such as outside fishing lots and protected areas) after paying for a licence that grants access rights. Fishing lots and medium scale fisheries are prohibited during the "closed" season. Subsistence fishing is allowed in all public domains throughout the whole year and within the lots during the "closed" season (McKenney and Tola, 2002). However, there are informal cooperation schemes that affect subsistence

rights in floodplains, where agricultural land or forests are (temporarily) flooded and become fishing habitats. In these areas agriculture, fisheries and forestry compete for scarce resources: water used for irrigation may decrease fish yields; extensive harvest of forest products or land clearings destroys fish habitats; pesticides and fertilizers used in agriculture reduce water quality and thus fish yields.

As an outcome of the process of political stabilization and re– establishing government institutions in the country from the mid 1990s on, cooperative management approaches were recognized (or even re–invented) by the government, civil society organizations, and the private sector as potentially successful governance patterns not only for individual livelihood generation but also to achieve a more sustainable resource use. As an example, traditional forms of cooperation in Cambodia are centred on the pagoda, the Buddhist temple. They are based on the donations villagers give to a pagoda committee. In the first place, they provide for the monks' food but are also used to repair the pagoda, establish rice banks, and give food and shelter to the most vulnerable villagers. Several NGOs thus use pagodas as an entry point to introduce or support not only socio–economic self– help groups but also to raise awareness for sustainable resource use, to replant forests, or to initiate resource management organizations. In the fisheries and forestry sector the RGC aims to hand over natural resource management to local users. The Fishery Communities[9] set up for this purpose shall manage, protect, develop, and use the fishing resource in a sustainable way. With the instrument of Community Forests[10] the state recognizes and aims to ensure traditional forest use rights of villages and communes.

Civil War

To understand the sensitivity of these recent initiatives and the high risk of failure in their implementation, it is important to take Cambodians recent history of civil war into account. In 1975 the Khmer Rouge came into power and introduced an agrarian totalitarian communism to a dimension not known before (Chandler, 1996). Cambodians were organized in brigades that had to provide forced labor under unbearable conditions. The Khmer Rouge abolished private ownership,

---

fishery negatively: fishing lot owners do cooperate (illegally) with the military to inhibit subsistence fishing even when subsistence fishing is allowed within the lots (Van Acker, 2003). In the forest concession system, the MAFF gives concessions to private companies that then exercise exclusive rights on the resource. These systems has been widely criticized as the concessions have been awarded without consideration of environmental and social impacts, and lack clear boundaries and evaluation criteria for sustained yield (Fraser et al. 2000, Global Witness, 2007).

[9] The term Fishery Community is used in the 2006 Fisheries Law to describe formal institutions that are registered with the Cambodian government. In the text the term "Fishery Community Organization" will be used to refer to those management institutions only.

[10] Community Forests are defined by the 2002 Forestry Law as an "area of state forest granted under an agreement to manage and utilize the forest in a sustainable manner between the Forest Administration and a local community or organized group of people living within or near the forest area and dependent upon it for subsistence and traditional use". (Article 5/8) In the text the term "Community Forest Organization" will be used to refer to institutions that are registered with the government or are in the registration process.

literally destroyed existing infrastructure including written evidence on land ownership or use rights, and systematically killed intellectuals, government employees, and monks. Cooperative institutions related to religious services and the life around the Buddhist pagodas were abolished (Mehmet, 1997). It is estimated that over one million citizens[11] died during the Khmer Rouge regime (Chandler, 1996). In 1979, Vietnamese troops overcame the Khmer Rouge regime and introduced an economic model based on the ideas of a centrally planned economy and of state owned rural producer cooperatives. Violent conflicts continued in different parts of the country, and only after elections in 1993 Khmer Rouge accepted to turn in their weapons. Currently Cambodia superficially appears to be a peaceful country; however, the years of unrest left marks on Cambodia's physical, human, and social capital with a painful reconstruction process still ongoing.

Legal Pluralism

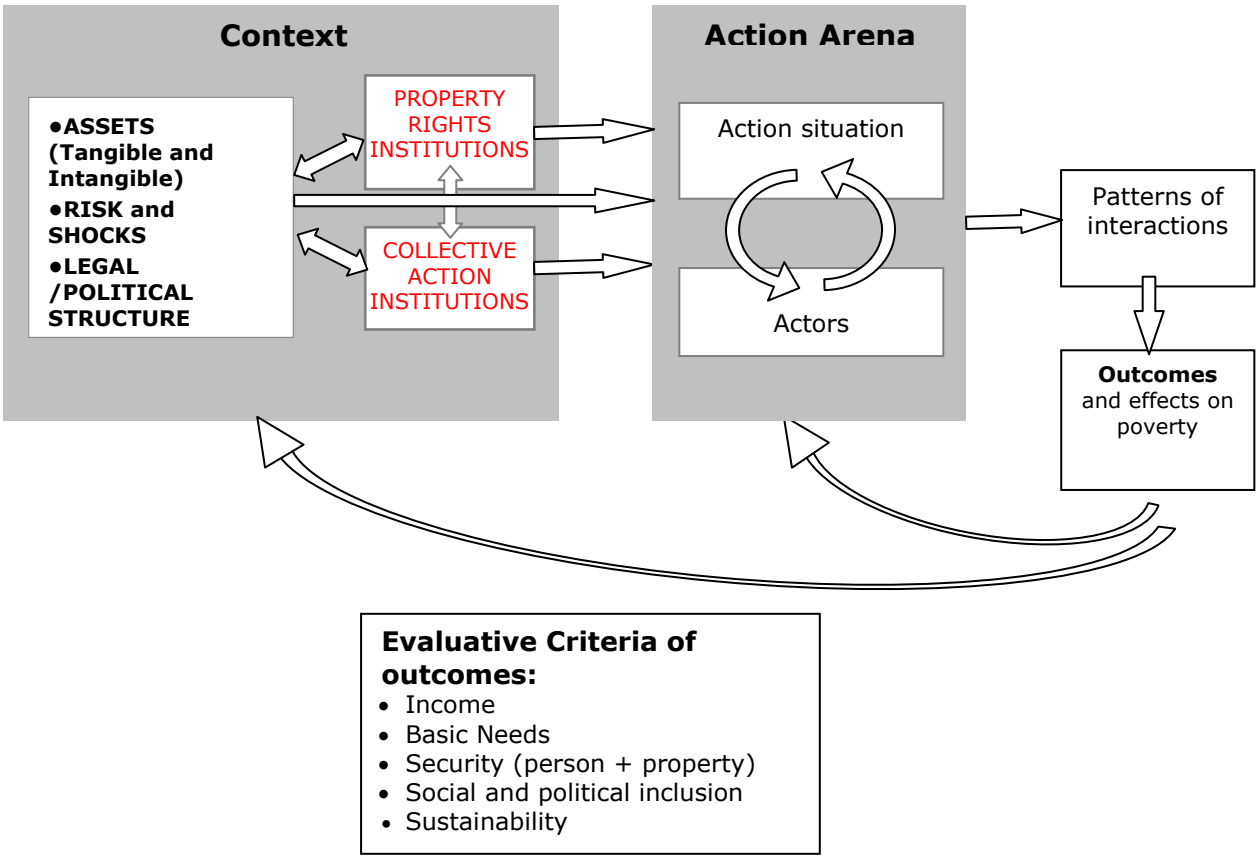
Practised property rights systems include not only the legal foundations of a state but also take informal rights into account such as statutory, traditional, and customary rights. This coexistence of different sources of rights is referred to as legal pluralism (Griffiths, 1986; Merry, 1988; Meinzen–Dick et al., 2002). Legal pluralism exists in Cambodia, as Simbolon (2002) states relating this to its specific socio–political history. Property rights have developed under the different regimes Cambodians faced over time: traditional Khmer property rights were similar to usufruct, where the king appointed persons to use and benefit from a piece of land. French colonisation introduced private property rights and individual land ownership in Cambodia. After they left, private property was appreciated by the elite but "… the Khmer rural masses did not necessarily embrace it" (Simbolon, 2002: 11). Later, under the Khmer Rouge regime private property was abolished and peoples' rights to draw benefit from land were transformed to the right to only work on it. A vast displacement of the population based on forced resettlement alienated Cambodians from traditional claims to their land. However, during the Vietnamese–supported People's Republic of Kampuchea the collectivization of property continued as part of a socialist economic model but included different levels of individually secured use rights. Restricted private ownership was reintroduced from 1989 on, when Cambodia started to transform its socialist system to a market economy (Williams, 1999). Constant changes in Cambodian property– related law created a legal plurality itself, with traditional and statutory rights co– existing (such as the Land Law of 2003, a vast legislation on natural resources together with re–acknowledged indigenous, unwritten rights). Degen et al. (2000) find that existing rights rather strengthen the powerful than protect the powerless effectively. Today, the legal framework is still weak with different components developing at different speeds (van Acker, 2003).

3. THEORETICAL FRAMEWORK: A SYNOPSIS

[11] More cautious estimates suggest that around 900.000 people, then one eighth of the country's population, lost their lives during the four years of the Khmer Rouge Regime (Golzio, 2003).

Benefits from economic growth have often bypassed the poor. Evidence indicates that changes in social and economic processes are necessary to reduce poverty (Wolfensohn and Bourguignon, 2004) and that the distribution of benefits from growth remains crucial to achieve this goal. In this context, the key role played by property rights and collective action in generating well– being, and how to make benefits out of property rights and collective action available to the (rural) poor remains a challenge for research. To understand how property rights and collective action can contribute to poverty reduction, a conceptual framework is guiding the case– study in rural Cambodia, building upon the Institutional Analysis and Development (IAD) framework (Ostrom, 2005; Oakerson, 1992). This framework (Figure 1) separates in a 'context' section and 'action arena' section.[12]

Figure 1. Conceptual framework on property rights, collective action and poverty



Source: Di Gregorio et al., 2008

The 'context' represents initial socio– economic and political conditions shaping the opportunities of people for possible actions: (1) the asset base; (2) shocks and risks; and (3) political structure of a society. The key problem of lack of

[12] A more detailed discussion of the conceptual framework is presented in: di Gregorio et al. (2008).

assets and weak asset accumulation for the poor highlights the importance of enabling property rights, accessible and enforceable for them. The second set of conditions refers to the vulnerability of people to fall into poverty and the need to create coping mechanisms. Manifested legal structures and power relations generally disadvantage the poor. These three factors affect institutions of property rights and collective action which are themselves part of the initial context. A major part of empirical data from the exploratory study on property rights and collective action in rural Cambodia will concentrate on these contextual factors.

The 'action arena' illustrates how individuals, the state, and other actors can make use of institutions of property rights and collective action, as well as change these institutions to reduce poverty. Nevertheless, not all people have access to these institutions or are willing to engage in them. Poor education, exclusion from social groups, and landlessness– – as in Cambodia– – are reasons that prevent people from engaging. While the context focuses on initial conditions that affect peoples' actions, people's agency and their interactions with others shape their future. Each action situation is shaped by social rules about behavior, use of resources, decision– making mechanisms, and, of course, by contextual conditions. The actors, their action resources, and applicable rules all delimit the space within which actors make choices. Each actor will have different limitations and opportunities within different action situations according to contextual conditions and to the position of other actors involved. In the action arena, parties act independently. They discuss, negotiate, cooperate, and challenge each other.

Over time, specific actions create stabilized patterns of interaction. They refer to regularized and observable behavioural outcomes of actors. In these interaction processes, actors reinforce existing institutions or create even new ones. Thus, on the one hand, existing institutions delineate the socio– economic space within which actors make choices and take action. On the other hand, while institutions constrain actions a priori, they may alter institutions ex– post, thus changing initial conditions through feedback loops. In a final step patterns of interactions lead to outcomes. They can either refer to direct effects on well– being (for example, income increases) or to changes in institutions themselves (for example, stronger bargaining power of villagers through associations). A number of feedback loops might be needed before substantial institutional changes will affect the situation of the poor through improved social inclusion, income, health, and reduced vulnerability, which can finally serve as evaluative criteria to assess outcomes in terms of poverty reduction.

4. CAMBODIAN CASE STUDY: RESEARCH METHODOLOGY

Research Objectives

Based on the problem assessment and the conceptual framework developed, the goal of the Cambodian case study is to identify effective practices and policies that enhance the way in which cooperation/collective action and property rights are used to build up secure assets and income streams for the rural poor. In order to provide policy makers, community groups, civil society organizations and researchers with a better understanding on the property rights systems in place, the project assesses existing property rights systems in rural Cambodia to identify on what benefit

streams poor people can rely for their livelihood. The project identifies forms and mechanisms of economic and social cooperation, how they influence property rights systems, and to what extent rural poor are part of village networks. Based on this assessment, the linkages between property rights, collective action, and poverty are analyzed. In addition, it explores what resources poor households use, by what property rights systems these resources are governed, and if collective action and helps poor people to address their needs.

Methodology

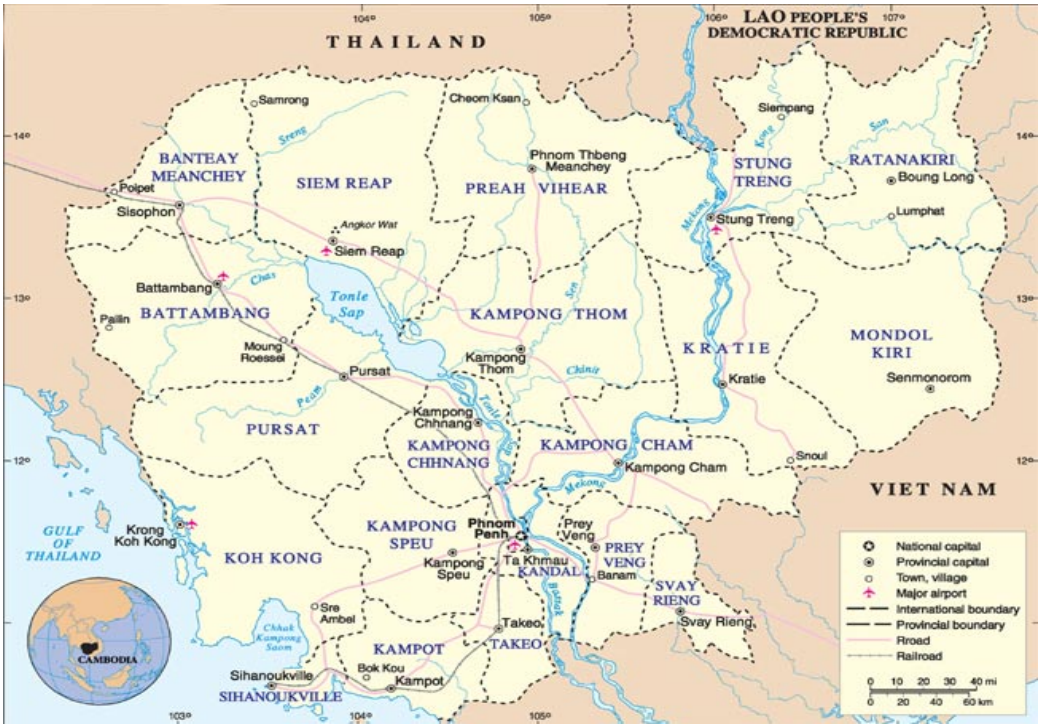
A mix of methods of empirical research was employed. Interviews and group discussions with NGOs, donor agencies, and ministerial staff were used to identify research sites. These sites have been selected with regard to different experience with formalized institutions for cooperation, the endowment with natural resources, and accessibility. [13] The selected research sites are situated in central Cambodia, in the provinces of Kampong Thom and Kampong Cham, both located in the major floodplain zones (Figure 2). With support of collaborating organisations, four villages have been chosen: Chrang Krohom (CK) and Leuk (LK) in Kampong Thom, and Krorsang (KS) and Svay Teap (ST) in Kampong Cham. Villages differ in the kinds of resources used, accessibility,[14] income sources, natural resource management institutions, and in the degree villages are supported by external actors such as NGOs. None of the villages is equipped with electricity or sanitation infrastructure but all have access to a school for primary education.[15] Table 1 gives an overview of village characteristics as stated above.

[13] Weak physical infrastructure and persisting security problems also influenced site selection.

[14] Accessibility is restricted by temporary isolation during the rainy season, lack of streets for four wheeled vehicles, distance to main market places, and poor availability of public transportation.

[15] The village of ST cannot provide education to their villagers currently, as they have established a self organized school for which no teacher is available at the moment.

Figure 2. Research Sites in Cambodia



Source: Cambodia Airports, 2007. Phnom Penh International Airport http://www.cambodia–airports.com/phnompenh/en/cambodia.asp (accessed 2007)

Table 1. Characteristics of Research Sites in Rural Cambodia

Province	Village	Main income source	Resource	Resource use	External support
Kampong Thom	CK	Rice cultivation (97.1 %)	Forest	Subsistence: non– timber products (NTP)	Strong external support
			Lake	Subsistence: fishing, water plants harvests	
	LK	Rice cultivation (97.1 %)	Forest	Subsistence and religious customs and services	Strong external support
			Lake	Subsistence: fishing, water plants harvests	
Kampong Cham	KS	Cash cropping (88.6 %)	Forest	Subsistence: NTP	Low external support
	ST	Rice cultivation (78.1 %)	Forest	Subsistence: NTP and religious customs and services	No external support
			Lake	Subsistence: fishing, water plants harvests	

Source: Compiled by authors

Data collection at the different sites included: (1) semi– structured interviews with key informants to gather information on village structure;[16] (2) a household survey;[17] (3) group discussions and resource maps to identify changes in the resource and to assess property rights of different user groups; and (4) experimental evidence to asses trust levels in the villages.[18] Secondary data analysis was employed to fill gaps the field research could not address.

5. RESEARCH RESULTS

Household and Village Characteristics

The household survey compiles data of 146 households in all four villages. At least one fifth of each village's households were included in the survey. All villages are similar in their household characteristics. Table 2 gives therefore an overview of cross sectional data of these household characteristics. The average size of the households interviewed is 6 persons with an average educational level of 1.6 years in school. On average, 46.5 percent of the villagers engage in collective action.

Table 2. Household Survey Overview

	N	Share	Percentage
Female headed households	146	26	17.8
Land poor (0 to 1 ha)	146	60	41.1
Illiteracy rate	146	42	28.8
Dependence on NR for income generation	146	87	59.6

Source: Compiled by authors

A very large share of the households diversifies its income from more than one source. The households also rely on natural resources[19] for livelihood generation. Table 3 gives an overview on income diversification in the study sites.

In Kampong Thom the villages of Chrang Krohom (CK) and Leuk (LK) use forest and water resources for subsistence and have been supported by international donors and NGOs. At least seven formal associations exist in CK offering credit and religious services, natural resource management, and advisory services to village authorities.

[16] This includes data on the villages' socio– economic background, history, demographics, and infrastructure.

[17] The survey contains information on income sources, past and current engagement in collective action, participation in village decision making processes, and asset endowments. Households were chosen with support of village authorities. The sample was randomly chosen by the researchers based on a household list obtained from the village authorities or with the village authorities' assistance.

[18] Trust games based on Berg et al. (1995) were played in all four villages.

[19] This includes the resources that people use for income generating activities, such as commercial fishing. Activities to support livelihoods are also included. The latter are, for example, to collect mushrooms, to catch crabs, or to harvest water lilies.

Table 3. Income Diversification

Village	Share of households that diversify income (percent)	Income sources (percent)	Dependence on natural resources (percent)
CK	97.1	Rice cultivation (97.1)	Forest (25.7)
		Cash cropping (91.2)	Water (20.0)
		Fishing (41.0)	
LK	97.2	Rice cultivation (97.1)	Forest (25.7)
		Cash cropping (67.7)	Water (11.4)
		Small businesses (23.0)	
KS	88.1	Rice cultivation (42.9)	Forest (34.3)
		Cash cropping (88.6)	Water (not available)
		Small businesses (22.9)	
ST	74.3	Rice cultivation (78.1)	Forest (51.4)
		Cash cropping (71.9)	Water (37.1)

Source: Compiled by authors

In order to improve forest resource management, village authorities established a Community Forest Organization which is already in place but still lacks legal recognition. The goal of this forest committee is to protect the local forest against overexploitation and, where necessary, to start reforestation. Water resources are traditionally managed by the villagers themselves. However, there are efforts to further formalize existing water resource management: at the moment, the Village Committee[20] manages the resource and take actions when problems arise. Water resources management is mainly meant to guarantee sufficient water needed for agricultural activity but also intends to keep the fish stock at sustainable levels to ensure continuous income generation during the dry season. CK has been supported by donor agencies, NGOs, and a Cambodian major political party. Agricultural extension services, infrastructure improvement, and assistance to establish credit associations have been provided as well as proceedings to set up a Community Forest Organization. In contrast to CK, the village of LK manages both the communal forest and the local lake commonly by the village authorities of the three neighbouring villages that use these resources jointly. The forest not only serves as an important resource for income generation but also as a social space for religious festivities that are jointly celebrated with neighbouring villages.

Four formal associations are active in LK. They cover credit and religious service provision and advise the village authorities. LK received support from donor agencies and NGOs for agricultural extension and to establish and develop rice banks. Funds are raised to finance common activities to improve infrastructure. In Kampong Cham Province the villages of Krorsang (KS) and Svay Teap (ST) have been investigated. *KS* faced a major in– migration, with village population increasing by about 50 percent during the last five years. It only depends on forest resources for livelihood generation. The local forest is allocated to the commune and is hence used by several villages jointly. One association guarantees its

[20] The Village Committee consists of the village leader, who is appointed by the government, the vice village leader and some elderly people that are respected and trusted by most villagers.

members' access to credit. At commune level a Community Forest Organization is in place which aims to protect the forest against illegal deforestation and to provide subsistence income in particular for poor villagers. KS has been supported by national and international NGOs and government programs to establish a Community Forest Organization and a credit association, and received support to improve its accessibility. In contrast to all other villages, *ST* only recently started to receive governmental support for improving its accessibility. It uses forest and water resources that are both managed traditionally by village elders. The forest area is also used for religious festivities together with surrounding villages. There is one association in ST that was established to support women against domestic violence.[21]

Villages thus differ in the way they manage their natural resources and the extent to which people act collectively within a village. The following section will present more detailed findings on the role of property rights in natural resource management at the local level.

Property Rights, Natural Resource Use, and Cooperation: Processes and Actors

Secured access to land and other natural resources is of major importance for sustaining livelihoods in Cambodian rural areas: Rice cultivation and cash cropping (such as soybean, yam) are the main income sources to the rural population. Natural resources are mainly used by the rural poor to complement their small income. Therefore, this section will focus on access and use of natural resources first and then will give an overview about the impacts of resulting conflicts on people's livelihoods.

Natural resources such as forests and lakes, ponds and other water units are, as the Land Law (2001) states, owned by the state either as "public" or "private" state domain. Privatization of these resources is endorsed by the Land Law under very restricted conditions only (Kirk, 2004). Complementary to property rights legislation, resource management is regulated in different laws, decrees, and regulations. It is executed by different government departments on provincial and district levels.[22] In all four villages (illegal) conversion of natural resources has been detected.[23] Natural resources in Cambodia are in fact already degraded, with most conversions starting around 1979 during the Pol Pot regime or right after its end.[24] A relatively new tool to address forest resource degradation are Community Forests

[21] This association is actually not working. It was established externally by the Commune Council with insufficient training on the purpose and tasks of this association. The association leader could only vaguely describe the purpose of the association.

[22] Cambodia is administratively divided into provinces, which, in turn, consist of several districts. A district combines several communes which consist of a number of villages being the smallest administrative entity.

[23] There are, for example, activities to fill up lakes to grow more rice or to clear remaining forests for cropping purpose.

[24] One exception is KS, where clearing began only recently in 2000 with immigration and completely changed traditional pattern of fallow cropping systems, where the forest was cleared for cropping and then left alone for three years to recover.

and Fishery Communities[25] that have been introduced by the RGC to hand over resource rights to local people and to initiate sustainable natural resource management. These new tools have been established or are being set up in two of the villages whereas the other two still manage their resources traditionally. According to the Law, each village can decide whether it wants to apply for a formalized community or not. The establishment of these organizations depends on whether legal knowledge of the existence of Community Forests or Fishery Communes was disseminated, whether human and financial resources are available in the villages, and whether the communes go through the registration process.[26] In addition, it depends on whether the resource is part of a natural reserve or an economic concession.[27] At the research sites where local authorities chose to set up Fishery Community or Community Forest Organizations the problems that arise during implementation are similar: (1) procedures to register the Community Organizations, as stated by members involved in the establishment of the Organizations, are very time consuming and impossible to be monitored by the applying villages or communes; (2) uncertainties exist about community boundaries that have to be jointly identified, clarified, and settled before the registration can be finalized; and (3) cooperation with other villages or communes is rather low and makes it difficult to include all user groups. As a result of these dimensions, no clear responsibilities exist during the time span between the application for and the finalization of the registration process for the Fishery Community or Community Forest Organizations. As a consequence, administration officers sometimes stop the ongoing processes arbitrarily on inspection tours leaving community members in uncertainty whether they are allowed to enforce not yet officially approved rules.

The villages of KS and CK decided to establish Community Organizations for natural resource management. In KS forest resources are rapidly decreasing even though a Community Forest Organization is in place. First clearings were done or tacitly protected by higher ranking people from the military being in clandestine contact with some villagers. Villagers opposing logging and tree cutting activities were threatened, even with arms. These patterns of pushing deforestation by mere force are still widely spread in rural Cambodia (see the AHRCHK website for reported cases[28]). The cleared land has then been sold to immigrants, resulting in a remarkable population increase of more than 50 percent in the village during the last five years. In 2003, the village authorities of KS established a Community Forest Organization, but registration was finalized only in 2006. During the three

[25]The Forestry Law states the possibility for local groups to manage their forests: "Community Forest means an area of state forest granted under an agreement to manage and utilize the forest in a sustainable manner between the Forest Administration and a local community or organized group of people living within or near the forest area and depend upon it for subsistence and traditional use" (Forestry Law, 2002: Article 5/8). These local user groups are often simply named Forest Community.

[26] Registering processes are time consuming and require a certain degree of literacy in order to be able to negotiate with the provincial forest or fisheries administrations. They also consume significant financial resources as transportation to the provincial capital is necessary as well as to the resource site for demarcation.

[27] In the latter cases the registration processes will depend on external support as different laws and ministries are involved, and complex legal knowledge is needed to be successful in the negotiating processes.

[28] Asian Human Rights Commission: www.ahrchk.net

years of unclear responsibilities to protect the forest against illegal logging, around fifty new houses were built within the area of the Community Forest Organization, and large parts of the local forests had already been turned into farmland. Clearings took place even though it was well known to all parties involved that damaging the forest resource was forbidden and the Community Forest area had already been provisionally marked as a protected area by the Community Forest Organization. During the registration process, migrants[29] who settled down within the forest turned it into agricultural and homestead land. These settlements hindered the original villagers[30] from continuing traditional fallow cropping. It further aggravated the existing pressure on local resources.[31] The ever– shrinking forest units continued to be of major importance to the original villagers as they rely on them for income generation. Even though the Community Forest Organization immediately reports to the local forest administration whenever rules are broken,[32] no impact on halting logging or the conversion of forests to agricultural land is observable.[33] Settling down in the Community Forest area remains unpunished for reasons that could not completely be assessed during the research. KS is also unable to cooperate with other villages that also heavily rely on the forest. KS authorities feel unable to inhibit the other villages' inhabitants to (ab–)use forest lands or to migrate to the Community Forest Organization area. As Community Forest Organization members point out, punishment of intruders is the right of the intruders' "home" authorities. In addition, newly settled villagers invite their kin and neighbours from their villages of origin to KS as their experience acquiring land through converting forests to arable land had been positive and assuming that there would still be more land available to be distributed by local authorities. This indicates that newcomers expect not to be punished for converting forests into arable land in the short run.[34] As a result, KS is still unable to keep migrants from settling within the forest and is still unable to prevent anyone from logging. As a consequence, the Community Forest Organization fails to protect its forest and to shift to a more sustainable forestry system.

---

[29] The term migrants here refers to people coming from neighbouring villages and communes as well as to people from other districts and provinces.

[30] The original villagers are understood as households that have been living in KS ever since they have been born and are still familiar with fallow cropping traditions.

[31] The forest faced severe degradation already before migrants came to settle down as, due to population growth, some parts of the forest already were transformed for cash cropping purposes. Additionally, the military logged precious woods out of the dense forest leaving a disrupted eco–system.

[32] Only the Forest Administration is able to arrest people or secure evidence to punish crimes against Forestry Law.

[33] This is due to a time lag from the time logging is reported to the time the forest administration officers can react to it. The time lag is relatively big and might take few days, as telecommunication services are costly and not readily available in rural Cambodia. Furthermore, there are only few officers that are responsible for sometimes hardly accessible areas.

[34] In this context, the work of Community Forest Organization is further complicated if user groups are actively in– migrating from other communes or districts, as neither community members nor local administrative staff feel entitled to inhibit exploitation by "foreign" people from other communes and districts.

In *CK* the institutional settings offered under the new legislation also fail to achieve the goal of preserving forest resources. Here too, the main threat to forest areas is the conversion into agricultural land.[35] However, in contrast to KS, this conversion is not due to in– migration but a direct consequence of the scarcity of arable land in the village. During the last two years floods destroyed parts of the rice harvest in the village, encouraging people to look for new fields in locations that are less flood– prone and more reliable to generate sufficient income sources. Experiencing higher returns on the crops grown in the former forest area, more and more villagers put an effort to get access to parcels of this fertile land. Local villagers thus started with slash and burn agriculture and over time shifted agricultural activities from rice to cash cropping. However, some differentiation is necessary as poor people are not even able to invest time in slash and burn activities while still crucially depending on forest products.[36] They spend ever more time to generate the minimum amount needed for subsistence that was provided easily by the products from the forests in the past. The benefit streams out of the forest decrease the more the resource is getting scarcer. The study found people in CK relying mainly on forest products for livelihood generation to be the only ones whose well– being deteriorated over the last five years. In order to address the issue of deteriorating forest resources, local authorities decided to apply for a Community Forest Organization[37] in order to preserve the remaining forest in the area. As in KS, the Community Forest Organization in CK suffers from a lack of responsibility and from unclear local boundaries. In addition, authorities fail to cooperate with neighbouring villages using the same forest.

All facts together, in turn, result in an institutional situation that does not allow communities to effectively exclude anyone from extracting goods out of the natural resource base or to convert forest resources into arable land. Villagers often formulated access rules as "first come, first served" rules for their natural resources.[38] Even in cases when user communities have already been established and are setting rules, only rare events can be traced back in which trespassers have been detected. Even rarer events could be identified in which they were held responsible for their actions. Altogether, the institutional setting is getting close to an open access situation.

This rather disappointing sketch of the current situation, however, does not preclude the continued operation of traditional mechanisms in Cambodia to manage common natural resources effectively at a local level. In all of the four villages there have been traditional resource management institutions in place historically. However, in KS and CK villages indigenous responsibility has been handed over to an institution that replaces traditional mechanisms. Cambodian traditional natural resource management mechanisms also aim to achieve a sustainable use of natural

---

[35] Large parts of the forest are already used for cash cropping (corn, cashew, and mango cultivation) and as rice fields.

[36] Poor people are not able to invest time in slash and burn activities as they cannot rely on savings while at the same time being strongly dependent on income streams on a daily basis. Investing in land conversion takes too much time until these activities will be turned into income.

[37] Until June 2007 the registration process was not finished.

[38] This also applies for actions that turn forests or lakes into arable lands.

resources: Local authorities'[39] elaborate solutions to resource threats and develop, revitalize, and try to enforce sets of rules that aim to overcome arising problems.[40] Traditional management also results in regular common activities such as lake excavations or dam building and maintenance, where all villagers are asked and expected to take part. Religious tradition is another norm and rule creating and enforcing mechanism that brings people together to prepare for festivities, allocate sacred sites, set up or renovate temporary huts, and clear the forest from shrub.

Once a rule is set, it applies for the villagers as well as for any outsider. Trespassers, when caught, are explained the rules as well as the reasons why the rule has been applied. The monitoring of compliance with the rules is done by all villagers, while the village leader is expected to take action if trespasser does not refrain from breaking these local rules. Action means mainly to report the incidents to the commune council or to the authorities responsible to sue the trespasser. There are no further enforcement mechanisms in place, resulting in a number of trespassers that do not abide by the rules.[41] However, the respect for village elders and religious beliefs[42] hinder most local people from breaking formulated rules. The villages LK and ST manage their resources only based on traditional, endogenous rules and enforcement mechanisms. The villages have a traceable history in cooperation, as they traditionally cultivate rice and are thus dependent on support from fellow villagers, for example, to transplant rice seedlings and for animal traction. Buddhist festivities bring people of surrounding villages together in the forest area to celebrate. Village authorities respond to changes in the resource base and in cases when problems occur. On all lands surrounding the villages, people have access rights to extract products for subsistence, no matter whether the land is privately or commonly owned.[43] In LK rules are in place to limit extraction rates that aim to keep the forest at its current size. Plans are underway to even increase the quality of the resource base: an enlargement of the local pond is planned to contribute additional income for subsistence through fishing. In ST local rules prohibit the use of certain fishing gear and the conversion of forests into arable land. Villagers act collectively to protect their resource base,[44] when resources are used as common property.

These examples describe different setups for natural resource management institutions and property rights enforcement mechanisms, and their different

---

[39] This comprises mostly village leaders, respected village elders, and religious authorities.

[40] Reacting to decreased fish stock, for example, they may set up rules listing exactly the kind of fishing equipment that is allowed to be used or must not be used in a local lake. Another response may be to ban harvesting bamboo for house construction when bamboo forests are threatened by overuse.

[41] This is especially true for water resources where illegal fishing gear, such as explosives, will threaten the resource base.

[42] Strong beliefs exist that a person disrupting "Neak Ta", the forest spirits, will suffer from ill health or bad harvests.

[43] Collecting fuel wood, catching crabs in rice fields, etc. are allowed as long as these activities do not affect the harvest. After harvesting, the fields usually become common grazing grounds for livestock.

[44] These activities include cutting shrub in the forest and the excavation of the lake to keep it from being overgrown.

outcomes. LK and ST are still traditionally managed, whereas CK and KS established newly offered external institutions (Fishery Communities and Community Forests) trying to make traditional use rights legally enforceable. Nevertheless, all village authorities feel vulnerable to interventions of higher ranking authorities. They feel unable to oppose plans interfering with their local management strategies, leaving formalized and traditional institutions vulnerable to external intervention and thus undermining the authorities' ability to enforce rules at local level.

As agriculture remains the main income source in Cambodian rural areas, scarce arable land resources, together with rapid population growth, put increasing pressure on natural resources as many farmers seek to transform so– called unproductive land[45] to add to their existing land holdings. As laws, decrees, and other legal texts set different prerequisites and incentives to establish private property rights and have been implemented and communicated to the local population incompletely, conflicts arise for common pool resources.[46] These conflicts have different impacts on people's livelihoods depending on the size of the land and the actors involved.

In the absence of cadastral records, land is often assumed to be state owned and is sold at a large scale without consulting local level administration about current uses, correct location, and spatial expansion (Zimmermann and Kruk, 2002; Bliss, 2005). This gives space for unrestricted speculation often involving government officials, the military and Khmer, or expatriate businessmen. But villagers are also often unaware of state laws. This, in turn, causes conflicts between villagers and government bodies at all administrative levels. It is often not known by the villagers that natural resources are owned by the state and must not be converted to arable land.

The most severe consequence is a loss of these resources as a productive asset for the household or the village community as a whole. Such a loss might be temporary and only last as long as the conflict is resolved. However, it might also result in a complete loss of land as a productive asset due to decisions by local authorities, courts, or the exertion of power by local elites (such as forests converted into rubber plantations). In addition, conflict resolution processes tie up labor force and often substantial financial assets.[47]

Conflicts over natural resources can usually only be solved at a district, provincial, or even the national level. Local villagers on their own are often unable to enforce their rights to a particular resource. Nevertheless, as usually quite a number of local resource users are affected by a conflict, they are able to pool resources and can lobby their local authorities or civil society organisations to take action on their behalf. Collective action might help to overcome not only natural

[45] Land is often left unused when the household that owns the land lacks capital, labor force (for example, through illness or temporary migration) or seeds for planting in time. Forested land is also considered unproductive, once valuable woods have been logged.

[46] There are conflicts about agricultural and homestead lands too, but the focus here will be on other natural resources.

[47] Costs of conflict resolution include fees for administration and transportation costs. Both usually rise when conflict resolution is solved at higher administrative levels. In addition, conflicts also affect parties' self esteem and threaten their physical well– being when they turn violent.

resource management problems but also be of importance to enforce rights on benefit streams out of the resources against. In the following section forms of collective action in rural Cambodia will be identified and factors that influence engagement in collective action will be analyzed.

Collective Action in Rural Cambodia

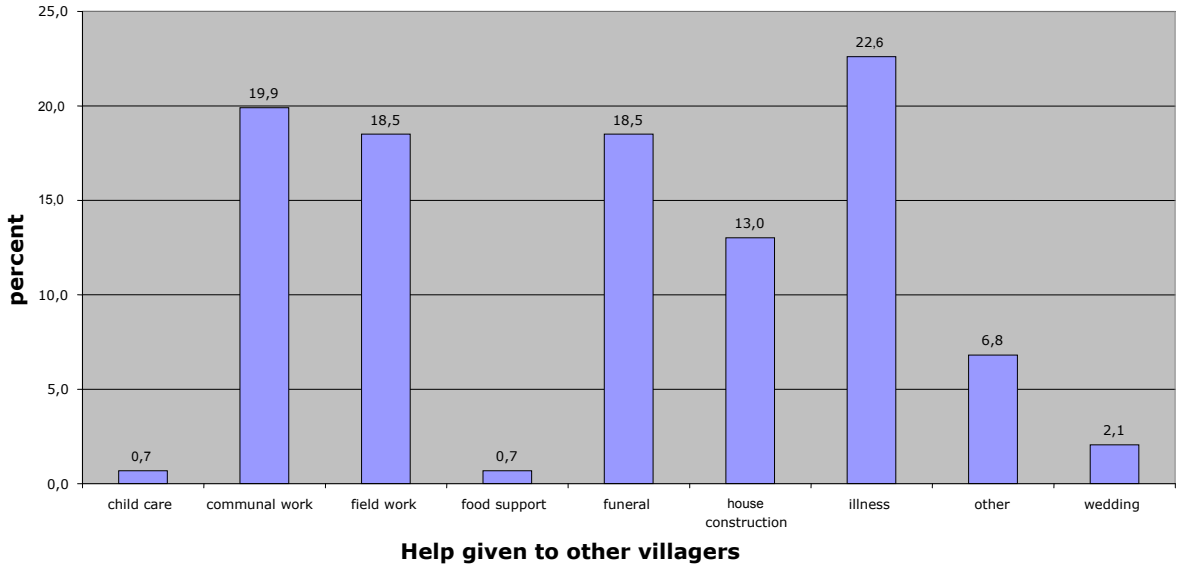
Even after the Pol Pot terror regime and civil war, people in Cambodia continue to cooperate in many ways, ranging from agricultural activities such as transplanting rice, to building social infrastructure such as schools, to membership in other associations, not necessarily with an economic focus. In all four villages a wide range of activities was identified in which collective action is practiced as an effort to improve rural livelihoods and deliver local goods with a public character.[48] In this study a broad definition is used to identify collective action. It is understood as the voluntary engagement of a group of people to reach a common goal. Villagers plan for and execute activities that serve not only the household but also a group of people or the village as a whole.[49]

Figure 3 gives a first overview about the different domains of collective action and the frequency of help that is given to fellow villagers as percent of households engaging in the different activities. Patterns of help in the villages go beyond lines of kinship especially in cases where help is needed due to illness, funerals, and for communal work. Help for house construction or field work rather follows lines of affinity but still goes beyond the extended family.

[48]Activities include spontaneous help after a house burns down (to build a shelter and provide clothes), over bilateral livestock sharing arrangements (animal traction for ploughing), and informal natural resource management, up to more formalized associations with written rules and constitutions.

[49]Examples are road construction, building schools, transplanting rice, and contribututions for social events.

Figure 3. Activities of mutual support in research villages



Source: Compiled by authors

Although a wide range of collective action issues could be identified, quite different factors influence an individual's readiness to provide for activities that are of common interest. These differences are due to household variables as well as village characteristics. All villages investigated planned for and executed common activities that serve not only the household itself but the village as a whole, for example through road construction. Cross sectional data from the 2005 survey gives some insights on what particular household characteristics influence a household's decision to take part in collective action. Based on the results of the measures of association, a binary logistic regression was employed with the aim to analyze what characteristics (village or household related) are likely to increase the household's participation in collective action. The dependent variable is dichotomous: it is 1 if the household takes part in collective action, and 0 if it does not. An overview of the regression results is given in Table 4. The Classification Table highlights that the model successfully predicts 88.4 percent of the cases, that is if a household participates in community work or not. Under "Model Summary," we see that the – 2 Log Likelihood statistic is 89.55. This statistic measures how the model predicts the decisions – the smaller the statistic, the better the model. Cox and Snell R^2 can be interpreted like the R^2 in a multiple regression, but cannot reach a maximum value of 1. The "Variables in the Regression" Table presents regression coefficients and odds ratios. B gives the natural logarithm of the odds ratio, and Exp(B) represents the predicted odds ratio for each variable. The Wald statistic tests the unique contribution of each predictor, holding the other predictors constant. Significance levels are given by the column p.

Table 4. Binary logistic regression on participation in common activities

Classification Table				
		Predicted		
		Participation in work for the community		
Observed		no	yes	Percentage Correct
Participation in work for the community	no	19	12	61,290
	yes	5	110	95,652
Overall Percentage				88,356

Omnibus Test	Chi²: 61.417	df: 18
Model summary	– 2 Log– Likelihood: 89.55	Cox and Snell R²: 0.343

Variables in the regression	B	S.E.	Wald	p	Exp(B)
Households size	0.179	0.205	7.576	0.004	1.195
Number of children	0.600	0.328	3.349	0.067	1.822
Years lived in the village	– 0.033	0.038	0.777	0.378	0.967
Education	– 0.081	0.118	0.466	0.495	0.923
Expected engagement in village institutions	0.353	0.488	0.523	0.470	1.423
Influence on decision making	0.631	0.684	0.852	0.036	0.532
Satisfaction with village decision making	– 0.604	0.915	0.436	0.509	0.547
Participation in village meetings	1.440	1.640	0.771	0.380	4.221
Knowledge of conflict resolution mechanisms	0.639	0.688	0.863	0.353	1.895
Conflict occurrence	– 0.898	0.842	1.139	0.286	0.407
Knowledge of local rules	0.800	0.795	1.012	0.314	2.225
Wealth	– 0.998	0.472	4.473	0.034	0.369
General engagement in social activities	2.594	2.040	1.617	0.204	13.383
Market access	– 2.862	0.814	12.353	0.000	0.057
Village institutions	2.011	0.897	10.175	0.001	7.477
Self– assessment on rank in society	– 0.537	0.468	1.315	0.251	0.584
Access to information on village affairs	1.211	0.659	3.373	0.066	3.357
Constant	– 1.709	2.347	0.530	0.467	0.181

Source: Compiled by authors

They can be interpreted as follows: If Exp(B)>1, the explaining variable increases the probability of a household to switch to "yes", meaning to take part in common activities; if Exp(B)<1, the explaining variable increases the probability of an individual's "no", meaning no engagement in common activities.[50]

As the sample size is relatively small, the prediction quality is low. Still, important insights can be derived. The household size and access to information on village matters increase the probability of participation in village activities, whereas an increase in wealth adds to the probability of not taking part in common activities. This is consistent with the observation that the wealthy buy themselves out from obligatory community work by hiring poorer villagers to do their part in the required activities. Village characteristics that have been included do have an impact on the probability that a household will take part in common activities: households in a village with traditional institutions have higher probability of acting collectively, whereas village market access significantly lowers a household's probability to take part in collective action. On the one hand, villages with better market access are also more accessible to government agencies and NGOs whose activities in the villages might crowd out collective action as they often employ villagers to build up common goods.[51]

On the other hand, as main elements of collective action in rural Cambodia are concerned with road construction and accessibility to the village in general, villages with good market access might not need as much effort to maintain physical infrastructure compared to villages with poor accessibility. Only very small and non– significant effects were found for the other explanatory variables: the longer a household lives in the village (variable 'years lived in the village'), the more it will be willing to engage in collective action. Households that expect to get more involved in village institutions also contribute more. People attending village meetings, having higher knowledge on local rules, and generally behaving pro–social have a higher chance to take part in collective action. Variables that increase the probability of not taking part in common activities are 'years of migration' (the time a household spends outside the village), 'education,' and 'power to influence village decision making processes'. Again, the latter findings are not significant and thus hard to interpret.

In order to paint a more detailed picture of the results, some simple association measures are presented in table 5. It shows the strength of association between household's characteristics and the household's engagement in common activities as Cramer's V coefficient[52] for the strongest associations.

---

[50] Exp(B) is interpreted as an odds ratio for main effects model.

[51] The RGC program SEILA, for example, employs villagers to build and maintain streets. This is paid labor and is not considered collective action in this context.

[52] The Cramer's V coefficient measures the strength of association of categorical variables, ranging from 0, no association, to 1, perfect association. The closer Cramer's V is to 1, the stronger is the association between the variables. In the literature, values between 0.1 and 0.2 indicates a weak association, and values between 0.2 and 0.4 indicates a moderate association (Rea and Parker, 1992). Nevertheless, no direction of the association can be derived from Cramer's V.

Table 5. Strength of association: households' participation in communal work

Household's Characteristics	Years in the village	Participation in village meetings (No. per year)	Household size	Education (years in school)
Years in the village	0.495	0.320	0.317	0.260

Source: Compiled by authors

The strongest association was found for the variable 'years spent in the village'. The longer a household lives in a village the longer the household receives benefits from public goods provided by its fellow villagers: social ties improve and commitment to the village increases. People taking part in village meetings might be more committed to the village and thus inclined to take part in collective action on the village level. But the meetings themselves may help motivate people because development projects are announced in the meetings, and financial needs and labor requirements discussed. The variable 'household size' shows strong association with participation in communal work. A larger household is better able to spare a member from household activities to participate in collective projects.[53] Smaller households' participation in common activities can be costly, especially if the household depends on daily wage labor and cannot afford to take part in collective action that generates no direct payoffs.

Simple correlations (Table 6) also indicate that landless and land– poor households are less likely to engage in formalized institutions for collective action such as cash associations or rice banks. The same is true for less educated households.

Table 6. Strength of association: landless and land poor households' engagement in formalized associations

Household's Characteristics	Association membership	Education (years in school)
Cramer's V	0.619	0.375

Source: Compiled by authors

Table 7 illustrates that less educated households are less likely to engage in associations. It plots the shares for each category of school education against the fact whether households expect to engage at less, the same or more associations. In the research sites 56.8 percent of the illiterate households and 57.1 percent of the households with one to three years schooling expect to become more engaged in associations, whereas 72.7 and 62.5 percent of the higher educated households expect more engagement. Illiterate or poorer people frequently feel themselves as "only ordinary villagers" who are not worth taking part in associations, unless they are explicitly invited by association leaders. Most of the reasons not to become a member of an association are mistrust and a lack of confidence. People often do not take part when association leaders support a political party or belong to an informal

[53] In most villages at least one member per household is expected to take part in common activities.

network of kinship and affinity that is different from the one with which the potential member is affiliated.[54]

Table 7. Membership in Associations and Schooling of Household Heads

			Years of Schooling of Household Head (HH)			
			Illiterate	1– 3 years schooling	3– 6 years schooling	> 6 years schooling
			(percentage)			
Expected engagement in village associations	Less	as percentage of schooling of HH	1.4	0.0	0.0	0.0
	Same level		8.1	14.3	9.1	25.0
	More		56.8	57.1	72.7	62.5
	No information on association		33.8	28.6	18.2	12.5
Total			100.0	100.0	100.0.	100.0

Source: Compiled by authors

In addition, landless and land– poor villagers are afraid their financial assets would not be sufficient to pay back loans when becoming members of cash associations or rice banks, or to pay regular membership fees. It is people owning middle– sized land parcels who are strongly engaged in these associations (Table 8). They are also more likely to engage in more than one association, establishing more complex networks through cooperation with a stronger impact on local well–being. Every second household owning more than 4 hectares of land does not take part in any association. There are two reasons to opt out. First, people with large land holdings are not dependent on rice banks or cash associations. Their harvests guarantee enough income for consumption as well as for investments to crop in the next season. The second reason would be time restrictions. Agricultural activities are labor intense and time consuming. The larger the land holdings of a household, the more time members of that household spend with field work. The households will especially opt out, when association membership means engaging in time consuming activities (guarding natural resources, for example).

[54] In rural Cambodia, the main political parties are present with an office or a representative in nearly each village.

Table 8. Land ownership and membership in associations

		Land ownership (in percent)		
		< 1 ha	1 to 4 ha	> 4 ha
Association membership	No member in any association	36.6	34.0	50.0
	Member in one association	51.2	53.8	12.5
	Member in more than one association	12.2	30.2	37.5
Total		100.0	100.0	100.0

Source: Compiled by authors

However, there are exceptions. Empirical research in *KS* village shows that low engagement of middle– sized land owners in associations is due to a large number of immigrants; these purchase middle– sized land pieces without integrating completely into the village (Table 9). As immigrants contribute to an ever increasing share of the total village population, they can be expected to establish their own associations in the future. In the village of *ST* no association is operating, even though a women's association formally exists.[55]

Table 9. KS village: In– migration and association membership

	Born in the village	**Living in the village more than 5 years**	**Living in the village less than 5 years**
	(in percent)		
No membership in any association	6.0	4.0	28.0
Membership in at least one association	42.0	12.0	8.0

Source: Compiled by authors

Households with a low human capital base are less likely to shape their livelihoods by taking part in collective decision making processes. Though they do take part in collective action, less educated people will not feel free to participate if they are not explicitly included by authorities due to their low self– confidence. The same is true for poorer people. They will not take part in decision– making processes unless local authorities include them. Table 10 illustrates a strong positive correlation of educational level, wealth, and power to influence village decision– making. Nevertheless, contentedness with decisions made for the village is evenly distributed among all households.

[55] The association leader assures that all women are members; however, the women are neither aware of being members nor is the association leader able to indicate purpose and activities of the association in question.

Table 10. Correlation matrix of exercising power to influence local decision making

		Power to influence village decisions	Years in School	Wealth
Power to influence village decisions	Pearson's Correlation	1.000	0.259**	0.184*
	Significance (two sided)		0.002	0.027
	N	146	146	146
Years in School	Pearson's Correlation	0.259**	1.000	0.400**
	Significance (two sided)	0.002		0,000
	N	146	146	146
Wealth	Pearson's Correlation	0.184*	0.400**	1.000
	Significance (two sided)	0.027	0.000	
	N	146	146	146

Source: Compiled by authors
* significant at 0.05 percent level, ** significant at 0.01 percent level

As described above, poorer and less educated households reported not feeling capable to take part in decision making processes or to engage in formal institutions. Often, a certain portion of mistrust also keeps Cambodians from engaging in these activities. In order to substantiate these results from descriptive data analysis, economic field experiments on trust have been conducted in the villages.[56] The experiment's results are shown in Table 11. People in all villages trusted their fellow villagers to some degree (as indicated by the fractions sent). People's trustworthiness (represented in the fractions returned) is low, and return ratios[57] vary across villages.

Table 11. Trust level in research villages

Village name	Fractions sent (average)	Fractions returned (average)	Return ratio
CK	0.15	0.1592	1.41667
LK	0.546875	0.2856	1.54688
KS	0.23611	0.1282	1.0
ST	0.403846	0.1247	0.77273
Average all villages	0.33421	0.1744	1,18407

Source: Compiled by authors

Post–game interviews indicate that higher levels of fractions sent might be due to religious attitudes of solidarity as most individuals state fairness or fear of punishment being the main reasons to send an amount of money.[58] Only few

[56] A detailed description of the game is given in the Annex.

[57] The return ratio is calculated as share of the amount sent back by player B and the amount sent by player A (players A who sent 0 are not included as division by 0 is not defined). Return ratios smaller than 1.0 indicate that people who trusted their fellow villagers with money did lose part of the amount they sent. Return ratios higher than 1.0 show that players of group B share the surplus received through the design of the game.

[58] This might be due to religious beliefs of punishment in the following life but might also be out of fear that their behavior will come to light after the game (torture during the Khmer rouge regime

respondents mentioned the opportunity of extra gain as their predominant intention to send money to their counterparts. These attitudes would be expected to lead to similar levels in the fractions returned, as religious attitudes of solidarity or fear of punishment would also apply for players who return. Again, the post– game questionnaire sheds some light on the reasons behind the lack of reciprocity. People who did not or only returned small fractions assumed their counterparts to be wealthier and thus take the amount received as a gift. Religious attitudes have not been controlled for, as all participants are Buddhist.

On an individual level, the household size has a significant negative impact on the individual's trust level, meaning individuals living in large families tended to send less to their counterparts than smaller households.[59] Looking at the research villages separately, CK shows lowest and LK the highest trust levels. In CK trust level decreases the more common activities an individual joined during a year's time span. This is due to the fact that most common activities[60] to improve local physical infrastructure are still perceived as forced labor.[61] It is noteworthy that in both villages with formal Community Forest or Fishery Community Organizations (CK, KS) trust is lower than in the two traditionally managed villages (LK, ST). The measure of the strength of association between an individual's trust level and traditional village institutions (Cramer's V) takes the value of 0.536.

6. DISCUSSION OF RESEARCH RESULTS

In all villages, natural resource degradation is observable and negatively affects the rural poor. Van Acker (1999) and others (World Bank, 2003b) already noted that resource degradation is severe, expecting a "total harvest approach" (van Acker, 1999; 5). Incomplete regulation and, in particular, weak enforcement mechanisms at all levels of jurisdictions were the major causes of resource degradation identified by Hach and Sothea (2004). In addition, traditional succession schemes[62] together with high population growth put a significant pressure on the state of natural resources. The RGC tries to address resource degradation through Community Forest and Fishery Community Organizations. However, these

---

included the threat that the *Angka* knows everything and would find out each and every lie). Another explanation might be recent history of forced collectivisation, where villagers were forced to contribute to common goals whereas free– riding has not been punished (Colletta and Cullen, 2000).

[59] Excess bonding social capital can be responsible for exclusive, sealing– off networks (Putnam, 1995); in the case of excess bonding capital, the extended household acts as the social network that is more capable to exclude outsiders the bigger it is. Bigger households are thus better able to rely on their members such as for child care, borrowing money, or help for field activities. Smaller households are, on the other hand, much more dependent on bridging social capital to support their livelihoods.

[60] The term "common activities" is used here to differentiate it from the voluntary collective action discussed earlier.

[61] In the 2005 household survey only 9.7 percent of the interviewed reported to take part in common activities on a voluntary basis in CK. In the other villages an average of 85.47 percent of the individuals reported to work voluntarily for the village.

[62] Traditionally, the children "inherit" part of their parents land when they get married to start their own household. With high population growth the sizes of the land plots that young couples are getting are smaller and are often not sufficient to sustain the family. Thus, new strips of land are cleared to generate sufficient income.

approaches face several obstacles. Slow registering processes lead to uncertainties on how to apply rules for Community Organizations. Most of the areas that are still forested land are difficult to assess, thus complicating an exact definition of boundaries of the resource unit. As the forest administration is reported to lack sufficient human and financial resources, it is unable to react timely and effectively to requests of the communes (EIC, 2005). Calavan et al. (2004) and van Acker (1999) find corruption as one of the factors that slows down the registration process[63] at the local level.[64]

Low cooperation between villages leaves communities unable to enforce rules set for a resource used by different villages. This might be due to low levels of trust observed in the villages during field experiments in 2006.[65] Different studies (such as Colletta and Cullen, 2000; Pellini and Ayres, 2005) find that bridging and linking social capital is rather low in Cambodia. Following Uphoff's (2000) definition of trust as "essential 'glue' of society" (2000:227), trust is necessary to build up and sustain long term cooperation. Given the low degrees of trust found in the villages of this case study (and especially in those with Community Forest and Fishery Community Organisations), it can be assumed that if villagers that do not even consider their fellow villagers trustworthy, they would be even less likely to trust from neighbouring villages. Observed differences in the ability to coordinate within the village (as opposed to among villages) can be attributed partly to a strict top–down leadership. It would also be an important issue for further research to investigate if religion influences attitudes and what kind of religious attitudes influence in turn the differences in trust and trustworthiness among the Cambodian rural population. Another reason for unsuccessful natural resource management can be attributed to the lack of trust hindering people to cooperate in order to protect the resource. In a cross– country study Zak and Knack (2001) find low trust levels in countries were political environments are unstable and social heterogeneity is high. Experimental evidence from the villages shows lower levels of trust in those villages where authorities chose to establish new property rights– related institutions. In fact, there is a strong positive association of an individual's trust level with traditional village institutions

7. CONCLUSIONS AND POLICY IMPLICATIONS

In rural Cambodia property rights on natural resources such as local forests, fish ponds, lakes, water streams, or harvested fields are normally commonly owned, used, and managed. This makes effective collective action a precondition for sustainable resource management as well as income generation and asset built– up for the rural poor. For a country which has been disrupted for decades by war, genocide, and forced collectivization and is still characterized by fragile or even

[63] Commonly reported corruption techniques include demands of administrative staff for extra payments for "express services" (to speed up administrative processes) or gasoline expenditures for staff that need to travel to the villages.

[64] At a larger scale, Global Witness (2007) reported corruption to be a major obstacle for sustainable resource management throughout Cambodia.

[65] There is some experimental evidence that people in CK are less trustful than villagers in the other villages.

weak government institutions putting pressure on the rule of law, legal security, and human rights enforcement, it is not surprising that both property rights systems and collective action do not yet fulfil the requirements and expectations given to them either by research, civil society organisations, or donors.

The ongoing devolution process for natural resources in Cambodia might be considered as premature and short– sighted for its immediate impact on collective action and can even inhibit or even undermine expected sustainable use patterns. Under current devolution policies, important monitoring and enforcement mechanisms executed by a still weak, though existent local forest administration are removed abruptly after responsibility for resource management is handed over to local Community Forest or Fishery Community Organizations. Yet these communities are neither officially acknowledged by the government nor able to execute the whole spectrum of responsibilities assigned to them. The result is that an institutional vacuum emerges, which does not favor of the poor.

For formal institutions to be efficient to manage the local commons, the concrete procedures and sequencing to formulate and enforce by– laws and statutes integrating both guiding principles of a devolving state and traditional local rules and enforcement mechanisms should be given more consideration. Uncertainties on the part of both the government and the local user groups will have to be diminished. An important first step will be to reduce existing uncertainties about village or commune boundaries, responsibilities, and procedures to be taken in case of violation of rules. However, it will only be successful if different line agencies, such as a decentralized Ministry of Land or Ministry of Agriculture, responsible for Forestry and Fishery, support villagers in identifying their boundaries, demarcating them and documenting the results in a joint effort. Enforcement will only work at the interface of old established informal and newly developed formal institutions if administrative procedures are transparent regarding how to fine violators of common property rules: to what degree can peer pressure be applied, how to coordinate enforcement not only within but between villages, and when to hand over power of decision making to the judiciary.

An immediate removal of tasks and power to monitor and enforce sustainable resource use from line ministries and other state agencies to local users cannot be accomplished overnight in a country that is ridden by mistrust, forced settlement in the villages, and a long period of interrupting the development of social cohesion and capital. In addition to the local users' efforts to enforce rights, those ministries should not remove their officers from their responsibilities but rather define their tasks newly as to cooperate and support local Community Organizations.

In particular for the rural poor any participation in organisations to foster collective action and to govern the commons is quite costly: activities are time consuming, direct compensation cannot be expected, and unbalanced reciprocity has often not yet been proved to work for them. Although the poor in rural Cambodia might profit most from protecting their local commons, they are not necessarily the ones able to defend their own interests effectively within village organizations. The poor remain dependent on the more affluent in the villages to initiate and continue cooperation to protect their interests. As the poor are often those with no formal education and a weak human capital base, and without or with very little land, they are less likely to get involved in formalized groups which have been mainly externally established to support agricultural activities. However, they

participate in informal gatherings and groups in the village as an entry point for further cooperation. There are indications that the poor are not "lost" for collective action and that different ties and links exist offering a potential to be strengthened by external temporary support by NGOs or other initiatives. However, empirical results show that in the rural fabric the poor are more likely to comply with rules and mechanisms only but not to take deliberate action to shape them and to defend them actively.

Complementary to this, the role of religious festivities and Buddhist values and norms needs further consideration. Jointly exercised religious activities are an instrument to enhance cooperation in and between villages, and are explicitly used by political entrepreneurs and local leaders as a means to protect natural capital and to contribute to social cohesion and trust. Built on religious initiatives and the overall imperative of harmony, people start to communicate experiences where collective action had been successful to protect their interests against government, military, large scale investors or others. They do not actively protest and demonstrate but begin by formulating petitions and memorandums to raise awareness of their problems, to address conflicts, and ask for external support. Although these activities might be assessed as rather defensive and "shy," they should also be regarded as a starting point to rely more on collective action to protect property rights and to make use of reformed property rights systems which allows for new forms of collective action to combat poverty in rural areas.

APPENDIX A.

Rules of the Trust Game

During the experiment the group of players has been divided into two sub– groups: The "first–movers", here referred to as players A, and the "responders", here referred to as players B. Each player A is coupled with a player B but the exact match is unknown to the players, meaning no player A knows who is player B he or she is playing the game. To start the game each player A receives an amount of money as initial endowment. Now, player A can decide to keep or (partially) send his endowment to his unknown counterpart in group B. The amount sent by player A is tripled and given to player B on top of his or her initial endowment being identical to that of group A. Now the player of group B owns the tripled fraction that payer A sent plus his initial endowment. She or he has to decide whether to sent any amount back or keep the whole sum. After player B has made his decision, the money he or she sent back is given to player A and the game ends. Players A have, thus, to decide whether to trust their counterparts in group B: the higher the fraction of money sent, the higher the trust in their counterpart that their investment (the fraction sent) will pay off. The Nash equilibrium for selfish preferences is to pass nothing, since a self– interested person would return nothing of the amount received.

Notes:

1) All numbers on Table have been converted to US system of notation (such as 0.66 for decimals).

2) column for degrees of freedom was deleted since it is a chi– squared test

3) Is significance column reporting the p?

REFERENCES

Acharya S., B. Ballard, S. Rathmony, R. Sopheap, S. Sovannarith and U. Utey. 2001. Social Assessment of Land in Cambodia – A Field Study. CDRI Working Paper. Phnom Penh, Cambodia: Cambodian Development Resource Institute.

Acharya S. and C. Sophal. 2002. Facing the Challenge of Rural Livelihoods – A Perspective from Nine Villages in Cambodia. CDRI Working Paper. CDRI Working Paper. Phnom Penh, Cambodia: Cambodian Development Resource Institute.

Adhikari, B. 2005. Poverty, property rights and collective action: understanding the distributive aspects of common property resource management. *Environment and Development Economics* 10: 7– 31.

Baran, E. 2005. *Cambodian Inland Fisheries: Facts, Figures and Context*. World Fish Center and Inland Fisheries Research and Development Institute, Phnom Penh, Cambodia.

Berg, J., J. Dickhaut and K. McCabe. 1995. Trust, reciprocity and social history. *Games and Economic Behaviour* X: 122– 142.

Bliss, F. 2005. Preventing Corruption in Resource Allocation: Land Reform, Forestry Management, Agriculture Irrigation. Division 42: Sector Project Development and Testing of Strategies and Instruments for the Prevention of Corruption, GTZ, Eschborn, Germany.

Calavan, M., S. Diaz Briquets, J. O'Brien. 2004. Cambodian corruption assessment. Report prepared for USAID/Cambodia.

Cambodia Development Resource Institute. 2004. Challenges of Fiscal Decentralisation Reform in Cambodia: Identifying Own Revenue Sources for the Commune/Sangkat. *Cambodian Development Review* 8:2.

Cambodia Airports. 2007. Phnom Penh International Airport http://www.cambodia–airports.com/phnmpenh/en/cambodia.asp (accessed 2007)

Cardenas, J.C. and E. Ostrom. 2004. What do people bring into the game? Experiments in the field about cooperation in the commons. *Agricultural Systems* 82 (3): 307– 326.

Catalla, R.F. 2001. Small– Scale Land Distribution in Cambodia: Lessons from Three Case Studies. Cooperation Committee for Cambodia, ADI Project, Phnom Penh.

Chandler, D. 1996. *A History of Cambodia*. Boulder, CO: Westview Press.

Colletta, N. and M. Cullen. 2000. *Violent conflict and the transformation of social capital: Lessons from Cambodia, Rwanda, Guatemala and Somalia*. Washington, D.C: World Bank.

Collier, P. 1998. Social Capital and Poverty. Social Capital Initiative Working Paper No. 4, Social Development Department, Washington, D.C.: World Bank.

Dean, K. and A. Joiner. 2007. Cambodia Economic Update. Economics@ANZ June 2007, Melbourne, Australia.

Degen, P., F. Van Acker, N. Van Zalinge, N. Thuok and L. Vuthy. 2000. Taken for granted: Conflicts over Cambodian's freshwater fish resources. Presented at Eight Biennial Conference of the International Association for the Study of Common Property, Bloomington, USA, May 31-June 4.

Denora, S. and S. Siphana. Not dated. *Laws and Regulations on Environment, Biodiversity and Protected Areas.* Phnom Penh: Blossom Lotus Publishing.

Dietz, T. 2005. The Darwinian trope in the drama of the commons: variations on some themes by the Ostroms. *Journal of Economic Behaviour and Organization* 57 (2): 205– 255.

Di Gregorio, M., Hagedorn, K., Kirk, M., Korf, B., McCarthy, N., Meinzen– Dick, R., Swallow, B. 2008. Property Rights, Collective Action, and Poverty: The Role of Institutions for Poverty Reduction. CAPRi Working Paper 81, Washington, D.C.: International Food Policy Research Institute.

Edwards, V.M. and N.A. Steins. 1999. Platforms for collective action in multiple use common pool resources. *Agriculture and Human Values* 16 (3): 241– 255.

EIC. 2005. Cambodia Economic Watch. Phnom Penh: Economic Institute of Cambodia.

Fraser, T. and Department of Forestry and Wildlife. 2000, Forest concession management planning manual. Phnom Penh: World Bank/ADB.

Global Witness. 2007. Cambodia's family trees: Illegal logging and the stripping of public assets by Cambodia's elite. A Report. London: Global Witness.

Golzio, K. 2003. *Geschichte Kambodschas: Das Land der Khmer von Angkor bis zur Gegenwart* München: Verlag C.H. Beck. [History of Cambodia: The Khmer Country from Angkor to the present]

Griffiths, J. 1986. What is legal pluralism? *Journal of Legal Pluralism* 24: 1– 55

Hach, S. and O. Sothea. 2004. Cambodia Economic Watch. Phnom Penh: Economic Institute of Cambodia.

Heitger, B. 2003. Property Rights and their Impact on the Wealth of Nations: A Cross–Country Study. Kiel Working Paper No. 1163, Kiel: Kiel Institute for World Economics.

Kirk, M. 2004. State Land Economics in Cambodia. Policy Discussion Paper, Phnom Penh, Marburg: Ministry of Land Management, Urban Planning and Construction, mimeo.

Marschke, Melissa. 2004. Learning and Adapting with Change: An Examination of Two Cambodian Villages– Level Resource Management. Presented at the Tenth Biennial Conference of International Association for the Study of Common Property, Oaxaca, Mexico, August 9– 13.

McKenney, B. and P. Tola. 2002. Natural resources and rural livelihoods in Cambodia: A baseline survey. CDRI Working Paper No. 23. Phnom Penh: Cambodia Cambodian Development Resource Institute.

Mehmet, O. 1997. Development in a wartorn society: what next in Cambodia? *Third World Quarterly* 18 (4): 673– 686.

Meinzen– Dick, R., and R. Pradhan. 2002. Legal pluralism and dynamic property rights. CAPRi Working Paper 22. Washington, D.C.: IFPRI.

Merry, S. E. 1988. Legal pluralism. *Law and Society Review* 22 (5): 809– 896.

Oakerson, R. J. 1992. Analyzing the commons: A framework. In *Making the commons work. Theory, practice and policy,* D. W. Bromley, ed. San Francisco, CA, USA: ICS Press.

Ostrom, E. 2005. *Understanding Institutional Diversity*. Princeton, N.J.: Princeton University Press.

Palmer, D. and M. Törhönen. 2004. Land Administration in Post Conflict Cambodia. Proceedings of a symposium held by FIG Commission 7 at the European UN– Headquaters, Palais des Nations, Geneva, Switzerland, April 29-30.

Pellini, A. and D. Ayres. 2005. Social Capital and Village Governance: Experiences with Village Networks. Discussion Paper. Community Based Rural Development Project GTZ, Cambodia.

Pradhan, M. and N. Prescott. 1997. A Poverty Profile of Cambodia. Discussion Papers No. 373. Washington, D.C.: World Bank.

Rea L. and R. Parker. 1992. *Designing and Conducting Survey Research: A comprehensive Guide.* San Francisco: Jossey– Bass.

Royal Government of Cambodia. 2002. National Poverty Reduction Strategy Paper. National Assembly, Phnom Penh.

Royal Government of Cambodia. 2002. Forestry Law. Phnom Penh, Cambodia.

Royal Government of Cambodia. 2004. National Report on the Fifth Session of the United Nations Forum on Forests. UNFF National Report, Phnom Penh, Cambodia.

Royal Government of Cambodia. 2006. Fisheries Law. Phnom Penh, Cambodia.

Sandler, T. 1992 *Collective Action: Theory and application* Ann Arbor: University of Michigan Press.

Schechter, L. 2007. Traditional Trust Measurement and the Risk Confound: An Experiment in Rural Paraguay. *Journal of Economic Behaviour and Organisation* 62(2):272– 292.

Simbolon, I. 2002. Access to land of highland indigenous minorities: The case of plural property rights in Cambodia., Working Paper No. 42, Munich: Max Planck Institute for Social Anthropology.

Siririth, M. 2000. Vulnerability of fisheries in Cambodia. Summary of Presentation at the Conference on "Accounting for Development" Sydney, Australia, June 23-24.

Sophal, C., T. Saravy, and S. Acharya 2001. Land tenure in Cambodia: A Data Update. CDRI Working Paper 20, Phnom Penh: Cambodia Development Resource Institute.

Sophal, C. and S. Acharya. 2002. Land Transactions in Cambodia: An Analysis of Transfers and Transaction Records. CDRI Working Paper No. 22, Phnom Penh: Cambodia Development Resource Institute.

Sovannarith, S., R. Sopheap, U. Utey, S. Rathmony, B. Ballard, and S. Acharya. 2001. Social Assessment of Land in Cambodia: A Field Study. CDRI Working Paper 20, Phnom Penh: Cambodia Development Resource Institute.

Thorp, R., Stewart, F., and A. Heyer. 2005. When and how far is group formation a route out of chronic poverty? *World Development* 33(6): 907-920.

Turton, Cathryn. 2000. The sustainable livelihoods approach and programme development in Cambodia. Overseas Development Institute Working Paper 130, London, UK: ODI.

UNFPA. 2005. Country Profiles for Population and Reproductive Health Policy Developments and Indicators. New York: United Nations Population Fund.

Uphoff, N. 2000). Understanding Social Capital: Learning from the Analysis and Experience of Participation. In *Social Capital. A Multifaceted Perspective*, P. Dasgupta and I. Serageldin, eds. Washington, D.C.: World Bank.

van Acker, F. 1999. Hitting a stone with an egg? Cambodia's rural economy and land tenure in transition. Centre for ASEAN Studies Discussion paper No. 23, Antwerp, Belgium: Centre for International Management and Development Antwerp, University of Antwerp.

van Acker, F.. 2003. Cambodia's Commons: Changing governance, shifting entitlements? Centre for ASEAN Studies Discussion paper No. 42, Antwerp, Belgium: Centre for International Management and Development Antwerp, University of Antwerp.

Wolfensohn, J.D. and F. Bourguignon (2004) Development and poverty reduction. Looking back, looking ahead. Paper prepared for the Annual Meetings of the World Bank and IMF, October.

World Bank. 1999. Cambodia Poverty Assessment. World Bank Report No. 19858– KH, Poverty Reduction and Economic Management Sector Unit and Human Development Sector Unit, East Asia and Pacific Region, Washington, D.C.: World Bank.

World Bank. 2003a. Cambodia: Sources of Growth and Poverty Reduction Study: Concept Note. Phnom Penh: World Bank.

World Bank. 2003b. Cambodia Environment Monitor 2003. Washington, D.C.; World Bank.

World Bank. 2006. Cambodia: Halving Poverty by 2015? Poverty Assessment 2006. Washington D.C.: World Bank.

Zak, P.J. and S. Knack. 2001. Trust and Growth. *Economic Journal* 111: 295– 321.

Zimmermann, W. and G. Kruk. 2002. Der Weg Kambodschas als Post– Conflict Country in Transition' Land Reformen in Transformationsländern Südost– Asiens. *Entwicklung und ländlicher Raum* 36 (5): 22– 25.

LIST OF CAPRi WORKING PAPERS

01 Property Rights, Collective Action and Technologies for Natural Resource Management: A Conceptual Framework, by Anna Knox, Ruth Meinzen– Dick, and Peter Hazell, October 1998.

02 Assessing the Relationships between Property Rights and Technology Adoption in Smallholder Agriculture: A Review of Issues and Empirical Methods, by Frank Place and Brent Swallow, April 2000.

03 Impact of Land Tenure and Socioeconomic Factors on Mountain Terrace Maintenance in Yemen, by A. Aw– Hassan, M. Alsanabani and A. Bamatraf, July 2000.

04 Land Tenurial Systems and the Adoption of a Mucuna Planted Fallow in the Derived Savannas of West Africa, by Victor M. Manyong and Victorin A. Houndékon, July 2000.

05 Collective Action in Space: Assessing How Collective Action Varies Across an African Landscape, by Brent M. Swallow, Justine Wangila, Woudyalew Mulatu, Onyango Okello, and Nancy McCarthy, July 2000.

06 Land Tenure and the Adoption of Agricultural Technology in Haiti, by Glenn R. Smucker, T. Anderson White, and Michael Bannister, October 2000.

07 Collective Action in Ant Control, by Helle Munk Ravnborg, Ana Milena de la Cruz, María Del Pilar Guerrero, and Olaf Westermann, October 2000.

08 CAPRi Technical Workshop on Watershed Management Institutions: A Summary Paper, by Anna Knox and Subodh Gupta, October 2000.

09 The Role of Tenure in the Management of Trees at the Community Level: Theoretical and Empirical Analyses from Uganda and Malawi, by Frank Place and Keijiro Otsuka November 2000.

10 Collective Action and the Intensification of Cattle– Feeding Techniques a Village Case Study in Kenya's Coast Province, by Kimberly Swallow, November 2000.

11 Collective Action, Property Rights, and Devolution of Natural Resource Management: Exchange of Knowledge and Implications for Policy, by Anna Knox and Ruth Meinzen– Dick, January 2001.

12 Land Dispute Resolution in Mozambique: Evidence and Institutions of Agroforestry Technology Adoption, by John Unruh, January 2001.

13 Between Market Failure, Policy Failure, and .Community Failure.: Property Rights, Crop– Livestock Conflicts and the Adoption of Sustainable Land Use Practices in the Dry Area of Sri Lanka, by Regina Birner and Hasantha Gunaweera, March 2001.

14 Land Inheritance and Schooling in Matrilineal Societies: Evidence from Sumatra, by Agnes Quisumbing and Keijuro Otsuka, May 2001.

15 Tribes, State, and Technology Adoption in Arid Land Management, Syria, by Rae, J, Arab, G., Nordblom, T., Jani, K., and Gintzburger, G., June 2001.

16 The Effects of Scales, Flows, and Filters on Property Rights and Collective Action in Watershed Management, by Brent M. Swallow, Dennis P. Garrity, and Meine van Noordwijk, July 2001.

17 Evaluating Watershed Management Projects, by John Kerr and Kimberly Chung, August 2001.

18 Rethinking Rehabilitation: Socio– Ecology of Tanks and Water Harvesting in Rajasthan, North– West India, by Tushaar Shah and K.V.Raju, September 2001.

19 User Participation in Watershed Management and Research, by Nancy Johnson, Helle Munk Ravnborg, Olaf Westermann, and Kirsten Probst, September 2001.

20 Collective Action for Water Harvesting Irrigation in the Lerman– Chapala Basin, Mexico, by Christopher A. Scott and Paul Silva– Ochoa, October 2001.

21 Land Redistribution, Tenure Insecurity, and Intensity of Production: A Study of Farm Households in Southern Ethiopia, by Stein Holden and Hailu Yohannes, October 2001.

22 Legal Pluralism and Dynamic Property Rights, by Ruth Meinzen– Dick and Rajendra Pradhan, January 2002.

23 International Conference on Policy and Institutional Options for the Management of Rangelands in Dry Areas, by Tidiane Ngaido, Nancy McCarthy, and Monica Di Gregorio, January 2002.

24 Climatic Variablity and Cooperation in Rangeland Management: A Case Study From Niger, by Nancy McCarthy and Jean– Paul Vanderlinden, September 2002.

25 Assessing the Factors Underlying the Differences in Group Performance: Methodological Issues and Empirical Findings from the Highlands of Central Kenya, by Frank Place, Gatarwa Kariuki, Justine Wangila, Patti Kristjanson, Adolf Makauki, and Jessica Ndubi, November 2002.

26 The Importance of Social Capital in Colombian Rural Agro– Enterprises, by Nancy Johnson, Ruth Suarez, and Mark Lundy, November 2002.

27 Cooperation, Collective Action and Natural Resources Management in Burkina Faso: A Methodological Note, by Nancy McCarthy, Céline Dutilly– Diané, and Boureima Drabo, December 2002.

28 Understanding, Measuring and Utilizing Social Capital: Clarifying Concepts and Presenting a Field Application from India, by Anirudh Krishna, January 2003.

29 In Pursuit Of Comparable Concepts and Data, about Collective Action, by Amy Poteete And Elinor Ostrom, March 2003.

30 Methods of Consensus Building for Community Based Fisheries Management in Bangladesh and the Mekong Delta, by Parvin Sultana and Paul Thompson, May 2003.

31 Formal and Informal Systems in Support of Farmer Management of Agrobiodiversity: Some Policy Challenges to Consolidate Lessons Learned, by Marie Byström, March 2004.

32 What Do People Bring Into the Game: Experiments in the Field About Cooperation in the Commons, by Juan– Camilo Cárdenas and Elinor Ostrom, June 2004.

33 Methods for Studying Collective Action in Rural Development, by Ruth Meinzen– Dick, Monica Di Gregorio, and Nancy McCarthy, July 2004.

34 The Relationship between Collective Action and Intensification of Livestock Production: The Case of Northeastern Burkina Faso, by Nancy McCarthy, August 2004.

35 The Transformation of Property Rights in Kenya‘s Maasailand: Triggers and Motivations by Esther Mwangi, January 2005.

36 Farmers‘ Rights and Protection of Traditional Agricultural Knowledge, by Stephen B. Brush, January 2005.

37 Between Conservationism, Eco– Populism and Developmentalism – Discourses in Biodiversity Policy in Thailand and Indonesia, by Heidi Wittmer and Regina Birner, January 2005.

38 Collective Action for the Conservation of On– Farm Genetic Diversity in a Center of Crop Diversity: An Assessment of the Role of Traditional Farmers‘ Networks, by Lone B. Badstue, Mauricio R. Bellon, Julien Berthaud, Alejandro Ramírez, Dagoberto Flores, Xóchitl Juárez, and Fabiola Ramírez, May 2005.

39 Institutional Innovations Towards Gender Equity in Agrobiodiversity Management: Collective Action in Kerala, South India,, by Martina Aruna Padmanabhan, June 2005.

40 The Voracious Appetites of Public versus Private Property: A View of Intellectual Property and Biodiversity from Legal Pluralism, by Melanie G. Wiber, July 2005.

41 Who Knows, Who Cares? Determinants of Enactment, Awareness and Compliance with Community Natural Resource Management Bylaws in Uganda, by Ephraim Nkonya, John Pender, Edward Kato, Samuel Mugarura, and James Muwonge, August 2005.

42 Localizing Demand and Supply of Environmental Services: Interactions with Property Rights, Collective Action and the Welfare of the Poor, by Brent Swallow, Ruth Meinzen– Dick, and Meine von Noordjwik, September 2005.

43 Initiatives for Rural Development through Collective Action: The Case of Household Participation in Group Activities in the Highlands of Central Kenya, By Gatarwa Kariuki and Frank Place, September 2005.

44 Are There Customary Rights to Plants? An Inquiry among the Baganda (Uganda), with Special Attention to Gender, by Patricia L. Howard and Gorettie Nabanoga, October 2005.

45 On Protecting Farmers‘ New Varieties: New Approaches to Rights on Collective Innovations in Plant Genetic Resources by Rene Salazar, Niels P. Louwaars, and Bert Visser, January 2006.

46 Subdividing the Commons: The Politics of Property Rights Transformation in Kenya‘s Maasailand, by Esther Mwangi, January 2006.

47 Biting the Bullet: How to Secure Access to Drylands Resources for Multiple Users, by Esther Mwangi and Stephan Dohrn, January 2006.

48 Property Rights and the Management of Animal Genetic Resources, by Simon Anderson and Roberta Centonze, February 2006.

49 From the Conservation of Genetic Diversity to the Promotion of Quality Foodstuff: Can the French Model of =Appellation d‘Origine Contrôlée‘ be Exported? by Valérie Boisvert, April 006.

50 Facilitating Collective Action and Enhancing Local Knowledge: A Herbal Medicine Case Study in Talaandig Communities, Philippines, by Herlina Hartanto and Cecil Valmores, April 2006.

51 Water, Women and Local Social Organization in the Western Kenya Highlands, by Elizabeth Were, Brent Swallow, and Jessica Roy, July 2006.

52 The Many Meanings of Collective Action: Lessons on Enhancing Gender Inclusion and Equity in Watershed Management, by Laura German, Hailemichael Taye, Sarah Charamila, Tesema Tolera, and Joseph Tanui, July 2006.

53 Decentralization and Environmental Conservation: Gender Effects from Participation in Joint Forest Management, by Arun Agrawal, Gautam Yadama, Raul Andrade, and Ajoy Bhattacharya, July 2006.

54 Improving the Effectiveness of Collective Action: Sharing Experiences from Community Forestry in Nepal, by Krishna P. Achyara and Popular Gentle, July 2006.

55 Groups, Networks, and Social Capital in the Philippine Communities, by Marie Godquin and Agnes R. Quisumbing, October 2006.

56 Collective Action in Plant Genetic Resources Management: Gendered Rules of Reputation, Trust and Reciprocity in Kerala, India, by Martina Aruna Padmanabhan, October 2006.

57 Gender and Local Floodplain Management Institutions– – A case study from Bangladesh, by Parvin Sultana and Paul Thompson, October 2006.

58 Gender Differences in Mobilization for Collective Action: Case Studies of Villages in Northern Nigeria, by Saratu Abdulwahid, October 2006.

59 Gender, Social Capital and Information Exchange in Rural Uganda, by Enid Katungi, Svetlana Edmeades, and Melinda Smale, October 2006.

60 Rural Institutions and Producer Organizations in Imperfect Markets: Experiences from Producer Marketing Groups in Semi– Arid Eastern Kenya, by Bekele Shiferaw, Gideon Obare and Geoffrey Muricho, November 2006.

61 Women‘s Collective Action and Sustainable Water Management: Case of SEWA‘s Water Campaign in Gujarat, India, by Smita Mishra Panda, October 2006.

62 Could Payments for Environmental Services Improve Rangeland Management inCentral Asia, West Asia and North Africa? by Celine Dutilly– Diane, Nancy McCarthy, Francis Turkelboom, Adriana Bruggeman, James Tiedemann, Kenneth Street and Gianluca Serra, January 2007.

63 Empowerment through Technology: Gender Dimensions of Social Capital Build– Up in Maharashtra, India, by Ravula Padmaja and Cynthia Bantilan, February 2007.

64 Gender and Collective Action: A Conceptual Framework for Analysis, by Lauren Pandolfelli, Ruth Meinzen– Dick, and Stephan Dohrn, May 2007.

65 Gender, Wealth, and Participation in Community Groups in Meru Central District, Kenya, by Kristin E. Davis and Martha Negash, May 2007.

66 Beyond Group Ranch Subdivision: Collective Action for Livestock Mobility, Ecological Viability, and Livelihoods, by Shauna BurnSilver and Esther Mwangi, June 2007.

67 Farmer Organization, Collective Action and Market Access in Meso– America, by Jon Hellin, Mark Lundy, and Madelon Meijer, October 2007.

68 Collective Action for Innovation and Small Farmer Market Access: The Papa Andina Experience, by André Devaux, Claudio Velasco, Gastón López, Thomas Bernet, Miguel Ordinola, Hernán Pico, Graham Thiele, and Douglas Horton, October 2007.

69 Collective Action and Marketing of Underutilized Plant Species: The Case of Minor Millets in Kolli Hills, Tamil Nadu, India, by Guillaume P. Gruère, Latha Nagarajan, and E.D.I. Oliver King, M.S. Swaminathan Research Foundation, October 2007.

70 The Role of Public–Private Partnerships and Collective Action in Ensuring Smallholder Participation in High Value Fruit and Vegetable Supply Chains, by Clare Narrod, Devesh Roy, Julius Okello, Belem Avendaño, and Karl Rich, October 2007.

71 Collective Action for Small– Scale Producers of Agricultural Biodiversity Products, by Froukje Kruijssen, Menno Keizer, and Alessandra Giuliani, October, 2007.

72 Farmer Groups Enterprises and the Marketing of Staple Food Commodities in Africa, by Jonathan Coulter, October 2007.

73 Linking Collective Action to Non– Timber Forest Product Market for Improved Local Livelihoods: Challenges and Opportunities, by Heru Komarudin, Yuliana L. Siagian, and Ngakan Putu Oka, December, 2007.

74 Collective Action Initiatives to Improve Marketing Performance: Lessons from Farmer Groups in Tanzania, by James Barham and Clarence Chitemi, March 2008.

75 Sustaining Linkages to High Value Markets through Collective Action In Uganda: The Case of the Nyabyumba Potato Farmers, by Elly Kaganzi, Shaun Ferris, James Barham, Annet Abenakyo, Pascal Sanginga, and Jemimah Njuki, March 2008.

76 Fluctuating Fortunes of a Collective Enterprise: The Case of the Agroforestry Tree Seeds Association of Lantapan (ATSAL) in the Philippines, by Delia Catacutan, Manuel Bertomeu, Lyndon Arbes, Caroline Duque, and Novie Butra, May 2008.

77 Making Market Information Services Work Better for the Poor in Uganda, by Shaun Ferris, Patrick Engoru, and Elly Kaganzi, May 2008.

78 Implications of Bulk Water Transfer on Local Water Management Institutions: A Case Study of the Melamchi Water Supply Project in Nepal, by Dhruba Pant, Madhusudan Bhattarai, and Govinda Basnet, May 2008.

79 Bridging, Linking and Bonding Social Capital in Collective Action: The Case of Kalahan Forest Reserve in the Philippines, by Ganga Ram Dahal and Krishna Prasad Adhikari, May 2008.

80 Decentralization, Pro-poor Land Policies, and Democratic Governance, by Ruth Meinzen-Dick, Monica Di Gregorio, and Stephan Dohrn, June 2008.

81 Property Rights, Collective Action, and Poverty: The Role of Institutions for Poverty Reduction, by Monica Di Gregorio, Konrad Hagedorn, Michael Kirk, Benedikt Korf, Nancy McCarthy, Ruth Meinzen-Dick, and Brent Swallow, June 2008.

82 Collective Action and Property Rights for Poverty Reduction: A Review of Methods and Approaches, by Esther Mwangi and Helen Markelova, June 2008.

83 Collective action and vulnerability: Burial societies in rural Ethiopia, by Stefan Dercon, John Hoddinott, Pramila Krishnan, and Tassew Woldehanna, June 2008.

84 Collective Action and Vulnerability: Local and Migrant Networks in Bukidnon, Philippines, by Agnes Quisumbing, Scott McNiven, and Marie Godquin, June 2008.

85 Community Watershed Management in Semi-Arid India: The State of Collective Action and its Effects on Natural Resources and Rural Livelihoods, by Bekele Shiferaw, Tewodros Kebede, and V. Ratna Reddy, June 2008.

86 Enabling Equitable Collective Action & Policy Change for Poverty Reduction and Improved Natural Resource Management in the Eastern African Highlands, by Laura German, Waga Mazengia, Wilberforce Tirwomwe, Shenkut Ayele, Joseph Tanui, Simon Nyangas, Leulseged Begashaw, Hailemichael Taye, Zenebe Admassu, Mesfin Tsegaye, Francis Alinyo, Ashenafi Mekonnen, Kassahun Aberra, Awadh Chemangei, William Cheptegei, Tessema Tolera, Zewude Jote, and Kiflu Bedane, June 2008.

87 The Transformation of the Afar Commons in Ethiopia: State Coercion, Diversification, and Property Rights Change among Pastoralists, by Bekele Hundie and Martina Padmanabhan, June 2008.

88 Unmaking the Commons: Collective Action, Property Rights, and Resource Appropriation among (Agro–) Pastoralists in Eastern Ethiopia, by Fekadu Beyene and Benedikt Korf, June 2008.