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The Local Governance of Common Pool Resources: The Case of Irrigation Water in Cambodia

CDRI Working Paper Series No. 47

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Responsibility for the ideas, facts and opinions presented in this research paper rests solely with the authors. Their opinions and interpretations do not necessarily reflect the views of the Cambodia Development Resource Institute.

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Contents

Abstract 7
Acknowledgments 9
Abbrevations and Acronyms 11

Chapter 1: Introduction 13
Study Objectives 16
Research Method 17

Chapter 2: Literature Review 21
Community-based Natural Resource Management 21
Decentralisation in Natural Resource Management 24
Conceptual Frame of the Study 25

Chapter 3: History of Irrigation Water Management in Cambodia 27

Chapter 4: Trabaek Community 31
The Pre-scheme Period 34
Beginning of the Scheme 38
New Modes of Governance 40
Behind the Boom 47
The FWUC at Present 55

Chapter 5: Discussion and Implications 63
Factoring the Performance of CBNRM and DNRM 63
RQ1: How has CBNRM been contributing to good governance of common pool resources? 63
Participation 63
Ownership 66
Control 68
RQ2: How has DNRM been contributing to good governance of common pool resources? 69
Discretionary Power 69
Downward Accountability 70
Participation 71
CBNRM and DNRM as Enabling Factors? 71
Policy Implications 72
Further Research 74

Bibliography 75
CDRI Working Papers 83

ABSTRACT

The study seeks out the factors that enable or constrain the good governance of common pool resources in Cambodia, using irrigation water as the case for analysis. It explores the dynamics of community-based natural resource management (CBNRM) and decentralised natural resource management (DNRM) from a local perspective and how these two approaches interact. The study found that CBNRM, an approach that is being implemented locally to manage irrigation water, is working, although unsatisfactorily due to three main constraints. The first is difficulty maintaining the participation of the community in the form of paying irrigation service fees. CBNRM in the selected area initially generated much enthusiasm but is very fragile due to outside factors, one of which is the uncertainty of the water flow, a technical and natural issue beyond the capacity of the local managing association. The second constraint is that people have no sense of ownership of the managing association. Given their scepticism of higher institutions, the farmer water user association is seen by most as just another level of state authority in which officials put their own interests before those of the community. The non-transparent election of the association leaders, the usual patron personality of the leaders who are autocratic in their thinking, decision-making and implementing of plans and the lack of an independent information system, making the data on revenue collection and expenditure not transparent, are but a few examples that worsen the situation. The third constraint is the limited power of the FWUC due to low management skills, poor networks and very limited revenue. This factor has been exacerbated by the flawed relationship between the association leader and the commune chief, pushing the two "should be cooperating" institutes to avoid each other. DNRM seemed not to be functioning in the selected case. Commune intervention was seen once in a while but also was not effective. The study found disconnections between the FWUC and the commune council, and between the leaders and the led.

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ABBREVATIONS AND ACRONYMS

ADB	Asian Development Bank
AFSC	the American Friends Service Committee
CBNRM	Community-Based Natural Resource Management
CDRI	Cambodia Development Resource Institute
CPP	Cambodian People's Party
CPR	Common Property Resources
CSF	Commune/Sangkat Fund
DNRM	Decentralised Natural Resource Management
FAO	Food and Agriculture Organisation of the United Nations
FUNCINPEC	French Acronym for United National Front for an Independent, Neutral, Peaceful, and Cooperative Cambodia
FWUC	Farmer Water User Community
GDP	Gross Domestic Product
ISF	the Irrigation Service Fees
MLUP	Ministry of Land and Urban Planning
MOWRAM	Ministry of Water Resources and Meteorology
NCDD	the National Committee for Sub-National Democratic Development
NGOs	Non-government organisations
PDOWRAM	Provincial Department of Water Resources and Meteorology
PIMD	Participatory Irrigation Management and Development
PRK	People's Republic of Kampuchea
UNDP	United Nations Development Programme

Chapter 1 Introduction

The "commons" generally describes resources that are unclearly regulated and that serve a joint purpose. They are often thought to include forests, fisheries, pasture land and water resources (Berkes 1989). Fitzgerald and So (2007) have pointed out that poor, in particular rural, people often depend heavily on these resources for their livelihoods. The poor and the marginalised around the world are reliant on fish and forest resources for their daily food and for income. They depend, for example, on common land to graze their cattle and on water to farm their fields.

However important the commons are to the lives of millions of the poor, they are often neglected by the state policies. Historically, the commons were either not governed well or not governed at all. Generally, the resources were just there and they were often seen as under the nebulous management of the unseen state and could be accessed by anyone who might find them useful. The appropriation was often not controlled because those resources were considered abundant. The consequence of this assumption is the over-extraction of resources (one of the two main threats to the existence of the commons), typically resulting in a situation of resource crunch or what Hardin (1968) called "the tragedy of the commons".[1] Rapid global population growth and the increasing demand for resources to boost economic growth, fuelled by the development of resource-harvesting technology, have put enormous stress on the ability of common resources to regenerate. In addition, the threat to the commons is made dire by what some scholars call the "individual discount rate", which means an individual's motivation to over-extract resources because the benefit from resources extracted today is perceived to be higher than that in the future (due to uncertainty about future resource availability), and the full benefit of over-extraction accrues to the individual whereas the burden is collectively shared (Ostrom 1990; Ostrom 1992). The second main threat to the commons is that they have been subject to enclosure by rich and powerful actors, as shown in the history of land grabbing in Europe (Carlsson 2003; Eversley 1894).

There is evidence that abundant resource availability is fast becoming a thing of the past (Ostrom 1990; Ostrom & Roy 1993). Forest depletion, land degradation and water crises (UNDP 2006) are but a few examples of the deterioration of the commons. Hardin (1968) even warned that if the practice of unregulated appropriation is continued, resource extinction is certain to emerge. This concern is, moreover, reflected well in the Cambodian everyday expression for the commons, *robos ruom*,[2] which literally translates as "things that shrink". This expression suggests that common resources are subject to shrinking because they are seen as belonging to everybody but nobody has the clear responsibility to protect them. The same forms of abuse and threat to the commons mentioned above are also observed in Cambodia, where more than 10 million people live in rural areas and more than 8.5 million of them depend

1 Hardin (1968) believed that there are only two ways to avoid the tragedy of the commons; common pool resources have to be governed either by the state or by privatisation.

2 *Robos ruom* was a popular expression used in the 1980s to describe mainly the state's property, the maintenance of which was very poor and from which the theft level very high.

on natural resources for their livelihoods, mainly for subsistence (Fitzgerald & So 2007). What should be done to take better care of the commons?

Hardin (1968), Ostrom (1990) and many other researchers agreed that the care of the commons cannot be left in the hands of individual users, who more often than not are unable to free themselves from a situation of self-destruction. These researchers suggested that efforts have to be made to change the appropriation and provision arrangements of natural resources in order to avoid the demise of the commons; that is, a better governance system needs to be employed. Öjendal (2000), who studied irrigation water management in the Mekong sub-region, offered a similar view, arguing that the problem of irrigation management in the region is a problem of poor governance. However, experts are still largely divided over what specific governance mechanisms should be employed.

One of the most tried approaches to the governance of the commons is direct centralisation, the state taking primary responsibility for the management of resources. But this has largely been found not to provide good governance of commons (Wade 1982; Ostrom 1990; Perry *et al.* 1997). Pierre & Peters (2000) reasoned that the state is often too big to understand small local specificities well enough to provide good management of local resources, and too far away to provide timely responses when needed. Wade (1982) in his empirical study found that the direct centralised approach, which Hardin (1968) saw as a solution to the tragedy of the commons, is doomed to failure because the state agents in charge are often involved in rent seeking, incurring not only ineffectiveness but also negative impacts on resource sustainability and local people's well-being.

The less than success of state centralisation gave rise to the popularity of privatisation in the management of the commons, which Hardin (1968) believed to be the only alternative to the centralised state approach and which some researchers (i.e. Perry *et al.* 1997; Savenije & van der Zaag 2002; van der Zaag & Savenije 2006) think would lead to the sustainability of resources because privatising can result, among other things, in adequate investment in the resource and better policing. Seemingly global support for this approach, fitting into the evolving global neo-liberal paradigm, was seen in the 1992 Dublin Principles, which called for common water to be treated as an economic good. This was followed by a call from institutions such as the World Bank and the Asian Development Bank for the privatisation of water management (van der Zaag & Savenije 2006). However, Shiva (2002), among many others, argues that privatisation has led to increased inequity because it does not serve the poor, who have a higher stake in the commons but less money to pay for using them.

The ineffectiveness and impossibility of direct centralisation and the side effects of privatisation have led to an intensive search for new alternatives. Scholars such as Ostrom, Ribot and Agrawal generally disagreed with Hardin's alternatives and have argued that the answer might lie in community-based natural resource management (CBNRM), in which a more or less well-defined community of the appropriators of the resource, whose residences are adjacent to it, is given the right to make rules and regulations to manage the resource for their own present and future benefit. The rationale is that the closeness between the resource and the governing body reduces complexities and the cost of management, and that the ratio of long-term benefits or resource sustainability to short-term benefits is higher because the community is physically and mentally close to the resource (Sneath 1998; Ostrom *et al.* 1999; Wade 1982). Over the last three decades, this approach has received increasing attention from natural resource managers, policy makers and researchers, and has been implemented in many countries that are facing the challenges of governing the commons.

In Cambodia, with limited historical experience of this sort and arguably in contradiction to some key cultural traits (Perera 2006), CBNRM has been formally put into practice in the irrigation sector. A national policy on managing water for irrigation called Participatory Irrigation Management and Development (PIMD) has been implemented nationwide since 1999. It gives concurrent management responsibilities to formal user group, a Farmer Water User Community (FWUC), within specified communities. The FWUC committee is elected within the community and holds primary responsibility and authority for managing local irrigation systems (i.e. arranging equitable and reliable water delivery and participating, in partnership with the government, in all aspects of scheme development: maintaining, repairing and improving the existing system or promoting and guiding development of new systems) and collecting and using water user fees. The state, the newly established Ministry of Water Resources and Meteorology (MOWRAM) in this case, is responsible only for technical and managerial support, monitoring and evaluation and other support needed by the FWUC. Quite a remarkable amount of hope and expectation has been placed on this policy, as potentially ensuring effective and sustainable management of irrigation systems, promoting food security and economic growth, increasing the role of farmers and decreasing the role of government, building local capacity to manage irrigation and bringing about uniformity and consistency among donor, government and NGO strategies for irrigation development and management (MOWRAM 2003).

However, in practice, CBNRM is not without problems. Specifically regarding irrigation water in Cambodia, Perera's (2006) study found contradictions of the expected outcomes of FWUC governance. An optimistic view of PIMD called for the establishment of 328 FWUCs throughout the country between 2000 and 2005 (Thun 2007). However, not only were the FWUC committees in Perera's study ineffective in arranging water delivery or collecting water user fees, they were also just left to their own devices with minimal or no support from the local people or the state. Agrawal (2001), Ostrom (1990), Wade (1988) and Baland and Platteau (1999) identified the complexities of CBNRM, underlining that its success or failure very much depends on the nature of the community and its history, group dynamics and most importantly the larger governance framework, which is usually embedded in a hierarchical web of formal and informal norms and practices. How will all these elements affect CBNRM practices in Cambodia, a country that some scholars describe as having no real forms of community (Ovesen *et al.* 1996), a country whose people have undergone more than three decades of civil wars and traumas (Chandler 20000), whose adoption of democracy and decentralisation is still recent and incomplete (Rusten *et al.* 2004) and whose governance structure is overridden by patrimonial political practices (Horng & Craig 2008; Eng & Craig 2008; Pak & Craig 2008)?

Apart from CBNRM, scholars such as Ribot (2002a) and Marshal (2008), in line with the recent widespread adoption of decentralisation as a mechanism of democratisation in developing countries, introduced the equally theoretically valid common pool resources governance approach of decentralisation in natural resource management (DNRM) as an alternative. This approach, in which the elected local state functions as a committee responsible for managing natural resources with support and participation from the local people, has been implemented in some places due to its theoretical superiority to the centralised state and CBNRM approaches (Ribot 2002a; Marshal 2008). The local state, being closer to the people than the central state, can better understand and respond to local people's needs; and the local state has more administrative power than CBNRM committees to enforce local rules. The weaknesses of DNRM, however, are known to be that it tends to run into problems of power between central and local government, where new rules and new actors are introduced, creating blurred lines of responsibility, and where more right of access might be given to some groups at the expense

of others, negatively affecting traditional resource appropriation (Ribot 2002a; Ribot 2002b; Ribot *et al.* 2006; McCarthy 2004).

Uniquely to Cambodia's irrigation policy, CBNRM and DNRM have been running simultaneously. While MOWRAM's national water policy delegates the management responsibilities of a specific irrigation system to the FWUC, represented by a locally elected committee, the nationwide decentralisation policy, inaugurated in 2002, gives the newly autonomous elected local body, the commune council, the right to manage natural resources, including water, within the commune's territory. What, then, is the situation in local communities, where these two overlapping transfers of function are implemented?

Study Objectives

This paper constitutes an effort to seek out the factors that enable or constrain good governance of common pool resources in Cambodia, using irrigation water as the case for analysis. It looks at the dynamics of both CBNRM and DNRM from a local perspective, how each independently affects the whole picture of local irrigation water governance, and how their interactions, if any, contribute to the governance issue. One of the two main objectives of this paper is to explore local irrigation water governance for policy implications and recommendations, while the other objective is to contribute to a body of international and national literature on common pool resources and democratic governance.

In short, the overarching research problem that the present study examines is: What factors enable and/or constrain the good governance of common pool resources? The two research questions the study will explore are:

1: How has CBNRM contributed to good governance of common pool resources?

2: How has DNRM contributed to good governance of common pool resources?

Box 1: Conceptual Clarifications

This paper involves some of the most heavily debated concepts in the social sciences, namely common pool resources, good governance of CPR, CBRM and DNRM. These terms are broad and vague, and it is important that they be clearly defined.

Common Pool Resources

CPR such as water, fish, forests and land have two characteristics that make them particularly hard to govern. First, the commons, unlike purely public goods such as roads and railways stations, have subtractability. Each time a common resource is extracted, its total available amount decreases. If one person appropriates it, others have less ability to do the same. The second characteristic is non-exclusibility. Unlike private goods, the commons are open to all or almost all interested individuals, and they can be protected from potential users only at great cost. For example, it is hard or impossible to keep outsiders from entering a common forest and harvesting resources because effective monitoring is not possible without great cost.

Good Governance of CPR

The ADB defines good governance as having accountability, participation, predictability and transparency, while the World Bank emphasises accountability, strong institutions and rule of law.

The core of good governance is strong institutions. Institutions are needed to provide predictability and the rules of the game (Le Meur *et al.* 2005). They help enable good governance because corruption and the invasion of the interests of private individuals or political elites can be minimised (Bratsis 2003).

What does this mean for good governance of resources? Various scholars define good governance of CPR somewhat differently. From the CBNRM perspective, Brosius *et al.* (2005), stress the balance between resource conservation and the development of the community. This perspective is similar to that of McKean (2000), who sees the connection between resource appropriation and development as crucial. Good governance of CPR has been defined as an enduring institution to govern resources (Ostrom 1999), which can be achieved through access control and incentive mechanisms for individual users to act collectively in the interest of the commons (Agrawal & Ostrom 2001).

Good governance of CPR, for the purpose of this study, is defined as a participatory, consensus-oriented, inclusive, accountable, transparent, effective and efficient approach that responds to the needs of local people for livelihood development and that ensures the sustained availability of resources.

Community-Based Natural Resource Management

Originally designed as a project to empower local communities to play a greater and more effective role in local natural resource conservation, CBNRM was an effort to empower local communities in their struggle with exploiting state agents and private individuals who, by means of national law, criminalise the local community's customary right to the resource (Peluso 2002; Brosius *et al.* 2005; Wardell & Lund 2006). CBNRM often involves NGOs, environmental agencies and sometimes even private foundations and government agencies, depending on the nature of the resource (Brosius *et al.* 2005). The original purpose of CBNRM was to conserve the local natural resource, but this purpose has extended to include community development.

In this study, CBNRM is operationally defined as "a localised common pool resource management approach that places the local community itself at the centre of the local natural resource expropriation in a sustainable manner".

Decentralisation in Natural Resource Management

DNRM is a new approach in common pool resource management that stresses the role of local government in managing local resources while reducing the role of the central state to setting policy goals and ensuring policy implementation through overall resource mobilisation and utilisation coordination (World Bank 1993; Pierre & Peters 2000)

Research Method

To answer the two research questions, a qualitative approach was used to collect data because of the exploratory nature of the research problems. A one-case study design was utilised because it enabled the researchers to get an in-depth case history, scrutinise the context and detail people's ordinary activities in order to understand local governance of irrigation water from the perspectives of local people and their immediate leaders.

The Trabaek dry-rice farming community,[3] located in Kantuot commune of Kompong Chhnang province, was selected for the study. This choice was made for four main reasons. First, the economic and social components of the community are comparable to those of rural communities in other parts of Cambodia in a number of dimensions: it is an old community whose economy has almost always been solely dependent on rice farming; its residents used to live a simple rural life doing subsistence farming; their lifestyles have in some ways become more economic-oriented since the early 1990s, the time of the construction of the Trabaek scheme. Second, the small to medium scale of the scheme (able to irrigate between 200 and 500 hectares) and its extraction of water from a natural river through gravity methods are representative of other dry-rice farming communities in Cambodia. Third, the CDRI water team has been conducting research in the area since early 2007. Hence, contacts with key informants were available and other data about the scheme infrastructure had been collected. This familiarity with the locality and its problems facilitated the researchers' introduction to the community and enhanced data collection. Finally, the community is accessible and there were no problems with security. This enabled the researchers to visit repeatedly, staying in the province between one and five days each time. Going back and forth to the community allowed the researchers to understand better the situation and to triangulate the information more easily.

The researchers mainly employed participant observation, unstructured interviews, semi-structured interviews and group interviews. Unstructured or informal interviewing was the primary method. Usually, unstructured questions were developed around our research questions or specific areas of interest. This more flexible interviewing allowed us to explore sensitive topics and issues, build rapport with informants, develop a deeper understanding of issues and confirm what we had observed or heard from other informants. The majority of these interviews were conducted without the use of a voice recorder. The interviews were coupled with participant observations during the interviews. Notes were taken and sometimes a voice recorder was used, but only if explicit details were required. Semi-structured interviews were conducted using question guides. The majority of interviews conducted with department directors were of this semi-formal nature, and a voice recorder was not used because the informants tended to feel uneasy with it. Question guides were developed and refined as the researchers went along, relying on information gathered from unstructured or informal interviews and participant observations.

Field notes were written to describe events, observations and conversations, as well as informants' feelings, opinions and perceptions. While interviewing key officials such as directors of departments, both researchers took notes and compared them during the debriefing session after each interview. However, this method fell short for conversations with villagers and their leaders. Their stories were often very rich and the conversations flowed, often not in the way expected. Taking field notes in these lengthy conversations was often challenging and required good memory skills. Not wanting to disrupt the natural course of conversations or lose data, the researchers chose to write notes, but only very occasionally, just jotting down key points to help them expand on those points later. Community maps were drawn up at the same time the researchers conducted their fieldwork because no authority kept any formal maps of the area. During the field trip in late August 2008, when rain had flooded 90 per cent of the area,

3 Ovesen, *et al.* (1996) argued that there is no sense of community as an identity in Cambodia, but for the purpose of this study, community is defined as the more than 600 households that own the land on the farms that get irrigation water from the Trabek reservoir (i.e. community as an administrative construction).

the researchers and three key informants travelled around the boundary of the dry-season rice fields in a motor boat to estimate the area.

The first challenge of the study lay in the methods of choosing informants. In the field, the researchers visited with the head of the FWUC, who functioned as both a key informant and a liaison with other villagers and village heads. Understanding that the FWUC head's presence could impact on the data collected, the researchers were cautious during their data analysis, being especially critical of information raised in the head's presence and comparing it with information obtained in his absence. They also often went back to interview identified key informants without the company of the FWUC head. Still, the researchers may have been involuntarily associated with the authority of the FWUC, and the answers they were given may have been biased by that. The second challenge and also a limitation was the researchers' describing of case histories based on respondents' memories. Since memory is known to be biased, one should approach the data in this study as constructed reality, rather than crude reality. The researchers did use triangulation, asking different respondents the same questions and asking the same respondents the same questions at different times, in order to verify the data. The researchers especially applied this process in their last two field trips—in late November 2008 and in late March 2009, while the first draft of the case story was being written.

This study was not an attempt to find the final truth of governance issues in irrigation water governance, because research in this field is not yet strong. Rather, the study intended to explore deeply one case, find key controversies in the field and narrate the findings in a thick case story, which is advocated by Yin (2003) as the most suitable way to conduct anthropological studies.

Chapter 2
Literature Review

This chapter reviews international literature about CBNRM and DNRM. It aims to: (1) describe and explain what CBNRM and DNRM are, the nature of both approaches, their successes and loopholes in managing common pool resources, and (2) provide the theoretical frame for the analysis of the study.

Community-based Natural Resource Management

CBNRM is derived from participatory management, a movement that for three decades has been sweeping across many parts of Asia, Africa and industrialised nations (Mam1996; Carson1999). Unique to its parent approach, which sees the government as key in facilitating participatory planning and decision making, CBNRM puts its core focus on local communities, which, according to Ken (2005), play the central role in identifying resources, defining development priorities, adapting technologies and implementing management practices. Theoretically, CBNRM aims to ensure livelihood security of local people by giving them access to vital resources, and at the same time promote resource sustainability from one generation to another through social sanction (Li 2002; Armitage 2005; Hibbard & Lurie 2006; Ministry of Foreign Affairs of Denmark 2007).

At least three assumptions underlie CBNRM (Korten 1986; Li 2002; Child & Lyman 2005). First, it is assumed that local people, who live closer to resources, have more interest in their sustainable use and management than do governments and distant actors, because their livelihoods depend on these resources and they bear the consequences of mismanagement. Second, local people have comprehensive knowledge about resources and understand the context better than outsiders, which is essential for the design of workable resource appropriation. Finally, the local community is usually spatially small and ethnically and culturally homogeneous, which enables its people to interact with one another frequently and with ease, and lowers the cost of collective action.

Due to the necessity to fulfil these assumptions, community organising is usually the first and critical stage in realising CBNRM, with the establishment of a local organisation or association to manage a defined resource in a defined community (Carson 1999; Kellert *et al.* 2000). The initiative of establishing an association and defining its community could be either bottom-up or top-down; some are initiated at the grassroots by local communities that want to improve their access to resources (Ballabh *et al.* 2002), and some by government or non-government organisations, which are usually spearheaded by multilateral funding agencies, bilateral donors and international NGOs (Kellert *et al.* 2000; Armitage 2005). Whatever the initiative, Cernia (1985), Ferrer (1992), Rivera (2002) and many other scholars agree that to be effective, CBNRM needs some driving principles; these are community participation, ownership and control.

Agrawal and Gibson (1999) define community participation in natural resource management to include the coming together of local people in order to (1) define priorities and develop rules regarding the use and the sharing of the resource, its management and its conservation; (2)

implement the rules that were created (i.e. monitor and specify sanctions against violators); and (3) enforce the rules (ensure that sanctions and penalties are followed, resolve disputes that arise). Carson (1999) wrote that, at the very least, user communities should be involved in the first stage of participation. Through participation, local people can be involved in making policy that matters to them and their livelihoods, and they can help ensure that policy is in touch with reality, taking into consideration their norms, values and social relations (Arriens *et al.* 1996; Ostrom *et al.* 1999; Ackerman 2004).

Leach *et al.* (1999) and Johnson (2004) noted that participation alone is not sufficient in driving CBNRM; the feeling of ownership of the resource and community work is equally crucial. These scholars advocated that local people should have command over the resource stock and services, and have their ownership externally recognised; only then can the feeling of ownership be established. The sense of ownership, to these scholars, should be interpreted as responsibility, accountability and readiness to take care of and manage the resource. Bromley (1990) defined communal ownership as a state in which individuals have access to resources over which they have collective claims as members of recognised groups. Ackerman (2004) argued that local people have to feel complete ownership of the resource and whatever development programme or project is being implemented in their area; otherwise, they will not identify with the project. He added that individual users of the resource may cheat or break the rules for two reasons: they want to extract an extra gain, or they did not agree with the rule in the first place.

Finally, the community needs to be able to control the resource because local people bear the direct impact of resource management (Rivera 1992; Agrawal & Gibson 1999; Ribot 2003; Virtanen 2003; Johnson 2004; Hibbard & Lurie 2006). Honadle (1981), Child (1995), Agrawal & Gibson (1999), Salafsky &Wollenberg (2000) and Kellert *et al.* (2000) argued that in CBNRM, local communities should not have to wait for approval from the government and should have both the responsibility and authority to choose their own representatives, set their own plans and rules, demarcate their own resource boundaries, generate revenue for self-support and build management and leadership skills of local leaders. Chatterjee (1994) proposed that, firstly, legislation should empower the community by defining its rights over common property resources; secondly, support needs to be given to grassroots initiatives; and, finally, trust needs to be built in the community and between the community and the government. This implies that state authorities must clearly and explicitly delegate some degree of management authority over resources so as to give communities control and power over resource management (Sorensen 1997).

CBNRM has been increasingly popular (Sneath 1998; Ostrom *et al.* 1999; Banana *et al.* 2000). Internationally, there have been efforts to promote CBNRM, and groups such as forest communities, fishery communities and farmer water associations can be seen in practice throughout much of Africa, Europe and Asia (Ribot 2002b; Wardell & Lund 2006; Ostrom 1998; Ostrom 1990; Agrawal 2001; Wade 1982). Ostrom (1990) pointed out that CBNRM generally allows faster and more effective problem identification, better resource mobilisation and more effective implementation. Murphree (1997), on the other hand, found that CBNRM can be a good mode of governance of natural resources where there are congruent objectives between community, NGOs and government agencies on local resource conservation and development, and competing interests between different actors—for example, when farmers want to claim more control over the resource while the state tries to disenfranchise them. Carson (1999) believed that CBNRM is a development option for countries like Cambodia to address rural poverty and environmental degradation. He reasoned that a variety of CBNRM approaches

have already been tried and tested and a number of working models have been developed using practical experiences from India, Nepal, Indonesia, the Philippines and Thailand.

However, CBNRM is not without problems. First, some scholars are sceptical of CBNRM's seemingly contradictory goals of sustaining local resources and simultaneously developing the local community (Brosius *et al.* 2005; Alcorn 2005).

Second, the CBNRM assumptions seem to have some underlying flaws, such as regarding a community as one single homogeneous entity (Baland & Platteau1996; Carson 1999), when in fact a community usually consists of a vast array of individuals with different backgrounds, knowledge, belief systems and interests (Tubtim & Hirsch 2005; Peluso 2002). Agrawal (2001), Sarin (1998), Agrawal & Gupta (2005), Ribot (2000) and Ribot (2002b) took the issue further to ask whose interests the community represents and whether CBNRM could result in better management of the commons and serve the interests of the poor and needy, or whether it is just another layer of bad governance or a forum for the focal and local elites.

Third, it is often observed that CBNRM advocates community participation, ownership and control in principle, but using these mechanisms is difficult, if not impossible (Olson 1971; Wade 1987; Batterbury & Fernando 2006). Some scholars even believe that local people are generally unable to organise themselves to act on the commons (Olson 1971; Wade 1987). Ostrom (1999) found that individual community members are not necessarily interested in good governance of common pool resources, that only those with a strong interest in the matter would take part and that the perspectives of the most vocal people are more likely to find their way into policy output; hence, the unrepresentative formation of rules. In most cases, she continued, the rest of the people do not feel that they belong and will agree to the adoption of a new rule only if it can promise them a benefit higher than the cost of adoption. Murphree (1993), in his study of local planning, found that most individuals often failed to express their development needs in the community's rule-making sessions due to their lack of self-confidence, knowledge or information and some associated cost such as travel. Aside from rule formation and adoption, Agrawal (2001), Ostrom (1999), Banana *et al.* (2000), Polanyi (1944), Öjendal (2000) and Ackerman (2004) looked at rule monitoring and enforcement in CBNRM. They found that the community, in addition to lacking a legal mandate for the management of resources, often does not possess the ability to monitor and enforce the rules due to its small size, to cope with the intrusive power of the state and powerful private entities or even to deal with actors within the community (i.e. the free riders). Additionally, Batterbury and Fernando (2006) found that some civil society actors can undermine the legitimacy of CBNRM by being associated with the old state actors and colluding in corrupt practices.

Thus, participation, ownership and control—the three mechanisms in CBNRM—face a big challenge. Does this mean that the recent global trend of transferring management responsibility from the central government to local communities is weak? How then can CBNRM contribute to the good governance of natural resources? Some scholars have argued that handing full autonomy and independence to CBNRM is not always the solution to CPR management (Olson 1971; Wade 1987), and that CBNRM needs external intervention to provide enforcement support, even some form of coercion (Olson 1965; Hardin 1968; Wade 1987; Gibson & Marks 1995). Borrini-Feyerabend & Tarnowski (2005) suggest that collaboration between the community and the state might be essential for good governance of natural resources, but they are also curious about the dark side if collaboration is not formed properly. Ribot (2002b) advocated DNRM (state approach) as an alternative to CBNRM (non-state approach) to address popular participation, ownership and control.

Decentralisation in Natural Resource Management

Pierre and Peters (2000) define decentralisation as the transfer of power from the central government to local government, due to the idea that the state is too big to be responsive to local issues and too small to solve problems in the world of increased global integration. DNRM stresses the role of local government, while reducing the role of the central state to setting policy goals and ensuring policy implementation through overall resource mobilisation and utilisation coordination (World Bank 1993; Pierre & Peters 2000).

Theoretically, DNRM is thought to provide a range of characteristics of good natural resource governance. First, it promotes subsidiarity, which means "moving government closer to the people it serves" or "transferring the decision-making power to the lowest appropriate level of government" (Ribot 2002b; Marshal 2008). According to Uphoff & Esman (1974) and Ribot (2002b), this allows local officials to serve the people and better respond to their needs because they are given the discretionary power and secure rights to manage resources, which allows them to make decisions and act quickly concerning local resources. Second, it promotes downward accountability because local people can vote people they like into office and vote them out if they are found not to represent their interests (Berry 2000; Wardell & Lund 2006). Third, Pierre & Peters (2000) also suggest that decentralisation could call forth a greater degree of involvement from local people than centralisation, thus promoting the efficiency of governance. Ribot (2002b) points out that DNRM involves more local participation and gives room for people to express their desire for development, instead of having the central government decide on all aspects. He adds that with local people bringing a multitude of ideas, born out of long enduring local practices, into development discussion and planning, DNRM not only reduces long-shot planning that is done far away from reality but also reduces the need for trials and the risk of errors.

However, DNRM has been seen as less successful than it should be. DNRM is in a way similar to sectoral reform, which, according to Brinkerhoff (2001), cannot be effective without a high level of democracy in the country's political system. Baumann (2002) notes that institutional reform in decentralisation can become long, difficult and conflict-ridden, and in some cases can take even generations to complete. Ribot, Agrawal & Larson (2006) notes that DNRM in particular is often incomplete and less successful than expected because it tends to run into the problem of power structures.

Firstly, some scholars argued that central governments tend to resist power transfer to local government (Bazaara 2002; Kassibo 2002; Peluso 2002; Smoke 2000) because this power is the source of income (Horng & Craig 2008).

Secondly, McCarthy (2004) suggests that DNRM by nature introduces changes to the country's institutional arrangements, bringing both new rules and new actors. He argues that the new rules within DNRM often could not provide effective resource governance , but instead induced blurred responsibility among all actors, producing fragmentation in governance in the short run and local government corruption. Suzuki (2005) found that DNRM in the Philippines had given rise to unclearly defined roles and responsibilities for the emerging and existing actors. McCarthy (2004), in his study of DNRM in forest management in central Kalimantan, also found that new actors, such as the district government, are often at odds with the central government and law enforcement agencies. He further suggested that DNRM in a country with a long history of centralisation and authoritarianism can result in competition to control resources among the emerging and the existing actors. Veron et al. (2006) pointed to the

danger that this confusion can allow powerful local actors to hide behind and take advantage of the situation. He also suggested that DNRM can create new opportunities for corruption for the established local elites and those attached to political party. McCarthy's (2004) findings supported this rationale, as he found that under decentralisation the village chief and his group enjoyed a position as the village gatekeeper, taking rents from the forest harvesting companies. The problems of downward accountability, according to Peluso (2002) and Ribot (2002b), are thus not solved but are simply shifted to a local level. This means that DNRM can result in smaller groups of local resource managers who do not share a common interest and vision for the resource (Weinthal 2006); instead of fighting corruption, they become new agents for rent seeking (McCarthy 2004).

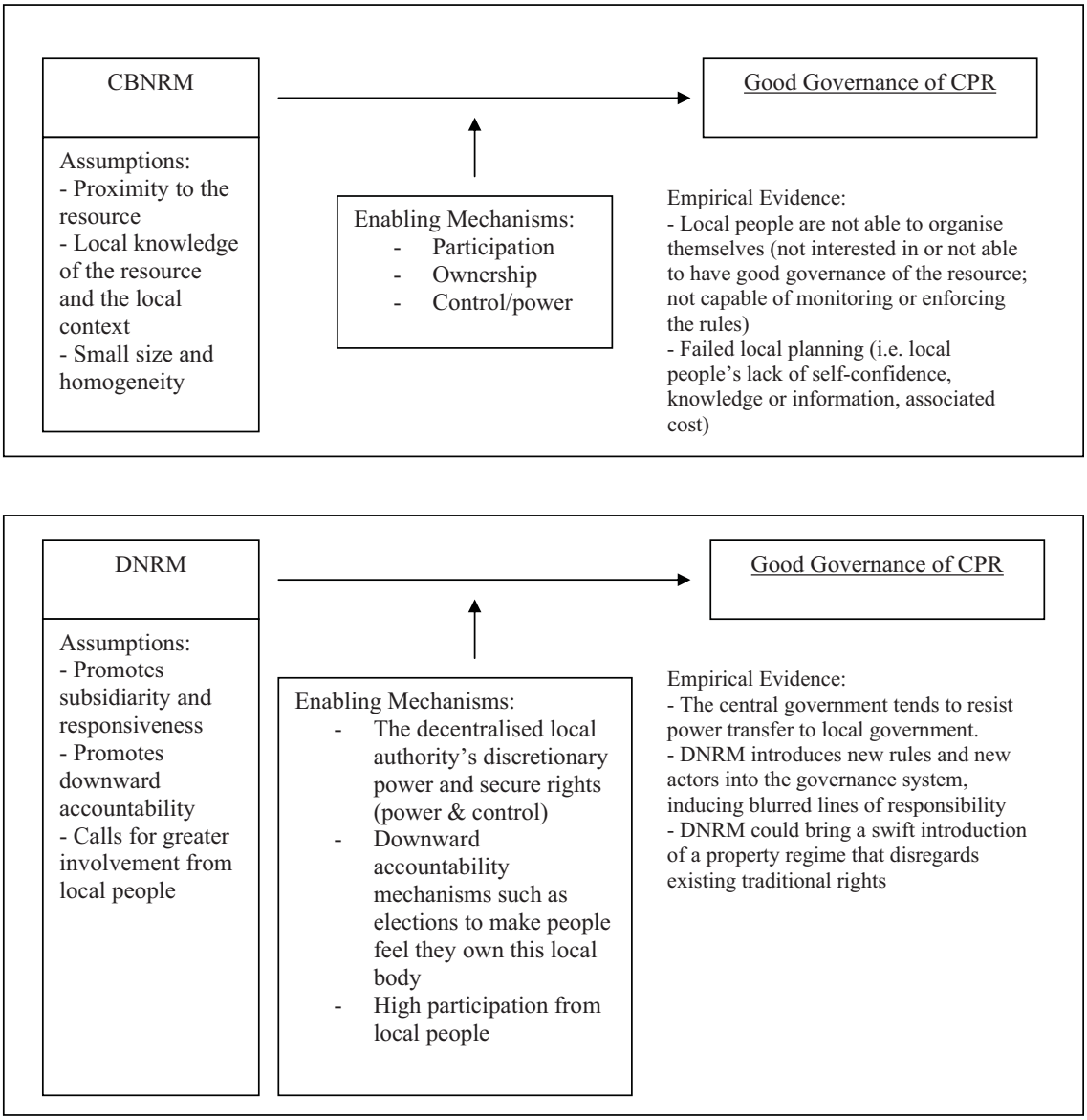
Finally, DNRM could sometimes bring the swift introduction of a property regime that disregards existing traditional rights, resulting in enclosure and exclusion of people who depend on the resource for their livelihoods (Peluso 2002; Wardell & Lund 2006; Batterbury and Fernando 2006). In her study of local people's access to forest resources, Peluso (2002) found that direct management of forest resources can give some groups more access while taking it away from others, affecting traditional resource appropriation. Wardell (2006), in his study of forest governance in northern Ghana, also found that that the newly introduced decentralisation excluded the local people, who once enjoyed unlimited access to the resource and managed it.

The whole literature seems to show that both CBNRM and DNRM can offer some characteristics of good governance of natural resources despite the drawbacks each possesses. DNRM can theoretically hold more of the state's legal and executive power, to control access to resources and be more effective in enforcing rules (Brosius *et al.* 2005; Alcorn 2005). However, in practice it often fails to govern those resources effectively due to rent seeking and lack of incentives to be more inclusive and responsive to local needs (Wade 1987). CBNRM can theoretically be more effective at calling forth popular participation and more representative of people's needs due to its small and homogeneous nature, but it is often seen as failing to enforce its own rules (Agrawal & Sivaramakrishnan 2000; Ostrom1999; Banana *et al.* 2000). DNRM and CBNRM do not necessarily exist independently of each other (Brosius *et al.* 2005) because DNRM can have a very important contextual implication for the success or failure of CBNRM (Agrawal 2001; Ribot 2002a). Agrawal (2001) noted that CBNRM may not be able to enforce its own rules, but it enables communities to demand accountability from the state and local government, while local decentralised government can assist communities in rule enforcement.

Conceptual Frame of the Study

Figure 1 schematically summarises the relationship of what has been discussed so far about CBNRM and DNRM in the literature.

Figure 1: Conceptual Framework of the Study



The three key variables that enable both CBNRM and DNRM to function are participation, ownership of the representative institution and control or discretionary power of the institution or community. These variables were examined based on findings from the field.

Chapter 3

History of Irrigation Water Management in Cambodia

Cambodia has a land area of 181, 035 sq km and a population of 13 million. Almost 86 percent of its population lives in rural areas, and about the same proportion of the population is directly dependent on agriculture, forest resources and fishing (Sloth *et al.* 2005).

Agriculture accounts for around 30 percent of Cambodia's GDP, with the garment industry, tourism and services making up most of the rest (Nou 2005). According to FAO (2007), 25 percent (4.626 million hectares) of the total land area is cultivable and 85 percent of the cultivable area is now being cultivated. This means that the cultivated area has almost doubled since 1993. According to Öjendal (2000), the total cultivated area in 1993 was about 2.1 million ha, 88 percent of which was rice field, 6 percent other annual crops and the other 6 percent permanent crops such as palm trees, coconut and rubber.

Cambodia also possesses great water resources, the like of which are found hardly anywhere else in the world. The Mekong River and Tonle Sap Lake together create a unique fresh water system covering 10 percent (1.8 million hectares) of the country's surface area for some part of the year (Sloth *et al.* 2005). However, use of water systems for agriculture is nowhere near its full potential. Cambodian agriculture has traditionally been and still is largely characterised by rain-fed farming and traditional farming techniques without irrigation (Nou 2005). Halcrow (1994) estimates the yield from rain-fed cultivation to be lower than both wet- season cultivation supplemented by irrigation (73 percent higher) and dry-season irrigated cultivation (231 percent higher). This means, as indicated by Öjendal (2000), that Cambodian agriculture is very responsive to irrigation.

Recognising the potential of irrigation in alleviating poverty (the first main goal of the National Strategic Development Plan 2006–10), the government has sought to enhance existing irrigation systems (both maintenance and repair) and to strengthen institutional capacity in water resource management (Hun 2004). These two tasks are more easily recognised than fulfilled, given the historical rich nature of the water (and the agricultural habits of the people and their perception of rights of access to water), as well as the poor state governance, which has been characterised by weak regulations, small budgets and patrimonial political culture (Horng & Craig 2008).

Cambodia has more than 2000 irrigation schemes, which could potentially irrigate more than one million hectares (MOWRAM 2003), but most of these schemes are under-performing. Some of the schemes date back to the Angkorian period. Some historical documents suggest that Cambodian irrigation water management existed long before the first Cambodian civilisation, Funan (AD 1–AD 500). Chinese reports on Funanese agriculture highlighted advanced techniques in water management and rice cultivation (Vickery 1998), farmers of this time storing water in artificial reservoirs, which they used for bathing and for irrigating crops (Chandler 2000). Rice cultivation during this time was said to produce a surplus, and this surplus was exchanged for cloth and other goods that were traded along the river.

A boost in water management, however, seemed to take place some centuries later during the Angkorian period (802–1432) when the empire's welfare was based on centrally controlled large-scale water management (Nguyen 1999:14). Chou Ta-kuan's *Account of Angkor* (1296–1297) noted that the concentration of manpower, rich fertile soil and a perfect water storage system in this period made possible three or four rice harvests per year (Chandler 1993: 74). Supporting the above statements is the existence of some remaining large reservoirs from this period such as the West Barai, which as noted by Chem & Craig (2008), is still in use today and able to collect and store rainwater as well as Mekong floodwater for irrigation and domestic use. However, there are some compelling arguments that water management and the building of large irrigation schemes were a new concept in Cambodia, introduced only after the French colonisation, and that the man-made water systems remaining from the Angkorian period were built for religious purposes, not for irrigation (Liere 1980; Öjendal 2000).

French colonisation (1863–1953) offered some real water infrastructure (e.g. the Prey Nob scheme), but as argued in Öjendal (2000), the infrastructure did not do much development work at the time because the colonial state used the heavy top-down French approach to govern the system and never succeeded in establishing grassroots contact. At the downfall of French colonisation, the Sangkum Reastr Niyum (1953–70) tried locally based participatory water management on a national scale, the state persuading the rural population to provide voluntary manual labour to dig facilities (Than 1982). Some small and medium projects were initiated and reported to work satisfactorily at this time (Öjendal 2000). Several big investments were also planned, some even suited to irrigating 10,000–50,000 hectares, but none had been implemented before the regime's downfall. The Lon Nol regime (1970–75) that followed did not pursue any water development projects. Hundreds of actual irrigation projects were implemented nationally during the Khmer Rouge period (1975–79). Canals and dams were dug across the entire country, the state using extreme violence to force the whole population to fulfil its impossible plan (Öjendal 2000). The People's Republic of Kampuchea and State of Cambodia (1979–89) used an authoritarian socialist approach that directed the state administration to deliver irrigation structures. *Krom samakki* (solidarity groups) were formed for collective work rehabilitating the former regime's irrigation structures. Not many results materialised.

After the 1993 elections, the new kingdom of Cambodia's administrative structure and working methods were said to be built on the State of Cambodia system from the early 1980s (i.e. weak state versus strong political party, centralised power of neo-patrimonial networks, distant and fragmented bureaucracy but politically very close and personal relationships among political actors) (Öjendal 2000; Eng & Craig 2008; Horng & Craig 2008; Pak & Craig 2008). Lacking both human and financial resources (Öjendal 2000), the new state engaged even less in the reconstruction of water management infrastructure. At the grass roots, the management of water for irrigation, which required collective action, was noted by Öjendal (2000) to have been ineffective since the abolition of *krom samakki* in 1985. The weak state and loose collectivism of society might, according to Öjendal (2000), have left the work of rehabilitating irrigation infrastructure in the hands of external actors such as various development, international and externally funded non-government organisations, which have roamed Cambodia since the late 1980s rehabilitating irrigation structures with very little, if any, state involvement.

Öjendal (2000) also pointed to the weakness of the state's structure, which does not allow a single institution to be responsible for water management; this leads to resentments over unclear roles and responsibilities among ministries. The establishment of the MOWRAM in 1999, followed by laws, decrees, sub-decrees and *prakas* on water and irrigation management,

has been the main attempt by the government to resolve the issue and to be more effective and efficient in governing irrigation water. These laws and regulations give MOWRAM the leading position in the governance of water resources; provide concurrent management responsibilities to communities through FWUCs; and introduce rights of access to common property through water use licences issued to private owners by MOWRAM. All of these are meant to integrate the water responsibilities of various ministries, to involve local communities in the management and maintenance of irrigation water and to better manage the possible private ownership of water.

However, as Mang (2007) pointed out, these measures fail to achieve their objectives for two reasons. One, they do not address and resolve the overlapping mandates of ministries, which create many significant differences of opinion, such as those between the Ministry of Agriculture, Forestry and Fisheries and the Ministry of Environment over their water-related roles and responsibilities. Second, despite outlining a role for FWUCs in managing local irrigation, the laws do not take into consideration two main local institutions; they do not provide the commune council any clear role or responsibility in water management despite the fact that the decentralisation reform has given the commune authority over natural resources, and they do not recognise participation or management rights of existing water user communities.

Hence, this paper will look at how community governance of irrigation water development is exercised, with the focus on the management work of the FWUC and that of the commune, and how these works interact with each other in the uncoordinated situation between central policy and local practices and norms.

Chapter 4
Trabaek Community

Kompong Chhnang province lies just west of the Tonle Sap. Its economy is dominated almost solely by rice production. Not far from the provincial town, just five kilometres south-eastwards, is the five-metre deep Bak River—one of the largest rivers in the province—and the Trabaek reservoir, a 20-metre-long concrete dam with six main channels, which can store about 200,000 cubic metres of water and which at present is providing water to approximately 550 hectares of farmland in the dry season.[4]

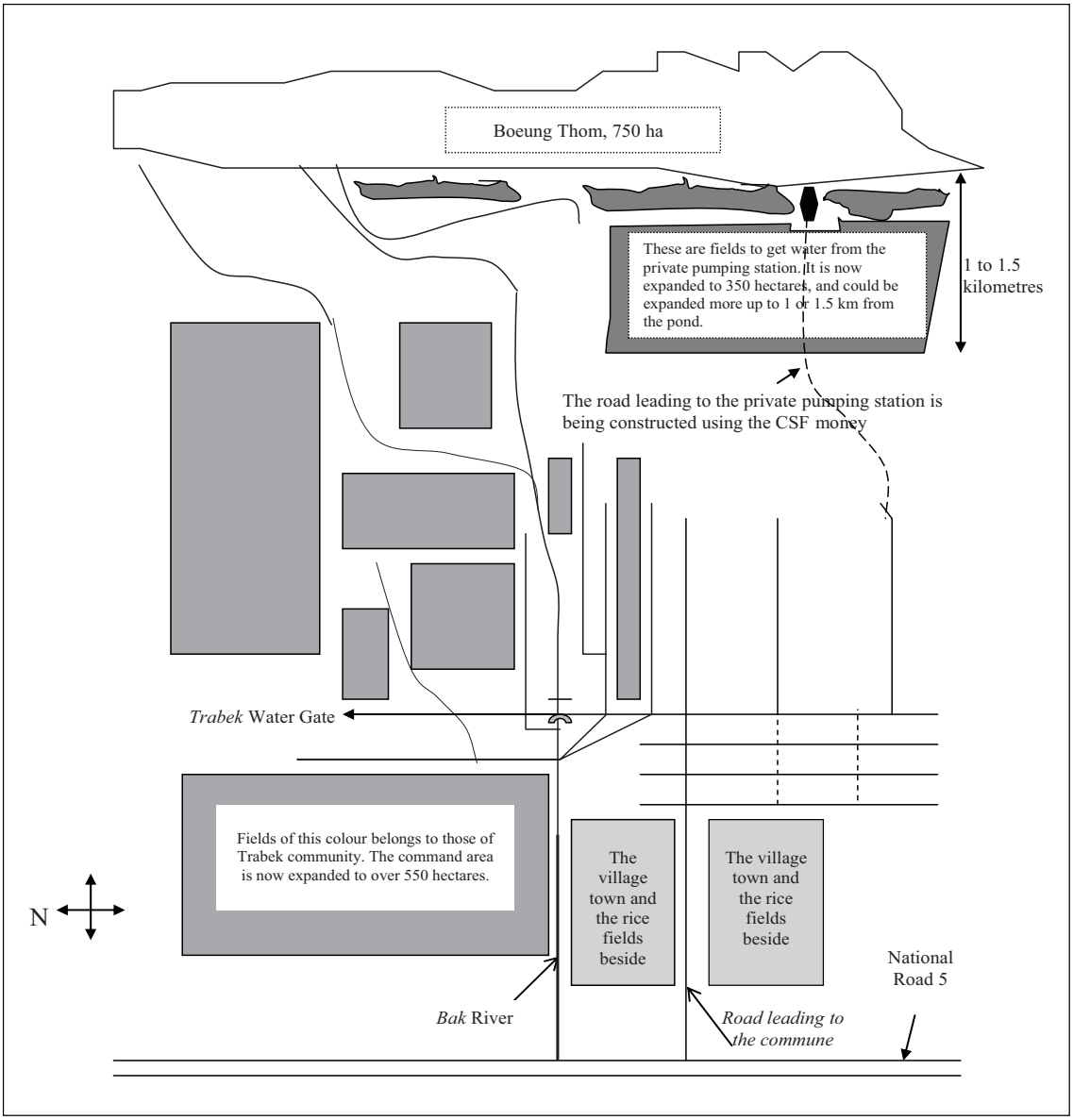
Figure 2: Map of Cambodia

The Trabaek reservoir is located in Kantuot village, Kantuot commune and is used and managed by a FWUC called the Trabaek community. The community presently comprises more than 600 households from six villages of three adjacent communes: Kantuot, Chey, Pok and Pich in Kantuot commune; Snay in Snay commune; and Khsach in Bak commune.[5] All the community villagers are of Khmer or Sino-Khmer ethnicity; 99 percent of them are Buddhist. Between mid-December and mid-April, they are busy with dry-rice farming—their main economic activity—while for the rest of the year, in the wet season, women weave bamboo baskets at home and men engage in fishing.

4 MOWRAM estimates that one hectare of dry season rice requires 5000 to 10,000 cubic metres of water. This means, with everything else held constant (no water flow from the Bak River, which is blocked by another water gate at Krasang), the capacity of the Trabaek scheme would be enough for only 20 to 40 hectares of rice. Given the present farming of over 500 hectares, dry-season rice in the area is very dependent on both nature and the activities of the upstream farmers who depend on the Krasang water gate.

5 Prior to 2000, the community was composed only of people from the four villages in Kantuot commune. However, the increased potential of the reservoir later benefited two other villages.

Figure 3: Trabaek Community Rice Fields and the Surrounding Area



Note: This figure shows the present situation of the area.

There is no market in Kantuot commune, where about four-fifths of the community's villagers are settlers; handicrafts and surplus fish are sold at Phsar Krey, a medium-sized market near the commune where vegetables of most kinds, meat, livestock and other groceries are found. Retail sale of the community's rice does not occur. The harvest is first used to meet the subsistence needs of each family, and any surplus is then sold to middlemen from Kompong Cham and Battambang provinces or Vietnam. These middlemen hire a local person to buy and collect rice during the harvest season. This year, they offered a price of 800 riels per kilogram, compared to 1200 riels per kilogram last year. Villagers have very little knowledge of these business people; they are not certain how much rice they need, what price they will pay and where they transport the rice to. They feel that if there were always a market for their rice—if there were a company or formal association in the community to buy their rice—they would not fear producing too much and not being able to sell at a decent price. The average rice yield ranges from 3.5 to 7 tonnes per hectare depending on the adequacy of the water supply, the use of fertilisers and the

care given to the rice plants. There are also a few farm households that run small businesses (e.g. selling homemade cakes) along the village roads, earning a profit of 4000 riels a day on average.

Besides the FWUC, there are "self-help groups", which organise villagers into saving groups according to their age. There are other recently formed associations such as agricultural associations. The records of the associations and the commune office alike are handwritten. Computers are not yet available in the community, although quite a few average or wealthy people possess mobile phones.

Box 2: Kantuot Commune

Kantuot commune has a very good topography and an abundance of water, forests and fish. The commune is under the leadership of Yong, since 2002 the head of the five-member commune council. The commune does not yet have a large irrigation system (the medium-scale Trabaek scheme is the biggest in the commune) because there are plentiful water sources in the area. Seventy percent of the commune's land is under water during the wet season. The two great water sources in the commune are the Bak River (with water flow throughout the year) and Boeng Thom, a very big lake (750 hectares). There are also a few small and medium ponds. The dry-rice land measures 1219 hectares (approximately 20 percent of the commune's total land area). Floating rice has not been grown since the late 1980s due to the high flood level every year and the loss of the right variety after the Khmer Rouge regime. Villagers haven't raised animals for business yet; they raise them just for use within the family and for farming.

Transportation from one village to another isn't completely connected. The commune is building red gravel roads, and this has been the first priority in commune development. There is a referal hospital in a nearby commune, and villagers have received a lot of health support from it. There are four schools in the commune: one kindergarten, two primary schools and one junior high school. To pursue further education, children need to go to the provincial town, which takes approximately 45 minutes by bicycle. There are five pagodas in the commune, all of which receive support from the villagers.

There are 1050 households in the commune, 13 percent of which are headed by widows. The 2007 commune statistics show that 43.34 percent of the villagers aged between 15 and 60 (65 percent of whom are women) cannot read or write and about 5 percent of children aged between 6 and 14 years have not attended school.

Within the last several years, the Trabaek scheme has given the community a promising future. Due to the productivity of agriculture, villagers are getting larger rice yields (on average 6 tonnes/hectare when there is water and with the use of fertiliser), which enables them to sell some rice and obtain some cash to use as capital. Once the poorest of the 13 communes within Kantuot district, Kantuot commune residents have now become among the richest. A flow of some families from the provincial town into this community has been noted. A 55-year-old woman who migrated to the community five years ago together with her daughter, who married a villager in the community, commented:

> Living here and farming are easy. The yield is high. Even though you don't have anything to do for days, you still have rice to eat. It's not like in the town, where I went to the market to sell groceries every day and if I didn't go for one day, my children had almost nothing to eat.

Such phenomena as better living standards, good yields and people moving in, which are now not uncommon, were once unknown in the community.

The Pre-scheme Period

In 1979, after the downfall of the Khmer Rouge regime, there was no formal irrigation scheme in the community. Farmers had till then practised only floating-rice farming because more than 90 percent of the community's farmland is submerged for most of the wet season, generally from late August to mid-December. Prior to the Khmer Rouge period, local farmers grew floating rice, namely *neang tey* and *kanlong phnom* varieties. These two varieties did very well in the local conditions because they could thrive in extreme fluctuations of flood levels. A few middle-aged and elderly farmers recalled the paddy being completely covered with layers of grain so thick that if one dropped a clay pot in the field, it did not break. Yet even then, the local situation was already being shaped by irrigation activities introduced by the Khmer Rouge policy and by the effects of forced collectivisation on local productive expertise and resources. A dam wall was constructed manually near Boeng Thom in order to supply water to nearby fields in the dry season, but this project had not been completed by the time the Khmer Rouge period ended. What remained of the pumping station was left unattended, and the two floating rice varieties were lost by the end of the regime. Some villagers suspected that the starving population might have eaten all the seed left behind by the Khmer Rouge.

The new People's Republic of Kampuchea had to cope with many social and political issues, one of the most urgent of which was getting people to do what they could to reconstruct a shattered society. In particular, the government paid significant attention to agriculture. It made efforts to collectivise agriculture using a national model within which new varieties of rice and approaches to production could be introduced on a much broader scale. *Krom samakki* (Box 3) were introduced countrywide among farmer households: a national system of localised collective ownership and production, grouping between 10 and 20 farm households. The groups did not necessarily fit well with local patterns of family, traditional rice farming or administrative organisation. In Kantuot, Chey, Pok and Pich (the four villages of Trabaek community), each group was assigned cultivation rights over three small plots in three different locations—one near the village town, another in the flooded area around the Bak River (where the Trabaek reservoir is located today) and the other near Boeng Thom, also flooded in rainy season (Figure 2); there was no private land ownership at the time.

Wet-season rice was and has been the option for fields near the village town not reached by floodwater. Floating rice was the only option for the rest of the fields, which are fully flooded during the rainy season. Although floating rice farming was a tradition in these areas prior to 1979, the loss of traditional rice seed posed a problem. Farmers could use only the new varieties introduced by the provincial authority, but these varieties could not adapt to the local climatic conditions. In some years, the floodwater rose too fast, killing all the rice plants, while in others the water was not high enough and retreated too early, leaving the rice dried up. The yield at his time was between 4 and 10 *thang*[6] per hectare—a very small yield, which discouraged people from farming. Said a 58-year-old Kantuot villager:

> It was called *sre kok troung* (the chest-pounding rice fields) because we really did pound our chests watching hopelessly as the rice plants grew and at the yields we received. Within five years of rice farming, there were four years that we didn't get a harvest.

6 1 thang = 25 kilogrammes.

By the mid-1980s, most farmers were abandoning their floating-rice farms, as well as the *krom samakki* production methods.

Box 3: Land Division and the Krom Samakki

In the beginning of the *krom samakki* period, farming was carried out on a large field by each group, headed by a *me krom* selected in each of the four villages based on popularity in the locality and personality. Households within each group worked together on the fields and were supposed to share the yields proportionally to the size of each household, but in reality they could not because the yields were hardly enough to share among the members and reserve a portion for the state to use as salary for village and commune committee members, newly established local militia, teachers and infirmary staff.

The state thought of this as a social restoration programme, which sought equity in access to yields and which recognised the hardships of the many widows, elderly and orphans if they had to farm independently. But the arrangement had very limited success, due partly to the traumatic experience of the earlier Khmer Rouge version of collectivism.

Between 1982 and 1985, with approval, the *krom samakki* divided the land among all households; this meant that each received three small plots of land, one at each of the three different locations in the commune. The arrangement was that each household would take care of its own plots, but all households within the group had to help each other in farming. This method did not succeed. The Kantuot village head mentioned that the groups were silently abandoned in 1984, and mutual assistance was no longer an obligation imposed by the state, but a very few households with close kinship ties still continued to practise it. He also mentioned that, starting from this particular time of the year, the state offered land titles to villagers. However, this type of recognition issued by the village head or the commune chief was said to be for ownership of land in fields near the village town only and not that in the flooded area. Farmers then just based their divisions of the flooded land on a piece of paper or on their memory and their group members' recognition. No one at that time could really appreciate the floating rice fields they owned because the yield was so low.

Withdrawal from collective production in the mid-1980s did not increase the rice yields of individual households in the area, although it helped keep some farmers positive and hopeful of solutions to enable their farming to support their families. The loss of the traditional floating rice varieties, coupled with the introduction of new but not equally suited varieties, would not enable farmers to get much from a location submerged for almost six months a year. It was not long before most farmers abandoned their fields. However, a few families and individuals with fields near Boeng Thom tried dry-season rice farming on their own and met with some success. This involved falling back, initially, on very traditional and individual methods, including traditional irrigation tools such as *snach* (a scoop) and *rohat tek* (Figure 4) to pump water from the pond to their fields. These tools were locally made from wood and some metal; each consisted of a large rotating wheel that could scoop up water from the pond and empty it onto the rice field. However, this required daily labour. One farmer recalled that he had to pedal the wheel for an average of two hours a day to irrigate one hectare of rice. Having witnessed some successes in this new type of farming, a few other farmers whose fields bordered the Bak River adopted dry-season rice farming. Around the same time, these farmers put up a traditional irrigation construction called *thnous*, made of palm tree trunks and pieces of bamboo entwined together, across the river (where the Trabaek dam is now) to control the water and pump it. The

construction was not totally efficient. With the main structure filled with dirt, a large amount of water escaped the system. This was not a problem then because the scheme was limited to a few fields (less than five hectares) near the structure, but the yield was not very high (approximately 1 tonne per hectare) and crop damage caused by mice was high.

Figure 4: Rohat Tek in Kompong Chhnang

Source: Öjendal 2008

Recognising the initiatives and the problem of low yield and the socio-economic limitations of the local farmers, Yim, the commune chief at this time (who also owned land near the river) requested tractors from the agriculture department to plough the fields of local farmers and pumps for dry-rice farming. He recalled:

> There were a lot of provincial meetings during the PRK time to which commune chiefs were invited. The idea of turning the area into dry-season rice fields has existed since then. I told the meetings that my commune had water and land but not the right seeds nor the modern agricultural facilities such as tractors, and explained that this was why the yields were so low. I then asked the province to send some new rice seed and tractors.

After some years—coinciding with the end of the *krom samakki* approach, the emergence of legal private ownership and, most noticeable of all, the K5 programme, which conscripted people to the Cambodian-Thai border to clear forest and seal the border with mines—in early 1987, the state sent new rice varieties from the Soviet Union to be tried out in the community, along with a dozen tractors and four large mechanical pumps. The rationale was that the farmers would be able to produce a rice surplus to be sold to the state cheaply—something that was promoted as the act of a good citizen. The commune was assigned to oversee the work. The tractors were used to plough all the floating rice fields; the pumps moved water from the Bak River and Boeng Thom into the nearby fields. None of these attempts succeeded. The use of tractors was not wise given the small divided plots owned by each family. The tractors completely levelled all the embankments, and the people didn't care about rebuilding them; they didn't really have the motivation, so they just sowed the rice seed, and even rain water could not be stored in the fields. Moreover, the pumping station could not supply water as needed because the operator was reported to be stealing some of the petrol. The state interventions in the area failed miserably.

Yim acknowledged that there was not enough supervision of his proposed agricultural work, and there was a lot of resentment towards both the local and the central government over sending their family members to the K5 programme:

> I tried everything I could, but I still could not do it well. I even borrowed money from the national bank in order to buy petrol for the pumps and could not make the repayment until Hun Sen found out about this and commanded the bank to cancel the debt. The problem was that my colleagues and I [the commune authority, eight people] were preoccupied with other tasks. We were responsible for maintaining security from the remaining Khmer Rouge soldiers' frequent attacks and recruiting local people to contribute labour to the K5 programme of the mid- and late 1980s.

Box 4: The K5 Programme in Kantuot Commune

The K5 programme was initiated in 1984 to seal the 1046-kilometre Cambodian-Thai border with mines to deter infiltration by remaining Khmer Rouge forces. Kantuot commune's chief was then Yim, who held the post between 1981 and 2002. He was not very popular among the villagers; the first commune election in 2002 voted him out of office. When asked about the main challenge during his 20 years as chief, Yim replied:

"People hated me because I sent their children to K5 and most of them didn't come back. They might have died when a mine exploded or from *chanh* (malaria or diseases resulting from the different environment). I was just fulfilling orders from above. But that's normal. Only those who don't do anything won't be wrong; those who do will be wrong some of the time."

Villagers were angry with Yim because he sent villagers and their children, but did not go himself, nor did his children, his relatives or close friends. Moreover, they suspected him of forcing more people into the K5 than the higher levels asked for. In the interview, when asked why he was never selected to be in the K5, he answered reluctantly:

"I was lucky. I seemed to have *nisay* (a spiritual bond from a previous life) with the provincial governor. In fact, I was about to join the trip several times. Usually, I packed my clothes, my mosquito net and my hammock and would be about to get into the truck with the rest of the villagers, but the governor would see me and ask me to get off the truck, saying, 'Who allowed Yim to go there? He would not be able to bear the environment and the weather. Let's get him off.' That was why I did not join the trip."

The failure of the state's solutions to water and irrigation for agriculture at the time destroyed the little hope most farmers had in the state and its interventions. They again abandoned dry-rice farming, leaving their farms idle, until a lot of farmland was overgrown with forest by the late 1980s. Only the innovators of the *thnous* still persisted with dry-rice farming without awareness of an external catalyst that would soon change the community. These farmer innovators were the ones who initiated and received the first fruits of dry-season rice. Although state intervention failed, the commune and the provincial office of agriculture were realising the potential for irrigation. The problem now was where to get financial support.

Beginning of the Scheme

In the late 1980s, Cambodia shifted away from socialist organisation of the economy and entered a period of deregulated, decentralised development, in which international NGOs flooded into the country. By 1991, with the arrival of overseas NGOs, the palm-tree and bamboo structure was being reconstructed in concrete. The American Friends Service Committee (AFSC) financed the construction, the office of irrigation of the provincial department of agriculture providing technical support and the local people providing labour.

For six months, people in the whole commune (i.e. including those in the other four villages of the commune that did not possess any farmland in the area) were assigned to come and help the water gate construction. Recognising the need for a canal system, the commune proposed to the district, and then the district to the province, a system to complement the gate being constructed with funds from the AFSC. Not long afterwards, the province agreed to the plan and sent officials to help dig the canals with the local people. Those involved, whether farmers or provincial officials, were each assigned to dig one metre. Every day, 50 permanent labourers, men and women, dug the land and carried soil away in two-handled straw baskets. The labour was voluntary, free and unpaid. Labourers would take with them rice to eat in the fields, while the provincial officials would take some beer and snacks to enjoy while hiring local people to do their share of the work.

Yim, the commune chief, said: "It was a voluntary job and there was no payment. But everyone had an obligation to do this work—it was an obligation to the state, so every family had to get involved."

At the beginning, even though the tasks were said to be voluntary, most people would not dare to think about not fulfilling them. The commune authority, with assistance from the village chief, the *krom samakki* leaders and the commune militia, used authoritarian means to make sure that each family finished their assigned tasks. Yim recalled:

> We from the beginning listed the names who would have to come on duty, when and who was to dig the foundations of the water gate and who to dig the canal. If they didn't come, I would just ask a militiaman to go to their home and call them to come to work.

He added that militiamen kept weapons of all kinds for defending the commune.

> It was a semi-socialist regime with influence from the Khmer Rouge time, which made it easy to lead since leadership at that time was to make people afraid of you, which was much easier than making people understand you and the tasks.

However, the fear of state authority did not last long. Some households did not show up for work from the beginning, which slowed construction, but the commune did not take any action against them at first. There were rumours that these were the families on close personal terms with the commune chief or that had contributed something to the commune. After several months, the gate and the channels were still not complete, and some of those involved became tired and frustrated and started to avoid the task. Eventually, the commune handed the responsibility for overseeing the construction to one of the militiamen, who, armed with a gun, went around the village gathering those who were supposed to help with the construction but had not turned up earlier. They were lined up and taken to the construction site and made to spend the night there without mosquito nets so that they would be ready for work early the next day. Recalling this, one farmer could still feel people's anger towards the strict militiaman. "He made them

stay there and would not allow them to go back home", she said. Ironically, however, she said some farmers now feel that the militiaman's action was appropriate and justified because some people needed strictness. "Some said, if it were not for him and his strictness, many of those who had avoided their obligations would have continued to do so, but he was strict and the work got done much more quickly."

On the other side, the lack of a collective sense among the people was seen to be, not the cause, but rather the effect, of the work system. A lot of complaints at that time reduced the local farmers' enthusiasm to contribute to the community. Some complained about the work arrangement. They reasoned that every household had to contribute labour regardless of whether they owned land in the area, which was perceived to be unfair. Some suspected corruption. They said that they were supposed to be paid with rice for their labour, but the provincial authority (the irrigation office) and the commune (mainly the chief) grabbed it. Some even said that the commune authority went around and asked for rice contributions from households that could not contribute labour. Some farmers believe that the AFSC gave money to the irrigation office to construct a diversion weir that was supposed to be big enough to serve as a bridge, but the size was mysteriously scaled down to one metre in width, which only pedestrians could cross. These farmers were very sceptical of the local authority's explanation that the construction could not be made bigger because Khmer Rouge troops could use it to transport ammunition to attack the commune. "There were no more KR solders in this area then", they said. These farmers also believed that there was widespread stealing of construction materials; otherwise the dam would have been bigger and better constructed.

The dam wall was completed in 1991. An improved irrigation system with three main canals had been pioneered. A big ceremony was held to celebrate this achievement, which provincial, communal and village authorities were invited to attend, and certificates of merit were awarded to a dozen men and women involved in the construction. Local farmers could not recall the number of certificates given out, but some still feel that it was not fair. "Some people were engaged in the construction for months, but they did not receive certificates. Some only worked for a few days, and yet they got one."

Several families that possess fields near the scheme started to farm dry rice immediately, while as many others believed the new type of farming would not make any difference. Altogether, about five or six hectares were cultivated in the beginning, and the average yield was one or two tonnes per hectare. Even though some complained that there was only enough irrigation water for the rice fields and none for domestic use, and that the rice fields were very much disturbed by an infestation of mice, most people who farmed dry rice were partly satisfied with the scheme because it improved their production. Not long afterwards, more families began to adopt this new type of farming, and some livelihood improvement began to become apparent. In1994, about 20 households had adopted the new farming on a land area of approximately 30 hectares.

From late 1991 onwards, management responsibility for the scheme was automatically in the hands of the commune, although it hadn't done anything for it. The commune chief hired a local farmer, Ta Rey, to keep the gate. His job was to close the water gate to store water, divert it to supply the paddy fields and open the gate when there was excess water. He was given half an acre of land in the area to cultivate as an incentive. The gatekeeper was also supposed to be paid by the farmers who used water from the scheme. The job was not easy, however. Although

the main structure was made from concrete, the gate's weirs were made of wood, with some pieces made from palm tree trunks. These components did not fit together tightly, making it impossible to control the water well. Also, closing or opening the gate was a tough job that required two or three men's strength. Not least, gatekeeping was made difficult by the fact that farmers cultivated their crops at different times. Some would request water, and the gatekeeper would divert water into the required fields. But the flow might also submerge the fields of other farmers whose plants were not ready for water. Consequently, these farmers felt that the gatekeeper did not do a good job and refused to pay him part of their harvest.

For two years, the gatekeeping was done without pay. The gatekeeper tried to claim his promised pay and approached the commune chief, who had promised him payment. But the commune chief avoided the topic, intensifying the gatekeeper's resentment and anger. In 1994, after the failure of his crop in the area, the gatekeeper quit his job, but his resentment with the local authority lingered to the present. Ta Rey recalled, "I was supposed to get 50 to 60 *thang* of rice from those two years for my efforts in distributing water, but I got nothing—not one grain of rice—for my work".

With no one taking care of the scheme or controlling the water gate, destruction of the gate through non-maintenance and theft became more common. At the same time, the diffusion of dry-rice farming increased the demand for a body to watch over the tasks. The commune and the irrigation office needed to solve the problem soon if production was not to suffer.

New Modes of Governance

With reports and suggestions from the irrigation office, the AFSC returned in late 1994 to rehabilitate parts of the scheme. The irrigation office advised the commune to establish a water association, in the participatory trend of natural resource management introduced by donors, to manage the scheme. The commune then faced the challenge of identifying competent, knowledgeable and inspired people to take the job on a voluntary basis.

The commune chief soon identified two people, both of whom were in their early 30s, energetic and widely known in the area: Chey and Sam. Both had finished junior high school—a high level of educational attainment in the community at the time—and both owned a large plot of farmland (Chey 3.5 hectares and Sam 1.5 hectares) in the area. Yim explained his choice: "They were young, outstanding and the best educated people I knew of—outspoken and clever. Chey had worked as the commune accountant and statistician for five or six years, and Sam was working at the provincial department of finance."

In June 1995, the commune called those who were farming dry-season rice to meet and told them that a water association was to be established; the commune would transfer the management of the Trabaek scheme to this association, which would be led by Chey as the head and Sam as his deputy. These two would be responsible for planning to manage and monitor the scheme's structure and performance in supplying water to the existing 30 or 50 hectares. Two other members were assigned to the association: one to take care of distributing water and the other to take care of the fees. "We gathered people and told them, and they were all clapping as they heard the names of those selected to lead the association. We were happy that people supported this decision", Yim recalled—although other respondents said that not all of those concerned were invited to the meeting and that it was not an election meeting.

After the meeting, the association was initiated. The work, however, had nowhere near the success expected and promised by the commune authorities. Chey was still studying in Phnom

Penh and could not spend much time on management, while Sam found it hard to shoulder the work alone because there was not much support from the commune or any other state authority. The other two members were not involved as time passed. Sam commented:

> The transfer of the work was made, and then the association was left to its own devices. Fee collection was a new idea and not at all a rule. People might or might not contribute, depending on whether they wanted to or thought it was necessary. That was why the collection was too small to mention ... We existed only in name until four years later, when the provincial department of water resources and meteorology formalised and reorganised the association.

Box 5: Leaders of the Water Association

Chey, the head of the association and the more outstanding of the two when they were students, was born to a father who was an *achar* (master of Buddhist religious ceremony) and possessed approximately 3.5 hectares of rice fields in the Trabaek area and a few other hectares near Boeng Thom. Having been recognised for his intelligence and outstanding achievement in both primary and junior high schools, Chey had been selected to work as a commune accountant and statistician prior to 1993, when he quit, shaved his head and pursued his education in a Bali school in Phnom Penh. He spent four years studying and did so well that he came fourth among the 2500 students in his year. His fame won him a position as *achar* in his home pagoda, Wat Kantuot, when he returned. He taught Bali and mathematics to local monks during this time, while he also headed the water association. His ability to understand Buddhist teaching and his eloquent, though not classic, interpretation of Buddhist texts made him popular among the local people, but not with the religious affairs office. He was outspoken and keener on community development than on pagoda structure renovation. He always advocated the use of money outside the pagoda for community development rather than inside the pagoda for structural renovation. He also tried to mobilise money from the pagoda for development in the area, but this failed and made him unpopular with other *achars* and monks, who were later described by Chey as "trying to find a way to get rid of me". Chey resigned as an *achar* just one year after his initiation. Since then, he has focused on the water association, his farming and his family.

Sam's parents were both farmers. He was the most outstanding in studying among his seven brothers and sisters. He owns about one hectare of rice field in the Trabaek area and six others in the area near Boeng Thom. Through a relative who worked there, he got a job at the provincial department of finance, helping with bookkeeping for a few years after he finished junior high school in 1986. Unlike Chey, who did not get involved with any political party, Sam soon became a member of FUNCINPEC. Like other members of the party, he was promised a position in the government should the party win the election. However, after FUNCINPEC won the 1993 election, Sam waited to be assigned a position in the government. In 1995, still awaiting a position, he accepted the offer of the commune chief to become the deputy head of the farmer water association.

Chey was not very much involved in the water association's work in the first two years as he concentrated more on his study. He moved between his village and the city (where he spent more of his time) during these two years. Sam, on the other hand, was focusing on overall management but lacked enthusiasm because he was alone and not very influential when seeking assistance from the commune for fee collection. He attributed this to his affiliation to FUNCINPEC, a different political party from that of the commune authorities.

From 1998, the situation started to change. Chey was back in the village after his success in study and, seeing the potential of Trabaek to boost his family's economic status and develop the community, he started to be more involved with the association. With Chey's presence, Sam was now more enthusiastic even though he was still thinking of an alternative to the Trabaek scheme, which would benefit only 1.5 hectares of his farmland while the larger part of his land was uncultivated because water from the scheme could not reach there.

With their different skills, the two men approached the work differently. Chey, possessing fundraising skills from his previous involvement with the pagoda, tried (and continues to try) to mobilise resources for the operation and maintenance of the scheme. He employed Buddhist teachings to convince people to contribute to the community, used Buddhist ceremonies to gather people to establish a sense of community and appealed to benefactors, politicians and others to raise money that the state could not provide . Sam focused on the technical side. He noticed the limited capacity of the Trabaek water gate and the water blocks, which were made of wood, and realised that a station to pump water from Boeng Thom would be much more effective. He proposed the idea to the commune chief. To eliminate party discrimination, Sam offered to resign from FUNCINPEC and join the CPP on if the commune chief allowed him to take the lead in the establishing the pumping station. The agreement was made. However, there was no progress. The commune chief then told him that the station might not solve the problems and would only create more problems for the commune authorities, as proven by the existing water association.

Chey's limited success in convincing people to earn merit in the community rather than in the pagoda and Sam's failure to initiate the pumping station did not stop them from fulfilling their roles as leaders of the water association. They both—now members of the CPP—tried various means to manage the scheme and the water to establish their popularity. Although they had little success, they moved on. By the late 1990s, dry-season rice fields had increased to around 150 hectares, and the yield was between 3 and 3.5 tonnes per hectare. The water fee collection was now progressing. After 1998, the fee was set at 10,000 riels per hectare. The money collected during this time was not recorded, and the two leaders could not remember the amount, but said that it was not enough even for maintenance work. Chey said:

> The amount collected increased during this time, but it was still not enough even to take care of the basic maintenance work, not to mention buying a better tree to replace the palm trees that were used as water blocks. The good side was that we could gather people to help dredge silt from the canals to make the scheme work better.

In September 2000, in line with the new PIMD policy, four officials from the newly established provincial water department helped organise the FWUC to manage the Trabaek scheme. Its responsibilities include controlling members' access to the scheme.

Provincial officials first contacted the commune and told it to call a meeting and an election, and then the commune arranged the meeting for them by calling for a gathering at which the village heads would inform the dry-season rice farmers of a meeting on a set day. One hundred and sixty-five people showed up.[7] First, provincial officials explained what the FWUC was, what it would do, how the people would contribute through the irrigation service fees (ISF) (set at 40,000 riels per hectare), how it would benefit farmers and what the procedures for forming

7 Some villagers we interviewed during the field trips said that they had not been informed about the election and so had not gone to vote. "They just informed their relatives and friends, mostly. And I know that more than one person in a family went to vote during this time," one villager said.

the FWUC were. People were then asked to vote for leaders of the association. Four permanent members were elected. Chey was elected head of the association, Sam the first deputy, Srey the second deputy and Phun the treasurer. After the election, capacity-building support was promised to the four, and the officials left the task of recruiting more people to the head of the association. A few days later, the four were receiving training in the provincial town. The head of the association was also given the honour of further training in Phnom Penh and was taken to visit a few functioning FWUCs in several provinces.

After a two-week training programme, Chey returned to the community. Together with Sam and Srey, he realised that the association could not be run smoothly by only four people, given the size of the dry-season rice fields, which by then were around 200 hectares. Chey had already had the idea of promising people who served the association that they would not be charged the ISF. Soon, there were 15 people serving. Their main activities were regulating the flow of water into rice fields and collecting the ISF. The ISF of 40,000 riels per hectare, set in September 2000, was not realistic; no farmer paid. Hence, the FWUC continued to charge 10,000 riels per hectare, the cost set in the late 1990s.

Meanwhile, due partly to better weather and partly to new management, the average rice yield was never below three tonnes per hectare, and some farmers could harvest 6 or 6.5 tonnes with the use of fertilisers. Drawn by such success, more and more farmers joined the community, and the area started to expand northward and westward to cover approximately 250 or 300 hectares within a year, and the size increased rapidly as time passed.

The increased production focused local attention on transportation—a problem that had always been there but was not seen as significant when the cultivated area was small. The scheme was a quick solution to a local food shortage in the late 1980s and early 1990s, and it was problematic in the middle of an existing rice field where farmers owned patches of land side by side. There had been no plan for an access road. The farmers whose land was on the other side of the stream had to transport their harvest across the river by carrying rice sheaves on their heads, leaving their ox-carts parked on somebody else's farm. An elderly female villager recalled:

> I had to carry the rice sheaves across other people's rice fields and the bridge, and this was so hard. Sometimes, my hands and chest would be cut by the rice stalks I was carrying and my legs would get cut by the rice in other farmers' fields. It was painful on the one hand, and just transporting the rice from the field to my home also took a lot of time. I sometimes found myself crying from the pain caused by the constant cuts on my body as I crossed back and forth, through the fields and over the bridge.

In 2001 Chey, Sam and Srey saw a need to build a road and a larger bridge so that people could transport their rice in ox carts, but a few plots were in the way of the planned road and bridge. Chey proposed that the commune chief exchange state or communal land for those plots. The arrangement was that the farmers' land would be exchanged for twice the area of communal land near Boeng Thom. The commune chief and his associates disagreed with the proposal because this conflicted with their personal interests. After the privatisation period of the late 1980s, the commune chief and a few commune officials were able to sell some commune land to private individuals for their own profit. Joined by another 400 farmers who would benefit from the proposed road, Chey took the issue to the district office (Chey was already a CPP member then). Seeing a lot of people supporting Chey and understanding that the communal

election would soon take place, the district ruled against the commune chief in favour of the majority of farmers.

With land for the road secured, the FWUC tried to mobilise resources to construct the bridge. At the same time, because of Chey's new popularity, the CPP made him one of its candidates in the first communal election in 2002. He was the second candidate on the list, while the former commune chief was put down to third place. Yong, a close associate of the former chief and also a commune security police officer since 1992, was promoted to first position on the CPP list.

The commune election produced five councillors: three from the CPP, one from FUNCINPEC and one from the Sam Rainsy Party. For the first time in its history, the commune possessed its own funds, from the Commune/Sangkat Fund (CSF) of USD 5000 to 12,000 per year (See Figure 5).

Figure 5: Annual CSF for Kantuot Commune from 2003 to 2007

Year	Commune Project	Admin fund	**Development fund**	Counterpart fund	Total
2003 (Riels)	Road1	9,144,000	6,108,000	6,100,000	2,1352,000
(USD)		2286	**1527**	1525	**5338**
2004 (Riels)	Road 2 (not yet finished)	9,258,000	2,0747,000	901,500	30,906,500
(USD)		2314.5	**5186.75**	225.375	**7726.625**
2005 (Riels)	Road 2 (finished)	9,870,000	2,4958,000	2,215,800	3,7043,800
(USD)		2467.5	**6239.5**	553.95	**9260.95**
2006 (Riels)	Road3	11,616,000	29,167,000	100,000	4,0883,000
(USD)		2904	**7291.75**	25	**10220.75**
2007 (Riels)	Road4	16,382,100	31,418,000	1,000,000	48,800,100
(USD)		4095.525	**7854.5**	250	**12200.025**

In the year of the commune elections, the FWUC raised 1 million riels from local people, the largest amount collected since the creation of the association. However, this amount was far below what was needed to build a bridge. Chey tried to convince the council to use the CSF to build the bridge, but this was not going to happen. As seen in Figure 5, during the first five-year term of the commune council, the entire CSF was spent on building roads. A bridge for the Trabaek community was perceived to benefit people whose livelihoods had already been improved by dry-season farming and was thus not urgent. Some village chiefs in the commune development planning committee argued that the community's scheme, even though incomplete, was better than what other villages had. However, to Chey and his supporters, the real reason for not allocating money for the bridge or anything related to the scheme was that the commune chief was not keen on Chey, who had mobilised people against him and the former chief over the land-exchange issue. Plus, Chey was famous among the commune councillors for being *moat chhau* (plain-spoken). He recalled:

> My proposals for the CSF money to be used for the development of this dry-season rice community have always failed because the spending of the CSF is not transparent. The chief would spend the money without first reporting to the council. He only reported after

the decision was made. So later on, I did the same. I would never report how I would like to spend the CSF to the commune, but only did so orally in the meeting after the decision had been made.

Although Chey failed to persuade the commune to use the CSF to build the bridge, it was agreed that his proposal should be sent to the district initiative workshop to seek funding from the SEILA programme. Another 3 million riels was collected from the community that year (2003). This brought a smile to the faces of the FWUC working group. Even though they did not have enough money to build the bridge, they felt pressured to go ahead with the plan so as not to discourage the people, who were very supportive of the idea. The group contacted the provincial water resources department for both its assistance in design, and more importantly, formality, even though they had to go through bureaucratic rent-seeking. "To ease and quicken the process, we also paid some money to various officials to get ... approval for our construction plan", said Chey. He said that he had paid around 200,000 riels for the whole procedure: "That was serious stuff. If you didn't seek permission from them, they could accuse you of causing potential damage to the weir, and they could order the demolition of your bridge as well as put you in jail." Sam added, "And they could always find flaws and mistakes in your design".

Although the fee was paid, the construction could not go ahead due to the lack of funds. The two prominent members of the group had differences over what to do with the money. Sam believed that the construction should go ahead so as to provide an easy means of transportation to the farmers as promised, hoping that local people would contribute more and that more funds would be found somewhere. Chey, on the other hand, felt that they would not be able to construct the bridge with the money they had and believed that the group should instead construct a festival house near the diversion weir, hoping that it would serve as a meeting place for the villagers and which his committee could use to call for community collaboration and more contributions to enable the bridge construction later on. The two fought for their ideas, but nothing was decided.

Around the same time (2003), Chey's proposal for improvement of the water gate was adopted by the SEILA programme with additional funding from the World Food Programme. Water Resources (PDOWRAM) was the one provincial department to handle these tasks. It fixed the existing scheme, replaced the wooden water blocks with iron ones and, with support from the farmers, restored the existing irrigation channels and dug three more (there are six main channels now). The tasks were completed in 2004 and cost almost USD30,000. Then PDOWRAM officials helped the FWUC to reset the ISF by calling the people in the community to meet and talk. Although not everyone in the community attended, agreement was reached to set the ISF at 20,000 riels per hectare, and the officials asked the association to keep a record of the collection every year and to make spending more transparent. Chey agreed to the proposal and decided that the ISF account would be closed at the end of each November, when the amount collected would be reported to the community, whereas the report of how the money was spent would be made every April or May during the rice-harvesting festival. The PDOWRAM officials also advised the association that there should be six farmer water user groups to watch over the details of canal management, while the four key members of the association would do the overall management. Each user group would have its own leader responsible for diverting water into fields within its zone, collecting the ISF from the households within its zone and guarding the health of its main canal, reporting to the FWUC leaders. Chey and Sam, using the previous technique of recruiting volunteers to the user groups by not taking the ISF from them, were able to recruit enough people to work in the six canal systems. Altogether, 40 people served in the whole association.

One piece of good news lifted the spirits of the community. In 2004, Sam's aunt, once a native of the village and now a US resident, offered a big contribution to finance construction of both the bridge and the festival house. Later that year and the next, rice fields in the area expanded to 450 hectares and the ISF collection reached more than 4 million riels—this seemed to reflect the farmers' satisfaction with the FWUC's work and what they had gained from the Trabaek scheme. The bridge and the festival house were completed in late 2005.

Figure 6: ISF Records

Year	ISF Description	ISF/ha (riels)	Total Field Size***	Expected ISF (riels)	Collected ISF (riels)
2000	Not yet recorded	10,000	Around 150 ha	1.5 million	Don't know
2001	Not yet recorded	10,000	Approx. 200 ha	2 million	Don't know
2002	late 2001 & early 2002 cultivation	10,000	B/W 200 to 250 ha	2 to 2.5 million	Approx. 1 million
2003*	late 2002 & early 2003 cultivation	10,000	Approx. 300 ha	3 million	About 3 million
2004	late 2003 & early 2004 cultivation	10,000	Approx. 400 ha	4 million	Above 4 million
2005	late 2004 & early 2005 cultivation	20,000	Approx. 450 ha	9 million	Above 4 million
2006	late 2005 & early 2006 cultivation	20,000	Approx. 500 ha	10 million	Above 1 million
2007	late 2006 & early 2007 cultivation	20,000	Approx. 500 ha	10 million	Above 1 million
2008	late 2007 & early 2008 cultivation	20,000	Above 500 ha	Over 10 million	Above 2 million
2009**	late 2008 & early 2009 cultivation	20,000	550 or 600 ha	11 to 12 million	Above 3 million

Notes: 1. The total collected ISF began to be recorded in detail in Chey's notebook in 2004.
2. The account book is closed in late November, when Chey summed up the total collected amount.
** Total amount collected as written in Chey's notebook, but no other details were mentioned.*
*** Amount collected as of late May 2009.*
**** The size of rice fields is based on interviews with Chey.*

Everything to do with the Trabaek work looked smooth on the surface. By late 2005, a lot had been completed: the Trabaek scheme with its new water blocks made of iron was better structured; three main channels had been rehabilitated and three new ones built; a new bridge and festival house had been constructed; an access road leading to the bridge had been secured; the FWUC was well structured with six water user groups and 39 serving members; the rice yield increased to a minimum of 3 tonnes per hectare; an increasing number of households were farming (approximately 450 hectares of farmland were cultivated in 2005). However, Figure 6 indicates that something must have gone wrong as time passed, especially during late 2005 and 2006. Participation was quite high from 2002 onward, but this decreased significantly, as seen in the ISF collection in 2006 and 2007. Although the size of the rice fields kept increasing, the collection did not reach the golden years of 2003 to 2005. In the next section, the causes of this will be explored.

Behind the Boom

The Trabaek reservoir can store a maximum of 200,000 cubic metres of water. If one hectare of dry-season rice needs 5000 to 10,000 cubic metres, the reservoir would hold enough for only 20 to 40 hectares. However, thanks to the Bak River, there is always enough water for the community's rice fields (even when the area increased to 450 hectares in late 2004) provided that there are no droughts or other factors that block the river upstream. The head of PDOWRAM once cautioned that, to ensure enough water every year, the area of the community should not increase beyond 200 hectares. But this advice has gone unheeded since 2002. The head of PDOWRAM said:

> The size of the reservoir classifies it as small scale, which is supposed to be effective for irrigating at the most 200 hectares of rice, but this has not been the case for the Trabaek community since 2002, when the area started to expand beyond the limit.

The inability to limit the size of the farming area continues to be one of the main weak points of the FWUC, a body meant to have this kind of power. However, from the perspective of those serving in the FWUC, the task is beyond their capacity. Chey asked:

> How could we stop it? People see there is a lot of water; they cut the forest to expand the cultivable area. The expansion or the contraction of farm size depends on people and water, not the FWUC, as our power is very weak. We don't have back-up from any NGO.

He added, "Furthermore, we can't impose a limit. It's the traditional way."

The leaders of the FWUC also did not perceive the farm area expansion as a threat, but welcomed it as successful community development and better livelihoods for the people. It is not surprising then to learn that, among all the rice-harvesting festivals celebrated every year, the one in April 2005 (when the farm area had already increased to 450 hectares) was the biggest ever, held at Chey's house to celebrate the continued high yields that had changed the community. Chey recalled, "There were hundreds of people at this festival. There was music, dancing, drink, food, traditional games and others. It was the biggest ceremony ever held in the community."

Later that year, when another season began, the farming area had increased to approximately 500 hectares. The usual work of dry-season rice farming was under way. Everyone was very busy. Farmers started to sow rice. Everyone was happy. But in late January 2006, when the rice needed water the most, the water level in the scheme fell rapidly, causing a general panic. As days passed, the rice in the fields started to die and people became restless. They ignored the previously agreed water allocation arrangement set under the leadership of the FWUC, which was based on the guidelines of MOWRAM's manual on irrigation management. The arrangement was that the upstream farmers would take water first and downstream farmers would be second, and the management of the water distribution in each area would be handled by the six water user group leaders.

But in this time of scarcity, the arrangement was ignored, and every farmer started to fight for every drop of water. They would cut off the canal gate to flood the limited water into their fields, and some whose fields were near the canal broke the embankment to get the water when it was not their turn. Some rich families used their own pumps to extract water from the reservoir

for their fields. The FWUC could only watch helplessly as it did not have any mechanism or support to enforce the rules. Srey, the FWUC's second deputy, recalled:

> We had the gates to all six channels. Then, during the drought, everyone was thinking just about their own fields. It started with a few farmers not respecting the rules, and the others followed. It spread like an infectious disease and the FWUC just lost control of water allocation. We went to talk with some people and asked them not to do this, and they advised us to stop others first before approaching them ... We even tried to lock each channel gate, but the most daring farmers came and cut off the locks to free the gate and get the water they wanted.

The treasurer of the FWUC, Phun, added, "What could we do, when they had axes and long knives in their hands? We just let it be. We couldn't be tough."

From the farmers' perspective, however, the FWUC members were the ones who first violated the rules; hence their mistrust. Some recalled that Chey and other key members of the association diverted the water into their own and their relatives' fields first and only thought about the other farmers later. A 52-year-old Kantuot villager said:

> We could not trust the water arrangement; they [the FWUC leaders] would go for their own benefit first, not ours. So we needed to think for ourselves. During those times, unless we were smart, it was very clear that we would never get water for our fields, and our rice would just die, leaving us to cry over the loss. These were the circumstances for a lot of families at that time.

Another Kantuot villager, a 55-year-old woman, said:

> At that time, my husband and a lot of other farmers would wait for the water at night. What else could we do? Not one person got a single drop of water. Those who waited for the FWUC working group to release water into their fields got nothing, and they stood to lose a lot as they would have no rice yield. Those working group members would just direct the water onto their own and their relatives' fields, and we were the last people they thought about. At that time we were very angry with the FWUC, especially Chey and Sam, who had many hectares of rice fields yet lost very little during the water shortage. But what could we say? It's normal that both we and they would think of ourselves and our family before thinking of others.

Surprisingly, however, when asked whether she would like Chey to continue in the post, she said she would still vote for Chey if there were an election because he had done a lot for the community: the roadway, the festival house, the bridge, the money-saving groups etc.

Chey appealed to both the commune chief and the PDOWRAM officials. The commune chief then wrote a letter with the commune stamp requesting people to follow the allocation arrangement, but, according to Chey, the farmers tore the letter to pieces, saying, "We eat rice, not paper".

The PDOWRAM officials sent several pumps to Trabaek to help get water into the fields. However, the farmers frantically tried to pump as much water from the scheme as they could to make sure their crops survived. According to the FWUC, up to 30 pumps (five from PDOWRAM and the rest from rich households) were employed to pump water from the reservoir. This was done hectically for four days when the river dried up.

With nothing left to fight for, some sense of cooperation re-emerged among farmers. Almost 100 people went between their homes and Chey's house during those days. Chey recalled, "My house was very much like a fish market. A lot of people were coming back and forth, gathering in my front yard for the whole afternoon and sometimes the whole day to talk."

They talked and worked together to seek a solution, which they thought lay upstream. A 36-year-old farmer said, "If there was no water, what else could it be? It must be the upstream people who had closed it off." Some farmers even believed that their problem was caused by people upstream who were so jealous and mean that they] wanted to hoard all of the water to deliberately kill downstream crops. As another farmer put it:

> For all those years [since 1995] we never had any problem with water shortage because water could flow down the river freely. But since the water blocks in our scheme were replaced with iron ones in 2004 and since we had a bridge, festival house and red gravel roads, we started to experience water shortage, and the problem has gotten worse since then. Moreover, as far as I know, those people do not farm dry-season rice. Why else would they have blocked the water?

Despite their anger, these farmers still believe that it is acceptable for people upstream to take the water away from them. "Water flows through their village, so they can do anything with it", said another farmer. The solution they came up with was to negotiate with the upstream Krasang FWUC, which they called *a rak tek* (a supernatural spirit that masters water). According to the FWUC members, local farmers each gave 1000 riels or more for their FWUC to buy food and wine to negotiate with the FWUC in Krasang. To make the group more convincing, Chey suggested to the commune chief that he accompany the working group upstream.[8] Chey, Sam, Srey, Phun and commune chief Yong walked to the upper scheme, met the FWUC and spent the whole day with them. Chey said, "We took five kilograms of fish to offer to the FWUC in Krasang so that they would release the water for us". Sam added:

> When we reached there, we met the FWUC head, Ta Poch,[9] and two FWUC members. We told them the problem and the purpose of our visit. Ta Poch said that they didn't know about this. In fact, they close their water gate every year in January and February to keep some water for domestic use and for their livestock. They had no intention of cutting off the water to make the people downstream suffer. He then allowed us to open the water gate ourselves. Then, we ate and talked for a while. While the commune chief continued eating and talking with the Krasang FWUC, Chey, Srey and I went to lift the water gate to release the water. We got into the water to do the lifting. Srey and I had already emerged from the water and, after quite a long time, Chey was still nowhere to be seen. We thought he might have drowned. We were so worried and we kept calling out his name, and then I felt relieved seeing him emerging with a smile on his face.

The water stored at Krasang was released downstream. In late evening, the working party returned to their community. As they arrived, they were surprised to see there was very little water left in the reservoir. Farmers had waited, and as the water reached the community, it was immediately pumped onto the fields. Not a drop was left by morning. A farmer, whose thoughts

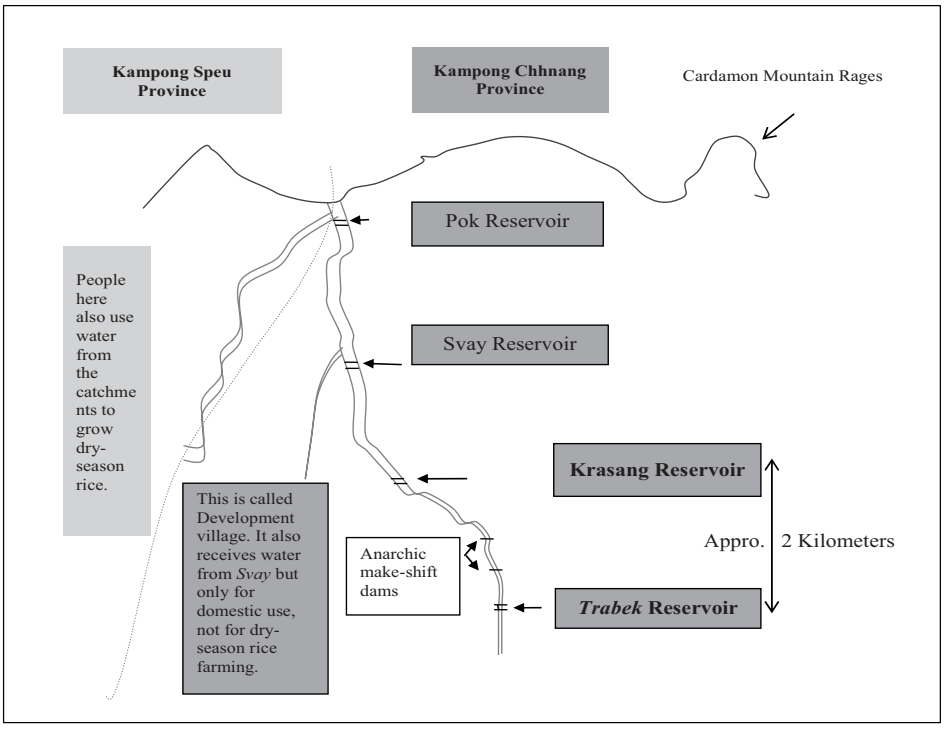
8 As recorded in *Chey*'s notebook, each member in the working party was paid 10,000 riels, except the commune chief, who was paid 20,000 riels for travel expenses.

9 Ta Poch was also chief of Krasang commune. Chey described him as being infamous for being very bold. He was quoted by Chey as saying, "The FWUC is never bigger than the commune authority".

were generally shared by the community, said: "The water reached our community only briefly, and that was it. It lasted no more than three or four hours. I think the FWUC there must have closed their water gate when the working party left."

There were later rumours that the working party didn't use the money collected effectively. They didn't offer the upstream *a rak tek* enough; that was why *a rak tek* was not happy and not much water was given. According to Chey and Srey, even the commune chief hinted to them that the people upstream didn't release lots of water because they took along only small fish: "Small fish, small water". Srey resented this accusation: "We didn't even have time to relax, and one life was thought to be lost; still even the chief said that to us".

Figure 7: The Bak River System and the Reservoirs



Box 6: The Bak River System

The water of the Bak River flows from the Cardamom Mountains and later splits into two main streams, one through Kompong Speu province and the other through Kompong Chhnang province. The Bak in Kompong Chhnang flows through Phos and Kantuot districts and into Boeng Thom in Kantuot commune. Currently, there are four dams along this stream: Pok, Svay, Krasang, and Trabaek—from upstream to downstream.

Trabaek dam was properly built in 1991 by the AFSC and was improved in 1994 and 2004. People here farm only dry-season rice now, and they are very dependent on water from the Bak River; lack of water means no livelihood for them. However, they have very little knowledge of the Bak system because they rarely if ever make contact with upstream people or go to see the conditions of the upstream community.

"The roads to each upstream dam are very rugged and difficult. We could not drive there by car, and even using motorbikes is difficult. It takes two and a half hours to reach Krasang from here," said Srey, the second deputy of the FWUC.

With such little knowledge about the water system and the people upstream, when there was a lack of water in their community, they would immediately accuse an upstream FWUC (in this case, the one nearest to them at Krasang) of retaining the water to kill their crops.

Krasang dam was built in 1976 during the Khmer Rouge period and was rehabilitated by the AFSC in 1985. It was further rehabilitated in 2001 by Programme de Réhabilitation au Secteur Agricole du Cambodge. Unlike the Trabaek dam, the Krasang dam is built on a wider part of the river (100 metres wide), but with a depth of approximately two metres, it still does not do a good job of mitigating the fluctuating amount of water. In the wet season, floods are a problem and the dam sometimes overflows, yet in the dry season there is barely any water in the reservoir. Farmers here farm only wet-season rice, and they get good yields. The local FWUC was formed in 2001 with five members. As time passed, the number declined to only three. Every year, the FWUC closes the water gate in January and February in order to keep some water for domestic use (for both animals and people), but because the reservoir is small, this has never caused a problem. The drought in early 2006 and early 2007 meant that closing the water gate affected the Trabaek farmers downstream. According to Ta Poch, the commune chief and also FWUC head, the reservoir holds only 50,000 cubic metres of water, enough to irrigate only five to 10 hectares of dry-season rice, and the reservoir would empty within a few hours during drought. Figure 7 shows the positions of a few makeshift barrages across the river between the two dams. The Trabaek farmers' accusation that the Krasang FWUC closed the gate to harm their crops needs to be treated with caution because even if they intended to do so, the capacity of the Krasang reservoir would not cause any impact.

Regardless of their resentment, no one could do anything to change the situation. Farms still suffered from lack of water, and most of the crops perished. It was a bad year for the community, and most farmers lost a lot of the money they had invested. The ISF collection that year dropped to about 1 million riels. "Most farmers just refused to pay and said, 'We usually pay the water fees, but that year we didn't have any water'. And we could do nothing about it", said Chey.

That year, during the rice-harvest festival in April, some villagers, Chey included, initiated the idea of celebrating the Buddha's bathing ceremony; a traditional belief is that this would bring enough rain in the coming year. More than 100 people supported the idea. During the ceremonial procession, four to six young men, followed by other local folk, carried the Buddha

statue from Kantuot pagoda to the Trabaek stream for the ceremony, where many people took water to shower the statue and pray for rain and happiness. All went well until they were carrying the statue back to the pagoda; it was dropped and the head broke off and rolled onto the road. Everyone, including Chey, was very shocked. He said:

> Besides asking for abundant rain that year, another purpose of the ceremony was to link the Trabaek water gate, the bridge and the festival house to something holy so that people would respect, pay homage to and take care of the place. I thought only then could the management of the scheme be sustained. But when the Buddha statue was dropped and the head broke off, I felt very fearful of the consequences. Maybe the Lord wanted to tell me something. Maybe He was saying that we should solve the problems ourselves and not just hand them all to God.

In late 2006, at the start of dry-season rice farming, the community was still suffering drought. Very little water was in the scheme, and farmers were not cooperative at all. Everyone just thinks about their own farms in such a situation. The same appeal was undertaken that year. The second march to the upstream FWUC was initiated, but this time the same working party, the commune chief included, went with a letter of support from their PDOWRAM officials.

When the working party got there, they again asked the Krasang FWUC head to release the water and showed him the letter from PDOWRAM. Ta Poch, the head of the upstream FWUC, was outraged (he might have perceived the letter as an insult of his work or an accusation that he wanted to make the people downstream suffer. Chey said Ta Poch didn't even invite the working party to sit; he just called upon his associate to bring a glass of water to put on the table and said loudly, "Here's the water you need. Take it. We have already told you that we didn't stop the water deliberately to damage your crops. There simply was drought this season and the previous one." The upstream FWUC head also told the group that he had a brother who was Hun Sen's helicopter pilot and he was not afraid of a letter from this or that.

That year, the community incurred the same loss. Whatever the real cause of the water shortages, they left the farmers of Trabaek with bitter memories, and their trust in the work of their FWUC became even more fragile. Farmers lost a lot of the money they had invested in their rice fields. Most crops were destroyed. Chey and Sam were very much criticised for their inability to solve the problems. Some farmers even accused them of being driven by personal gain, using their positions as leaders of the association to pump water for their own and their relatives' fields first, leaving other farmers' fields dry and their crops dying.

These calamities shattered the already unstable relationship within the FWUC and caused the loss of many members, including Sam, whom Chey felt most sad about.

> It felt like losing an arm. Sam used to be a very good co-worker on development. We often fought over our ideas, but our arguments were always for the good and the development of the community. We were both good friends and good co-workers.

Sam, on the other hand, never regretted his decision to leave and never dreamed of rejoining the committee. "We worked for them for nothing, and if there was a problem, they blamed us and accused us of this and that", Sam complained, adding that a committee member had to attend meetings until 10 or 11 o'clock at night to solve problems, but still people cursed them:

> They acted as if we got a lot of money from being in the association. In fact, as a serving member, one gets paid only 10,000 riels per year, if at all, depending on whether the ISF contribution is enough.

Sam's disappointment with the system and the committee extended to the intervention of the commune police, who often collect money from the private owners of tractors and threshing machines who rent their machines to farmers. Both the association and the local authority seemed unable to do anything about it.

> We [FWUC] lost quite an amount of revenue to that. We hoped to collect money from these sources to be used in community development, but the police rivalled us and collected money to line their own pockets. Still, they could demand more compliance because they were police and we could not do anything because even the local authority could not offer us much help when it comes to dealing with the police.

Box 7: Problems within the FWUC

For almost 10 years, since it was formally set up through an election, the FWUC has faced some very big challenges. Over time, in addition to the farmers' diminished enthusiasm (the ISF became harder and harder to collect), more and more serving FWUC members quit because they felt dissatisfied with their job, their leaders or the people they served.

In 2000, the setting up of the FWUC resulted in four formally elected officials. The PDOWRAM had clearly delegated the roles and responsibilities of each in accordance with PIMD policy: the head, two deputy heads and the treasurer. Nevertheless, after these officials returned from the training programme, Chey alone held all the responsibilities and main authority, including keeping the ISF collection, which is supposed to be the work of the treasurer.

"It's very difficult to work with Chey. He always tried to control everything and did not share power with anyone. He made the decisions, kept the money and spent the money", said Sam.

Two other events are worth noting when trying to understand the functioning of the FWUC. One occurred in 2004 and the other in 2006 and 2007.

In 2004, the FWUC established the water user groups to monitor the functioning of the six main canal systems and to collect the ISF within the groups. There were altogether 40 people, including the four leaders. According to the rule made in 2000, all 40 serving members would be exempt from paying the ISF for their fields. So many members would mean quite an amount of ISF was forfeited.

"None of these members had been exempt from paying the ISF since 2004. Salourn, in that year, set out a new rule and called for a meeting of the association's key members and the water user group leaders to implement it. He started by paying the ISF for his 3.5 hectares of rice field in front of all the members, and stated that the exemption should be dropped or the farmers would feel that we were corrupt for also using the water like them but not paying the ISF. This had already discouraged some of them", said Sam.

Chey then introduced a new rule. He suggested that an incentive in the form of a yearly wage be given to the key members, including the leaders of the water user groups. As leader of the FWUC, Chey would be paid 20,000 riels annually, whereas the other three members would get 10,000 riels. The leaders of the water user groups would also get 10,000 riels each when the ISF collection was good. According to Chey, this was agreed and he wrote it down in his notebook, followed by signatures or thumb prints of all the participants in the meeting.

The other members of the water user groups were informed of this new rule only later by their group leaders, and most of them were very disappointed.

"The exemption applied only when their family and close friends were in the association [between 2000 and 2004]. When others joined, they changed the rule. On the other hand, the group leaders were the same people, their family members or close friends", said a former member of a water user group. Chey agreed that all the group leaders were selected based on their personal relationship with him and the other three leaders, but he said this was done because they believed the people could do a good job and knew they were reliable.

In early 2006 and early 2007, when the community was hit by drought, the FWUC had proved to be powerless, to be technically incompetent and to have poor networks. In reality, they could not fully control access to the water. The farmers in general, including those in the FWUC, believe that owning land in the area gives them the right to extract water from the scheme. From the perspective of the association's serving members, cutting some farmers from the system is both emotionally impossible and inhuman. Everybody in the community knows one another, and they could not tell any farmer, "You cannot use the water" when water is essential for everyone's livelihood. Within a canal system, some farmers pay the ISF and some don't. If the FWUC cut off water to the fields of those who don't pay, this would also affect those who had paid. Last but not least, local authorities' support for the association is weak, which hinders its performance. FWUC members described the local authorities as avoiding involvement in community development in Trabaek whenever they could.

Finding it hard to collect the ISF during these two years and recognising the failure of the association to gather concrete information about the size of the dry-season rice fields dependent on water from the scheme (which made it very hard to collect the ISF), the leaders of the water user groups met and reached a consensus that the FWUC should measure people's rice fields in order to calculate each household's ISF and no longer depend on what households reported. The group leaders called for a meeting with the key members of the association to ask for their support and to implement the decision.

"Everyone in the meeting agreed to the proposal that each rice field should be measured to rate the ISF. Only Chey didn't agree, and so the proposal could not be implemented", said a former water user group leader, which Sam and Yim confirmed.

"He just did things his own way. If everyone in the association agrees to a condition and he alone does not agree, he will not implement it. The others need to listen to him and not vice versa, even when the majority's voices far exceed his", said Sam, who later said of Chey: "A cross-eyed person's behaviour is like that of a cross-horned cow and a cross-nosed buffalo—they are stubborn and won't listen to anyone who opposes their ideas".

Some working group members, Sam included, went even further, attributing this disagreement to the non-transparent work conducted in the association. "But we don't know. He might not have paid the full amount of ISF he is supposed to if the size of his farmland is much bigger than the 3.5 hectares reported. What other reason could he have for refusing the measurement of rice fields to rate the fees?" asked Sam and Yim.

This was serious for the FWUC. The members had already lost their enthusiasm for the tasks because they were not salaried and people no longer valued them, and even blamed them during the drought. Now they just lost trust in Chey and the association. Most expressed their willingness to have PDOWRAM come and help them organise another election. Since then, only three members have remained in the association: the head Chey, the second deputy head Srey and the treasurer Phun.

The year 2007—when the drought ended—brought the final blow to the FWUC's popularity among farmers and its strength from the serving members' collaborative work. While the majority who pulled out of the association have lost faith in the value of their work and in Chey's leadership, the three remaining members continued their work—monitoring the water system, collecting ISF, drawing up road plans in the rice-field system mobilising people to build

roads etc. In all these tasks, Chey was always the mastermind; Srey and Phun just followed. However, the success of this effort is questionable due to the limited membership and the declining participation.

The FWUC at Present

Since the drought, the rain of 2007 and 2008 has washed away resentments among farmers of the Trabaek community, although their trust and enthusiasm in the FWUC have yet to be re-established. In late 2007, the scheme had more than enough water during the dry season, bringing a smile to every farmer's face as they sought to make up for the losses of the two previous seasons. Moreover, the rice price in 2008 rose remarkably, from 600 riels to 1200 riels per kilogram, bringing more profit and happy times for the farmers. Everyone seemed to have forgotten their fights during the drought. Several farmers put it:

> We fought for water last year because there was no water. We saw our rice plants dying and we were devastated. At that time, we fought and cursed. Now we smile and joke with each other. For better or worse, we are still living in the same community and we understand each other. We don't hold on to our resentment.

However, the challenges for the FWUC have not lessened. Its inability and the internal flaws and break-up during the drought are still strongly felt: the number of serving members has decreased alarmingly (from 40 to three); most of the association's work and decisions still rest on only one person; they still cannot enforce the ISF collection; most people question not only the association's contribution to the community but also its legitimacy given that the five-year term of service has long expired. Many villagers, especially former serving members of the FWUC, longed for the PDOWRAM to hold another election to restructure the association. On the other hand, it seemed that Chey and the other two members had not lost their enthusiasm.

In May 2008, as usual, the association called for a celebration of the rice harvest in the festival house. Not many people attended. A dozen monks were invited to chant and give blessings to the community, and only about 20 or 25 people, most of whom were elderly men and women, joined the ceremony. Chey would have also invited officials from PDOWRAM and any other departments he came into contact with, plus people from non-government organisations. Only one official from the NCDD (the National Committee for Sub-National Democratic Development) attended this ceremony very briefly.

The purpose of the ceremony was to re-establish people's trust in the association and reassert its popularity by drawing attention to its work. Participants could take this chance to contribute, and the money raised was used to complement the collected ISF. The names and amounts of those who contributed were announced through a microphone by Chey after lunch. Chey also reported the amount of money collected each year and how it was spent. He emphasised the achievements of the association such as the construction of the bridge and the festival house and how the scheme had brought a new life to people in the community and how those who had benefited should contribute or help to maintain this common property.

Chey also used the opportunity to appeal to those who had not paid the ISF to do so, saying something to the effect: "And for those brothers and sisters who have not yet paid the ISF, please come pay or pay it sooner rather than later. The Trabaek scheme has given us a lot of benefits—rice and water and food. Why is it so easy to contribute money to the pagoda that provides you no food and not to the Trabaek scheme, which has given you food every year?".

However, it was doubtful whether the speech was heard by its intended audience because, while Chey was speaking, those present were either cleaning dishes or chatting among themselves, and it was unlikely that they were the ones who hadn't paid.

This event is not the only example of Chey's use of festivals to call for community spirit so as to ease the FWUC work. He even tried to make the area around the Trabaek water gate into a holy place. In early 2008, using ISF money, he built a concrete shrine and planted a bodhi tree there, so that people could pay their respects in connection with the water gate. But this tree was submerged and died in the rainy season. Chey then tried another method— he filled the shrine with sand and called it Mount Sand, which is also a holy object related to the life of Buddha. In January 2009, he completed building the Sand Mount in the shrine and called for another ceremony to attach religious significance to the place.

Chey has also tried to build local infrastructure within the area, such as roads within the community and a road system within the rice fields. In late August 2008, he gathered people to clear the shrubs along the road leading to the bridge because the free land previously used for travel was being worked into a new dry-season rice field. No more than 10 people turned up to help with the work; only a few families came whose rice fields are very near the scheme and who badly needed the road. Using ISF, the road was upgraded to red gravel in early 2009. People cheered this achievement.

Chey also drew up a road system for the rice field which he planned to implement in 2009, but without much support from either the people or the commune, the plan has been kept on hold. In one of the commune meetings, when Chey asked the council to implement the plan by exchanging communal land with that of people whose rice fields would be affected, the commune chief Yong commented:

> How could we approve the road plan you drew up when you didn't even consult us? We haven't seen the plan at all. You talked about the plan for a better road and canal system within the rice field, but you never showed the plan to any of us.

Chey approached some farmers and tried to convince them to sacrifice some of their land for the canal system and the road, but no one would agree to do it without compensation. While Chey described them as not seeing the bigger picture of benefits from the road, some farmers saw the situation from a different perspective:

> He drew up the plan for a road system within the rice fields, and this would affect some of the fields. When he asked others for their land in order to build the road, he preached to them and advised them using the Buddhist teachings of dharma and karma and pointed out how the Trabaek scheme has benefited them. But don't dare to touch even *muy chom am* (the distance from the tip of the thumb to the tip of the middle finger). If this happens, you need to direct the canal elsewhere. This is Chey."

In one informal conversation with a farmer who is also an official in the district planning office, Chey hinted that he was one of the people who had not paid the ISF. The farmer responded in a way that showed his dissatisfaction with and distrust of the FWUC and especially Chey's leadership:

> The money is with my wife. If she is not happy and does not want to give the money to the association, I cannot do anything about it. If you managed well and used the money in the right way, she would be happy to pay, but we feel that you don't. You don't spend the

money on what is really needed in the community. A lot of canals have become shallower and shallower and some have even silted up completely, wasting a lot of water, but you don't spend ISF on restoring these canals so that water could flow better. The roads and other infrastructure are important, but with limited money we need to think of what should be done first and what should be done later. The water arrangement has been poor. Why just think about the road or the map of the road system within the field and not the canals to supply water to the fields?"

The complex public perception of what the FWUC should and should not do persists. There is no intervention from either the commune or the department concerning the FWUC. Things have been left to find their own level while commune chief Yong, who does not get along very well with Chey, has long been interested in and paid more attention to the privatisation of a pumping station to extract water from Boeng Thom, which the commune office estimates could feed water to around 450 hectares that have been kept idle and covered with thick shrubs since the late 1980s. Since Yong was first elected in 2002, he has called for rich and powerful people to install pumps and, in partnership with the commune, to establish a private pumping station, but this was not easy. Yong said:

> No one seemed to be interested in or to see the potential of the area. Those *oknhas* [large donors to public causes] and xcellencies whom I knew and came into contact with when they visited the commune were hesitant because, when they went to the area, they saw only forest and no roads. They would have to spend a lot of money to build a road system and hire labour and a boat to transport pumps to the area. Some told me that they would help if I could guarantee them that there would be at least 50 hectares of rice fields wanting water from the station when it was established. But that was beyond what I could do.

In 2004, a five-star military general, Heung Kuch, whose wife is a distant relative of Yong, visited the area. Yong used the opportunity to convince Heung to build a private pumping station in partnership with the commune. Heung was interested but also hesitant. He spent a year studying the area and later decided that he would give it a try. Heung said:

> It was a very difficult decision. Water in the lake was plentiful, but there was no rice field at that time. I sent one of my sons to study water pumping and irrigation issues in Vietnam, and I spent thousands of dollars buying suitable pumps for the area. The first four or five machines that I bought could not be used, and I lost quite an amount of money on that."

While Heung focused on the technical side, the commune, in this case Yong, was responsible for establishing a canal system to take water from the station to the farming area. Late in 2005, when the community was hit by drought, the private pumping station was first commissioned. There were only about six to 10 hectares of farmland at that time. The fee would depend on the cost of the diesel fuel used; the fee for one hectare of farmland was set at the cost of four kan (1 *kan* = 30 litres) of diesel. Heung said:

> I promised the farmers that during the trial stage of the first two years, only the area of land that produced yields would be considered when calculating the ISF, not the total size of the farmland. If their entire farmland didn't produce any yield, I would refund the money that I had collected from them. This was done in order to encourage people to clear the forest from what was once their farmland because they had nothing to lose.

Figure 8: Private Water Fee Records, Late 2005 to Early 2009

Year	Water Fee Description	Water Fee/Hectare (Riels)	Water Fee/Hectare (USD)	Total Field Size
2006	late 2005 & early 2006 cultivation	130,000	32.5	10 hectares
2007	late 2006 & early 2007 cultivation	230,000	57.5	70 hectares
2008	late 2007 & early 2008 cultivation	430,000	107.5	110 hectares
2009	late 2008 & early 2009 cultivation	420,000	105	200 hectares

The private water fee has always been six to 22 times higher than the FWUC's ISF. The private owner felt that the price was reasonable and said that although he hopes to get some profit back when the area expands to its potential, he has yet to make any profit because he has spent a lot of money buying additional pumps every year, hiring excavators to dig the canal from the lake to the station and a lot more. On the other hand, farmers have not been very happy with the fee. But, as seen in Figure 8, so many farmers have joined that the field size has increased 20-fold within four years. Their profit from rice cultivation far outweighed the higher fees. One villager commented:

> We were not very happy with the fee because it was set too high. But over time, we have felt better because we have never lost. The private pumping station always supplied enough water to our fields and provided good service. The fee in fact is fixed at the price of four *kan* of diesel per hectare. Any increase in the fee in subsequent years has been due to an increase in the cost of diesel.

Heung's son, who had studied pumps and irrigation techniques in Vietnam, manages the station and has hired five villagers. These five transport the pumps to the area, pump water into the rice fields and see to it that the water is not too little or too much. They take turns staying and sleeping in a field hut for the whole dry season (three or four months) to take care of the business. One of them said:

> It is a tough job. We have always transported the pumps by boat because there was no road. Now the commune is building a new road leading to the station, so soon the heaviest part of the work could be lessened.

Since its establishment, the private pumping station has consistently been supported by the commune. Yong gave Heung communal land (20 by 200 metres) free of charge so that he could dig the canal from the lake to the station. The commune also helped make fee collection easy for the private station. In the early stages, on Heung's request, the village authorities invited farmers owning land in the area to participate in a meeting to inform them about the price of the water from the station and about the potential and benefits of farming in the area. These authorities also helped collect the fees twice a season—when the seed is sown and when the rice is harvested (each time 50 percent of the total fee is collected).

From Heung's perspective, Yong is a good chief and is devoted to the commune:

> Yong is great. The people here live in a disorganised and lawless way and are difficult to work with. They don't listen to authority, and the way some people talk is irrational and hurtful. But still, Yong is very patient with all of them and is very cooperative with me.

> I came here to help their community, but some saw me as coming to make profit out of them and even tried to convince others about this. If I wanted to do that, I would have bought all their rice fields. When I first came here in 2004, everyone was willing to sell off their farmland at between 300,000 and 400,000 riels per hectare because they could not do anything with the land. I wouldn't have had to spend money like right now to establish the pumping station and run this kind of business.

Heung doubted if these farmers would still sell their land even if one were to offer them 10 or 20 times the price they asked in 2004 or 2005. He continued:

> I used to hint to those outspoken people who spread the rumour that I made tons of money from selling them public water, that I would be very willing to sell the station to them at just what it has cost me so far and would even be willing to let them pay this cost over two years, but no one would take up my offer. These people are good at talking and blaming others, but they don't have the courage of their convictions.

Heung gave one hectare of his own farmland to Yong to repay his kindness in donating communal land for the canal between the lake and the station.

From Yong's perspective, the partnership between the commune and the private station is going smoothly, and he always describes Heung as "easy to work with". During his chairmanship in 2006 and 2007, Yong convinced the commune development council to direct the commune development fund to the construction of a 1.75 km red gravel road leading directly from the town to the private pumping station. This year, the fund has been used to build another red gravel road to the station to ease transportation and reduce the risks of transporting pumps back and forth across the lake due to the lack of roads.

Spending the communal fund in this manner has been strongly criticised by Chey as something that Yong did without transparency, but Yong argued strongly that he has always based these decisions on the vote of the councillors (four out of five voices). The second commune election, in 2007, re-elected both Yong and Chey—Yong as the chief and Chey as a councillor. Chey has now reduced his direct criticism of the chief during council meetings. He said: "A lot of people in the party do not like me because I say what I think. The district chief used to tell me that if I am this good with criticism, I should be in the opposition party, not in the CPP." Despite verbal intervention from the district chief, Yong and Chey's attempts to solve their differences have not had much success, and the work of the Trabaek community goes on without much support from the commune. Yong said:

> The way he works, he claims credit for everything, or at least most people give him credit for everything done in the Trabaek community. Not only do I get no recognition for my contribution, but there are also rumours going around behind my back.

He added that now he would support and provide interventions to the FWUC only when necessary. Heung indicated that Chey often talked in a very unreasonable way:

> In the beginning, I planned to use my own money to pay 70 percent of the red gravel road construction from the main road to the station and asked the commune to call for another 30 percent contribution from fellow villagers. But Chey went around and convinced people not to contribute, saying that the road was for my own profit, so let me handle all the expense. He told the farmers that they already paid the water fee, which is expensive, so why should they contribute more? I was angry with this and decided to

> quit the initiative. It was not only for my benefit. In fact it was more for the villagers' benefit. Without the road I could still run the station well enough using boats, but it was very difficult for the increasing number of people who were now farming in the area and finding it hard to go in and out of their fields. I used to tell these farmers that now there's someone bringing them food and they still wait for that person to spoon-feed them.

In March 2009 when the rice cultivation began, Chey refused to pay another 50 percent of the water fee to the private station, rationalising that the plants in some parts of his fields were dead. Heung's son asked the fee collector to keep asking Chey to pay. Heung said:

> The agreement that farmers who didn't reap a yield would be exempt from paying the fee was only effective in the first two years—the trial years. Now it's already the fourth year; there's no more trial in this business. It has been shown clearly that the station and the fields are able to make a lot of profit for the farmers, so we could not let the rule be bent by some people with bad intentions. Moreover, from the information I got from a trusted source, it seems that Chey did not pay any attention to taking care of his own field in this area.

Chey reported that he possesses 3.5 hectares of farmland in the private station's area. Chey would mainly visit his rice fields twice a year—once to sow the seed and once to harvest the crop. No other visits were deemed necessary because, Chey said, the road was so difficult. He might ask his son to go and check the fields once in a while. He never uses fertiliser. On the other hand, Sam, Chey's ex-counterpart in the FWUC, with the use of fertiliser and proper care of the plants, gets 6.5 to 7 tonnes of rice per hectare every year in this area. Heung said:

> According to information I received, when asked to pay the remaining 50 percent again and again, instead of paying, Chey talked about the issue among his fellow FWUC members, his friends and some villagers who supported him and said that this was unfair, and he also asked the others not to pay such a high fee. I was surprised and shocked. He has not lost even as much as15 percent of his yield and the others have lost nothing at all, but he tried to convince them to be on his side and not pay the fee. I then called him and asked him why he was acting like this. He told me about the loss he incurred, and I asked him to pay the full fee because I resented the way he tried to convince others irrationally to break the rule.

Chey paid the fee after the telephone conversation with Heung. When asked how he would hope to compete with the private station in building a good reputation among farmers, Chey said the only solution he could see for the Trabaek scheme would be intervention from an NGO or someone who could invest in the physical infrastructure:

> External intervention should be in the form of helping build a complete and well-functioning canal system that could ensure an adequate supply of water to farmers' fields. And even with the infrastructure development, another intervention should help change the farmers' mind-set and their norms of not paying the water fees ... Cambodians tend not to show respect to Cambodian advisers or authorities [FWUC members], but if an external presence comes to tell them about new ways to do things, they tend to receive it well. I believe that there is a need for external intervention in the scheme, and such a presence should last for a few years just so that the local people can adapt to the new rule.

Even though the FWUC's future is uncertain, the Trabaek community has still yielded significant rice production for the farmers in the last two years. The strength of the association compared to the private pumping station lies in its formal recognition by MOWRAM, whereas the private station has yet to receive a licence to operate in the area, and within the law it should not be allowed. The arrangement has been based on the understanding that Heung came to help develop the community in cooperation with the commune. Even though it doesn't have a water licence, the station is recognised by the commune, the province and PDOWRAM. Whether it will be granted a licence later is still uncertain. The present FWUC also falls short of legitimacy given that its five-year term of office has long expired. The local governance of water in the Trabaek community seems even more convoluted when the situation is looked at from the grass roots.

Chapter 5 Discussion and Implications

This study began with the literature-based assumption that CBNRM and DNRM were two approaches leading to good governance of common pool resources. The overall findings suggest that the two approaches, as the current policies mandate, have been performing their functions in a limited way. In this chapter, the analysis begins with factors enabling and constraining good local governance of water by first reflecting on local irrigation water governance since 1979 to answer the study's two research questions through a discussion of the three variables—participation, ownership and control—internationally known to be factors in the success or failure of CBNRM and DNRM. Then the research problem is answered by addressing the four main approaches of CPR governance and synthesising the answers and offering key mechanisms specifically identified in the study to address the research problem. Finally, the discussion concludes by outlining policy implications and further research in CPR governance in Cambodia.

Factoring the Performance of CBNRM and DNRM

RQ1: How has CBNRM been contributing to good governance of common pool resources?

CBNRM was seen in practice within the community from the mid-1990s and was divided into two phases: before the PIMD policy took effect (mid-1990s to 2000) and after the PIMD policy.

Participation

When the FWUC was first established in the mid-1990s, farmers didn't feel obligated to participate in the tasks proposed by the association, for three reasons. First, as suggested by Ovesen *et al.* (1996), the culture of voluntary participation beyond the nuclear family or kinship system is poor. Second, farmers didn't feel ownership of the association because they were not involved in its formation. They were simply called to a meeting and informed of the commune's decision to establish a water association and its leaders. Last, the association had no coercive power, as earlier exercised by the commune, to ensure full participation.

However, participation began to increase from the late 1990s when farmers started to see the potential of the scheme to produce yields of 3 to 3.5 tonnes per hectare. The association was able to gather people to help dredge the canals and clear brush to make way for rice transportation. Participation reached its peak in the early 2000s, when the association was formally re-established under the PIMD policy through an election. After that, many farmers started to pay the ISF to enable the completion of some minor tasks for the community. They also gathered for harvest festivals, attended meetings announced by the FWUC and in times of water scarcity initiated problem-solving by going to the leader's home to discuss and find a solution. Once they even dared to stand up against the commune chief when 400 farmers, under the leadership of the association, brought the issue of exchanging commune land for farmers'

private land to the district authorities. The increased participation was consistent with Korten's (1986) rationale: the natural result of farmers owning land in the irrigation area, sharing common benefits and suffering the same consequences if they didn't make the scheme work, especially when their livelihood is subject to its performance. The methods the association used to call for participation were also friendlier than those of the commune in the 1980s and early 1990s (the use of militiamen to command compliance) and resulted in voluntary participation. Moreover, the association leaders, unlike the commune authorities, were also involved in the work, which encouraged people to do things collectively.

However, participation was still shallow. Participation only means showing up to do the collective work proposed by state or non-state leaders, attending meetings these leaders arrange and complying with what they propose. The collective tasks were not initiated by the farmers but by the leaders of the FWUC. In practice, the cultural understanding of participation in Cambodia lacks the core essence of the concept as defined by scholars in CBNRM: "the coming together of the people to define priorities and develop rules and policies in the community, to implement rules, and to enforce rules". This academic definition of participation prioritises grass-roots decision making and the implementation of a set task in collective initiatives, and puts the grass roots in control of the situation (shared management of local tasks). The concept of participation as understood in Cambodia lacks such substance. The initiatives and the formation of the community structure, its rules and its policies were not from local people to improve the use of resources, but from the government to respond to the conditions of funding agencies and international NGOs. This set-up might have failed to prioritise the grass roots' initiatives and wisdom. Arguments could be made 1) that CBNRM might never have been thought of or tried by the local community if the state had not taken action and farmers (who were more bound to their home and small community than to outsiders) were kept uninformed of its existence and 2) that the top-down nature of the community approach might be somewhat well-suited in the present context of Cambodia—a country still tightly bound to its patron-client culture where participation rarely exists beyond the nuclear family, where its people have not been fully empowered to exercise their complete rights and duties in a democratic system, and where people's networking beyond the family and village is rare. Even though this argument might be valid, the critical flaws laid in the making of policies and rules regarding the exercising of CBNRM, which was also done at the top governmental level and taken to be practiced at the grassroots level, ended up undermining the knowledge gap between the two social spectrums.

As seen in the case study, the policy assumed that implementation would be democratic where the association leaders would be decided in an election, but in practice this was rarely realised. The formation of the association to represent the farmers—the critical first stage of CBNRM—was not fully decided by the farmers. The appointment of the association leaders rested in the hands of the commune chief in the first phase. In the second phase, the farmers elected the leaders but still the commune selected which candidates would be presented and which farmers would be informed of the election, while PDOWRAM was another filter arranging the election. Bias was evidenced by the complaints of many villagers who were not informed and the fact that the election as guided by PDOWRAM was far different from the written policy. While the policy requires the election of the committee members in separate rounds, the practice was simplified to a one-round election, in which the person attaining the most votes became the leader, the second most the first deputy, the third most the second deputy and the least the clerk. However, the pre-set policies, which were carefully drafted based on theories of CBNRM and collective action and empirical evidence attained from practice elsewhere, might have worked better to establish a more democratic association. While the rationale behind the policies was to

better fit persons with responsibilities, the policy might not be practical in the real community, where election and natural resource management were still new and explanations could be very time-consuming. Further complicating the issue was the choice of association members and the water user groups that were to monitor the different canal systems—who were all appointed by the elected FWUC leaders instead of being elected within each canal zone as required by the water policy. This could impact on the legitimacy of these group leaders. Farmers did not own the election, the organisation of which lay in the hands of the state actors. This impacted on the association renewal, as seen in the FWUC operating far beyond its three-year term.

This weak point in composing the association to represent the community and to lead the management of the resource resulted in a poor administrative structure and the weakening of the association-community relationship as time passed. A few years after the formation of the association, internal conflict between the head and the first deputy became common. Trust within the association was affected. The first deputy quit, and this was followed by the loss of all but three members of the association.

Unclear tasks and responsibilities for each association leader, association member and member of the community were the first main flaw resulting from poor structure. According to the policy, the head was supposed to manage the overall work of the association, the first deputy to be responsible for the technical operation and maintenance of the scheme, the second to monitor the irrigation service and the clerk to monitor the ISF collection and keep a record of income and expenses. In practice, the head also kept and took care of all the income and expenses. The clerk did not really have anything to do and fell into other tasks such as collecting fees and monitoring whether there was a need to clear the canal system. As well, the responsibilities of the other leaders overlapped, and when asked, they said they didn't strictly follow their tasks but helped each other do what needed to be done. The water user group leaders, appointed by the head with agreement from the other three leaders, played only the roles of the association leader's extension, which were mainly to collect ISF, and did few of the water system monitoring tasks.

The second flaw found in the case study was the association head's tight control over almost all management tasks, which in the long run could have affected how he used his power. A lot of instances reflected this characteristic of the association head, one example of which was turning down of the measurement of farmers' rice fields, proposed by 39 voices. This can probably be attributed the culture of sharing leadership responsibilities (which also means sharing power) being new in Cambodia; the 2000 FWUC election did not address this issue clearly. The one-round election of association leaders placed the four heads in a hierarchical order of power, with the first head expected to know and be fit for every task. The case study showed that a patron-like leadership style is present even in the lowest level of administration, suggesting that consensus-based decision making, one core element of democracy, might still have a long way to go before it can be realised in Cambodia.

The third flaw was the non-consensus-based decision making both within the association and between the association and the community. The water policy stipulates two criteria of legitimate decision making for the community. First, all decisions regarding tasks have to be made in a general meeting that involves at least two-thirds of the association members (i.e. both the association leaders and the water group leaders). Second, the water user group leaders and their fellow members need to meet and discuss the topics proposed for the general meeting at least three days before that meeting so that the group leaders can represent their members. In practice, such meetings did not exist. The general meetings were held among only a few key

members (usually the four leaders), and decisions were made even in the absence of any other members and even when the number of members present was below two-thirds. Sometimes the situation was made worse by the fact that meetings to inform, rather than meetings to discuss, are common. The head of the association, very much like state actors, used the meetings more to inform his fellow members or the public of what he planned and decided than to ask for ideas about what should be done. For example, he drafted the road network plan without consulting anyone and decided to use community revenue to build it despite the fact that some farmers felt strongly that this was not an urgent task and that the money should be spent on clearing the canal system and repairing secondary dams. In quite a few cases, the leader would just spend community money on what he felt was important and report the expense later in a public gathering. This practice was not criticised by all the farmers, though. Quite a few felt it was proper because he was the leader of the association and knew better than they what was good for the community. Moreover, to them, calling for a meeting was not easy because not everyone would turn up, and rumours would still follow. Such arguments in support of a decision made by only one person imply that the culture of democracy has not yet taken root, while a patron-client culture lingers on.

All the flaws related to the poor community formation might have prevented CBNRM from fully establishing people's relevance, understanding and long-term enthusiasm for community work. The poor administrative structure rendered the association incapable of monitoring the irrigation system and handling development tasks in the community. The fragmented relationship in the association was discouraging to the farmers. The association lost legitimacy due to incompetent performance and operation beyond the legal three-year term. The non-consensus-based nature of association work further decreased legitimacy. After reaching a peak in the early 2000s, participation decreased for several years, as seen in the decreased ISF collected after 2005 and the small number of farmers coming to clear bushes for a road in 2008. Participation seemingly died out when natural calamities hit in 2006 and 2007, farmers disregarding the water allocation arrangement and fighting till the last drop was gone.

Ownership

Since it was first constructed, farmers had not felt ownership of the irrigation scheme, which was thought of as state property under its management through the commune and the provincial office of irrigation. The farmers were not organised under any recognised group to claim sole access to the scheme. With the water association formed in the mid-1990s and after having used the scheme for some years and witnessed its potential, farmers began to feel ownership and a community sense emerged as a result. Farmers started to build their identity around the reservoir, calling themselves Trabaek irrigation scheme dry-season farmers. They collectively organised a harvest festival and reception annually. A sense of community was observed when they collectively acted against the commune chief over a road to the Trabaek area. Moreover, the water policy and the election, which marked the second phase of the association, gave the community external recognition and some legitimate command over the scheme. These two elements formed the characteristics required to establish ownership among resource users, as advocated by Leach *et al.* (1999), Ackerman (2004) and Johnson (2004).

Yet this ownership feeling was not complete. First, traditional knowledge of irrigation belonging to the state was still common. Even the members of the FWUC, who were mandated to represent the community and monitor the water allocation, would not dare to cut the water supply from a farmer even when that farmer did not register as a member of the community and did not pay the ISF, because water was not perceived solely as the community's. Second,

even though the water policy stipulated an election to give the community a mandate over the resource, this failed to take into account decentralisation, which gives the commune the mandate, though limited and confusing, over the natural resources in its territory. Moreover, the water policy requires joint management between MOWRAM and its departments and offices and the community—the latter not fully empowered as an equal partner but more of a state extension functioning without much or timely support. The non-coordination between the FWUC and the commune council resembled the relationship between the province and line departments seen in accountability studies (Eng & Craig 2008; Horng & Craig 2008; Pak & Craig 2008).

Feeling ownership of the resource is only one aspect. In the first phase, all the leaders and members of the association were appointed by the commune chief—whom they didn't like. Party affiliation was taken into account. The deputy head, who was not a CPP but a FUNCINPEC member, could not be promoted to be the head although he was equally capable and was doing more for the community while the head was away studying. Farmers perceived the association as a state extension, not as their representatives, which corresponded with the way the association saw itself. In the second phase, even with the election, any feeling of ownership was still questionable given the flaws in the community formation discussed above, as well as the fact that the concept of owning an association or a local state is not culturally rooted in Cambodia. The feeling of work or project ownership was limited where grass-roots initiatives and feelings were not given any priority and where there was a knowledge gap between the leaders and the led that was widened by CBNRM.

After the election, training was provided to the leaders so that they would know how to manage the scheme. However, this addressed only one side and undermined the other potential side—the farmers, who were supposed to understand their roles and rights in management and decision making. They were the essence of CBNRM, and without them being empowered, the formation of an FWUC became rather irrelevant because it would be more of another layer of authority rather than a means that farmers could use collectively to develop better management. As seen in the case study, farmers were generally excluded from decision making. A few leaders decided almost everything for the community. The required meetings between the water user group leaders and the people days prior to a meeting within the association were not held. The meetings between the association and the people had more of information-sharing than discussion. Challenging the views or plans of the leaders was not a topic. People could show discontent by not showing up for a meeting or collective work or by talking with their fellow farmers or hinting at their emotions in front of the leaders. Because they were close to the people, the leaders were able to hear such feedback. But this could discourage some leaders from continuing their work as they felt a loss of face.

Despite some FWUC achievements in managing the irrigation system, farmers were not able to exercise their power properly and function effectively within their representative association. They felt inferior to the leaders and were subject to their decisions. Meetings in which their ideas were taken seriously into account did not exist. They didn't really have voices in the decision making. They still felt that the scheme was public property and the association was a state extension to manage it. Even though they were members of the FWUC because they owned land in the area, used water from the system and paid the ISF, they didn't see themselves as members; when asked if they were members, they said no and pointed to the association leaders. They were called upon only to elect the leaders, and after that, aside from being visited once or twice a year to be asked to contribute the ISF, they were not much involved in management matters. While the flaws in forming the association significantly affected participation, not

properly empowering the farmers to be owners of development discouraged a sense of control of management and further restricted participation. The disparity in management knowledge between the farmers and the leaders seemed to widen the gap and created distrust between them. Farmers would play hide and seek with the association. For example, they didn't report the real size of their rice fields so that they did not need to pay the full ISF. Moreover, despite the requirement to report any transfer or sale of farmland to the FWUC, they did not do so. Landowners would report their actions only to the commune authority to legalise them.

Control

In the first phase, the association's work went on without support from the commune because, it seems, forming an association was just a way of channelling the responsibilities away so that the commune did not have to deal with all the management and maintenance issues. Each time the association leaders approached the commune for assistance, the chief ignored them, and all their proposals were turned down. While the commune felt it was no longer responsible, the association felt it had a state obligation and in turn expected support from the state. Without support from either the commune or fellow farmers, the association felt powerless to exercise its functions—which were not very clear because they were not written. Management tasks were subject to each member's interpretation of how to do them.

A sense of control of the management began to be felt slightly, especially among the leaders of the association, in the late 1990s, when the association began to carry out the scheme management tasks. They no longer needed to wait for help from the state when small problems arose. Small maintenance and operational tasks such as dredging silt from the canals and greasing the water gate could be dealt with in the community. More control of management was observed in the second phase, when clearer policy was laid down and the association was better structured. The association was able to collect ISF and decide on the construction of community properties.

Still, community control of the resource was limited in quite a few ways. First, the community still needed to wait for approval from the state before any project could be done. To build a bridge in the area, farmers had to ask approval from PDOWRAM and go through bureaucratic procedures in which rent was sought. Second, without guidance and resources from the state, the community was not able to organise the election of representatives. This made the community fragile and subject to state influence. Third, demarcating resource boundaries was beyond the community's capacity. The scheme's area was vastly expanded without the association being able to do anything about it. Fourth, the association could not enforce the ISF or other rules. There was no sanction on those who didn't pay or appear for collective work, and nothing could be done when farmers disregarded the water allocation arrangement during droughts. Fifth, the community was helpless when dealing with the commune police; when police who claimed a share of the fees charged to threshing machine owners, the FWUC could not refuse. Sixth, not possessing clear information about water flow, the association failed to solve conflicts within and between schemes. All these failings resulted from flaws in formation and empowerment, as previously discussed.

Another crucial factor was state support. The water policy states: "The irrigation system is not to be fully transferred to the FWUC, but to be jointly managed by the FWUC and the state". This does not clearly set out the tasks and responsibilities of each party. As a result, the practice in the community was not consistent with the policy, but modelled on the situation in the past. Very much like the case in the early 1990s, PDOWRAM just disappeared once the FWUC was

formed. Its support for the FWUC was seen only in occasional interventions after a telephoned request by the association.

These interventions, which were often ineffective and inefficient, were like those of the state in the late 1980s: careless and carried out without knowing the real causes of problems. PDOWRAM was too distant from the people to understand local specificities. During the droughts in early 2006 and early 2007, PDOWRAM sent five pumps (donations from Hun Sen) to pump water from the reservoir to the fields. This intervention only brought about more conflict among the farmers. They fought to have the water pumped into their fields first even though the water was too little for any one field of crops. PDOWRAM still suffered from three main constraints: poor human resources, lack of a relevant database and small budget. While the FWUC was not capable of seeing the bigger picture and interacting with other associations and villagers beyond its immediate community, PDOWRAM—which was supposed to fill these gaps—was also unable to get through these filters and detect the real causes of problems or to understand the linkages between one water zone and another. Another problem that couldn't be solved by the FWUC also proved to be beyond PDOWRAM's capacity: the boundary of the resources. PDOWRAM's director clearly knew that the scheme could irrigate only 200 hectares during the dry season, but he could not intervene when the area expanded to over 500 hectares. The mismatch between the scheme's capacity and the farm area remained a problem for the FWUC, whose leaders were enthusiastic about widening the area, despite the fact that they could not control the work they already had. Exacerbating this problem was the fact that the households that had rights to draw water from the scheme were not clearly defined. Anyone who possessed farmland within the area, regardless of whether they paid the ISF or were registered with the FWUC, could access water. This local characteristic, the limitations of the FWUC, the distance between the FWUC and PDOWRAM and PDOWRAM's weak points highlighted the inability of joint management to control irrigation. The joint management s was further weakened by the fact that CBNRM was not fully integrated with decentralisation.

RQ2: How has DNRM been contributing to good governance of common pool resources?

DNRM did not function alone in the community. Decentralisation, which was marked by the 2002 commune election, began two years after the establishment of a formal FWUC. The powers and functions relating to natural resource management that are conferred upon commune councils are broad and vague. This blocked the council from being fully involved in irrigation water governance.

Discretionary Power

Ribot (2002 a) and Marshal (2008) claimed that DNRM would give local officials discretionary power and the right to serve the people and respond to people's needs faster. The findings partly support this claim. The commune was closer to the community and the FWUC. When problems arose, it was the first state authority to be informed and the one able to take serious action. When the association disputed with the commune police over the fees collected from threshing machine owners, the commune settled the conflict by asking the two parties to share the fees. During the two droughts, the commune sent letters asking community people to stop fighting for the water and to follow the arrangement. The commune chief also accompanied the FWUC leaders to negotiate for the release of water from the upstream FWUC.

However, these responses were not always well received or effective. In the first case, the leader of the FWUC felt the solution was not fair when the police mainly pocketed the fee.

The commune—despite its mandate to manage security and public order—did not seem able to control the police, who were seen to be almost solely accountable to their department. This was seen in the fact that the police chief almost never attended commune meetings despite being invited. In the second case, people did not welcome the letters and tore them to pieces, and when the upstream FWUC could send water down only for less than a few hours, the community's crops were not saved. Its broad and vague natural resource management mandates gave the commune very limited power over either the farmers or the FWUC. In practice it was often at odds with the line department and the FWUC because these two bodies were also mandated to have management responsibilities over irrigation. Thus, the commune often retreated to avoid intruding on the association's and the department's tasks. The role of the commune was in the form of interventions upon the request of the association, which more often than not were ineffective. It also did not take any action when the leader of the FWUC failed to report revenue, expenditure or community development plans as required by the policy. These findings confirm those of Rusten *et al.* (2004) that the only mandatory responsibility assigned to the commune council has been "civil registration" and extend Horng and Craig's (2008) findings that the political culture of not stepping into each other's work may also exist at the grass roots.

Downward Accountability

Berry (2000) and Wardell (2006) assumed that DNRM promotes downward accountability because people elect their local representatives. This was partly supported in the case study. With an election every five years, commune councillors' performances are checked by the people, and this mechanism allows people to exercise their power. For example, the 2002 election replaced the commune chief—who was in the position for 20 years—with a new one and formed a new office with five candidates, two of whom were not from CPP. The commune, which for the first time possessed its own independent funds, was able to invest in development projects. This was seen in the mushrooming of red gravel road construction and other projects, all of which were welcomed by the people.

However, this type of downward accountability is questionable for two reasons. First, voting is for the party, not for the individual. The commune chief is the individual on the top of the candidate list of the party that receives the most votes. The position might then be due less to the people and more to those further up in the party. This makes the ability to reach up matter more to each candidate than the ability to reach down, as illustrated by Rusten *et al.* (2004), who found commune chiefs being more accountable to their party than to their electorates. For example, the commune chief was replaced when he was ranked third in the CPP candidate list. The head of the water association, although having won the support of a lot of villagers, was placed in the second rank because he was rather new to the party. Second, given the strong neo-patrimonial political culture in Cambodia, the commune's autonomous funding does not guarantee that development will be downwardly accountable. On the one hand, the small CSF, USD5000 in 2003, was not enough to respond to complex soft infrastructure projects demanded by the grass roots, and the council prioritised hard infrastructure, particularly road construction. On the other hand, expenditure of the CSF can also be influenced by powerful actors within the party system, as seen in the way the commune immediately approved the spending of the CSF on a road to the private pumping station. Proposals since 2002 to construct a bridge to ease rice transportation in the area were never approved. A more serious example was the commune giving the private owner 20 by 200 metres of commune land for a canal to the private station. The commune chief in return was offered one hectare of rice field in the private area. These findings seem consistent with McCarthy's (2004) findings that DNRM can bring new actors

into the community and induce blurred accountability, making local-government corruption possible.

Participation

Pierre and Peters (2000) and Ribot (2002b) claimed that decentralisation can call forth greater participation because it allows local people to express their desires for development instead of having the central government decide on all aspects. The case study provided partial support for this idea. Cambodian citizens are seen to be compliant to state authority. The number of people coming to a public gathering through the call of the commune was larger than through the call of the FWUC. However, this type of participation could be measured only through the number of people attending, not the quality of their participation. Participation in a DNRM context was observed when the commune called people to meetings to discuss the water fees for farming in the private station's area, although this was just a meeting at which people were informed about the size of the fees. Development decisions were generally made either by the commune and the powerful actor involved, or in commune meetings where the chief, who chaired, dominated the stage directly or indirectly. The feedback from the commune chief reflected the commune authority's absolute power in demanding participation from the people, which was common in the 1980s and early 1990s.

CBNRM and DNRM as Enabling Factors?

The research problem of the present study asked what factors enable or constrain good governance of CPR. The literature suggested four possible enabling factors: direct central state approach, privatisation, DNRM and CBNRM. Based on existing empirical data, the study later assumed that CBNRM and DNRM were the enabling factors of good CPR governance, while a direct central state approach and privatisation were not.

The study supported the disregarding of the direct central state approach as an enabling factor, questioned the assumption that disregarded privatisation and offered a complex picture of whether DNRM and CBNRM were sources of good irrigation governance.

The central state approach is not an enabling factor of irrigation good governance in Cambodia. The case study highlighted three main characteristics of direct central and provincial state approach in the early 1980s. First, even though the state possessed economic independence and at least a province-wide network, which seemed to put it in a better position as a problem solver, it had many other tasks and was too distant to understand local needs and contexts, which often rendered its development solutions careless, ineffective, inefficient and costly. In the beginning it ignored water management as a solution to the agricultural problems in the studied community while trying in vain to find new seed varieties. Later, when water management was a concern, it was too fast to act by sending new technology for unsuccessful intervention without consulting local people or taking into account local farming. Second, the approach discouraged the creativity and initiatives of the people, as seen in their hesitation to act while state tractors ploughed level all their field embankments. Finally, the state was unable to stay close and monitor the tasks well but channelled the responsibility to lower state levels that were not capable of implementing the plan, and the process often involved corrupt practices. These findings provide empirical support to claims that the centralised state approach is incapable of good governance of the commons, and extend this claim to include the provincial level, which was seen to be closer to the community than the central state but still distant and impractical in development. It can be concluded that the direct state approach is not the answer to good governance of CPR.

Privatisation is also not an enabling factor of good irrigation governance if the poor are not to be marginalised. The case study highlighted two main characteristics of privatisation. First, the private owner was very rich and was able to invest a large amount of money in the resource system, as no community residents could. Second, he was also very powerful, able to exert influence on, and in some cases take over, the local commune authority and council. The private owner in the study was a five-star general who was able to make his business work even if he was in Phnom Penh because he had the commune chief, commune councillors and village chiefs on his side. These two characteristics resulted in effective monitoring and certainty of water allocation, which provided a better basis for financially capable farmers to profit from rice cultivation. However, the approach could not serve the poor because the annual fee was set at over USD100 per hectare, compared to the FWUC fee of USD5. In the case study, farmlands in the area were sold to rich farmers, and the poor retreated to depend solely on their land in the area managed by the FWUC, making the work of the association more vital to the rural poor. These findings were consistent with the assumptions made by Perry *et al.* (1997) and Savenije and van der Zaag (2002) that privatisation could result in adequate investment in the resource and better policing but questioned their assumptions on long-term sustainability and viability because the study also provided empirical support to Shiva's claim that the approach could lead to increased inequity and disregard of the interests of the poor. The findings also shed light on the possible takeover of the local administration by private owners, especially in a country with a patron-client culture like Cambodia's.

CBNRM or DNRM alone was also not an enabling factor for the good governance of irrigation water in Cambodia. As discussed in the first section of this chapter, both approaches hold theoretical and practical promise, but always come with quite a few constraints when interacting with the local context. Conclusions concerning DNRM could not be fully made because the approach has never been implemented alone in the community's history. The study, after the 2002 decentralisation election, reflected a very complex picture of governance in which CBNRM and DNRM approaches co-existed and complemented and contradicted each other. This combination, though currently not operating in coordination, could be the answer to good governance of irrigation in Cambodia if (1) CBNRM is fully embedded in DNRM and (2) a few weak points, learned from the case study, are addressed. Discussion of the three main stages of CBNRM (association formation, empowerment or capacity-building and support provided by the state) identified six variables affecting participation, ownership and control of CBNRM. First, democratic decision making needs to be fostered beyond the fixed-term elections to form the association. Second, the functions and responsibilities of leaders and members need to be clearly defined. Third, the capacity of both the leaders and the led needs to be built simultaneously. Fourth, sufficient revenue for community self-support needs to be found. Fifth, CBNRM needs to be integrated in a wider framework of decentralisation and deconcentration to obtain the support needed for its functioning. Discussion of DNRM featured a need to strengthen local government with a clearer mandate, capacity and own revenue.

Policy Implications

1. Irrigation is extremely important as Cambodia develops and diversifies its agriculture. The sector offers the best opportunity to bring local people's participation into public decision making and resource management because their livelihoods are strongly linked to the well-being of this sector.

2. The case study suggested that irrigation water cannot be governed effectively in ignorance of land governance, and vice versa. Land management without acknowledgment of the

significance of water management in the early 1980s and water management without the power to control land arrangements since 2000 have degraded the performance of the FWUC and brought anarchy into the community. The territorial dimension of irrigation water governance raises the issue of consistency of management approaches among line ministries, commune councils and FWUCs.

3. The state and the people cannot be separated in development. The most viable approach to good governance of irrigation water lies in cooperation between the state and the people.

4. Following the PIMD policy, the irrigation water sector has widely adopted joint management between the FWUC and the ministry. While it is generally recognised that councils will play a critical role in resource management, their powers and functions relating to irrigation water management are broad and vague. The relation between the council and the FWUC, and its mechanisms, still need to be clarified.

5. There are numerous uncertainties and ambiguities in the roles and responsibilities of commune councils and government departments. The latest laws and sub-decrees fail to specify the kind of support that commune councils can provide to ensure that the creation of an FWUC responds to the local community's needs, rather than simply being the wish of a line ministry. Instead, the laws refer to the FWUC as being promoted under the water sector. In this way, they replicate the same type of horizontal coordination problems that exist between line ministries and departments at higher levels. Because FWUCs deal with CPR, councils can be the most viable mechanisms available to local people to sanction the relation between foreseen and actual outcomes.

6. Unclear mandates, poor human resources and lack of funds are the three main challenges facing both local government and the line departments, rendering them unable to handle development projects. They often retreat to delegating the responsibilities and stop being actively involved. To change the circumstances, besides clarifying the tasks, there is a need to build up local state capacity and to make DNRM financially sustainable.

7. The establishment of FWUCs comes with no clear mandate based in law, no clear standard approach to organisation and no clear agreement about the territory the association is to manage. Due to these challenges, together with inadequate enforcement capacity and insufficient state support, local water governance is characterised by unclear access rights, over-expansion of the irrigation area and lack of responsibilities within the management structure—all of which are unregulated and may lead to collapse of FWUCs if proper actions are not taken.

8. To sustain CBNRM, power, ownership and participation need to be grown at the grass roots by upgrading leadership quality, fostering democratic decision making, defining clearly the functions of leaders and members, building their capacity, obtaining sufficient funds and integrating into a framework of decentralisation and deconcentration.

9. The commune can regularly feed information back to the FWUC about the exchange, sale or purchase of land in the rice fields receiving water from the scheme. It can also support the association's authority to collect revenue from owners of tractors and threshing machines and talk with the police about this. It could oversee the association to check whether it is serving the people. Thus councils and FWUCs can be complementary because they are close to each other.

10. Unfortunately, even the commune does not have true records of how much land each member possesses. Cooperation from relevant higher authorities such as the PDOWRAM and MLUP (Ministry of Land and Urban Planning)—or the transfer of full power back to the commune—is needed to solve this issue. Key ministries in irrigation water management are not only the MOWRAM and Agriculture, but also those involved in land, forestry, fisheries etc. Clarity of institutional roles is essential to a supportive relationship between ministries.

11. The nature of the water flow is beyond what CBNRM and DNRM can solve within a restricted community. Integration is required, where all CBNRM committees and state authorities in a catchment need to have a mechanism to work together and focus on horizontal accountability or coordination mechanisms so that information flow can be achieved. The roles of the communes, districts and provinces need to be addressed.

Further Research

This study suggests that CBNRM may be one powerful factor for good governance of irrigation water in Cambodia when its key catalysts (participation, ownership and control) are adequately utilised. The study also speculates on the possibility of enhancing these catalysts . However, since the findings are based solely on one case study, future work should attempt to verify the present study's findings, using comparative cases. The present study also suggests that the following factors should be considered in future investigations: (1) the history of how a particular CBNRM is set up and (2) the work of the FWUC members as against the policy. Investigation of these two variables will contribute substantial knowledge to our understanding of the variations of CBNRM performance. Additional research is also needed to determine how the integration of CBNRM with decentralisation and deconcentration could be made possible by identifying the role of district and provincial line agencies, as well as why these agencies could not reach down and provide better support. Stepping up state research could help us better understand the loopholes in the state administration or informal systems of work. Finally, while the present study rejected the direct central state approach as a factor of good irrigation governance, it did not totally do so for privatisation, as this was just touched upon unexpectedly in exploring the case. Further research on privatisation in Cambodia right now will offer more evidence of whether this approach would be compatible with CBNRM. Finally, the present study is limited to a particular type of CPR, namely irrigation water; hence, there is a need to study a wide range of distinct CPRs so that broader implication can be made in regards to the CPR field in Cambodia.

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