

Patterns of social interaction and organisation in irrigated agriculture : the case of the Chao Phraya Delta

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Report 2:

Patterns of social interaction and organisation in irrigated agriculture:
the case of the Chao Phraya Delta

Report 3:

Agricultural diversification in the Chao Phraya Delta:
agro-economic and environmental aspects of raised bed systems

These research reports are parts of a comprehensive comparative study between the Red River, Mekong and Chao Phraya Deltas. This project addresses three topics: 1) water management along the "water chain"; 2) social and institutional aspects of water resources management; 3) agricultural diversification in raised bed systems. Three companion reports are available for each of the three deltas

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Abstract

This report is concerned with the organisational exigencies of irrigated agriculture in the Chao Phraya Delta. The necessity to share a scarce resource at several successive levels of a network encompassing almost 2 million ha requires significant collective arrangements on which will heavily depend the reliability, the efficiency and the equity of water distribution.

Because of its specific features of a market-oriented frontier society, the Delta is often considered to have given rise to a distinct social fabric and many weaknesses, such as the limited impact of village based group activities, are ascribed to a lack of social capital. A brief review of the sociological and anthropological debate about the structure of the Thai rural society showed that if there is little overall consensus on the degree and definition of its 'looseness', a few general features can nevertheless be emphasised. The absence of corporate families or corporate groups stands in contrast with a web of interpersonal dyadic relationships which include horizontal relationships (typically within the kindred or for arrangements such as labour exchange) and vertical relationships (typically patron-client relationships with more powerful individuals).

'Natural communities' are rarely mobilised as a group. They can be construed as *denser points*, or denser zones, of the web made of superimposed interpersonal networks. This social structuring of space is also overlaid with the boundaries of the administrative villages and with those of the hydraulic network. There is no direct correspondence between all these different spatial units, which is problematic for the design of collective action. However, because of the power of the *phuyayban* and *kamnan* in conflict solving and in mediating between the village and the upper tiers of the administration, the administrative village is also becoming an entity to which farmers identify themselves.

Four case studies are presented, in order to explore the current arrangements for water management at the local level and to analyse the past failure of the Water User Groups. Despite a social setting little favourable to collective action, these studies show that there is a multiplicity of local arrangements aimed at sharing water in given circumstances. These arrangements neatly fit the general pattern of flexible, voluntary and short-term arrangements commonly found in Thai rural society. They are sometimes complex (10 farmers pumping at the same time at the head of the lateral and a second time at the plot level) but rather reliable and effective; they are also clearly dependent on the degree of uncertainty of the water supply and on the existence of some accepted local leadership.

In contrast with the flexible and endogenous nature of these arrangements, a situation of generalised free-riding, fostered by the dissemination of mobile individual pump sets, was

observed. The most striking feature was probably the wide acceptance, even by those who were harmed by it, of a situation in which locational advantages are perceived as so many normal inequalities of life. The first reaction of farmers in front of such situations is to find an individual adaptation to it (the '*thamjay* option'), which includes tapping secondary water sources (tube wells, farm pond, pumping from drains, etc). Conflicts are also probably reduced by the fact that such disadvantaged farmers may not rely only on rice and that if this is the case they may find occupational alternatives. This, coupled with a culture of conflict avoidance, strongly contributes to smoothen potential conflicts, although counter-examples are obviously not rare. Disagreements exist in most ditches but they were never found to lead to serious conflict and are always reported by farmers with the comment that they know how to handle such situations.

However prone to accept inequalities and to adapt to them, farmers have also shown that certain circumstances may drive them to refuse what is usually accepted. The 1998 and 1999 dry seasons, in a post-economic crisis context where agriculture had to support a growing number of family members and where the price of rice was attractive, witnessed several interventions from farmers worried to see canal head-enders engaging in triple cropping without having grown themselves a second crop. Many of these concerns were channelled through politician and resulted in several rotational arrangements sanctioned by all the agencies and administrative levels concerned, and enforced by RID and the local police. These arrangements were also short live but showed both the difficulty and the possibility to implement such large scale agreements. They also clearly evidenced how local water management is critically contingent upon higher levels of the distribution network and, therefore, the uselessness of organising farmers locally without ensuring their participation in the control of these upper levels. However, it is believed that if a role in water management and allocation is given to them, villagers are likely to mobilise the social capital needed (despite the evolution of the rural economy toward a complex mix of pluri-activity which reinforces the heterogeneity of villagers' interest and strategies).

The analysis of the WUG's failure has provided several clues on the constraints faced by farmers organisations. 1) there was a lack of congruence between hydraulic units and both the administrative and social networks, making social organisation more difficult; 2) the propensity to individual action and to conflict avoidance worked against the design of collective solutions; 3) local leadership is of paramount importance and is not always found; 4) social cohesion is weakened by the changes within the wider agrarian system; more villagers have predominantly non-agricultural strategies and have farming as a secondary activity, with less time to commit to collective action and less interest in water issues; 5) maintenance, which necessity is often a powerful 'glue' which unites irrigators, is now increasingly done by service contracting and paid by local public budgets (a trend to be strengthened by the decentralisation and the emergence of Tambon Administration Organisations); 6) additional roles such as providing the services of a cooperative did not prove to be a strengthening factor; many farmers with enough cash capacity prefer to buy input directly to local shops; 7) emphasis on organisation at the tertiary (ditch) level was misplaced as the inflow into the ditch remained uncertain; in addition the necessity to

collectively plan and carry out agricultural and water management operations at the farm level was drastically curtailed by several factors (more independence and flexibility gained with on-farm development, the spread of individual pumps and the shift from transplanting to direct seeding); 8) the lack of real empowerment and control over common resources have reinforced economic individualistic behaviours to the detriment of collective ones. In other words, farmers were asked to organise but without any control on both allocation and management of water, *neither locally nor at the upper levels*. In particular, as the inflow in the lateral canal remained (in the dry season) very uncertain, there was no way to design enduring collective arrangements. WUOs had not been initiated by farmers and they soon discovered that being or not being a member was insignificant, and that having or not having a group was of little importance; 9) last, it is clear that the rhetoric of empowerment and farmers participation is not understood by officials as it is by donors or consultants. Popular participation is still widely viewed as mass mobilisation to cooperate with the activities prescribed by the state.

The case studies on existing WUOs showed that farmers' support to the groups hinged on the belief that they received some beneficial treatment from being identified by RID as a WUO. It was also shown that the importance of accessing water in the dry season and the interest of politicians to build electoral clienteles motivated their interventions and their attempt to appear as 'patrons' of WUOs. This was observed in one case of a triangular relationships between RID, a WUO and a local MP.

The most important convergence point of the parallel analysis of Report I (*Dry-season water allocation and management in the Chao Phraya Delta*) and Report II (this report), is the understanding of the interplay between the technical, social, institutional and legal aspects of the water sector. The scenarios sketched out in the two reports emphasise the interdependence of the elements of a possible reform and, in particular, stress that it would be hazardous to attempt organising farmers in 'building blocks' before ensuring a technical and institutional capacity to define and enforce scheduling. This refers to a better control of large and complex diverging hydraulic networks but also to identifying users and defining rights, which demand a high level of legal and administrative control, and political commitment. There is no sound evidence at the moment that the administration and the politicians as a whole have fully endorsed the necessity of a sweeping reform and accepted its consequences on the redefinition of roles of the state and the citizenry. The main difficulty faced by the reform lies in the necessity to operationalise in parallel several measures (technical, administrative, legal, cultural) on which depends the overall success. This serves to caution against overenthusiastic short-term agendas in which the means and time frames to effect the different segments of the reform may not fit the constraints of the real world.

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Abbreviations used

IWUG : Integrated Water User Groups (lateral level)

FTO : Farm Turn Out

MOAC : Ministry of Agriculture and Co-operative

RID : Royal Irrigation Department

PIM : Participatory Irrigation Management

TAO : Tambon Administration Organisation

WUG : Water User Groups

WUA : Water User Associations

WUC : Water User Cooperatives

WUO : Water User Organisation

Units and terms used

rai 1 ha = 6.25 *rai*

thang 1 thang = 10 kg (for paddy rice in the Central Region)

baht 1 US \$ = 37 baht (average)

Mm³, Bm³ Million m³, Billion m³

cms m³/s (discharge)

tambon, amphoe, mu sub-district, district, village

phuyayban village headman

kamnan sub-district headman

zoneman RID field staff in charge of water management within a secondary unit

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1 Introduction

Irrigation is increasingly recognised as a social process of resource management performed in a given historical context and constraining physical environment. The patterns and effectiveness in managing water appears to be closely related to the characteristics of the society concerned, its history, social structure and culture. Asia has a long record of sustainable community-based irrigation systems but, with the development of large scale projects, especially along the 20th century, it was faced with the same problems experienced world wide by public initiated large schemes. Management was attributed to bureaucratic agencies and farmers could not develop any sense of ownership of infrastructures constructed in general without their being involved; likewise, their participation in the allocation of water and on the practical day-to-day management of such large scale networks remained in general minimum or nil.

Since the 1970s, increased emphasis was laid on “farmers participation” and donors strongly pushed for the establishment of Water User Organisations (WUOs). This top-down initiative was largely a failure, in particular in Thailand.

The concern for users’ participation drew attention upon the capacity of communities to respond collectively to the challenges posed by the necessity to better manage water resources. The Central Plain of Thailand, which had been the cradle of the “loosely structured society” paradigm¹, was widely considered as a region where individualism and commercialisation reigned supreme and where only little social capital could be mobilised for such collective actions. The failure of the WUOs was therefore not a surprise.

This report can be considered as a companion report of the first volume, which deals with the more technical and institutional aspects of water management in the Chao Phraya basin. It focuses on the rural social structure in the delta and examines the theoretical available knowledge on that question. Several case studies are presented to document how conflicts are solved, what are the main arrangements set for water management at the secondary and tertiary levels, and what is both the usefulness of Water User Groups (WUGs) and the reasons for their past failure (Figure 1).

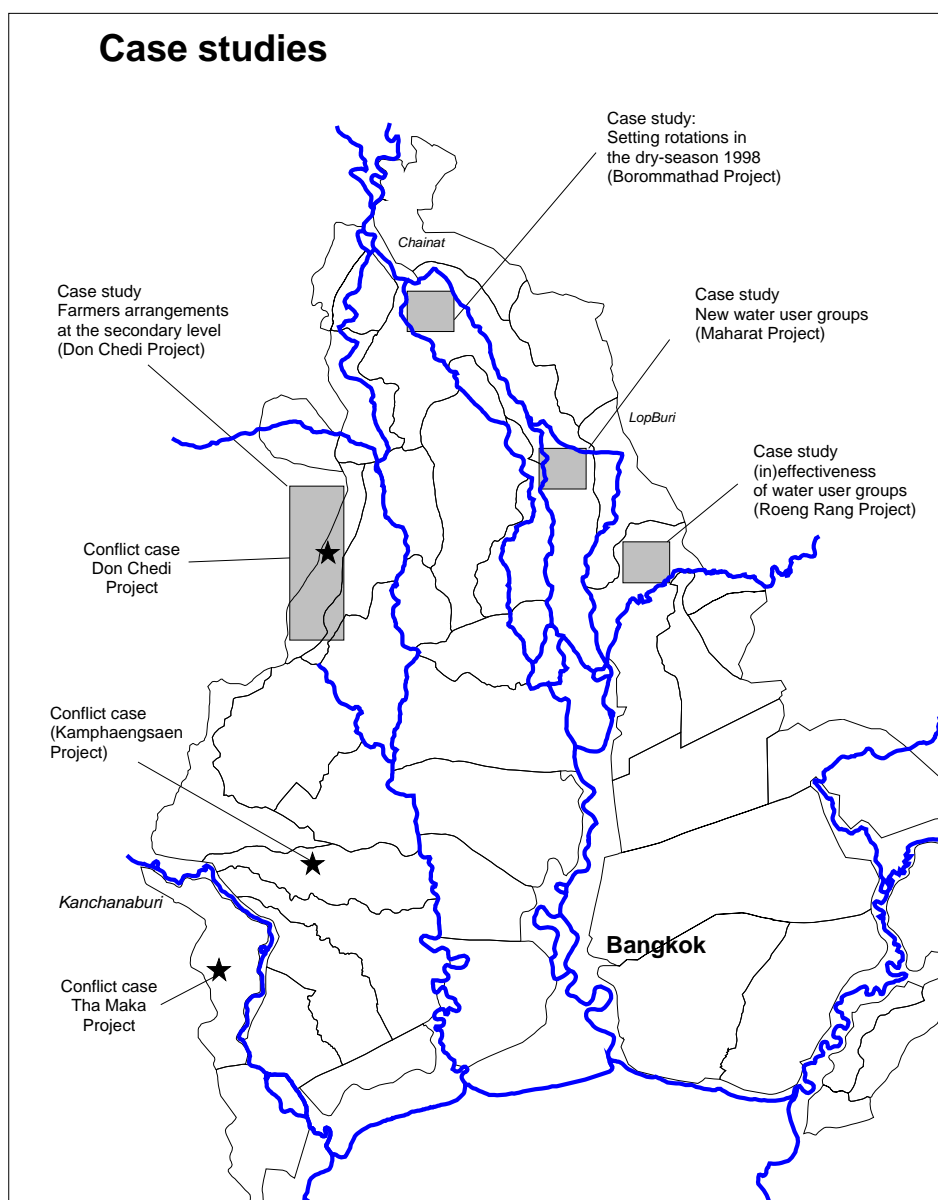
Oddly enough, while several in-depth studies have been conducted in the North and the Northeast about water management, very little work has been done on the Central region, despite the delta being the largest irrigated area of the country (one third of the total irrigated area; 40% of rice production). In particular, no wide assessment has ever been done on the reasons of the WUGs’ failure and on the way water is effectively managed at the village level.

¹ See Chapter 2

This reports ventures addressing these issues which are becoming of crucial importance in present days: with the increasingly complex interaction and competition of water uses within the Chao Phraya basin and its gradual closure (requirements now widely exceed supply), there is an urgent need to design new patterns of water allocation and distribution. Likewise, there is a renewed emphasis on participatory management and on the reform of public agencies.

It is therefore crucial to examine whether the social groups who are expected to emerge as new actors in the reform are capable to respond effectively and to perform the tasks attributed to them. In other words, before applying a new blueprint in which farmers are supposed to form groups quite similar to those which have earlier failed, there is renewed scope to investigate the social capital of these farmers and to analyse whether changing circumstances allow for some hope of success or not.

FIGURE 1: LOCATION OF THE PRINCIPAL CASE STUDIES CARRIED OUT



2 Social and cultural background

2.1 On Thai social structure

The possibility and effectiveness of collective action is strongly contingent upon the social and cultural characteristics of the human group considered. As there has been wide academic debate, but little consensus, on the specificity of the Thai society, it is useful to summarise here the main arguments of this debate and to see to what extent we can draw insight relevant to our concern regarding water management in the delta.

2.1.1 The “loose structure” and other paradigms

After the World War II, John Embree, an anthropologist working in east Asia, was struck by the behavioural differences between Thailand and Japan or Vietnam. Unlike the more rigid social relationships and stronger social structures he had observed elsewhere, he found a pervasive sense of individualism and aloofness in Thai people, and a society which he saw as “loosely integrated, here signifying a culture in which considerable variation of individual behaviour is sanctioned” (Embree, 1950). The Thai would thus appear to (Komin, 1991):

- Allow considerable variations in individual behaviours
- Concern less in observing reciprocal rights and duties
- Have no long-term obligations
- Have no strong sense of duty and obligation in family relations, to parents, spouses and kindred
- There is an almost determined lack of regularity, discipline, and regimentation in Thai life

This conception was soon reinforced by the Cornell Thai Project, which undertook the study of a village close to Bangkok (Bang Chan) in the late 1940s (Sharp et al., 1953; Hanks, 1972; Phillips, 1970). This research team placed emphasis on the lack of strength and unity of the village as a social unit, on the absence of extended corporate kinship groups, the lack of enduring rural social groups and of loyalty to the village, with co-operative labour exchange groups and other social arrangements based upon ad-hoc dyadic ties with little duration. The impression of a lack of a strong social unit is best expressed by Hanks (cited in Kemp, 1992): “We searched many a month for its centre, for its integrating structure – without success. Bang Chan had a name, but not even the glimmering of a community. Individualism seemed to reign supreme”.

This paradigm was most often associated to a vision of Thai seen as “individualistic”, while Buddhist values were often called upon as a justification of the theory². However, Thai individualism is associated to assumed cultural features of low responsibility and concern for social issues, little personal commitment or involvement with people or ideals, to an

² See strong denials of this argument in Mulder (1992) and Bunnag (1971).

hesitation to have strong expectation about events or people, low discipline and tolerance to deviance. Komin (1991) and Bunnag (1971) sharply emphasise the difference between Thai and western individualism and specify that most of the values embedded in the later (sense of separate personal identity, eagerness for self achievement, leadership, private life and opinion, etc) are alien to the Thai conception of society and life.

Piker, who studied a village in the surroundings of Ayutthaya, identified a few normative principles (bilateral reckoning of descent, matrilineal residence, partition at inheritance, etc) but followed the “loose structure” paradigm by seeing stability only in the nuclear family, the kindred and the monkhood, and agreeing on the prevalence of ad-hoc dyadic relationships, including patron-client relationships. His interpretative framework therefore both accounts for “structural regularities” and for flexible, voluntary patterns of relationships³ (“the pattern is one of shifting and unstable, not durable alliances; and this is true for kin based as well as nonkin based alliances”), although he provides no hints on why the two coexist.

The “loose structure” society paradigm was later challenged by scholars such as Potter (1976) who carried out a village survey in the north and attempted to show that rural villages were, on the contrary, as strongly structured as in other Asian societies. He identified 11 structural regularities among which he also placed the chains of hierarchic patron-client relations between individuals, under the term, borrowed from Hanks, of “entourage”.

These contrasting interpretations have also been qualified by a number of Thai scholars. Wichiarajote introduced the notion of “affiliative society” in order to cope with the importance given by Thai people on establishing networks of personal relationships (Komin, 1991). This need for affiliation, friendship, warmth and social acceptance leads, in contrast, to sentiments of low self-confidence and insecurity when confronted with the outer world. Others have tried to distinguish between contractual, ad-hoc, voluntary and short-term arrangements and “psychologically-invested” relationships, based on a sense of reciprocal gratefulness, which are pervaded by a deep sense of obligation and are enduring. Titaya (1976; cited in Mulder, 1992), for example, follows the interpretation of Wichiarajote but insists on the goodness / moral dimension of such relationships, rather than on their neutral psychological motivation.

Mulder (1992) also gives a moral and psychological interpretation of social interactions. He distinguishes between the realm of moral goodness (*khuna*), the primary symbol of which is *bunkun*, the devotion of a mother for her children. “The feelings that should guide the relationship towards all those people [parents, teachers, monks,...], who have moral *bunkhun* to us, its beneficiaries, are trust, warmth, love, protection, dependence, gratitude, reverence, and the acceptance of one’s identity... As long as one grows up one depends on the goodness of others. One learns to reciprocate that goodness first by being grateful and

³ Voluntary means “the absence of ascriptive or other clear-cut formal bases for participation; the absence of formal sanctions forbidding disengagement; and the freely verbalised feeling on the part of the participants that disengagement is an always present, always legitimate option” (Piker, 1983).

by showing recognition, and then later by extending *bunghun* towards other persons, who are expected to reciprocate in turn. This mechanism of obligation and reciprocity cement groups, first of all the family, then the community and one's wider functional groups". This realm interpenetrates the opposite – or complementary - *decha*-dimension, characterised by 'powerful hierarchy' (instead of trust), pragmatic *bunghun* (instead of moral), the *krengklua* (awe, fearful respect) attitude (instead of the *krengjai* attitude (inhibition)), "with power and suspicion as its most cardinal characteristics; because of these latter characteristics such relationships are superficial and not deeply involving; such relationships are instrumental for protection and material security".

These categories, and the continuum between them, are by nature the locus of relationships between unequal individuals. In that, Mulder warns that they should not be confused with dyadic exchange, such as labour exchange customs dictated by necessity and pragmatic considerations of material life, although some scholars advocate that they are also pervaded with moral goodness and sense of community.

The interpretation of Thai kinship as a set of highly ad-hoc and individual relationships activated according to necessity and challenges posed by the human and ecological environment has been taken one step further by Kemp, who applies it also to the family and to kinship⁴ (1982, 1991, 1992). Kemp's interpretation attempts to explain the apparent contradiction between the "loose" and the "tight" structure paradigms. 1) He fits the "loose" assumption by asserting that Thai kinship totally differs from structures of descent groups found in east Asia⁵; 2) by the same token, he shows that the activation of dyadic arrangements is done within a context of moral ideology which confers to them stability, efficacy and high fluidity, thus denying the absence of structure and the reign of individualism; 3) lastly, he interprets processes as being "not the result of personal idiosyncrasies but the consequence of a far wider set of social responses to a range of economic, demographic and political factors". This accounts for the differences observed between various regions in Thailand, rather than interpreting the Central Thailand case as a deviance from a hypothetical and normative concept of a traditional, primordial, communal and rather timeless peasant village.

Relevant to our present concern is the argument that the "loose structure " paradigm has been linked to observations made in communities located in the Chao Phraya Delta, near Bangkok, and that it could not readily apply to other different historical/ecological regional settings. The delta is characterised by a very recent colonisation, communities often formed by individuals coming from different places, and villages often stretched along waterways,

⁴ Kinship membership and relationships are fluctuating, as well as the family on which the authority is often shared and in which property ownership goes to individuals.

⁵ "A corporate body with a permanent existence", or "a collection of people recruited on recognised principles, with common interest and rules (norms) fixing the right and duties of the members in relation to one another and to these interests" (Mair, 1965; in Kemp, 1982)

without a real center and sense of community⁶. There is some consensus in considering that the particular ecological and historical settings of the central plain have produced human settlements which tend to be less cohesive than those often observed in the north or northeastern regions. The expansion of this frontier society was tightly linked to the market economy but at the same time loosely linked to the central state (at least until WWII), built up in a context of emancipation and abolition of *corvée* by would-be peasants moving in from different places, and exposed to the vagaries of rainfall, flood, and commodity prices. The social fabric of the delta therefore contrasts with that of the north and northeast regions, but it does not necessarily follow that it has produced settlements with no capacity for collective action, beyond the multiplication of dyadic pragmatic exchanges.

The historical and ecological contexts are thus identified as the main factors explaining differences in social structure. This is germane to the common interpretation of kinship as groups aimed at protecting individual interests in environments with scarce resources and at ensuring day-to-day participation. Bunnag (1971) stresses that the same factors may not be operative in (central ?) Thailand “where neither technological specialisation nor economic need make group formation necessary to ensure present co-operation or to protect the interests of the next generation... there is in Thai society little pressure upon individuals to form permanent groups, because there is no permanent need, arising from economic or political considerations, to do so.”

Hanks (1972) also places emphasis on dyadic relationships which he considers as variants of a general pattern of patron-client relationships. He considers this model of “entourage” as the key descriptive concept of the Thai society and applies it to parent-child relationship and to kinship, seen as “a set of voluntary reciprocities”, thus dimming the difference between proximity and the outer world seen by Mulder (1992) as the most crucial conceptual distinction.

Much of the debate around the alleged specificities of the loosely structured society seems to revolve around conflicting generalisations. In other words, whenever emphasis is placed on a particularity assumed to have wide occurrence, someone comes up with a blatant counter-example. The difficulty is therefore to identify regularities or structural patterns which validity is high enough to make counterexamples appear as exceptions. A peculiarity of the Thai social structure, and consequently a direct cause of the lack of scholarly consensus about it, might be that it is flexible enough to allow numerous variants, both among different ecological/historical settings, and within each of them⁷. In other words, few normative statements succeed in gaining wide acceptance because there is always a wide spectrum of

⁶ Potter (1976) also stresses that Bang Chan was “strung out several canals in a spiderweb pattern... crosscut by arbitrary government rural administrative divisions... had a short history and was ethnically diverse”.

⁷ Considerable flexibility is observed in social patterns. For example, the matrilocal residence norm or rather, preference, can be subject to countless flexible adjustments, depending on particular cases (Kemp, 1982). Many adjustments are also observed regarding rules of inheritance (Mehl, 1985; Molle and Srijantr, 1999).

variation on both sides of them. Thai villages do not have bamboo fences delimiting their territories, as in some parts of Vietnam; they don't exhibit clear descent corporate groups, as in east Asia, nor are they drastically stratified in casts or otherwise, as in parts of India.

Widely observed features are not easily transformed into cultural hallmarks and attempts to "harden" concepts on either side of the spectrum prove less than convincing. This applies to contenders of the loose-structure paradigm as well as to those arguing opposite views. The categories of social structures proposed by Potter (1976) provide a few examples of conflicting views which support this point :

- A controversial question is whether there is a process of class formation within the village. On one side we find observers who have been impressed by the relative homogeneity of social position (see, for example, Wijeyewardene, 1967⁸), or who tend to idealise the cohesiveness of villages seen as egalitarian utopia. On the other side, Potter (1976) sees a "classical Marxist type of class differentiation in the countryside resulting from a capitalist form of economic development", and the "penetration of capitalism" as the deleterious force of community disintegration (Turton et al. 1978; Chiengkul, 1983, Douglass, 1984). While there is obviously a confusion between economic stratification and class formation (as understood in the historical context where this notion appeared), none of these views can be accepted as a generalisation, as the countryside provides examples of both situations⁹.
- Potter (1976) sees "cooperation" as the basic village ideology, noting that villagers often refer to a common fate and to the necessity to help each other. This "*chuaykan*" (help each other) ideology is also heavily relayed by the governmental propaganda¹⁰ (Vandergeest, 1993; Hirsch, 1993) but, to whatever degree it may be witnessed, it is at odds with the model of the opportunistic dyadic relationships based on necessity and pragmatism. Both realities cohabit in the countryside and none can be isolated as a prevailing pattern.

⁸ "We are on surer ground in discussing internal stratification. Clearly this is universally low in Thai villages. Respect and status accrue to the individuals on the basis of wealth, age, education, piety, and occupation, but there is no report of anything like the stratification of Indian villages, nor even China's former differentiation between land-owning gentry and peasantry. The traditional ranking system does not appear to have created status differences within villages, and though there are now signs of the emergence of a wealth-based elite, particularly on the central plain, Thai villages must be characterised as equalitarian."

⁹ While the truth probably lies in between and economic stratification cannot be denied, there are however several good reasons to consider the notion of class formation as inadequate for the Thai context (see Molle and Srijantr, 1999).

¹⁰ This is done, for example, through radio programmes (Prasavinitchai, 1993), competitions and contests between villages (Hirsch, 1993) and through the ideology underlying the establishment of state initiated village-level groups (*klum*).

- A third example, discussed later in more detail, is that of the congruence between a 'natural' community, the set of attendants to a given *wat* and the administrative villages. They are sometimes found to correspond (more often in the northeast than in the central region) but the delta, and in particular its lower half, provides numerous examples where this is far from being the case and where even defining the 'natural community' is problematic.
- A last example is the question of the role of the *phuyayban*. He is either regarded as an agent of the administration or as a representative of villagers. In practice, it is easy to observe a wide range of situations, from *phuyaybans* as strong, socially recognised and respected leaders, to businessmen or local merchants with little commitment to their constituencies and political linkages. Although the first case may, at first sight, appear slightly more common, no clear cut simplified description of the *phuyayban* is possible.

2.1.2 Patterns of inter-personal interactions

2.1.2.1 Family and kindred

Several concentric "*circles of proximity*"¹¹ have been identified by anthropologists, although there is no agreement upon a definite classification and the terms and definitions employed often vary.

1. The first level is that of the nuclear family, which shares the same house but which, in approximately one third of the cases¹², appears to be a three-generational family. The most common case is the extended-stem family in which one of the children (most often the last girl) stays home with her husband (and her children, if any). In a later evolution of this household, economic decisions are taken by the young couple, while the girl's ageing parent(s) are being taken care of. The family is sometimes seen as the core of the affective and psychological investment of an individual, deeply pervaded by a moral dimension (Mulder, 1992); definitely not a corporate group, the family, or the household, is seen by Kemp (1993) as characterised by the "fluidity of arrangements so that production, consumption, and residential groupings by no means necessarily accord with one another at different stages of the development cycle".
2. A second level is the family compound, where the original house has been gradually completed by other dwellings where some of the children (in general girls, in accordance with the matrilocal preference) may have settled. These adjacent houses are sometimes home of the parents' siblings (either because they have lived here since the former generation, or because they have remained without child care and seek cooperation).

¹¹ The term "circle of proximity" is chosen here because these categories cannot be unambiguously defined in terms of kinship.

¹² This is a rather constant ratio; see Potter (1976) and Molle and Srijantr (1999).

3. The third level is that of the bilateral kindred (or the spatially extended family), which may extend spatially over several communities and also comprise households in urban areas. It is comprised of all the descendants of one's grandfather and grandmother, on both side of the family (a couple's first cousins and their parents). "Kindred co-membership involves most importantly, exchanges of resources and assistance (such as interest free cash loans, loans of rice and work animals, assistance with farm work and other labour), and often exchange of cooked food at meal time if co-members reside in the same neighbouring compounds" (Piker, 1983). Kemp (1993) rightly stresses that contrary to Potter's (1976) and Keyes's (1975) descriptions as 'solidary' or 'descent' groups, the kindred is not a structural group but a *category* of individuals (who are seldom mobilised collectively), which gives way to clusters of dyadic relations recruited for given necessities (labour teams, marriage and residence decisions, etc). It is not a kinship category either, as it includes an individual's cousins from both sides.
4. A fourth level is sometimes defined as the set of vaguer kinship or affinity relationships ("the fictional family", for Kaufman). We might include in this category, the non kin who are schoolmates (same year) or who shared the same ordination to the monkhood.

Kinship obligations and the density of relationships tend to decrease from the first to the fourth level. However, these circles socially and spatially define the spheres where one individual is assured of finding a certain degree of trustfulness, stability and predictability in his inter-personal interactions.

2.1.2.2 Labour exchange

Labor-exchange groups are one of the most widely observed features of the countryside and are considered by Potter (1976) as one of the 11 recurrent structures of Thai communities. The most common pattern, even in present times, is the custom to exchange labour (*ao reng*) in order to help solve the bottlenecks in the cropping calendars in terms of labour force requirements. Harvesting is nowadays the only operation where *ao reng* is still significantly in use in the central plain area. Before the adoption of direct seeding in the 1980s, transplanting was also widely carried out under such arrangements.

However, the interpretation of such groups¹³ also varies widely. Some see the "reciprocity of labour" as a cultural value among Thai villagers (Schiefer, 1973), or as an example of non-monetary arrangements between peasants, viewed by the contenders of the "community culture" (*wathanatham chumchon*) as concrete elements of a distinctive village culture. Shigetomi (1992) refers to such traditional co-operative activity as "obligatory voluntarism", in that it embodies, beyond the utilitarian sense of the arrangement, "a mutual exchange of a

¹³ Although obligations are made between two individuals (or, rather, two households), which typifies such a cooperative activity as a set of paired commitments, Potter considers that it defines a group, based on fragmentary evidence that the collective labour is often performed successively for the benefit of most of the group members.

willingness to voluntarily help a fellow villager” and “a preoccupation not to damage the dyadic relationships they have with some other villagers.”

Others consider that labour exchange is not much more than a convenient and unavoidable way for all farmers to carry out their agricultural operations in time by using more family labour and avoiding increased cash expenditures. It is often noted that the accounting of the help received and given is rather accurate (Janlekha, 1955; Kaufman, 1960) and that the feeling that one is not reciprocated quickly ends the agreement. Lokaphadhana (1976) observed that with double-cropping labour exchange was disappearing because it did not provide a satisfactory means of organisation in front of new exigencies for quicker and more flexible farm operations¹⁴. Some observers also consider that wider disparities in land endowment have turned these arrangements obsolete, as farmers with little or no land could not enter in reciprocal exchange with large landowners. For others, the shift to hired labour is also viewed as a way to integrate or maintain a growing class of wage labourers in the village economy.

All these arguments are probably valid to some extent but there is little doubt that today’s intensive agriculture cannot be carried out with the same contractual arrangements dating from a time where field operations were few and very concentrated in time: villagers now often have several activities, some of them outside the village; cropping intensity is much higher and cropping calendars are not fixed; there is a general lack of labour at peak times and mechanisation is widespread. Labour needs are therefore very different in timing and amount from one farm to the other and cannot be met on time by reciprocated work. This does not appear to be properly the result of market-oriented production, as often stated, but an unavoidable artefact of agrarian change when the increase in population density triggers a degree of agricultural intensification and economic diversification (pluri-activity).

2.1.2.3 Patron-client relationships and other dyadic contractual relationships

Patron-client relationships are described by Piker as classical vertical exchanges in which food and money (and support in case of hardship) flow downward, while services and loyalty flow upward. Like horizontal relationships such as labour exchange, they are characterised as flexible, impermanent, little binding, liable to be interrupted by either party, and while pervaded by the “expectation that in virtually all situations self-interest will be a paramount consideration”, they are also reliable.

Drawing on Scott’s conceptual framework, these relationships are typified as protective and subsistence-oriented, and as a way to avert the many disruptions which usually threaten the reproduction and sustainability of the domestic cycle (among which are “resource-

¹⁴ Hanks (1972) sees labour exchange between neighbours as “a symptom of underpopulation, for it disappeared as soon as hired labour became available”, while Hara (1981) reckons that wage labour is a “more efficient form of labour allocation than the traditional mutual exchange of labour”. Kemp (1992) also reports that farmers don’t see the change as imposed but, rather, as desirable.

fragmented inheritances, payment of a bride-price, economic misfortune or natural disaster, gambling, opium, drink, profligacy of any kind"). Poorer and landless farms happen to be correlated to weak or absent kindred membership and tend to engage more frequently in vertical exchange (this is germane to Piker's observation that the "size and stability [of groups] depend on the economic resources ready for distribution"). These kinds of relationships are often found between landlords and tenants¹⁵, although these arrangements tend nowadays to be flatly contractual (see Molle, *forthcoming*), in the case of service provider/receiver, such as shown by Moerman (1968) for tractor ploughing service, or among the different middlemen of a market (Kuwinpant, 1980).

There is a debate on whether these patron-client relationships are 'personalised', (i.e. embody a part of benevolence, affective or moral dimension). For Hanks (1975) this is not a prerequisite but 'a degree of affection and trust' may develop. For Rabibhadana (1975), the 'formal' *nai/phrai* patron-clientage of the early Bangkok period gradually gave way, in the 19th century, to more personalised relations. Kemp (1982) argues that the concept has lost its relevance by being given an overly broad application and prefers to situate patron-clientage in the middle of a continuum between kinship and instrumental 'negative reciprocity', while admitting that fixing boundaries remains a problem¹⁶.

Another striking example of the moral dimension of reciprocity embedded in patron-client relationships and of the way this contributes to the efficiency of these relations is given by Arghiros (1992) in the field of local politics. He shows that patronage by politicians as a way to wield influence in communities strongly rests on the expectation of reciprocation and is somewhat morally validated, as opposed to vote-buying. Politicians try to appear as benefactors bringing benefit to the community (roads, water supply, donation to the temple, etc), in other words as patrons. The most striking observation reported by Arghiros is that an estimated 90% of villagers did vote for the candidate who had either bought their vote or 'earmarked it' by entering in a patronage relationship with the village. This "internalised compulsion to respect the transaction", although sometimes reinforced by intimidation, provides a fascinating example of the pervasive effectiveness of reciprocity in patron-client relationships, often viewed as "the direct successor to the [Sakdina] formally constituted relation of a government official with the freemen under his authority" (Kemp, 1982). At an upper level, Christensen and Siamwalla (1993) also showed how patron-client relationships and their historical significance are useful to explain certain features of the Thai State.

Contractual relationships in general, despite the fact that they often occur between unequals and may potentially give way to exploitative situations, appear to be by and large socially controlled. A good example of social transactions which embody both moral aspects and

¹⁵ See Hanks (1972): "A symbiotic relation binds the tenant and the landlord: this fact of hierarchy implies no degradation, no obsequy, and little competitive envy, for everyone, from king to woodchopper in the forest, also have a superior and stands above another being."

¹⁶ See Kitahara (1996) for a recent discussion on this issue.

issues of production factors reallocation is provided by the land rental market. Molle and Srijantr (1999) have shown that there is no convincing evidence that verbal year-to-year contracts are considered loose or precarious by farmers (despite being seen by common wisdom as a negative point (Zimmerman, 1930; Chiengkul, 1985; Fuhs and Vingerhoets¹⁷, 1970; Turton, 1978; etc). What deserves to be emphasised is, rather, the tacit recognition by the village community of the proper behaviour in such issues¹⁸. The stability of rental contracts also supports the evidence that trust is an important element of rental arrangements and that these are rarely perceived as precarious by farmers. More than half of the rental contracts occur between relatives or within the circle of kinsmen in which close personal links of trust make the formalisation of contracts unnecessary. The fact that “kin do not cheat one another and so find it unnecessary to make formal agreements” (Kemp, 1992) is, by and large, corroborated by all the village studies.

More generally, Hayami and Kikushi (1981) also stress the peculiarity of what they dub a “personalised market” with a high degree of social interaction. “In such an environment it usually entails a significant cost to violate time-honoured village rules. Even if one expects large material gains from violating the rules, he may not dare to do so because of the risk of social opprobrium and perhaps ostracism”. The rental arrangements appear to be best characterised by their stability, rather than their precariousness. This is asserted by most village studies (see, in particular, Fujimoto [1987], who recorded “no serious complaint from tenants” and see tenancy relations as “relatively stable and secure”) and is confirmed by our three villages studies (see Report 1).

To some extent, similar stability is observed in money borrowing among members of a village or community. Defaulters are few in that “non-repayment precludes additional borrowing and results eventually in the person being socially ostracised” (Gisselquist, 1977). Amyot (1976) also stresses that “farmers tend to have stable relationships based on friendship and trust with specific individuals in their various roles and these relationships tend to be highly personalised” and show the importance of trust in money borrowing and marketing operations. As reported by Prasasvinitchai (1993), villagers admit they have to be honest for fear of shame if they are caught because “they live here and will continue to see each other”.

These examples suggest that the stability of contractual relationships is a question of reciprocal interest (to reduce transaction costs, maintain one’s reputation in order not to be excluded from further contracts), that these relations receive great emphasis because they

¹⁷ “Insecure tenancy poses a severe obstacle to agricultural progress. The strict implementation of existing tenancy regulations or, if necessary, the formulation of a new tenancy law are highly desirable, if modernisation of agriculture is to be achieved”.

¹⁸ “Virtually all rental contracts in Wang Nam Yen are unwritten agreements enforced by the realisation that poor behaviour by a party to a contract will identify that person as untrustworthy and will make it difficult for him in future contract negotiations. Where proper behaviour is defined by the community at large which enforces sanctions, the presumption must be that parties to contracts act efficiently according to a definition of efficiency approved by the knowledgeable farming community of which they are a part” (Gisselquist, 1977).

constitute a necessary 'tight' or stable pole in face of the loose social sanctions otherwise applied to individual behaviour¹⁹, but also that they may be pervaded by moral dimensions (in particular between close kinsmen, but also in patron-client relationships). As stressed by Prasasvinitchai (1993), it is hard to distinguish between necessity and practical considerations, on one hand, and sentimental or moral reasons on the other hand; it is therefore difficult to agree either with those who depict villages as heavens of compassion, or with those who see nothing beyond short term pragmatism and self-interest. Therefore a balanced view of the existing literature together with our own field experience suggests that both dimensions are present, albeit in varying proportions according to the context and the locale.

2.1.3 Patterns of collective action

2.1.3.1 Structural regularities and motivations

One consequence of the model of dyadic relations as a prevalent mode of social interaction is that groups cannot be conceived but as an aggregation of such basic relations. While dyadic relationships rest heavily on the mutual trust shared by two individuals, which allow them to cooperate with minimum transaction costs, the sum of such human bounds cannot provide the integrating feeling of a community. In other words, such a conception leads to negating the existence of cohesive groups and community spirit, a path taken by authors like Hanks or Kemp. Such a view is supported by observations gathered in locales such as Bang Chan or Ayutthaya, where Amyot (1976) notes that "villagers do not try to help themselves as a group. Everyone is out for himself and no one thinks that he should put himself out to contribute to the general well-being".

In such an extreme view, the variegated range of groups and associations which can be observed in the countryside appear as mere ad-hoc and ephemeral groupings, which may disband as swiftly as they have been formed and where individuals do not invest much expectation and feelings. Wijeyewardene (1967) notes that "Thai society is perhaps more satisfactorily characterised as pragmatic, with organisation directed towards specific and limited 'ends'... Organisations arise to fulfil specific tasks, but there is no tradition of on-going

¹⁹ This is the central argument of Kemp's view of the Thai social structure: "Consequently the voluntary aspect of these relations receives relatively great emphasis. This dependence on voluntary relations severely limits the scope for individualistic action in that it is only by conforming to culturally determined expectations that one can successfully negotiate such relationships. It is this which has led to the present contradictions and confusion about the supposed individualism of the Thai in an empirical context which is notable for the low level of innovation and high degree of cultural cohesion (...) Thus, the relatively high degree of trust observed in inter-personal relationships (even short-lived ones) and the social cost of betrayal or of exploiting too far one's position of dominance, are interpreted as a necessity to give stability to such arrangements, as a counterweight of otherwise lose social sanctions, especially regarding individual behaviour. In other words, what is "tight" in Thai society is a consequence of what is "loose". The recognition of both contrasting aspects is further interpreted through establishing a causal link between one and the other."

associations which may be called upon to fulfil any task which might arise". He makes here an important point in emphasising the lack of evidence of a structural regularity which would appear to be mobilised when collective action is required. Indeed, common interest or 'membership' in varied kinds of networks (or belonging to a given category), which can be defined by different criteria (attendance to the same wat or school, extended kinship, entourage, ethnicity, clustered village membership, drinking or gambling groups, classmates and monkhood-mates, irrigation water user groups, cooperatives, etc.), do give rise to new forms of collective action but, by their diversity, they do not allow a dominant social group to govern collective action.

The diversity of these networks, the relative ease and pragmatism with which they are set and dealt away with, tend to reinforce the view of those who see these groups as opportunistic and transient forms of associations between individuals with both low commitments and expectations. This is strongly opposed not only by Potter, with its determination to highlight "a highly structured society", but also by the 'community culture' (*wathanatham chumchon*) school of thought, which sees rural communities as moral normative institutions, sources of value and local wisdom, and which emphasises communitarian spirit.

Chatthip Nartsupha (1999), for example, sees a moral dimension in labour exchange and cooperation between villages. "These links between families often lasted for several generations, with the exchange of goods continuing with compassion and friendship... The ideological belief system of the villagers buttressed the strong internal bonds, self-rule, subsistence economy, and identity of the village community". Although much of these descriptions refer to the village economy of the past, NGOs and contenders of the community culture school have borrowed this idea of community as a "basis for restating ideas of human and social need in opposition to the deshumanisation of economics. In this sense, community was much more a moral idea than a physical idea" (Phongpaichit and Baker, 2000). However, this conceptual background appears to be largely incorporated in the actions of NGOs in rural areas and significantly shapes both their activities and ideology (Kemp, 1993; Vandergeest, 1993).

They refuse the idea of a substanceless village and, in a way, attempt to extend the *bunkhun* world from the kinship inner circles to an idealised village community, which may nevertheless be defined more in terms of social spheres than in terms of geographical boundaries. By operating such a shift, the outside world (*decha*) is relegated to the urban sphere and its foreign extensions²⁰, seen as a realm of greed, money, corruption, ruthlessness, violence and loneliness (Prawase Wasi, 1988)²¹.

²⁰ This dichotomy between the inner and the outer world operated by Mulder (1992) (see earlier comments) proves to have a real heuristic value in explaining the respective perspectives on the Thai rural structure.

²¹ According to Mulder (1992), this distinction is a prominent trait of contemporary Thai literature, where "both the village and the family are pictured as a small self-contained unit of relatives and quasi-relatives who can be

If we follow Titaya who “classifies types of relationships according to the quantity and the quality of *bunkhun* involved”, we may consider a continuum where, on one side, *bunkhun* is presumably invested in stable, predictable and trustful relationships, while it fades out “toward the far end of the scale where behaviour becomes purely transactional and socio-psychologically neutral”, relationships less predictable and aimed at gaining security or power (quotes from Mulder, 1992). In such a framework, the debate appears to be one of where to set the limit of the “moral order”: the community, the close kinship or the negation of such an order are the three most common conceptions.

Shigetomi (1998) avoids siding with one of these referentials and adopts a more pragmatic scope where households are treated as individual economic units which are in need of specific resources. Collective action and village organising are construed as of efficient ways to procure these resources from others who are in possession of them. “Others” can refer, for example, to other fellow villagers (who may be the source of money, land or labour), merchants (cooperative to obtain cheaper fertilisers or credit), or the government and its agencies (necessity to organise to be recipient of state programmes and funds or to obtain water supplies).

In such a view, traditional dyadic relationships are clearly insufficient to deal with the new organisational necessities brought about by the complexity of the market economy and by the interaction with the state, not the least being the on-going process of decentralisation and empowerment of Tambon Administration Organisations (TAOs). There is no necessity to make hypotheses about the existence of “community spirit” but field observations suggest that successful village-based organisations owe a lot to both a quality of collective mobilisation which can be termed “cohesiveness” and to the presence of strong leadership.

2.1.3.2 Emerging forms of collective action

Many villages present organisations which seem to be both enduring and pervaded with a sense of community, something which the dyadic model, although useful in emphasising a paramount feature of the Thai social structure, does not account for. Such a demonstration is always made difficult by the qualitative nature of the perception of a “communitarian spirit” (Prasasvinitchai, 1993). Even its verbal affirmation by the villagers can be treated as a reference to a normative ideal or to its manipulation by governmental propaganda and activism²². Numerous examples of traditional and emerging patterns of collective actions can be seen in the countryside, as exemplified in this section²³, regardless of whether they are

trusted”, and where often there is a trusted leader (father, village headman, teacher). These communities are seen as disturbed by outside forces which include “usurers, corrupt and power-hungry officials, merchants and capitalists, malicious spirits, gangsters and thieves, or natural disasters, illness and death”.

²² See footnote 10.

²³ This section heavily draws on the work by Shigetomi (1992, 1995, 1998).

purely motivated by necessity or whether they incorporate some degree of benevolence and communitarianism.

- The major rituals of the life cycle, in particular monk ordinations, weddings and cremations, require considerable outlays of money which often far exceed the economic capacity of one household. It is commonplace to have villagers participating in the expenditures by giving some contribution which is expected to be reciprocated. Because of increasing costs, growing population and mobility, this traditional system was unable to secure sufficient resources through spontaneous collaboration and has gradually been replaced by “funeral groups” which have introduced some degree of formalisation, accounting and rules. Such groups often extend beyond a defined village, as the attendants of a given *wat* may not be limited to one village.²⁴
- Institutional credit has been made widely available since the late 1970s. However, it has proved unfit for short-term small amount situations and for those who have no land as collateral. The growing need for capital and the high rates of moneylenders led to the development of several variants of saving groups (*klum omsap*, *klum sacha*), which are run by villagers. The varied degree of success of these groups highlights the role of leaders with wide recognition and honesty, and the need to flexibly adapt rules to changing local conditions.
- While the former examples can still be considered to come under the category of pooled dyadic relationships, some other activities appear as more readily collective in spirit. These include the cleaning of communal ponds, the cooperative tracking of stray cattle or patrolling of the village for public security (Prasasvinitchai, 1993)²⁵. Another paramount example is that of the development of irrigation networks in the northern valleys, which are collectively conceived and organised since the start, and often extend beyond the reach of a single village (Tan-Kim-Yong, 1995).
- Buddhist temple support groups are instrumental in supervising the construction and maintenance of the temple buildings, in collecting funds, sometimes as far away as Bangkok, and in organising the yearly temple festivals, as well as other ceremonies. This involves a series of tasks, including the preparation of food, music and dance shows, and the accounting of the cash flow which provide villagers with a significant experience in collective organisation. When the temple community corresponds to the administrative village, much of this experience can be applicable to other group-based activities.

²⁴ According to Shigetomi (1998), such groups are less numerous in the delta because of the wide availability of public and private life insurance. In one village of Ang Thong Province he surveyed in 1994, 76% of the households had contracted such insurance policies.

²⁵ This activity has probably almost disappeared but was of high concern well into the 1970s with regards to cattle theft and, earlier, to protection against bandits.

These examples of new cooperative organisations, as examined by Shigetomi (1998), differ from dyadic relationships in that: 1) resources are pooled and distributed, not exchanged between two parties; 2) they are based on calculation, rather than on mutual assistance; 3) membership is required; 4) resource distribution is governed by norms collectively agreed upon and not by social norms; 5) they require organisers who can negotiate agreements among many people.

While ancient forms of cooperation were often *sine qua non* conditions of the accomplishment of a given activity (labour force management), new forms of collective actions are both less general (only a portion of the villagers will be concerned) and less compelling (a cooperative shop or a saving bank are seen as desirable but are not indispensable). Therefore initiatives rely much more heavily on personal willingness to participate. Defaulters may face less opprobrium than in former times as their misconduct does not necessarily impinge upon others. More formalisation of rights and behaviours is required as social control decreases. However “villagers have a certain degree of economic independence and thus their involvement is free by choice. Therefore formal regulations cannot be decisive for controlling their behaviours” (Shigetomi, 1998).

It must be noted that despite many of the groups having been proposed by government agencies, most particularly the Department of Local Administration and the Department of Community Development, they were sometimes nevertheless successfully adopted and adapted to local needs. The Thai government intervention in the countryside sharply increased from the 1960s onward, as an attempt to counter the spread of communist ideology. As early as the 1960s, groups of women (*klum meban*), of youths (*klum yaowachon*) or of occupation (*klum achip*) paralleled the farmers' groups (*klum kasetakon*) and water user groups (*klum phuchaynam*). Several kinds of groups were successively fostered by the government or NGOs. They include rice banks, buffalo banks, fishing groups, co-operatives, peer groups for credit (*klum sacha*), cooperative shops, cottage industry groups, etc. There is no overall assessment of the impact of all these initiatives, but the delta is certainly the region with the least impact. The accumulation of these initiatives sometimes tend to create passivity and mistrust, basically the opposite of their intentions.

In parallel, more public funds have been channelled and made available to the local level. In 1975, the Tambon Project launched by Kukrit was the first injection of funds to be managed by tambon councils. These funds were followed by several other projects (RoPoCho, or Rural Development Fund; KoSoCho, or Rural Construction Programme, etc.) In the near future, TAOs will be responsible for the allocation of budgets at the tambon level, prompting the emergence of adequate forms of collective action.

The emphasis on “new” cooperative groups suggests that the debate on the cohesiveness of village communities and the disintegration brought about by commercialisation might well be outdated. At least, it needs to take into account both the positive aspects of the market economy and the emerging socio-political transformation. As observed by Prasasvinitchai (1993), there is a need to adapt our concepts with the same flexibility as farmers adapt to the

changing world... She sees capitalist development in Nakhon Pathom province²⁶ as the source of “the creation of sufficient work for the labour force to remain in the village... thus preventing the community from disintegration”. At the same time, the process of integrating the village into the nation and the government has designated the (administrative) village as the recipient of various state funded projects, while it is now gaining some autonomy within the decentralisation process (see § 2.2). The necessity to bring TAOs to function effectively, to jointly manage budgets and take decisions, might contribute to the strengthening of the village as a group (if not as a community), where collective decision-making and actions are requested²⁷. The resulting cooperation and group-formation may not conform to the romantic idea of the cohesive village but they will undoubtedly develop and evolve, dramatically changing the village scene. This shows that despite the spread of formalised and self-benefiting patterns of organisation, there still is a strong range for collective action at the local level. With more villager empowerment and responsibility over local resources, the growing pressure derived from wider competition over resources will make villagers feel that they have something at stake and must act collectively to protect their interest. On the negative side, it is readily apparent that as the traditional positions of *puyayban*, *kamnan*, as well as member of the provincial or national assemblies, tend to wield more power, there will be increased competition in corresponding elections (Arghiros, 1993). This may favour town-based entrepreneurs with little linkage to the villages, and split villages and tambons along factional lines.

Including the whole of Thailand in the conclusion of his study, Shigetomi tends to agree with Kemp that no communities can be found in the central region. However, there is evidence, albeit limited in terms of number of case studies, that “successful development organisations in central Thailand, are based on social organisations such as peer groups and personal networks”, but that the temple is also often a key support of successful groups. While the weaker social structure of the central plain region may have limited the benefits gained from collective action in the past, the delta might fare better when formal and contractual groups are concerned.

2.1.3.3 Leadership

Keyes (1970) has reviewed the different categories of leaders in rural Thailand and distinguished three main category based on whether leaders are sanctioned by peasant groups, national groups or both. The first categories includes leaders who have been sanctioned by the villagers themselves and who can be termed ‘elders’ (*phuyay*). Their social

²⁶ Although restricted to one village in amphoe Kamphaengsaen, this conclusion may have wider validity as agricultural diversification and a (limited) industrialisation have allowed the province of Nakhon Pathom to be the only province not to present a negative migration balance over the 1985-90 period (see Molle and Srijantr, 1999).

²⁷ Similarly, Prasavinitchai (1993) shows that “vote-buying has taught the villagers to organise themselves into a bargaining group”, in order to procure benefits such as a bridge, a water tank or a laterite filling of a road.

recognition may come from a diversity of reasons and they are often involved in the management of village structures (*wat*, school, etc).

A second category can be termed 'synaptic leaders' who connect peasants with national groups, and include headmen and *kamnan*, monks, teachers, town-based merchants and village-based health officers. These officers may be more or less closely acquainted with villagers and are often viewed as being in the uncomfortable position of serving two constituencies. According to Keyes, such a tension is more strongly felt in the northeast, where village headmen are closely identified to a 'natural community', than in the central plain region²⁸, where the muban-tambon system is poorly articulated with the "peasant units". A third category includes non-villagers who are able to exert influence in village affairs (district officers, including police), town-based middlemen or politicians (MPs, etc).

Keyes's claim that "it can be asserted in some confidence that in many peasant villages, the most important leaders will be other than the headmen" can probably be considered outdated. Because the administrative village and tambon have gained considerable weight in local affairs (see § 2.2), there is today little doubt that the headmen position often wields significant power. This can be felt through the increased tension surrounding the elections to these positions.

It is easy to observe a wide diversity of headmen, ranging from the indisputable local farmer with high social recognition, the apathetic and often corrupted headman heavily criticised, to the outsider building political networks on clientelism (Arghiros, 1993). There is concern that the latter situation is bound to increase as the growing attractiveness of the position will attract urban-based wealthy entrepreneurs or merchants who will seek to establish a political base through patronage or vote-buying. While some are authentic local leaders, others abuse of their position as state representative; administrative boundaries also lead to the definition of formal authorities which may be at odds with traditional leadership, as noted by Hirsch (1993) who reports that farmers are "bitter in condemnation of formal village leaders and most so in the way they combine the roles as agents of the state policy with personal aggrandisement. In contrast, informal leaders are recognised as representing villagers' interests, often at a level below that of the *muu* [village] and thus not formally recognised. Conflicting modes of leadership are thereby associated with the definition of community boundaries by state and countervailing powers".

²⁸ "While the headmen of the central Thai type are not subjected to the often contradictory pulls of local and national groups to the degree that other synaptic leaders are, they must labour under the disabilities of being neither significant government agents since they are responsible for only a small part of their home communities nor significant leaders since they are on a par, or only slightly above if they are *kamnan*, with several other men in the same community who have the same positions.... They can be considerably less important as local leaders than are those who have become leaders by virtue of their manifesting qualities recognised as significant in peasant culture".

Regarding the success of collective action in general, the countryside offers a striking diversity of cases as far as the importance of local leadership is concerned. It is readily apparent that some villages, or some groups, do perform exceptionally well because of the presence of a charismatic leader (see our case studies in this report). Shingetomi (1998) also observed that the morality of the leader is a key aspect of the group success: “it is particularly important that leaders exist who are strict practitioners of such morality and who at the same time possess the authority and courage to strongly demand that same practice from the other villagers. In most of the villages where these cooperative activities have been successful, the abbots of the villages temple have played an important role because they possess these qualities.”

2.1.4 The village: reality or construction?

The village is at the heart of two debates. The first one can be considered as an extension of the loose structure controversy and centres on whether there is such a social unit where a degree of identity, cohesiveness, social and cultural autonomy could be found. A subsidiary aspect is whether this village is seen as representing a moral order or as the result of contingency and necessity defined by a given environment. The second debate focuses on the relationship between this (possibly elusive) village and the administrative divisions which bear the same name.

2.1.4.1 The 'natural community' and the village

The vision of the village as a fundamental social unit was strongly dismissed by the Cornell Project in Bang Chan. As mentioned earlier, researchers were unable to find its center and the dispersed or linear nature of the settlement was indicative of a lack of cohesiveness. Potter (1976), Mizuno (1978) and others later demonstrated that the north and northeastern regions showed a different picture, with much more compact settlements and a stronger sense of belonging to them²⁹.

However, even when the villages are spatially bounded units or when they are reinforced by ethnicity (Prasasvinitchai, 1993; Smuckarn, 1972), there is pervasive evidence from the literature that the village is rarely mobilised as a group (and not only in the central plain region). It rather appears as a point of *higher density* in social relationships, in particular because of endogamy and resulting kinship, which are activated within different types of

²⁹ In the northeast, a strong dimension constitutive of the village is that of the spirit world (Shigetomi, 1992). New villages are concerned with establishing protection from the evil spirits which are said to dwell in the surrounding forests. This is done through erecting shrines and protective pillars (in the northeast). Any misbehaviour, rule breaking or transgression is often interpreted as a threat to the whole community, rather than to the sole offender, as it may trigger the wrath of spirits and result in catastrophes (drought, illnesses, etc). Although this aspect is much weaker in the central region than in the north or the northeast, the prime necessity to deal with the spirit world contributed to unite social groups.

networks³⁰ which may overlap, expanding beyond the village, perhaps including kin. Such networks may include kindreds but also include temple lay committees, formal *klum*, and factions, etc. If we see the village as such a 'point', despite the impossibility to clearly separate spatially the underlying network, the countryside does not appear amorphous and we may more easily recognise that it is made of interlinked networks with denser points or zones.

Such a view provides an integrative framework for all the situations found between the two extremes: on one side the almost total dispersion of the networks, with no clear dense points which might be termed 'village'; on the other side, the cohesive community in which there is a spatial and social congruence between the *wat* attendance, the school and the 'natural village' and where networks overlap to a considerable extent.

This wide range of situations defines a high diversity of settlements in the delta, and probably elsewhere as well. When surveying at the village level, we find situations such as linear villages, which are sections of ribbon-type settlements developed along rivers, canals or roads, dispersed single houses or compact clusters. This evidence has long been observed by researchers and have fostered discussions on village typologies (see de Young, 1955; Pendleton, 1962; Kaida, 1974; and Potter, 1976).

While research primarily focused on structural principles and on attempts to discern which cultural features could be singled out as distinctive of the Thai setting, it later came to focus on socio-economic and political issues (Vaddhanaputi, 1993). This move was driven by the growing evidence that villages were increasingly dependent upon and shaped by the changes often referred to as state and capitalism intrusion. It was also spurred by the political events of the 1970s and by the evidence of a growing socio-economic differentiation which was interpreted as a deleterious effect of commercialisation and competition. This strengthened the evidence that the increasing linkage with the outer world had rendered obsolete the vision of the village (or of the community) as a semi-autonomous entity. The flows of migrations, capital, information, and political influence between the village and the wider world have increased so much that, regardless of whether this is regarded as a threat or benefit, local dynamics are now strongly governed by their environment.

The 1980s saw the development of NGO and social worker activism. The village came to be valued as a place of accumulated local wisdom, social harmony, self-reliance and solidarity. Capitalistic forces and market relationships were seen as threats to be resisted and combated. While political economists tended to portray villagers as victims and to ignore their social capital, the 'community culture' movement laid emphasis on the assumed pre-capitalist social harmony of the village, non-monetary exchanges, community oriented philosophy and wisdom, and on the capacity of communities to resist these changes. This vision is not deprived of similarities with the official discourse on community, although this is partly

³⁰ This word is used here to avoid referring to a 'group', because of the controversy alluded to earlier.

misleading as, in the first case, the village is not strictly spatially defined [and it is even acknowledged as a political construct by some of its contenders, such as Saneh Chamarik (see Phongpaichit and Baker, 2000)], while in the latter case it is identified to the administrative cell through which the state attempts to extend its control and influence. In any case, the idealisation of the community strongly influences both governmental and non-governmental actions³¹.

A first critic to the vision of the village as a self-sufficient autonomous unit is the growing evidence that trade has been an active feature of the Thai rural world for at least two centuries (Terwiel, 1989; Bowies, 1992). The answer to this point lays emphasis on the different nature of trade as a bartering process of local goods for needed tools or products not available locally, and the large scale capitalistic export-oriented market which was to materialise with the rice economy.

Another set of critics address the lack of historical evidence that the village has ever been, the fundamental unit of the Siamese society, both as a collective construction and as a territorial entity on which the state exerted its power and influence. Rather, Kemp (1991) recalls that in ancient Siam, the control of the state over the population was achieved through the affiliations of male individuals to *kroms* (departments) headed by officials, and that people living together or nearby each other could very well belong to different *krom*.

This debate on the village status is not specific to Thailand. Following Scott (1976), moral economists, although defending themselves to romanticise the cohesion and social harmony of the village, have stressed the protective nature of patron-client relationships within a production system much oriented towards self-sufficiency and risk-adversion, and the built-in social mechanisms to limit wealth accumulation and inner imbalances. Others, such as Popkins, have argued that the village was to be seen rather as a suffocating force, under the action of the “notables” and that market opportunities outside the village had provided the opportunity to free individual initiatives.

2.1.4.2 Communities and administrative boundaries

The second aspect of the ‘village’ is its rather new administrative definition given by the state. Only with the reforms of King Chulalongkorn, at the turn of the century, were basic administrative units established, termed villages (*muu*) (“the heads of approximately ten households”), and further pooled into *tambon* (defined by the villages included within a radius of three hours walk from a central village) (Vandergeest, 1993). Rural settlements remained isolated from the politics of the cities (and were not mobilised by any nationalistic movement seeking independence as in other countries) and the state influence is widely regarded as negligible until the 1950s, even in the Chao Phraya Delta.

³¹ “Perceptions of community underlie and affect not only academic analyses but the actions and attitudes of officialdom and those experts who are involved with the administration and development of the countryside” (Kemp, 1991).

The major weakness of the administrative village is its lack of fit between the 'natural' community (if any) and the administrative village. Because villages and tambons were first defined by a standard of size, compact communities have been divided into several villages as they were growing. Conversely, some villages were defined as a cluster of communities which might well have had nothing in common.

However, increased state intervention after the WWII (see § 2.1.3.2) has eventually succeeded in creating a certain sense of belonging to the village as an administrative unit (Potter, 1976; Hirsch, 1993). The importance of the *puyayban* (village headman elected by the villagers) in conflict-solving or in mediating requests and dealing with officialdom, has given some substance to the village. Governmental propaganda on the unity to be preserved in the villages (thus *de facto* considered as the basic units of social, and not only administrative, organisation) and the fact that the leaders of these villages are vested with some social recognition and authority (as implied by their election by fellow villagers) contribute to lending credit, strength and legitimacy to the village (Kemp, 1992). It follows that despite the possible dissociation between the community and the administrative village, the relevance of the later in the articulation of the local population with the wider state and its institutions cannot be dismissed.

A degree of complexity is added to the problem when dealing with water sharing in that hydraulic units (the area which is served by a same waterway and which farmers, willingly or not, are to some extent interdependent) will rarely correspond either to villages or to communities, if any. If farmers along the same ditch (a tertiary) are likely to know each other fairly well, in an upper hydraulic level (the area served by a secondary, or lateral canal), the probability to have the area cutting across several villages (from different amphoe or tambon) will increase. The nature of the hydraulic network (a large system spatially laid according to criteria of macrotopography) implies that there is no congruence between hydraulic and social units, whatever their definition³².

Because of the lesser concern for the world of spirits, the lack of fit between the temple and the self-governing administration unit, Shigetomi (1995), believes that the "villages in central Thailand offer only limited opportunities for organising cooperative activities at the village level, as it has become difficult to elicit the villagers' feelings of confidence and willingness to contribute ... villagers have to carry on individually in trying to sustain themselves and secure their economic productivity". This pessimistic view suggests that water sharing at the local level might also be highly problematic.

The overall feeling, however, is that there are a number of factors at work which account for significant differences between the villages, both in terms of spatial extension and social

³² Schiefer (1973), pondering on adequate patterns of organisation for Thai irrigators in the northeastern region, embraced the idea of the village as a basic structural unit, with the headman as a strong figure in conflict resolution. He recommended designing tertiary units of approximately 50 ha as much as possible in the village territory, and to combine the groups of a given village into an irrigation committee.

cohesiveness. They include discrepancies in ecology, ethnicity³³, history, administrative division, linkage to the state, leadership and in the type of agricultural production, through the different exigencies and combinations of capital, land and labour that are required³⁴. This leads one to expect heterogeneous social responses. On the other hand, it has been noted that the new forms of collective action rely on voluntary membership, on the pooling and distribution of resources, on formal rules and contractualisation rather than on social control and norms. The case studies will show how farmers in the delta can, under certain conditions, elaborate collective responses for water management.

³³ This is highlighted by several studies (see for example, Foster, 1972; Smuckarn, 1972; Utong, 1993).

³⁴ We follow here Potter (1976) who has captured well the diversity of situations by examining the congruence between the temple, the school, the "natural village" and the administrative village. "The importance of the administrative village and its frequent lack of congruity with the natural compact residential community (where it exists), together with the fact that networks of school attendance and temple attendance sometimes do not correspond either, makes rural Thailand a place of great complexity."

2.2 Local power structure and decentralisation

Rural society is made up of villagers, *tambon*³⁵ and village headmen, monks, and others, and these people have different amounts of social power, power being defined as the ability to get something done (Sanyaviwat, 1984:26).

Power in rural society derives from three sources: the authority of the state, recognition by the people of a locality, and grass-roots power, or the power of the people. The analysis of power in this study will follow the approach of political science, i.e., analysis of the structure and function of local organisations, and a sociological approach will be taken in discerning sources of power.

2.2.1 State Authority

Government administration of Thailand may be divided into three levels: central, regional, and local. The central government emphasises development, and so it assigns government officers from the central level to duties at the regional level, usually in either provinces or districts, and it seeks to have district officials carry out duties at the *tambon* level as well.

Regional administration, i.e., provincial and district administration, may be regarded as the centre's local administration because the centre provides personnel and budget and so has the power to control provincial and district administration. This form of administration was instituted as part of the reform of government effected during the reign of King Rama V (1868-1910). This reform made the centre much more powerful than it had ever been previously and since the reform this highly centralised political culture has grown down to the present day.

The agencies with the greatest role in local administration are the Ministry of Interior and its Department of Local Administration, the latter directly responsible for appointing provincial and district officers, such as provincial governors, chief district officers and assistant district officers.

In addition to the provincial and district administrations, there are five forms of local administration: the *tambon* council, the *tambon* administration organisation (TAO), the

³⁵ *Tambon* is the Thai term for an administrative unit consisting of several villages which are usually fairly close to one another. The word is sometimes translated into English as "commune" or "subdistrict." Regional administration, Thailand is divided into provinces (*jangwat*), provinces into districts (*amphoe*), districts into tambon, and tambon into villages (*mu ban*).

sanitary district, the municipality, and the provincial administration³⁶ (Charoenmaung, 1997:115-201).

The Local Administration Act of 1914 is the principal piece of legislation concerned with the administration of *tambons* and villages. It designates *tambon* and village headmen, who are elected by the people, as officers of the government responsible for safeguarding the well-being of the people in their communities, for public order and safety, for making government instructions known to the people, for acting in criminal cases, and for preventing communicable diseases.

Irrigation at the local level is another area in which *tambon* and village headmen have authority. The Law on Non-Government Irrigation gives them power to:

1. levy labour and non-government irrigation equipment of the people in emergencies, and exact either a replacement or a payment from those unable to supply labour themselves
2. determine the division of work and equipment for irrigation and supervise work
3. apportion non-government irrigation water among the people on the basis of planted area, except when agreement cannot be reached, whereupon apportionment shall be made on the majority decision of the chief district officer, *tambon* headman, village headman, and irrigation chief (Local Administration Department, 1998:43-44).

According to the Regulations of the Prime Minister Office on Water Management and Maintenance of Small Sources of Water of 1982, in requesting projects for development of small sources of water, such as building reservoirs and tanks, dredging natural ponds and swamps, building weirs, and digging wells, *tambon* and village headmen shall have the power and responsibility to:

1. coordinate between groups of people and village organisations in making the request
2. seek funds for construction labour as required
3. establish water user groups and promote the framing of water management regulations
4. ensure continuity of project activities, planning of water use, and most effective use of water
5. urge water user groups to participate in maintenance and repair of the project (Local Administration Department, 1998:44)

³⁶ in addition to these forms found in all parts of the country, there are two special cases, the Bangkok Metropolitan Administration and the Phatthaya Municipal Administration

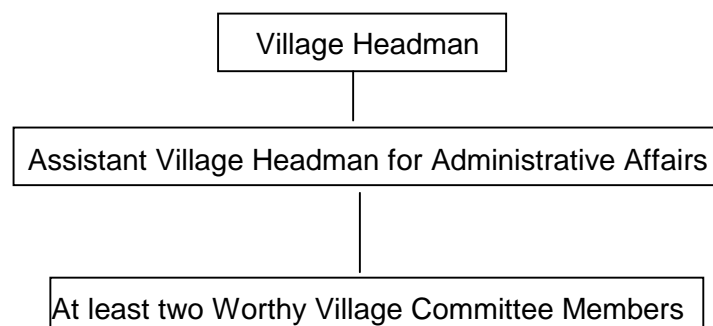
The Law on Government Irrigation provides that government irrigation is to be conducted by the Royal Irrigation Department (RID) and that *tambon* and village headmen in irrigation districts are responsible for irrigation canals and waterways in their areas of jurisdiction.

Tambon and village headmen, therefore, have at least theoretically a great deal of authority in *tambon* and villages. In the past, their terms of office were indefinite; now however, they serve a term of five years. Because they are elected, it may seem that headmen are representatives of the people; however, they are required by law to perform many functions, and in fact, they are more state functionaries than representatives of their communities. For its part, the government regards the headmen as state functionaries and the fact that they are elected by their communities is more significant in legitimising the system of local administration than in democratising it (Charoenmaung, 1997:162-163). The provincial governor and the chief district officer exert line-of-command control of *tambon* and village administration, for headmen must be appointed by the chief district officer and their performance is reported to the chief district officer.

In addition to the headmen, district officers of various ministries, including police officers, take a role in administration at the local level (Andrew, 1990:55).

The Local Administration Act of 1914 provides a village committee as a body established by the people to deliberate and advise and assist the village headman in carrying out his duties. The rationale is that village development requires developing cooperation, mutual assistance, and division of responsibilities among the members of the community to promote democratic self-government. As shown in Figure 2, the village committee comprises the village headman, the assistant village headman for administrative affairs, and worthy committee members, who are elected by the people and the number of whom is at the discretion of the chief district officer but must be no less than two (Local Administration Department, 1998:15-16).

FIGURE 2: THE STRUCTURE OF THE VILLAGE COUNCIL

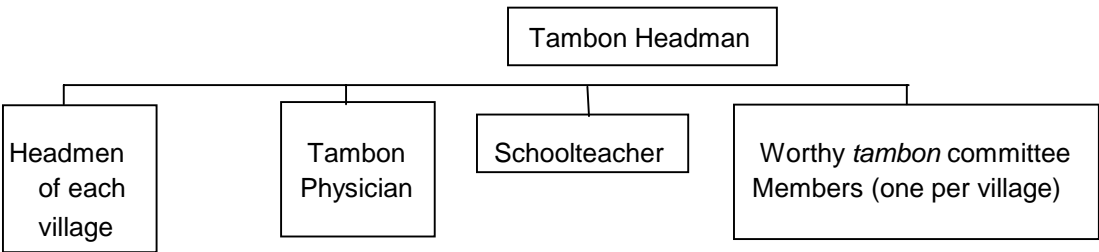


In interviews, Ministry of Interior officers said that at present, the village committee had little role and that when there were activities at the *tambon* and village levels, government agencies tended to establish their own organisations rather than use village councils. Also,

although the village committee is intended to be an organisation representing the people, it is the chief district officer who decides how many elected village council members there are to be.

At the *tambon* level, the Local Administration Act of 1914 provides a *tambon* committee which is responsible for advising on the conduct of activities within the *tambon* headman's jurisdiction. As shown in Figure 3, it is composed of the *tambon* headman, the village headmen of all the villages in the *tambon*, the *tambon* physician, who is a member by virtue of holding this office, one teacher from a government school in the *tambon*, and one village committee member from each village in the *tambon*. These latter, called worthy *tambon* committee members, are selected by the chief district officer, appointed by the provincial governor, and have a term of five years (Local Administration Department, 1998:16).

FIGURE 3: STRUCTURE OF THE *TAMBON* COMMITTEE



Thus, for *tambons* and villages, the Local Administration Act of 1914 provides *tambon* and village councils. A significant characteristic of these councils is that Local Administration Department officers, namely, provincial governors and chief district officers, have a role in the selection of their membership.

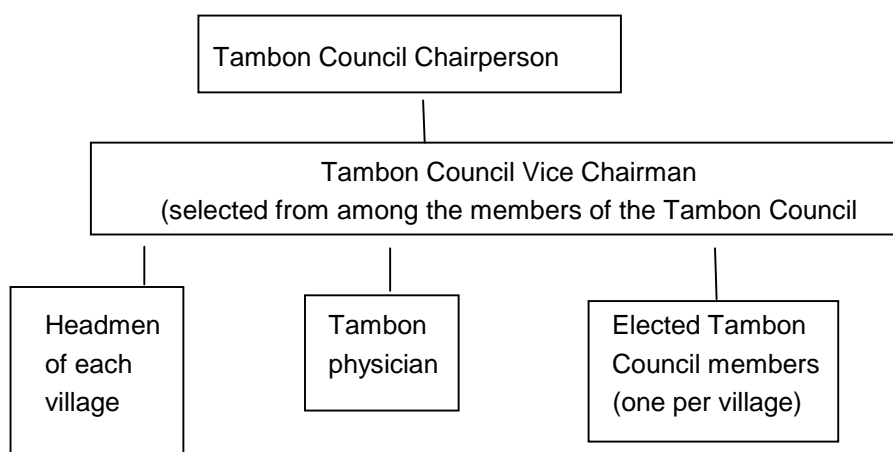
Neither the *tambon* nor the village council have much of a role at present because the interest of the government, i.e., the Ministry of Interior, is in the *tambon* administration organisation (TAO) as the organ of local administration.

The Tambon Council and Tambon Administration Organisation Act of 1994 is intended to provide local people greater authority in *tambon* and village administration through *tambon* councils and Tambon Administration Organisations (TAOs) (Local Administration Department 1999a). Some members of the *tambon* council hold membership by virtue of office; these are the *tambon* headman, the village headmen of the villages in the *tambon*, and the *tambon* physician. The remaining members of the *tambon* council are elected; one council member is selected by the people of each village in the *tambon*. The structure of the *tambon* council is displayed in Figure 4. In 1999, there were 868 *tambon* councils. These are juristic persons, and they can be developed and transformed into TAOs once they meet certain conditions.

On one hand it is a local government which is responsible for *tambon* development in accord with its plans, projects, and budget, which is able to make proposals to government

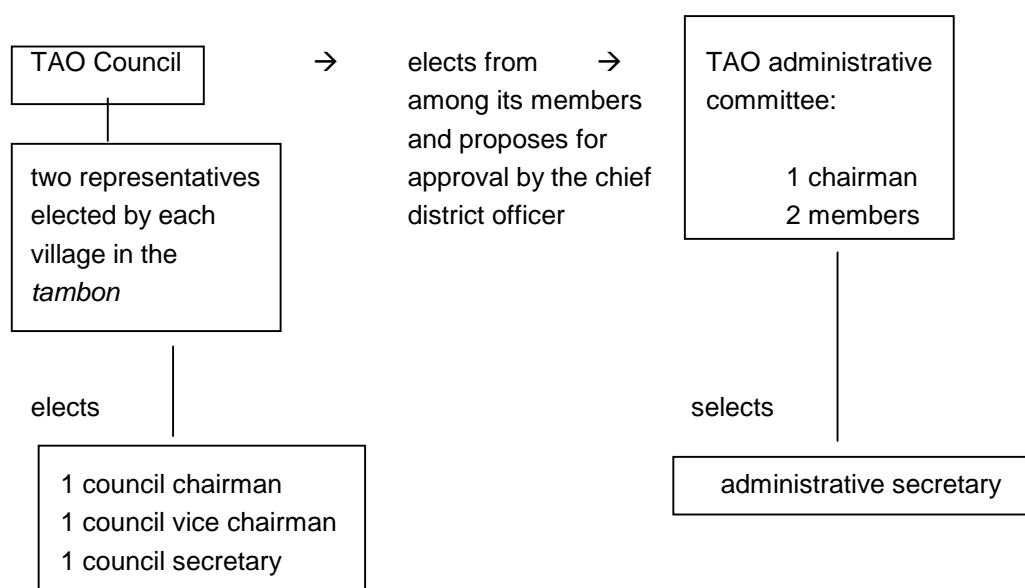
agencies on *tambon* administration and development, and can carry out the duties of the *tambon* committee as provided in legislation on local administration. On the other hand, the *tambon* council is under the jurisdiction of the chief district officer and the provincial governor, who can exercise legal control its administration.

FIGURE 4: STRUCTURE OF THE *TAMBON* COUNCIL



A *tambon* council which has an annual average revenue of at least 150,000 baht (excluding subsidies) for three consecutive years may become a *tambon* administration organisation (TAO), the structure of which is shown in Figure 5.

FIGURE 5: THE STRUCTURE OF THE *TAMBON* ADMINISTRATION ORGANIZATION



In TAO councils formed from 1999 onwards, the members are elected; however, in those formed between 1995 and 1997, *tambon* and village headmen became members by virtue of office and will continue to be so until 2001.

According to the LAD, when no longer TAO council members, *tambon* and village headmen will have the following powers and duties in conjunction with TAO: (Local Administration Department, 1999b:)

1. plan *tambon* development as members of the TAO Development Committee as specified in the 1998 Ministry of Interior Regulations on Development Planning by Local Administration Organizations
2. be an important mechanism in local administration and in coordinating and verifying the performance of local administration organisations in their areas of jurisdiction
3. take a role in promoting and supporting a sense of community and in strengthening their communities
4. function as a government officer as specified in the Local Administration Act of 1914
5. function as representatives of the state concerned with carrying forward the activities of all state agencies in their areas of jurisdiction
6. function as citizens

The *tambon* and village upper class, composed of large landowners, merchants, rice millers, contractors, and the wealthy, have vertical ties to the district, provincial, and national levels in their relationships with, for example, members of parliament, provincial governors, chief district officers, and other government officers. This influential group wields great power, and they render each other mutual support (Andrew, 1990:56) through exchange of benefits in patron-client relationships. Powerful patrons dispense benefits and extend protection to clients. The less powerful use the patronage system and the powerful in securing benefits for themselves. The *tambon* and village upper class, who include village and *tambon* headmen, are patrons to the less powerful in their communities, and at the same time, clients of district and provincial merchants, government officers, and politicians on the local and national level.

2.2.2 Power derived from local recognition

The success of development projects implemented by the state at the *tambon* and village level requires that there be persons of influence to encourage or exhort villagers to be aware of the importance of development. Such individuals are community leaders who are recognised and respected by villagers but hold no office of authority. In this group are such people as respected senior members of the community, those with relatively high educational attainments, the wealthy, and monks (Honak, 1993). These individuals have the power to advise on *tambon* and village affairs.

2.2.3 People Power

The majority of villagers have little schooling, follow a tradition of obedience to authority, and would never think of joining together to demand social justice (Phaibun, 1979:70). As a result, power of the people in *tambons* and villages is at a low level. Forming groups to play a role in the decentralisation of government has been largely something instigated by the state. Recently, however, movements have developed in which people in an area organised to solve problems of mutual concern (Khon Kaen University Research and Development Institute, 1997).

At the same time, the Ministry of the Interior has begun to apply an economic self-reliance development strategy at the *tambon* and village levels. This aims at strengthening communities and emphasises implementation through groups, multilateral cooperation, and continuous learning so that the community will become self-reliant, local culture will be preserved and the local environment will be conserved. The strategy is to support : (Local Administration Department, 1998 : 131-132)

1. application of His Majesty the King's New Theory mixed agriculture and sustainable agriculture
2. development of small water sources with the participation of local people
3. mobilisation of capital and establishment various types of savings associations to make capital available
4. occupational groups for the growing medicinal plants and those for the practice of traditional medicine, eco-tourism, and development of communities with historical and archaeological significance for the economic benefit of those communities
5. planning networks of community organisations
6. establishment of community commercial areas and markets
7. development of networks of community shops
8. district potable water systems
9. establishing various types of agricultural service centers

It can be seen that this community development plan is an initiative of the Ministry of the Interior rather than of the people.

The goals of decentralisation and the strengthening of the presence of Ministry of Interior at lower levels appear as antagonistic trends. This prompts Nelson (1998) to describe "a broad tendency to bureaucratise the subdistrict level under the Local Administration Department uncalled-for leadership. In short, what we can observe - in obvious contrast to all stated goals of making this level the foundation of the democratic system of government by fostering the development of local self-government – is the introduction of a subdistrict administration in addition to the existing provincial and district administrations."

Other observers seem to be more optimistic and consider that " public participation is to be actively promoted " under the 1997 Constitution of Thailand (Halcrow, 2000). Examples of the constitutional provisions referring to decentralisation and natural resources are given by Halcrow (2000).

Section 60: "A person shall have the right to participate in the decision-making process of State officials in the performance of administrative functions which affect or may affect his or her rights and liberties, as provided by law."

Section 76: "The State shall promote and encourage public participation in laying down policies, making decisions on political issues, preparing economic, social and political development plans, and inspecting the exercise of State power at all levels."

Section 79: "The State shall promote and encourage public participation in the preservation, maintenance and balanced exploitation of natural resources and biological diversity and in the promotion, maintenance and protection of the quality of the environment in accordance with the persistent development principle as well as the control and elimination of pollution affecting public health, sanitary conditions, welfare and quality of life."

In addition, the Constitution makes provision for the decentralisation of government functions in sections such as the following:

Section 78: "The State shall decentralise powers to localities for the purpose of independence and self-determination of local affairs, develop local economics, public utilities and facilities systems and information infrastructure in the locality thoroughly and equally throughout the country as well as develop into a large-sized local government organisation a province ready for such purpose, having regard to the will of the people in that province."

Section 290: "For the purpose of promoting and maintaining the quality of the environment, a local government organisation has powers and duties as provided by law. The law under paragraph one shall at least contain the following matters as its substance:

- 1) the management, preservation and exploitation of the natural resources and environment in the area of the locality;
- 2) the participation in the preservation of natural resources and environment outside the area of the locality only in the case where the living of the inhabitants in the area may be affected;
- 3) the participation in considering the initiation of any project or activity outside the area of the locality which may affect the quality of the environment, health or sanitary conditions of the inhabitant in the area.

2.2.4 Summary on local power structure

In *tambons* and villages, headmen are powerful figures. One source of their power is the authority vested in them by the Local Administration Act of 1914. Although elected, they function as officers of the state, must be appointed by the Ministry of the Interior, and as the last level of that ministry's authority, are closely controlled by government local administration officers (Nelson, 1998:54). Another source of their power is the *tambon* committee as they are members by virtue of office. A third source is their membership in the TAO. Although TAO members will be directly elected beginning in 2000 and *tambon* and village headmen will no longer be TAO members, the headmen will still have power from cooperating with TAO in planning *tambon* development and coordinating and verifying the performance of local administrative organisations.

Authority from these three sources gives *tambon* and village headmen considerable power. In the past, headmen held office until retirement at the age of 60, while now their term of office is five years. Villagers spend large sums in campaigning for these offices. In some places, attempts are made to purchase the support of eligible voters by distributing money or hosting village feasts. *Tambon* and village headmen regard themselves as government officers and are proud to serve the government rather than regarding themselves representatives of the people concerned with promoting the interests of the people (Charoenmaung, 1997:167).

Although *tambon* and village headmen are elected by the people of their communities, legal and fiscal control gives officers of the central government and in particular of the Ministry of Interior power at the *tambon* and village levels; this Thai and foreign scholars have called a bureaucratic polity, in which the bureaucracy extends to the *tambon* and village level. Some Thai government officers still hold that they are the masters of the people, who are uneducated and ignorant of politics, and the Local Administration Act of 1914 is still the central government's tool of control since even though there is a show of fairness in that the law provides *tambon* and village committees, their members are determined by the Ministry of Interior.

In decentralisation of authority, the main vehicles of the Ministry of Interior are the *tambon* council and the TAO. From 2001 onward, the members of these bodies will be elected, but *tambon* and village headmen will continue to be part of the local administrative mechanism in coordinating and verifying the performance of local administration organisations.

Each change the Ministry of Interior makes in *tambon* and village level administration creates confusion in the power structure. For example, it is employing its community self-reliance development strategy in spite of the fact that there are village committees, *tambon* committees, *tambon* councils, and TAOs. This confusion strengthens the hand of the Ministry of Interior through *tambon* and village headmen. It is not strange then why headmen should be able to forge vertical ties to powerful patrons, namely, district and provincial government officers and businessmen and local and national politicians. Some wealthy *tambon* headmen

have links to members of parliament as campaign organisers, and members of parliament attempt to use their power to force provincial and district officers to carry out their wishes to demonstrate their ability to solve problems in their constituencies.

The patronage system makes the *tambon* and village upper class (e.g., landowners, merchants, rice millers, contractors, wealthy villagers) powerful. Members of this class are clients in relationships with the more powerful (e.g., merchants in the district seat and the provincial capital, district and provincial government officers, and local and national politicians) and at the same time, they are patrons who have power over poor villagers.

In addition to power derived from authority, there are people in each locality who, while holding no office of authority, have gained power through recognition by the people of that area. However, this is inferior to power derived from state authority. As to the power of the people, it can be said to be non-existent. The people wait on orders from the state through *tambon* and village headmen because tradition has accustomed them to obey those in authority. Although private organisations have attempted to stimulate villagers to organise, the effects of these efforts are not yet clearly seen.

The process of decentralisation appears as an ambiguous political Project paralleled by a reinforcement of the influence of both the Ministry of the Interior and politicians. As more power is transferred to the *tambon* and village levels, we observe a reaction of the bureaucratic structure trying to supervise the process (Nelson, 1998). At the same time, observes Chaianan Samudavanija (1985), developments is "becoming an important tool for competition among bureaucratic units at all levels, from the national to the village, using policies, plans and projects as rules for competition", increasing the fragmented nature of what Christensen and Siamwalla have called a balkanised state (1993). We also witness the attempts of local politicians and businessmen to set patronage relationships with villages and to wield power at the *tambon* level (Arghiros, 1999). It remains to be seen how these new parcels of power will be incorporated in and will impact on the village life. There is at present a transition period in which Kammeier (2000) sees a "chaotic discrepancy between expected roles and administrative capacity available" and whether and how villagers will gradually gain autonomy remains a surmise.

Figure 6 shows the *tambon* and village level power structure.

FIGURE 6: TAMBON AND VILLAGE LEVEL POWER STRUCTURE

2.3 Conflict resolution

Conflict theory is an area of interest in sociology. There are mechanisms in society which inevitably cause conflict to arise.

1. The unequal distribution of power among individuals in society enables the powerful to take advantage of those with little power, and this results in tension and conflict.
2. The scarcity of certain resources causes competition among the members of society for a share of those resources.
3. Groups within society have different goals and compete with each other in achieving their goals (Sanyaviwat, 1997:56)

The Chao Phraya Basin is a rice-growing area in which irrigation water is an important input in production. Industrialisation and urbanisation in the area have increased the demand for water and contributed to dry-season water shortages and created conflict over water, a conflict within the Chao Phraya Basin and also between the Chao Phraya and other river basins. Likewise, there are problems related to competition for water in the Mae Klong River Basin as well (TDRI, 1994).

This study is concerned with competition among farmers for irrigation water in the Chao Phraya and the Mae Klong Basins. Case studies were made in three areas:

- Conflict in the Kamphaengsaen Operation and Maintenance Project between rice farmers and the owners of sand pits;
- What is suspected of being a murder in the Tha Maka Operation and Maintenance Project believed to have been caused by competition for irrigation water among farmers;
- What seemed to be a situation of potential conflict in the Don Chedi Operation and Maintenance Project between rice farmers and prawn raisers.

2.3.1 The Kamphaengsaen Operation and Maintenance Project

Tambon Kraphang Hom in the Kamphaengsaen District of Nakhon Pathom Province is an agricultural area in which the majority of the people grow wet rice. Sugarcane is also grown, and there are also some orchards.

Farmers in Village 2, Ban Ton Lan Phikun, and Village 3, Ban Pong Kham, of Tambon Kraphang Hom, take water for agriculture from the Dawn Kradindaeng Irrigation Canal and from a water-filled borrow pit dug for construction of a road, which runs parallel to the irrigation canal.

Approximately two years earlier, an individual had bought land in Tambon Thung Khwang to extract sand. About three months after the first pit had been dug, a second and a third pit had been dug by other operators. In digging the pits, the sand-pit operators had removed the

overburden and pumped out water before reaching the sand layer. The water had been pumped into the borrow pit and flowed into Tambon Kraphang Hom.

On March 10, 1997, the RID released irrigation water to flush away the salty water released from the sand pits. Unaware of this, farmers and fish raisers pumped this water into their fields and fish ponds. The fish in the ponds were found to have died the following day, and the rice crop, planted about 20 days before, was completely destroyed.

2.3.1.1 Solving the problems of the injured parties

The injured parties, rice farmers and fish raisers, tried to find the cause of the incident and took samples of the water to agricultural officers. An instructor at the Kamphaengsaen Campus of Kasetsart University was asked to analyse the water and found that its salt content was so high that it would endanger plants and animals.

The farmers filed a complaint with the headman of Village 2, who himself was a rice grower with six rai of rice land. The headman accepted the complaint and forwarded it to the chief district officer of Kamphaengsaen District.

2.3.1.2 Role of the local government authorities in managing the conflict

Having received the complaint of the injured parties from the headman, the chief district officer appointed a damage assessment committee, comprising the assistant district officer responsible for Tambon Kraphang Hom, the *tambon* agriculture officer, and a representative of the *tambon* council. The committee inspected the affected area and found that 20 parties had suffered injury and the total loss amounted to about 500,000 baht.

The chief district officer met a few times with the headmen of Villages 1, 2, and 3, the affected farmers, and the sand-pit operators, and during this time, the assistant district officer for Tambon Kraphang Hom was reassigned and replaced by another officer.

In the meetings, the sand-pit operators maintained that the farmers' demands were unreasonable. For example, the rice crop had been planted only 20 days, so the damages should be only the cost of the seedlings. The farmers, on the other hand, fixed their crops' value at what they would have been at harvest, and they also argued that if their investment were assessed, it should include, beside the costs of seedlings, land preparation and labor as well.

After several meetings, the sand-pit operators agreed to pay 300,000 baht in compensation for damages, and the farmers accepted this. However, the sand-pit operators could not reach agreement among themselves on the proportion of the compensation each should bear, with the operators of the newer pits and those who had assumed ownership of from the original owner maintaining they should pay less: either 50,000 baht, 50,000 baht, and 200,000 baht or 75,000 baht, 75,000 baht, and 150,000 baht. This disagreement continues at the time of

this writing, and the injured parties' only recourse seems to be for them to institute legal proceedings against the operators themselves.

2.3.1.3 Observations, Comments

1. No representative of the RID was involved in this dispute despite the fact that at first, the farmers who had suffered injury had also made complaints to the irrigation authorities. However, since the borrow pit was a public watercourse, and a member of the provincial assembly had funded dredging of the canal as far as a local youth camp, it was not the responsibility of the RID.
2. The local government authorities had some hidden reason for reassigning the assistant district officer who was originally assigned responsibility for assessing damages. Interviews with the injured parties indicated that there was a change in the manner of the chief district officer on first receiving the complaint and later.
3. The damage assessment and subsequent negotiations took a long time, and the ones who suffered the greatest disadvantage from this were the farmers. They had to earn their livelihoods and were unable to follow the progress of their case or attend all the meetings so that their representation and power in the meetings steadily declined.
4. For farmers, legal proceedings are extremely difficult because they consume both time and money and because farmers do not know where to obtain advice. What they can do is to give up and accept the situation.
5. The local leaders, i.e., the headmen of the three villages, differed. The headman of Village 2 had suffered injury from the salty water released from the sand pit because the land he farmed was in the affected area. The headman of another village was not involved in the case, while the headman of the other village was viewed as being involved with the operators of the sand pits. Thus each of these local leaders had a different background and interest in the dispute, and the manner in which they behaved reflected not leadership but rather their interest in the dispute. This made it difficult for them to fulfil their duty of resolving the dispute or rendering justice.

Therefore, it can be seen that a conflict resolution was attempted by farmers following the official and formal procedures but that its outcome was not successful chiefly because of the lack of support from local leaders. This case illustrates the consequences of the growing number of village headmen and *kamnan* who are not involved in agricultural activities, and who poorly represent farmers. The decentralisation process mentioned earlier makes this concern all the more worrying.

2.3.2 Tha Maka Operation and Maintenance Project

The Tha Maka Operation and Maintenance Project is in the basin of the Mae Klong River. Around the beginning of March 1999, newspapers reported that two farmers in the vicinity of Canal 4L-1R had been shot to death because of a dispute over irrigation water. Interviews of irrigation officers and farmers in the area revealed that there was a problem of competition for irrigation water.

2.3.2.1 Competition between canal head-enders and tail-enders

1. Each individual farmer was using more water and expanding the area planted to rice. They planted two crops: one in the wet season and one in the dry season. In the past, farmers had obtained water from a natural watercourse, but when the state installed an irrigation system, they tended to use more water than they actually needed. At times, they pumped so much water into their fields that they had to open drains to remove the excess. They viewed irrigation water as something they got for free and as something to which they had a right.

2. Irrigation structures and other equipment were frequently unusable because they were in poor condition due to their having been damaged by farmers. This made it impossible for the Project to provide water effectively.

3. Project management

Ad hoc policy in approaching water shortage problems—the RID management had an agreement with EGAT that water would be made available to the Project on a weekly basis. In fact, water was made available irregularly. This caused problems for the Project. When the water supplied was inadequate, water-use rotation schedules had to be set up. In addition, under the Project's policy, providing water to farmers was less important than maintenance and repair and construction.

Zonemen, who interface between farmers and the Project for allocation and delivery of irrigation water, were also deficient in both number and quality.

2.3.2.2 Approaches to solving the problem of competition for water among farmers

Farmers at the tails of canals were at a disadvantage and were unable to obtain water during the time allotted to them on the schedule because farmers at the heads of the canals used it. Thus, farmers at the tails of canals attempted to deal with the problem in these ways:

1. They accepted the lack of irrigation water. They accepted that they were at a disadvantage, and allowed the farmers at the heads of the canals first access to the water.

2. They sought some alternative source of water, such as digging a tank. However, many farmers in this area were tenants and did not wish to risk such an investment.

3. They joined together to make a complaint to irrigation officers when suffering great hardship.
4. They scheduled water-use rotations, taking water either in the morning or the afternoon. However, there was not enough water, and scheduling was not successful.
5. They took matters into their own hands, damaging irrigation control structures and other works and blocking canals with branches so that irrigation water did not flow elsewhere.
6. Farmers joined together on a temporary basis, contributing either labour or money, to dredge canals which had become shallow.

According to water allocation principles, the leader of a water-user group interfaces with the zoneman, who in turn interfaces with the water master. However, water-user groups were a failure in this area. No one was willing to be the group leader. As a result, no one looked after irrigation works or organised meetings; there was only competition among farmers for water.

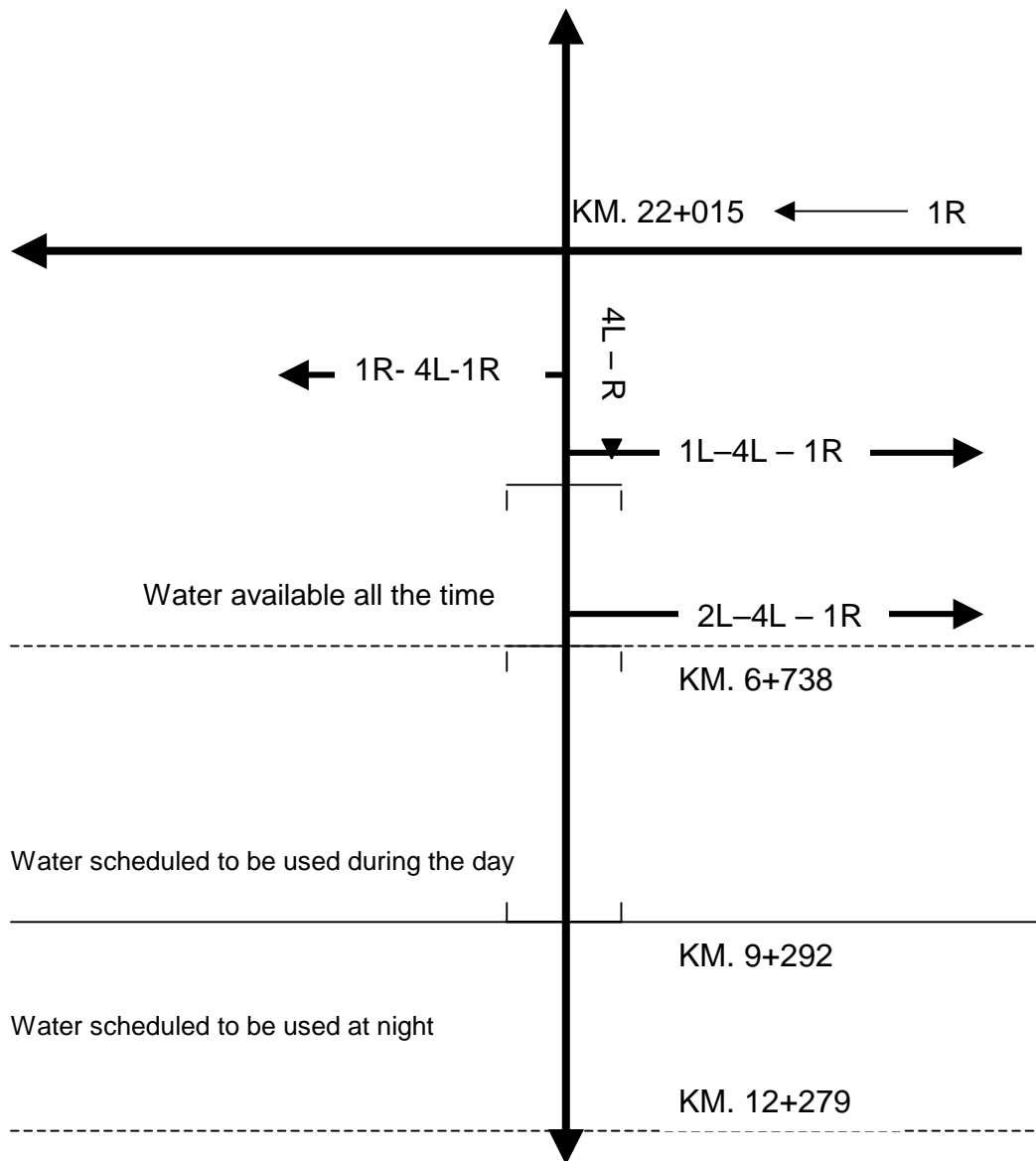
Based on interviews, the police and local farmers believe that motive in the shooting deaths of the two farmers on Canal 4L-1R was competition for water. The deceased lived near Km 12 but farmed land near Km 6. They used to stop the canal by throwing branches in order to draw off water at Km 3 so that it would flow into their land (see), and the two died in near KM 6. Irrigation officers for their part believe that competition for irrigation water was not the motive; there was some other motive for the shootings.

Violence so extreme as killing in this incident may have been due to the fact that Canal 4L-1R is quite long (12 km) and supplies farmers who live in three *tambons* in two separate provinces: Km 1-6 is in Tambon Khok Tabawng of Tha Maka District of Kanjanaburi Province while Km 6-12 is in Tambons Nawng Pla Maw and Khum Phayawm of Ban Pong District of Ratburi Province. The deceased lived in Ban Pong District of Ratburi and diverted water into their land at Km 3, which is in Tha Maka District of Kanchanaburi. Therefore, they may have been strangers who were taking irrigation water in a place not their own, and kin-like relationships, which are basic in settling disputes, did not exist.

2.3.2.3 Approaches to resolving disputes of RID officers

1. The department issues orders and controls the use of water by each Project and prioritises water use.
2. Each Project apportions water according to water-use rotation schedules.
3. RID officers cooperate with local authorities (provincial governors, chief district officers, and the police) to mitigate competition.

FIGURE 7: DIAGRAM SHOWING ALLOCATION OF WATER IN CANAL 4L-1R



2.3.2.4 Parties involved in resolving disputes

In extreme situations like this in which there were deaths, local authorities, namely, the chief district officer, the police, and irrigation officers, took roles in resolving disputes.

2.3.2.5 Effects of disputes

Irrigation officers took interest in providing irrigation water. Canals were dug and water was provided to farmers at the tails of canals, who felt satisfaction in that they received more water. The cost of this however was the lives of two farmers.

In conclusion, it can be seen that even though conflicts may escalate to the point of degenerating into a man's death, they do not trigger official acknowledgement of the possible seriousness of the situation and do not lead to drastic pressure on RID to improve management (indeed, RID attempted to downplay the incident and even denied that water was involved in the motive).

Although such incidents are rare they also serve to demonstrate that the resolution of conflicts involving villagers from distant areas (12 km long canal), and therefore with no kinship or neighbourhood relationship, may be difficult.

2.3.3 The Don Chedi Operation and Maintenance Project

2.3.3.1 Background

The Don Chedi Operation and Maintenance (DC) Project receives water from the Chao Phraya River through the Makham Thao Canal, which extends through the Phonlathep and Tha Bot Projects before reaching the DC Project.

In the past, there was some scheduling of water-use rotations, but it was not systematic, the basis being to allow water to reach the far end of the canal because this became smaller and smaller. Later, rotations were implemented with control based on water measuring devices installed in the canal (see § 3.1).

The DC Project supplies wet-rice farmers, orchardists, sugarcane planters, and prawn and fish raisers. Spiny clawed and tiger prawns are raised.

Thai government policy is to suppress tiger-prawn culture in accordance with Clause 2, Section 50 of the Constitution of the Kingdom of Thailand and Section 9 of the National Environmental Quality Improvement and Preservation Act of 1992. Prime Ministerial Order Number 2/2541, issued on July 22, 1998, ordered provincial governors to suppress all tiger-prawn culture within 120 days and vested in them the authority of the prime minister to do this. As a result, those who raised tiger prawns in fresh water areas were to cease operations. This, however, will not be considered here, and the focus will be on the potential for conflict over water between wet-rice farmers and spiny clawed prawn raisers.

2.3.3.2 Issue

In 1985 and 1986, the government promoted spiny clawed prawn raising, and between 3,000 and 4,000 rai of irrigated land were devoted to this purpose in Zones 3, 4, and 5 (the Project

is divided in 12 zones): some 400 rai in Zone 3, 1,970 rai in Zone 4, and 99 rai in Zone 5. Prawn rearing operations are usually on low land near the heads of canals because they must use irrigation water. When there is rainfall, the water in the rearing ponds must be changed within 7 days. This causes difficulty for rice farmers at the tails of canals because they suffer flooding. At the same time, when there is a limited amount of water in a canal, prawn raisers, since they are at the head of the canal, have first access and pumped it into their ponds. Rice farmers receive no water and have to wait until the prawn raisers discharge water from their ponds, which must be emptied and refilled every two weeks.

Wet-rice cultivation requires less water than prawn culture. One rai of wet-rice, in this Project, requires 2,000 cubic meters of water over a period of 4 months while 1 rai of prawn pond requires 12,000 cubic meters of water over 6 months, and shows that prawn culture requires each month four times as much water as rice growing. Thus, prawn culture requires a lot of water and this water must be of high quality; otherwise, the prawn raisers suffer severe losses.

Prawn can be harvested for the first time at four months, and thereafter, up to eight harvests can be made at monthly intervals.

In a year in which water is limited or in which there is a water shortage such as there was in 1998, water-use scheduling does not succeed because prawn raisers cannot afford to wait for their allotted time to take water when their prawn are in the life-threatening condition that they call “nawk (knock).” What is more, if they cannot control the level of water or the time when water is available, they suffer great hardship. At the same time, rice farmers can wait to receive until after the prawn raisers have filled their ponds, or they can use water discharged from prawn ponds. As a result, disputes over water between rice farmers and prawn raisers have been mitigated.

A problem that did arise was that prawn raisers banded together and met with RID officers to seek the removal of the head of the *DC* Project on grounds of mismanagement, claiming that the quantity of water was not controlled, water was not made available according to schedule, and that the requirements of the animal or plant crop were not considered in drawing up the schedule.

This dispute drew the interest to rice farmers as well, and when the RID was unable to resolve it, the two groups joined together to petition their member of parliament, who was a deputy minister of agriculture. The deputy minister ordered that a special centre be set up to manage water in Tambon Sadao of Sam Chuk District, Suphan Buri Province.

2.3.3.3 Observations

1. An announcement of the *DC* Project head advises prawn and fish raisers to cease operations during the dry season because the water available was limited. This would be very difficult for prawn raisers to do because prawn culture differs from rice farming in that the a high investment is require and operations must be conducted on a continuous basis in

order to produce income. If it is necessary to cease raising prawn, government agencies concerned must find alternative means for prawn raisers to earn their livelihoods.

2. This was a dispute between prawn raisers and personnel of the *DC* Project. The prawn raisers called for the removal of the officer responsible for controlling irrigation water on the grounds that the water-use schedule did not take into account the different categories of use to which the water would be put.

3. Conflict over water between prawn raisers and rice farmers did not evince itself because of many ties among them as kin and neighbours, relationships which foster mutual help and support. In addition, prawn culture requires a substantial investment and if water is lacking, the prawn die and the raisers suffer great losses. Aware of this, rice farmers feel that the need of their rice crop is less urgent than the need of the prawn raisers and so they are sympathetic to prawn raisers having first access to water.

4. Local leaders had no role in this resolving the conflicting needs of rice farmers and prawn raisers perhaps because no dispute came out into the open. In the dispute with the RID officers, the prawn raisers and rice farmers had recourse to a politician, and this achieved some resolution of the immediate problem.

2.3.4 Thai culture power structure and in resolving disputes

The three case studies reflect certain relationships between conflict resolution and Thai culture and power structure.

2.3.4.1 Thai culture and conflict resolution

In situations in which there is potential for conflict, the tendency is acceptance of the problem or attempts to avoid conflict by taking some action to help oneself in the form of securing some source of water on one's own land or of finding some compromise. Several authors have been trying to link this to certain assumed traits of Thai culture.

1.1 *Avoidance of confrontation* is a Thai value. Thais do not like to come into conflict with others. This may be due to fear of danger to oneself. There is an awe of others, a reluctance to impose upon others, a fear of being embarrassed or losing face, and a desire to preserve good relations with others, particularly those whom one is familiar with or close to (Phaibun 1989:72).

1.2 *Compromise*. Thais do not like resolutions to problems that cause disruption; they prefer making concessions to reach a compromise. Rather than arguing logically and citing facts, they prefer maintaining decorum in negotiation to preserve the dignity of disputants. When underlying issues are involved, an elder respected by all parties is often sought out to negotiate a settlement of the dispute, and this individual strives to bring the disputants to a compromise. This often puts off but does not really solve the problem or increases its complexity and severity (Ekkawit, 1991:67).

1.3 *Politeness.* Thais approve of polite civil demeanour rather than striving to outdo or overcome others.

1.4 *kreng jai, or disinclination to impose upon others.* Thais are disinclined to impose upon superiors, inferiors, or equals, and even in close relationships, the parties feel this disinclination to some degree (Komin, 1990:164). Thus, when conflicts arise, farmers who have the means provide themselves with their own source of water rather than appealing to the RID irrigation Project because of this disinclination, and only when the water problem reaches crisis proportions do they join together to seek help from the Project.

1.5 *Contentment and peaceful mind.* Because they live in an agrarian society and have Buddhism as their national religion, rural Thais tend to be unambitious and contented with their lot. They value not being greedy and have desire for nothing. As a result, they are less disposed to standing up and fighting for what is right or just than they should be.

1.6 *Lack of discipline and disregard for rules.* Among the shortcomings in the national character is lack of discipline and disregard for rules such that it is said, "Doing whatever you like is truly Thai." Thus, when an irrigation Project draws up a water-use rotation schedule which allows farmers at the tails of canals first access to water, the farmers at the head of the canal ignore the schedule and try to pump water for their own use. Farmers also have little responsibility for public property as seen in their destruction of irrigation Project property in order control the flow of irrigation water as they wish.

1.7 *Individualism.* Komin (1990:6) relates individualism to the loose structure of Thai society. Because rights and duties are not specified clearly, Thais have freedom of choice with regard to social action. In making a choice, one's feelings as to one's personal goals are the most important determinant, and feelings of obligation, commitment, or involvement are rare among Thais. Thai individualism is expressed in behaviour in which fulfilling one's own needs is given primary importance and there is less regard given to rules or law than there should be (Ekkawit, 1991:72).

2.3.4.2 Government administration culture and conflict resolution

The conflict over irrigation water is a chronic problem. These conflicts occur at the local level, but they are a political problem on the national level and one which the state must solve systematically and not with short-term or ad hoc remedies as has been the traditional response of government administration. With the rapid changes which have taken place in the economy and in society, the old mechanisms for allocating irrigation water are no longer practicable, and new mechanisms must be found. If this is not done, conflict will increase. Present means for resolving conflict are inadequate and existing mechanisms are ineffective in allocating irrigation water and are not equitable.

When people regard water as a resource to which they have free and open access, i.e., which they can use without having to pay anything and which they may use in whatever way and to whatever extent they want, various groups in society claim the use of that resource as

a right (Christensen, 1994). Current institutional mechanisms for water allocation, i.e. legislation, organisations, and regulations, cannot be used to allocate water. The lack of problem-solving mechanisms leads to disputes which become political issues.

Water management is beset by difficulties in Thailand because legislation does not clearly specify the rights of water users. Because of the ambiguous and conflicting legislation, water users engaged in a dispute must resort to their own means to solve the problem, and when there is a water shortage, resolving water disputes enters the political arena. Laws and regulations on water use must therefore improved to allow a control on who is using what water and when.

Water-use regulations, which are currently based on the open access policy, cause waste and inequity, for as more water is made available, wealth increases, and with it, power, and thus various groups of water users compete for water in the political arena. The crucial issue is fairness rather than economics, and this kind of decision making serves the interests of the rich and the powerful rather than those of the poor, so it is no surprise that decisions are made on the basis power and political clout.

The failure of state and economic mechanisms causes conflict over the use of irrigation water. Even though various institutions have been conducting studies on water resources in such areas as policy, institutions, legislation, and water fees, there is no guarantee that the findings of these studies will be actually applied by the government as they become available because political influence has a much larger role in the government of the nation than right or reason. This reflects the conflict between Thai government administration culture and the administrative structure, which is based on Western concepts, as shown in Table 1.

TABLE 1: DIFFERENCE BETWEEN ADMINISTRATIVE VALUES AND THAI CULTURE

Topic	Administrative structure	Thai cultural structure
principles	based on principle and reason	based on individuals
objectives	efficiency and effectiveness	results and achievement not emphasised
systems	merit system	patronage, seniority, self-interest
action	laws, rules, regulations	self-interest individualism
control	strict	moderate middle of the way
evaluation	based on results	based on power and influence
relationships	formal	personal
authority	separated from personal matters	not separated from personal matters, personal influence used

source: Phaibun 1982:92

2.3.5 Summary on conflict resolution

In the three case studies, there was conflict over irrigation water and conflict in which power was used to intimidate those who were weaker, as in the case of the sand pit owners, who had influence, and farmers, who had no power.

When conflict arises, the level of the power structure that becomes involved depends on the level of authority and the status of the individuals. When farmers suffer hardship and there is conflict, they bring their complaint to the *tambon* and village headmen, who in turn, report to those of higher authority. However, if the *tambon* headman is a person of influence with ties to a politician at the national level, i.e., a member of parliament, the problem is taken under consideration by the politician, who takes a leading role in dealing with it in conjunction with the local authorities, such as provincial governors and chief district officers, and RID officers.

Generally, farmers who suffer some disadvantage with respect to irrigation water find a way of dealing with the problem themselves in accordance with Thai culture, which is characterised by positive values attached to harmonious relations, politeness, gentleness, solitariness, and contentment with one's lot, by negative values attached to contention and imposing on others, and by lack of discipline, inability to work in groups, and individualism. This culture leads farmers to accept their being disadvantaged. Some farmers find a way to help themselves by constructing a water source on their land. Farmers join together temporarily to dredge canals or to call for assistance from the state when there is a severe water shortage.

Figure 8 summarises local conflict and approaches to resolving conflicts in the context of Thai culture and use of power.

FIGURE 8: CONFLICT SOLVING IN THE THAI CONTEXT

3 Water management: water user groups and social arrangements

3.1 Case study 1: Don Chedi Project

Arrangements for water management at the local level

3.1.1 Background

3.1.1.1 Layout and agriculture

Don Chedi Project covers an area of 162,500 rai from which 133,000 (20,000 ha) are irrigated. Its construction started in 1961 and it was operational 3 years later. A total of 26,530 rai (20%) have been provided with intensive land consolidation and 9,600 rai with extensive land consolidation.

Its location on the layout of the Greater Chao Phraya Project is potentially unfavourable : it is located at the very end of the Makhm-Uthong main canal (or “Moho” canal)(Figure 9), a 105 km long waterway branching off the Chao Phraya river a few kilometres upstream of the Chai Nat diversion dam. Don Chedi Project includes the last 52 km of the Moho canal and a succession of 16 laterals (numbered from n°9 to n°24) looking like a hair comb (Figure 9). The drainage system is almost its inverted image, shifted southward by half of the average interval between two laterals. Opposite to the main canal, in parallel, we find the main drain of the Project, which collects both inner run-off and some sideflows originating in the mountains (on the west), which go through Khlong Moho, across the Project area, following the drainage system.

The design discharge of the Moho Canal canal is 35 cms at its head and around 20 cms upstream of Km 57, at the entrance of Don Chedi Project. The water level in the canal is sustained by four check gates located at km 57, 72, 84 (new) and 104 (tail regulator) (Figure 10).

The lower part of the Project is a depression and used to grow floating rice. Following the shift observed in the upper West Bank, farmers gave up wet season rice and are now growing High Yield Varieties (HYVs) before and after the flood period. Nevertheless, it remains ill-drained and flood-prone and rice may be lost if there are heavy rainfall in the late dry season; this happened in April 1999, provoking the loss of significant acreage. The topography of the Project is given in Figure 11. The depression can be neatly seen. All over the Project, the main slope is eastward and rather significant (1:1000).

While irrigation water is provided by Khlong Moho, the last two laterals (23 and 24) also get water from the drain. This water comes from the upper extremity of the Mae Klong system (Chorake Samphan drain); the secondary drains, which have been dredged, get an extra

supply which flows backward into the area where it is pumped by farmers. RID has also installed a pump to transfer this water from the drain into the Khlong MoHo.

The main crop in the Project is rice, but shrimp farms have been established here for quite a few years (see § 2.3.3). They are concentrated near regulator Km 72 and also along the main drain. This latter group pumps water from the Samchok main canal, which parallels the main drain, and use small aqueducts to cross the drain. The development of orchards is also a significant feature of current changes. In particular it seems that many of the urban investors who have acquired land in the Project have planted orchards and contracted some local farmer to look after them. On the contrary, sugarcane is markedly declining in the Project, mostly in consequence of depressed prices.

Near Canal 22, an area of more than 1,000 rai is growing sweet potatoes during the dry season, under a contract farming arrangement.

Rice double cropping is the most common situation and a fluctuating but rather high rate of triple cropping has been observed during the last five years. Cropping calendars are hectic, as we will see later.

TABLE 2: LAND USE IN DON CHEDI PROJECT (WET SEASON 1999) (RAI)

Rice	Field crop	Vegetables	Sugarcane	Fruits	Tree	Shrimps
96,010	582	373	6,678	7,269	13,411	1,817

3.1.1.2 Administrative units

The Project overlaps with 15 sub-districts (*tambon*), which belong to 4 distinct districts (*amphoe*), all of them located in the Suphan Buri Province. The main *amphoe* is Don Chedi. If we overlay the map of hydraulic units (areas served by a same lateral) with that of the villages, we observe that, as expected, there is no correspondence between the two layers. If we consider the 16 units corresponding to the 16 laterals, the average number of villages partly intersected by each unit is 3.7. Most of the canals serve 3 or 4 villages, even if in most cases the area corresponding to some of these villages is small (in other words a lateral generally serves mostly 2 or 3 villages). Only 1 lateral supplies only one village and the longest of the laterals was found to distribute water to as much as 8 villages. Figure 12 shows the hydraulic network of the Project together with the distribution of villages (only the part included in the irrigation Project is represented, therefore some units are very small).

TABLE 3: NUMBER OF VILLAGES SERVED BY A SAME LATERAL CANAL IN DON CHEDI PROJECT

Nb. of villages receiving water	1	2	3	4	5	6	8
Nb of occurrences	1	2	5	4	2	1	1

FIGURE 9: LOCATION AND LAYOUT OF DON CHEDI PROJECT

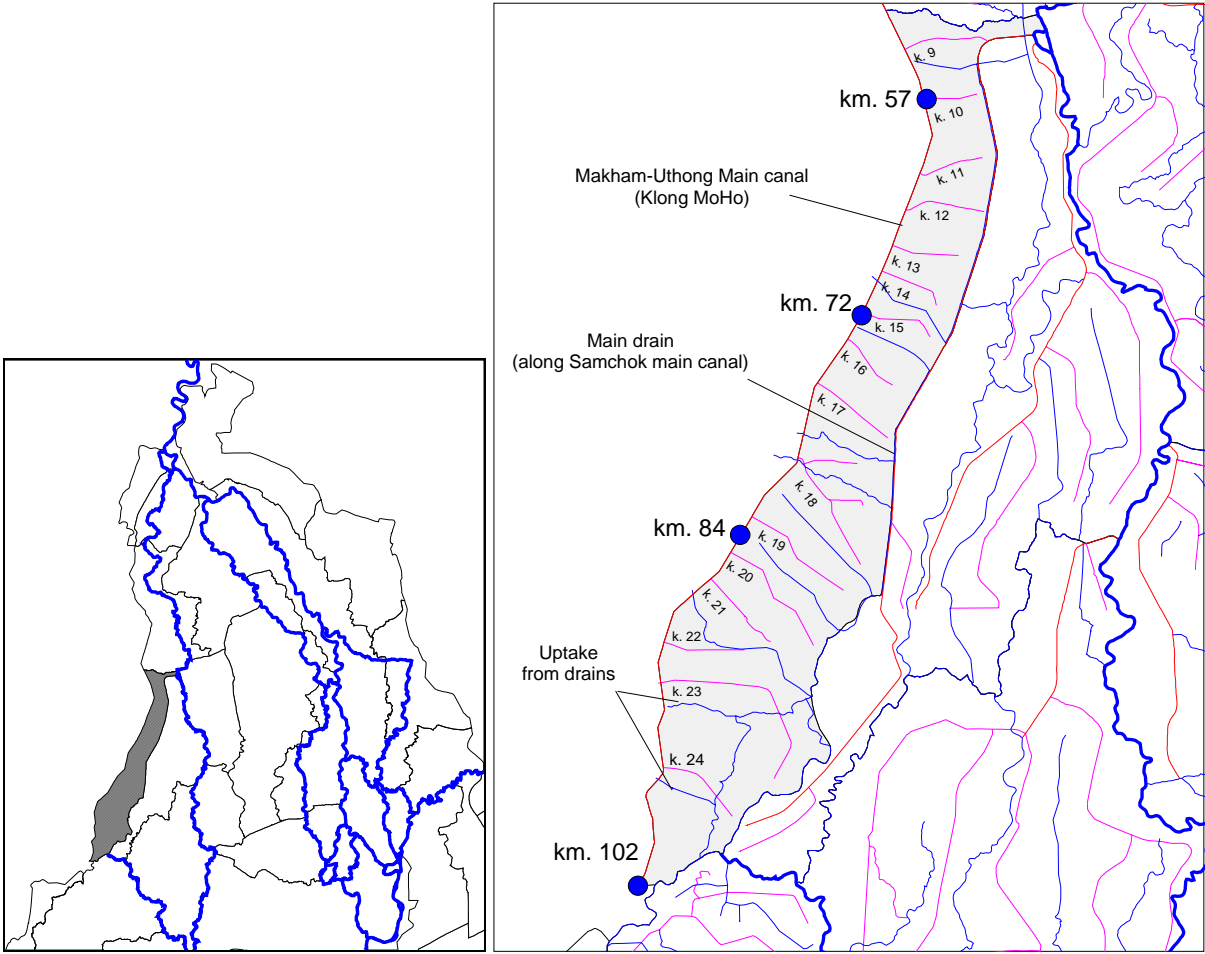


FIGURE 10: SCHEMATIC VIEW OF THE MAIN CANAL PROFILE IN DON CHEDI PROJECT

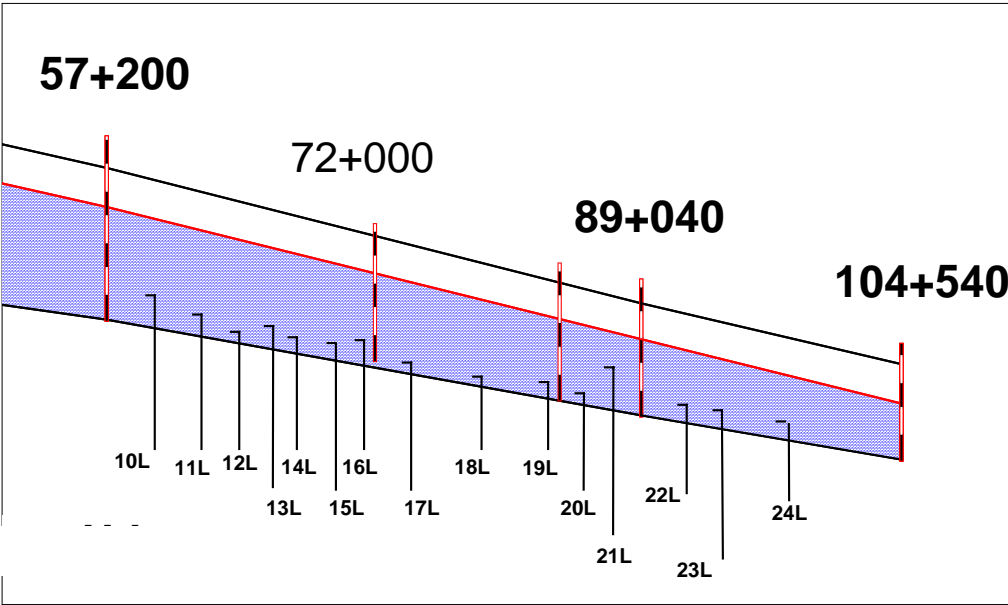
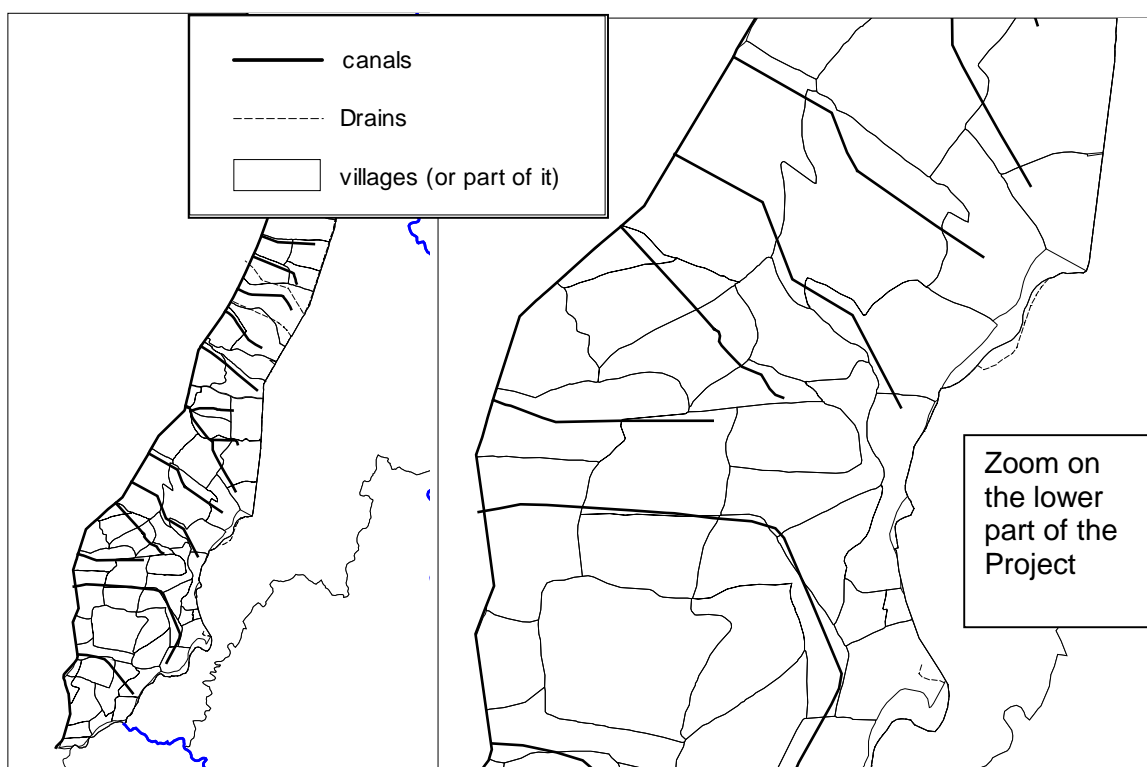


FIGURE 11: TOPOGRAPHY OF DON CHEDI PROJECT

FIGURE 12: OVERLAY OF HYDRAULIC AND ADMINISTRATIVE UNITS (VILLAGES)



3.1.2 General data on water management in the Project

The Project is characterised by its simple layout and by the fact that it lies at the end of a quite long primary canal. It was hypothesised that the conditions of supply to the 16 different laterals might be quite contrasting, depending on the position on Khlong Moho (tail-enders potentially in a worse position) and on the position of the lateral relatively to check regulators. Surveys were aimed at determining:

- The rotational patterns used among the different reaches of Khlong Moho;
- The general conditions of inflow in each lateral;
- The organisation among farmers to pump water at the head of the lateral when the level is not sufficient to provide gravity inflow;
- The organisation for distributing water among farmers of a same lateral;
- The organisation for distributing water among farmers of a same ditch.

3.1.2.1 Management at the Khlong MoHo level

Three Projects can be found along the 105 km of Khlong Moho. This canal is the western boundary of the delta and, from its upper position on the lateral terrace, it supplies water in

the direction of the east, towards the inside of the delta. Its sill level at 13.6 m MSL is higher than that of the Noi or Tha Chin rivers and the inflow is affected when, from a normal design level of 16 m MSL in the water body upstream of Chai Nat dam, the level of the water drops (sometimes as low as 14 m MSL) (see Report 1). Except for such occurrences, the supply of the canal is relatively good. In order to improve its hydraulic performance, it has been dredged in several reaches. In case of a drastic drop of the water level, the head regulator may be closed and water temporarily pumped from the Chao Phraya River into the canal (over the regulator).

Independently of water scheduling, the Moho canal never dries up, although this has already happened in exceptional instances (1994). Some flow is maintained for domestic use but some riparian farmers also draw off water for rice, orchards or shrimp ponds. A sugar mill, located near the tail-end extremity of the canal also diverts significant water but some storage ponds were dug in order to weather the driest periods.

The water flow in Khlong MoHo is normally free, and cross regulators are operated to manage it. Although head Projects are better served, water has always been sufficient to reach the end, at least in periods of planned supply. It is only recently, in 1997, 1998 and 1999, that the necessity was felt – through farmers' claims – to improve distribution by setting some rotation among different reaches of Khlong Moho. This was made possible through a meeting of the 3 Projects concerned together with related Provincial authorities, while the participation of the police was requested in order to help enforcing the schedule along the canal. In 1998 and 1999, an ad-hoc committee was formed by all these institutions for the purpose of publicly backing and enforcing the new policy.

The rotation within the main canal is not an easy operation to implement because there may be 300 pumps operating on its embankments before water reaches the Don Chedi Project. Admittedly, RID itself has not the capacity to enforce such a policy. If the police and politicians at different levels (from the Provincial to the sub-district level, together with some MPs) are not involved, it is not possible to ensure the required collective discipline. Control is not easy however, as farmers may pump when officers are not at work. If a pump is found along the canal, but not in use, nothing can be done. In many instances, the pump is working but no one stands by. Officers sometimes take the drive belt away from the pump as a way to dissuade farmers, who have to replace it (belts are quite expensive). Second-hand information reported the removal of some pumping sets by the police, but this could not be clearly confirmed. Farmers getting water directly from an independent ditch branching off Khlong Moho are the most difficult to control (they may pump in non-authorised periods) whereas at the head of the laterals zonemen may close the gate and more easily control pumping at the head.

Some farmers also reported having patrolled along the main canal to see how the situation was like in upper reaches. By and large, the discipline seems to have been respected although the collective efforts displayed were rather high and, in the present conditions, cannot be replicated on a yearly routine basis. Problems with the rotation were more related

to the irregular inflow into Khlong MoHo. Rotational arrangements are very sensitive to variations in the assumed inflow. If this inflow varies significantly during part of the overall rotation cycle, then some section of the concerned canal will be disadvantaged and will tend to break the discipline.

There is no doubt for farmers that pressure on water has increased: “Before, there was no rotation with upstream Projects, water flow was continuous. But now the demand for water is also much higher than it used to be. In 2510 and 2511 (late sixties) officials engaged in promotion campaigns for dry-season cropping... and now farmers are accused of using too much water. (...) Ten years ago *naprang* (DS cropping) was not so popular, although water conditions were better. Some people would do *napi* (wet season crop) very late because of the lagtime in calendars (until December) and they would receive supplies to finish their crops. At that time, other farmers used this water to start an early *naprang*. At the end, there is no more calendar, rice can be found at all stages ...”. Although it is not totally clear whether water conditions have got worse because of the change in supply or in the demand (probably the latter), such statements demonstrate that there is a growing sense of scarcity/pressure, which have induced institutional moves made necessary to establish and enforce rotational arrangements. These have been prompted by the conjunction of three factors: the relatively high price of rice (boosting demand and triple cropping), low stocks of water in the 1999 dry-season, political opportunism/interventionism.

This year (2000), the contradiction between farmers’ scheduling and RID’s planning led to a water crisis in February. This crisis was not due to the lack of water but to the mismatch between real and theoretical cropping calendars. Whereas Don Chedi Project, for example, had planned 83,500 rai of rice for the season, 90,000 rai were reported to be already planted at the official onset of the season... The crisis was mediated by the ubiquitous *P.*, a Member of Parliament, representative of the Suphan Buri Province. He presided the meeting which led to the definition of a rotation according to which Don Chedi Project was granted 10 days (+2 to initially fill the canal), against another 10 days for the two upstream Projects³⁷. These 12 days were further divided in two periods of 6 days, one for the upper part of the Don Chedi Project, the other one for the lower part³⁸. *P.* admittedly uses his political influence³⁹ to appear as the last resort for water problems in the region and several local political affiliates or connections call him in case of problems which are beyond the reach of local RID officers.

In the past years, the predictability of water supply downstream has been affected by a spectacular development of rice cultivation outside the Project area, on the western side of

³⁷ In practice, the regulator at Km 57, which divides the upper and lower reaches, is adjusted in order to maintain the water level at 12 m MSL (the Full Supply Level is 12.2 m MSL). Water in excess is passed on under the gate to the lower reach, even if it is out of turn.

³⁸ Within each of these two reaches, half of the laterals were allowed to divert water during 3 days and the other half the three remaining days.

³⁹ He belongs to a party known to control the Ministry of Agriculture

Khlong Moho, totalling approximately 80,000 rai. This trend has not only been driven by farmers trying to access water in the dry season, but also by provincial services of RID, who have helped by developing ditches and setting powerful pump sets along the way. Despite some contradiction in terms of management and economic rationality, the rationale for such support (as expressed by farmers and officials) is either that: 1) these infrastructures are meant to be used in the wet season to complement crops with irrigation; 2) or that these farmers are often affected by floods (water accumulating along the canal embankment before being funnelled through the Project) and, therefore, need to grow a dry-season crop⁴⁰ (which is in contradiction with the first point). Another argument given by officials is that “these farmers are also citizens and pay tax, so they have the right to water too”. Interestingly, no special animosity against these areas (which divert a growing part of the water allocated to the Irrigation Projects) could be observed among the farmers of the “official area”⁴¹.

3.1.2.2 Management at the Project level

Given the shape of the Project, those farmers located along MoHo canal usually succeed in diverting or pumping water directly from the canal into their plot or to some ditch, independently of the laterals. They are the best candidates for triple cropping. However, the opposite location, along the main drain, also proves very beneficial as farmers pump from this waterway and from the secondary drains which flow into it. In the dry season, the drain is also supplied by some release from Samchok Project and benefits from the large quantity of water rejected by the shrimp farms. The shrimp farms located along the drain cannot use the water from the drain because it is polluted with pesticides and other products. Therefore, they receive water from the Samchok main canal. This system is quite “heterodox”, as it requires aqueducts over the drain and diverts some water from users in Samchok Project⁴². It follows that the usual tail-end problem which might have affected the terminal reach of our 16 laterals is not only alleviated by the role of the drain as a source of water (through pumping) but, to some extent, replaced by a rather advantageous situation.

The potentially water deficient areas are, therefore, the middle reaches of the laterals. They are sometimes at a loss to get water from the canal side and can only attempt to access water from the drain in order to save their crops. Not rare, they have to pump water up in three successive steps along a secondary drain or a ditch. There were even reported cases

⁴⁰ It is also reported that the ditches dug by the RID office from Suphan Buri (up to 10 km in length !) have worsened the problem because they now serve as channels for the flood water to gather in the area with more strength and rapidity.

⁴¹ “The farmers over there also grow rice to eat; it's hard to prohibit them to do so” (*Kasetakon ni, tham naa kin muankan, ham yaak*).

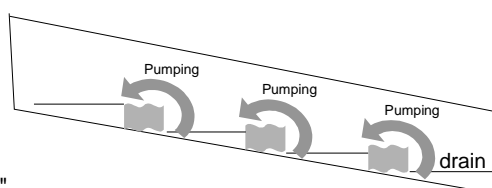
⁴² We could not identify for what reasons this had been allowed by RID.

of farmers having pumped water up along 6 successive steps in order to save their standing crop!⁴³

No serious problems are experienced in the rainy season. In the dry season, the main question, like in other Projects, is to estimate the amount of water which is likely to reach the Project. Formerly, the dry season was scheduled to start at the beginning of February, after 6 weeks of interruption. Some farmers located near the drain, however, started to grow an earlier crop more than 10 years ago. They included both farmers located within the remaining pocket of floating rice (they gave up wet season rice for a post-flood rice) and those along the main drain, who could easily pump from that waterway in order to start their crop independently from irrigation supply.

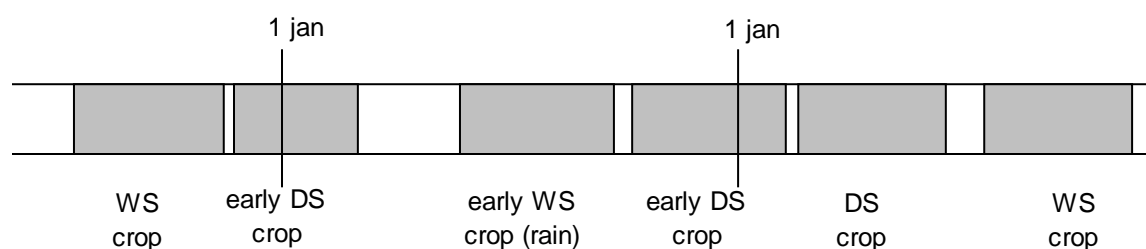
This move was imitated by more farmers in the lower half of Don Chedi Project in the early 1990s. During this period of shortage, water supply became more uncertain and many farmers capitalised on the wet conditions of the end of the rainy season to start an early crop, instead of waiting for an hypothetical later delivery. By doing so, they forced RID to ensure a certain degree of continuity in water supply through December and January. Although never formally acknowledged (and incorporated within the planning), this shift was very significant and also contributed to the “deregulation” of calendars, turning the situation more confuse.

Figure 13 shows a typical succession of cropping calendars in the Project. In the first year, a bad dry-season (DS) is announced (low dam stocks) and farmers (if the price of rice is attractive) rush to grow an early dry-season crop (possibly of 90 days cycle), harvesting taking place in late February. No further crops are grown until the next wet season (WS). But the wet season crop itself can start at any time. If farmers are encouraged by abundant early rainfall in April and May, they may start their WS crop during these months. With an ensuing dry season considered as normal, they will grow crops successively. It follows that it is sometimes hard to define how many crops are grown per year, because cropping calendars straddle the seasons and shift according to the conditions. In some instances, the cropping intensity over a lapse of 12 months may be higher than 3.



⁴³ Example of pumping in three consecutive "steps"

FIGURE 13: TYPICAL MOBILE CROPPING CALENDARS IN DON CHEDI PROJECT



When a rotation is implemented in the Khlong MoHo, then a sub-rotation is also established among the 16 lateral of the Project (by groups of 3 or 4). However, the custom to rotate two reaches (separated by km 72 regulator) within Don Chedi Project is older and has long been resorted to in order to raise water levels and allow gravity inflow in the laterals. Farmers sometimes complain because another lateral remains open while it should be closed (no one is there to take care and to enforce the rule). It sometime appears that the gate locker has been damaged and cannot be operated⁴⁴. Slight tensions may arise from differences between zonemen (and gatekeepers). Some have a higher authority, social recognition and sense of duty and do their best to enforce the rules. Others are slacker and are even reported to turn a blind eye to illicit lifts of the gate performed at night, when they are not on duty⁴⁵.

On the whole, farmers seem to be well informed about the rotation turn established by the Project. Although some officers complain about the low attendance of farmers to their meetings⁴⁶, the contribution of zonemen (at least those who are most active) and of local leaders (often *puyayban*) allows the information to be disseminated. Cars equipped with loud speakers go through the villages to announce main rotational arrangements, and they are also notified on sign posts at the head of the laterals. In the year 1999, a dry-season starting with low dams stocks, the RID also disseminated a brochure to the *Puyaybans*, with a drawing of the basin and data on dams storage, in order to justify the limited allocation.

3.1.3 Arrangements among farmers, at the lateral level

3.1.3.1 Management of supply along the laterals

The patterns of organisation for sharing water along a given lateral are very varied and depend upon the relative availability of water. Figure 14 gives a schematic representation of

⁴⁴ "If they know who did that, they will ask this person to pay for a new one"

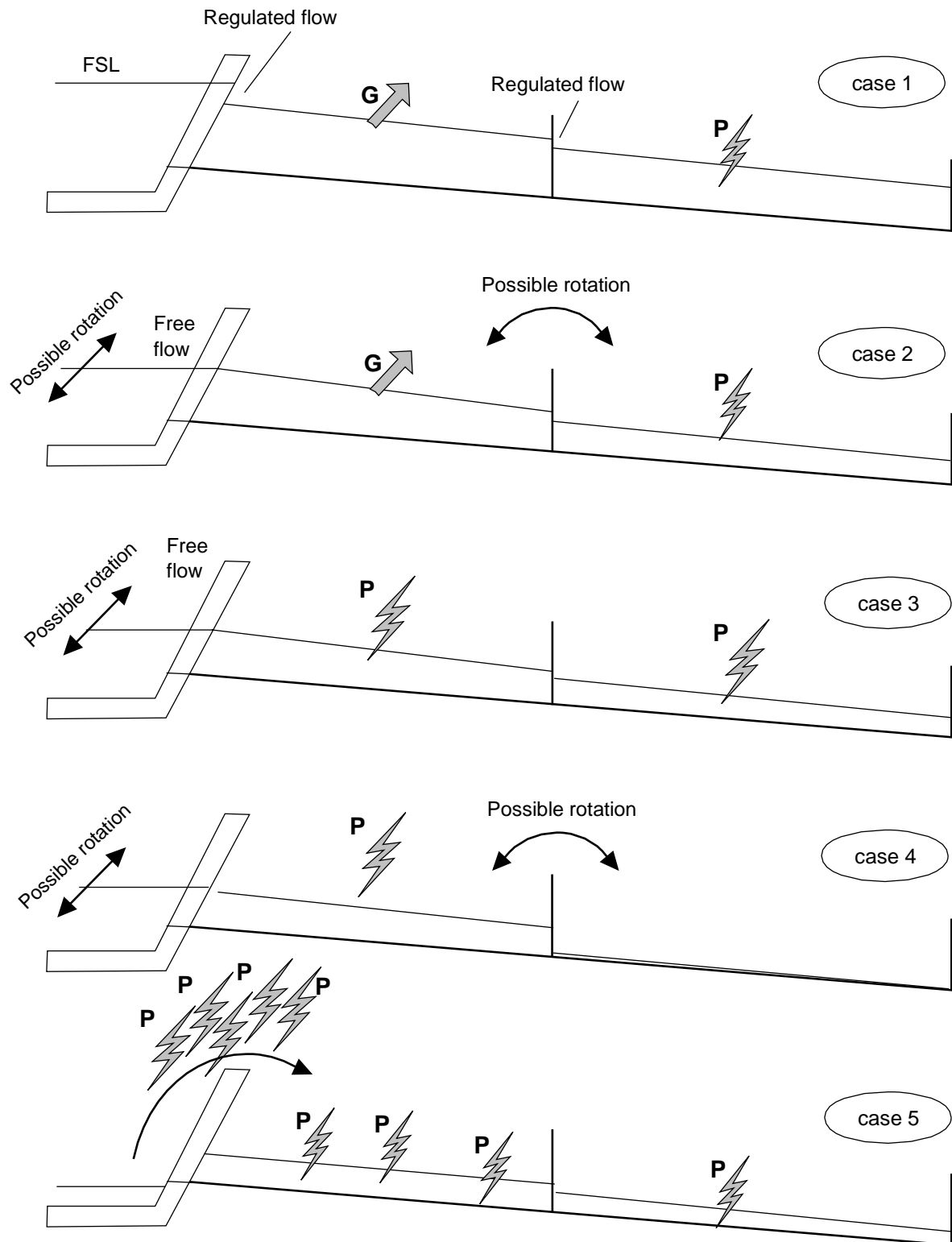
⁴⁵ Whether this is done under conditions of bribing was unclear. There was no evidence that the possible benefits for the zoneman were in terms of money.

⁴⁶ "It is difficult to call for a meeting because farmers will usually not show up, considering that they know already about questions of water. They come only for the BAAC (Bank of Agriculture and Agricultural Co-operatives) and extension meetings, because they can get credit or seeds !", commented a zoneman.

the different situations that have been observed and classified *a posteriori*. It must be noted that a given lateral may have experimented all of these situations or may not. While what follows applies by and large to all laterals, differences between them, and between the years and the periods of the year, will be addressed in the next section.

1. In normal conditions (full supply), the gate of the head regulator is adjusted to allow full supply conditions in the canal. Most laterals have check gates which define several reaches. These gates are also operated in order to ensure flow by gravity in the different ditches. The system is supplied by continuous flow.
2. When the water level drops in Khlong Moho, or when a rotation has been established in it and water will be available only during a short period, it may be the right time to rotate the different reaches of the lateral. This will ensure greater equity and a collective benefit due to the possibility to ensure gravity inflow in the plots in most cases. Depending on local topography, some higher plots may have to pump from the lateral.
3. When the water level further drops, the discipline of the rotational system within the lateral cannot be sustained because the flow is not sufficient to serve all users. Therefore, a system of generalised pumping is observed along the lateral. Head enders often pump first, to the detriment of tail-enders. However, in many instances, farmers would wait until the canal fills up before starting pumping at the same time. If the shortage is mild, this will only translate in staggered calendars; if it is more prolonged or becomes more serious, then some crop damage may be registered.
4. When things get worse and when tail-enders effectively face rising risk, a rotation can be enforced between the reaches, so that water may attain the lower reaches. Farmers generally agree to start pumping after the lateral has been filled up. Up to 100 pumps can be found along a lateral and a reach can be dried up in 4-5 hours, ! While first filling the canal up, some farmers may open the Farm Turn Out at night, pump, or even open one of the check regulators (they sometimes have the 'key' and use it when the zoneman is not on duty, at dusk). Rotations can be complex, such as in K19 canal, which is comprised of 4 reaches. Theoretically, the turn is divided among the 4 reaches, with half a day to fill the canal (tail-enders use the drain).
5. In the last case, the (freeflow) gravity intake of the lateral may be so reduced (or even stopped) that it becomes preferable to close the head regulator and pump from the main canal into the lateral, in order to boost the inflow. This case is very common and rotations within the reaches of the main canal may be established in order to revert to one of the above situations (3 or 4). If no such arrangement is decided at the Project level, farmers gather at the head of their lateral and set several pumps operating at the same time (In that case, no rotation inside the lateral is possible). This is the easier part of the arrangement, while the difficulty lies in the subsequent distribution of water along the lateral.

FIGURE 14: SCHEMATIC REPRESENTATION OF THE DIFFERENT SITUATIONS AT THE LATERAL LEVEL



(P): pumping; (G) gravity

FIGURE 15: EXAMPLES OF FARMERS PUMPING FROM MAIN CANALS



Pumping at the head of a lateral is achieved by farmers with the use of their low-lift axial pumps (*tho phayanak*), generally powered by a two-wheel tractor (see Figure 15). Sometimes, up to 15 pumps can be set at the same time, although 5 or 6 are generally the maximum number of pumps activated at the same time. In the case of using many pumps, those pumping on the side use soft hoses to channel water down to the lateral head reach.

In what order do farmers pump ? The accepted right is that whoever comes first (i.e whoever has an urgent need of water for his plot) pumps first. Latecomers must wait for those who have set their pump first to finish filling up their rice fields. Farmers with no pump (a minority) do not engage in risky cropping or pay neighbours to pump for them.

Things get complex because pumping water from the main canal into the lateral is not enough to raise the water level as to ensure gravity inflow into ditches and riparian plots. It follows that who pumps at the canal head must also pump a second time in the lateral, at the proximity of his plot. Even in the ditches serving some lowland area, where some gravity inflow is in general possible, this inflow will often be too slow and not efficient when water is available during a very short time. Farmers, instead, will use a pump to ensure the irrigation of their plot in the shortest time possible.

Whoever has only one pump set will try to team with a neighbour and will pump at the head while the neighbour pumps at the plot level. Costs are balanced and shared on an area basis. Obviously, cases arise in which one farmer uses a more powerful pump near his plot than the one he uses at the head of the canal (typically an axial pump of 8" in diameter against one of 6"). Normally, this is observed by fellow farmers and the trespasser is told to change his system at the next rotation or can be barred by the other farmers out the next opportunity. However, complacency with particular cases seems to be rather common ("he has high land", "his land is dry", "he lost his rice last year",...). The system functions rather smoothly and is internally controlled ("when we pump together, no problems occur because farmers know each other. If one is sowing, for example, the neighbours will reduce the water depth in their field to limit seepage to the plot next to their"). Questioned on whether the system is equitable and whether some farmers try to take advantage of it, most farmers,

while reckoning that some plots do get more than their share, report that some inequality is well accepted (*tong chuaikan*), as far as it is not perceived as outright cheating.

Tension may arise, however, when water is available only for a short period, typically when a rotation on the main canal is decided, or when the gravity inflow is low during a long period. Normally, downstream people are the one who first experience problems and come together to ask for a rotation. They will often have to resort to the *phuyayban* to help enforce their request if the agreement among villagers is hard to reach.

Farmers from a same reach pump together. Sometimes they do not want to stop pumping at the end of their turn and the zoneman must call the *phuyayban* to solve the problem. The rotation between the two reaches is not always fixed (duration, which reach is to begin, etc) and it is renegotiated each time, after examining where the problems are more acute. Those who pay a neighbour to pump for them run a higher risk in such a situation, as their turn may come when the time attributed to the canal is over. As in the preceding case, the group of farmers pumping at the same time sometimes decides to first fill the different reaches before allowing the second-step pumping, in order to even difference between head-enders and tail-enders (who in the opposite case would have to wait until enough water impound in their reach before being able to irrigate their plots, generating some conflicts). Some instances of “water theft” (opening of a FTO on the way, undue night pumping) are sometimes observed but they are limited and by no means jeopardise the collective arrangements.

In some cases, when no rotation is set in the Khlong MoHo, farmers from different reaches may have an urgent need of water at the same time. It could, for example, be observed that 6 farmers (2 belonging to the first reach and 4 to the second), could pump jointly at the head of the lateral and agree on the setting of the check regulator (dividing the two reaches), so that each part of the canal would get a fair share of the flow. These kinds of arrangements, which demand a certain degree of co-operation and the acceptance of slight inequities, and which could easily lead to conflicts, are very common and rather smoothly implemented.

3.1.3.2 Distribution at the ditch and plot level

In most cases, plots are irrigated by gravity when the canal is functioning close to full supply level conditions. When pumping from the lateral is needed, plots receive water either directly (if they are located along the lateral), or through a ditch. In a few cases, the plot is a bit high (or the ditch has been dredged and deepened) and a third pumping may be needed between the ditch and the plot. Some fields may also depend on plot to plot and some farmers may not allow water to go through (*Phuyayban* must intervene (“*tong chuay noy*”)).

Because difficulties increase with the distance to the lateral, the plots along the canal are always planted first; in case of overall seasonal shortage, a “glove-pattern” can be observed, with cropping areas stretching along waterways. Risk is location-specific and is partly fought through the use of farm ponds (in particular for orchards) and short-term rice varieties. In the recent years, the “*Ratchanee*” variety, with a cycle of only 90 days, has been quite popular

and is resorted to when calendars get compressed or when the prospect of water supply is slim.

3.1.4 Differences between laterals

In addition to what precedes and applies, by and large, to all canals, significant differences between the laterals can also be observed.

- **Khlong 11** is located at the entrance of the Project and can therefore be expected to have better water conditions. In fact, triple cropping has been widespread for a few years already and until five years ago water distribution down to the plot could be achieved by gravity. K12 is better because of a lower sill level and farmers from K11 have requested RID to line their canal. An active village headman has long contributed to the setting of a rotation within the lateral when downstream users need it. This is done without intervention from RID.
- **Khlong 12** is lower than 11 and gets water more easily. In this canal, RID may come and announce a meeting if there is a problem reported by farmers. This will result in a rotation (typically 3 and 4 days over one week) or in the setting of the middle check gate in order to divide the flow. But a rotation was set only in 1997-8; before, water would enter the lateral by gravity and there was no necessity to pump.
- **Khlong 15-16** Farmers tend to plant all the time because shrimp farms located at the head of these two laterals reject a lot of water into the drains (two drains larger than the canal, from which they pump) and because farms are provided with land consolidation; Rotation on the lateral reach was implemented for the first time only two years ago; triple cropping has been common for more than 10 years. Rice farmers cannot compete for water because shrimp farms have big pumps; they sometimes buy water from these farms. K16 normally has good gravity inflow but people have been quarrelling over pumping and they have established two turns of 3 days *for the first time in 1999* (2 reaches within the lateral). K15 is said to be much better than K16 because of its lower sill and its position upstream of the km72 regulator (but it is longer). This regulator used to be used as a check for rotation within the Don Chedi Project, but it is now used only to raise the water level, while the rotation hinges on Km84 (new) regulator. K15 also has a 3/3 days two-reach rotation, but does not really apply it because water is sufficient. These two canals are in a favourable situation and did not have to set collective arrangements.
- **Khlong 17** The downstream reach has relatively sandy soil and only two crops of rice are generally grown, while many orchards capitalise on their good access to drain water. Rotation occurred in 1998 and 1999 only on this lateral, but pumping at head has been common for many years, although for limited periods. They did a committee with the zoneman and no one was found cheating. In 1999, there was not enough water for the second reach.

- **Khlong 18** has the particularity to have three sub-branches and to have been recently lined. At that time the sill level of the canal was also lowered, which greatly improved the possibility to have gravity inflow into the canal.

The TAO (*tambon administrative organisation*) set up some arrangements for the distribution among the three branches but it was not accepted. In 1999, RID fixed the rotation but this was the source of much discussion and discordance. Water often does not come at the announced date, so farmers go to see the Project head or *P.* In 1992-94, the situation was bad too, and they got almost no water (no possibility to set rotations). Arrangements within the lateral are also recent here.

Phuyay Phayboon (*mu* 6 upstream) and Khun Jomseng (*mu* 5, downstream) are the ones to organise the rotation between *mu* 6 and *mu* 5, along the *left branch*. Pumping is often necessary at the head of the branch. The number of pumps they are allowed to set up by the zoneman depends on how much water is left over for the other canal branch. It can reach 8 or 10 pump sets. If they see that much water is flowing to the other branch, they will ask the zoneman to allow them one more pump. Their pumping turn may be only 24 hours long. Once, a group of farmers from the right branch came to request to remove three pumps because their own share was too little (the zoneman was absent); they threatened to call the police but farmers from the left branch resisted and they eventually gave up.

Mu 6 (village 6) people are located along the upstream reach and farmers from *mu* 5 (downstream) sometimes see some FTO opened when it's their turn (they go and close them). Jomseng, the leader of *mu* 5 farmers, tries to establish good relationships with *mu* 6 and demonstrates that they are controlling possible water thefts by using a loudspeaker on his pick-up and patrolling the canal ("thank you to the people of *mu* 6 who help us managing water and will have their turn from 6:00 a.m onward"...).

Problems for water are believed to have started with the "rush" to DS cropping in 1997, and because of the lining of the main branch, facilitating water flow to the farmers of this sub-area. Before no rotation was implemented, although, like in 1992-1993, water was lacking. Despite (verbal) conflicts, the rotation was considered to have brought some degree of equity. In 1998 some farmers of the right branch were able to grow three crops, but in normal years not every one can even achieve double cropping (with tail-enders disadvantaged ("*ying tai, ying yew*")), although those located at the very end can use the main drain).

- **Khlong 19** : Some farmers went to Chai Nat meeting with *P.* and knew about the schedule. In 1999, some people could not get water and did not harvest at all. Presumably, only 80% of the crop was harvested (but rains in early February helped a lot). K.19 is worse than 18 (no lining and higher location) and also more complex in that there are 4 check gates in it. In the rotation schedule, they have 6 hours for one reach but sometimes water does not come. Pumping groups are by lateral reach. There has been a

lot of crop damage in the area. Some people already have water but take more : it was proposed to set a committee to check what is the real water need of each reach. Rotations work if water is sufficient; this was implemented before in some years (1994).

- **Khlong 20** : There was no dry-season cropping in 1999, while in 1998 most were able to grow three rice crops. *There is no rotation on this lateral* ; sometimes they fill it up before allowing people to pump at the same time. Head-enders grow one DS crop in most years. Severe conflicts exist between upstream and downstream villagers. Two years ago someone was shot by upstream people (but not killed) when he was ordered to stop pumping and did not. Head enders are said to speak *lao* and there is a big tension with them. Downstream people are afraid to speak ("*ngiap dii kwaa*"). The problem is quite old and they must bribe the gatekeeper to get water.

After dredging the canal last (1998), the problem was worsened as water could not enter the plots by gravity. Many people had their rice damaged by draught and cropping intensity was low in 1998 and 1997. The zoneman tried to tell head-enders to stop pumping but in vain ; he tried to suggest to first fill up the canal with water but failed again. This shows that if particular circumstances (group antagonism apparently worsened by ethnic differences, poor local leadership, etc) prevent the setting of some collective arrangement, resulting in greater inequity and tension result. In times of conflict, tail-enders must rely on the drain, if this is possible, despite great expense and labour (pumping in several steps).

- **Khlong 21** ; The situation is said to be similar to K.20 but the land is lower in general.
- **Khlong 22** : Over 1,000 rai of sweet potato are cultivated in the upper reach of this area (good black soil). No rotation was ever set up in the canal; farmers pump if they can and others wait. Downstream users sometimes have to pump at the head of the lateral. The canal also gets contribution from the drain. Laterals K21 to K24 are pooled in the same rotation and have one day each to pump.
- **Khlong 23** : The canal has been deepened through dredging and gravity is now impossible for almost everyone (April-May). In the 1999 crisis, some farmers went to see the Provincial Head directly. There are 18 Lao villages in the area. The check gate is damaged. A rotation was attempted in 1998 but upstream people opposed it. Pumping at head is limited and probably recent. No possible arrangement has ever been set within the lateral.

3.1.5 Discussion

A few lessons can be drawn from this case study. It shows in particular who are the stakeholders and what are the social and physical factors governing the setting of rotational arrangements or, on the contrary, their absence.

3.1.5.1 Stakeholders and their respective roles

At the upper levels of the irrigation scheme, RID is the main manager. However, it is apparent that it lacks the authority to impose and enforce rotations on a large scale. It can be said that the authority of RID has been eroded over the years, due to a series of factors both under and beyond its control⁴⁷. The first one is some weariness which has built up over the years. Routine has exacted its toll on many of the officers who, even if they remain on the whole relatively dutiful, have found through a trial and error process some form of management which minimises both drudgery and overall complaints. On the other hand, farmers have gained some autonomy, both in terms of water management (pumping capacity, development of secondary sources, direct seeding) and in political terms (linkage with local politicians; decentralisation process).

The rotational arrangement within the Khlong Moho, which was only attempted for the first time in 1997 and implemented each year since (but only in short periods of one or two months in some years) is admittedly possible only if the administration (*fay pokrong*) and politicians sponsor it and help in enforcing it. Police squads are brought in to patrol along the canal and demonstrate the commitment of governmental services beyond just RID. As the canal goes across several provinces, the arrangement needs to be backed by the concerned administrations, down to the district level, with the setting of a committee. Such administrative involvement was also observed in the other parts of the delta where new large-scale rotations had to be implemented in the past years.

In the case of Suphan Buri Province, this linkage with politicians appeared in sharper relief, as the province is politically dominated by a party which also happens to have control over the Ministry of Agriculture. Local MPs are therefore active in showing concern for their political basis and also succeed in mobilising extra supply in times of crisis. We have seen in the Report No. 1 that this was one of the factors explaining the overall imbalance in water allocation over the last twenty years, the western part of the delta receiving more water than the eastern part.

At the Project level, coordination in water management heavily relies on zonemen (in charge of one or two laterals). The role of the zoneman is very variable from one canal to the other. While in some laterals all farmers would know and refer to the zoneman as an officer who is always around, checking the conditions of water⁴⁸, in others some farmers would not even know his name (sometimes referring only to the gate-keeper, his assistant). In one lateral, the gatekeeper was requested by the zoneman to leave the key at his own office, as a way to control his bowing to unauthorised pressure from farmers. Other zonemen were reported to

⁴⁷ As stated by a zoneman: "Nowadays, the power belongs to the administration" (*dioni, amnaat you kap fay pokrong*)

⁴⁸ In one of the zones, a new zoneman was widely criticised and not accepted by the farmers, who requested the former one to be assigned again to their area.

be complacent and a bit slack with the rules, to the benefit of their zone, while (admitted) bribing seemed limited, restricted to some gifts of alcohol or otherwise.

On the farmers' side, there is no (active) Water User Groups, nor any other kind of formal group committed to water management or to co-ordinating with RID. The general procedure is to try to solve whatever problems may arise locally, often through the intervention of the *puyayban*, the zoneman or other local leader. When this is not possible, farmers will generally try to request intervention of the head of the Don Chedi Project. When the problem is obviously beyond his reach, some farmers will directly contact MPs from Suphan Buri (including a former Prime Minister). RID officers are sometimes resentful of the intervention of politicians but in most cases knowingly trigger it by telling farmers that the problem lies beyond their reach.

With the decentralisation law, the TAOs might appear as a possible future stakeholder in issues of water management, as local communities are expected to be responsible for the management of their natural resources. At present, the TAO is active for problems of canal, and ditch maintenance. Farmers in some laterals are asking for their canal to be lined and the sill level to be lowered, so that they may have better water intake, as in Khlong 12. In one instance, it was found that TAO attempted to intervene in the setting of a rotation within one lateral. A constrain, however, lies in the lack of congruence between *tambon* boundaries and hydraulic units.

Another conclusion is that while farmers and their local leaders, sometimes together with RID's field staff, may successfully implement collective arrangements at the lateral level, they have no higher level type of organisation to cope with distribution at the Project level, or at the Khlong MoHo level. RID's Projects officers commonly establish rotations within the Project (sometimes rather loose, as flows are rarely interrupted because of the need and/or pretext of ensuring water for domestic consumption) but have a limited capacity to implement them along Khlong MoHo and even less power to enforce them. It appeared clearly that at these levels political intervention is necessary but that it cannot impose the necessary discipline on a long-term or permanent basis.

3.1.5.2 Flexibility and effectiveness of collective arrangements

An interesting point concerns the swift but sometimes rather complex arrangements set up by the farmers for sharing water along a lateral, in particular when pumping is also needed at the head of the canal. The problem of dividing water among the plots after two successive collective pumping operations is handled successfully and gives way to few conflicts. This is a good example of the voluntary, short-lived and flexible arrangements which are widely recognised as a hallmark of Thai behavioural patterns (see 2.1.2.3). In fact, farmers experience a large diversity of shortages : water may be lacking with more or less intensity, for a short or long period, while only a few farmers grow a crop or, on the contrary, when the whole area is planted. It is remarkable to see that this diversity of situations is responded to by a range of short term ad-hoc arrangements, which are also shaped by the specific

physical and social context of each lateral (farmers' cohesion, existing leadership, quality of the zoneman, etc). It can be hypothesised that the absence of formal and well defined organisational patterns for water management is partly a consequence of the wide range of shortage situations which are faced. *In other words, no enduring arrangement can be designed because it is unlikely to be able to respond to all the situations of water supply.*

Also noteworthy is the fact that such a situation of uncertainty does not lead to chaos. The level of equity of these different arrangements is also varied, but often notable. When farmers have started their crop, there is a general consensus that collective agreements must be set to prevent drastic imbalances and crop damage. However, these potentially conflicting situations are made less commonplace and less critical by the fact that *locational inequities are already embodied in the initial decision to plant a new crop*. Here lies a fundamental source of (accepted) inequity, but also of great overall efficiency. Farmers use past experience and present conditions to assess risk, i.e. whether a new crop can be reasonably grown, at a given point in time and space. This decision-making includes varied factors such as the date, RID's announced planning, the price of rice, current rainfall and water levels in the main canal, alternative water supplies in case of shortage (farm pond, well, drain), access to political intervention, etc. and of course experience of past years.

These arrangements also tend to dismiss – or at least smoothen - the arguments of those who assert that farmers in the Central Region are individualistic and not prone to organise collectively. In most cases, because of the former habit of acting individually, the intervention of some officer is necessary before implementing rotational arrangements. In other words, these are seldom endogenous and are sometimes even unfeasible when several villages with conflicting relationships are concerned. Ad-hoc committees jointly set by the concerned government agencies are also a good example of short-term ad-hoc arrangements. While equity concerns would call for a permanent setting of rotational arrangements, it remains to be seen whether these will endure as a definite hallmark of a growing pressure on water resources, or if they will be only recurrently set in times of shortage.

3.1.5.3 Benefits and constraints of collective organisation

A striking result of the survey is the quasi-absence, up to very recent times (4 years), of collective arrangements to ensure better equity at the lateral level. This was due to a lower overall pressure on water resources and to an implicit acknowledgement and acceptance of disparities. A notable exception is K19, which is in an intermediate position, and set some rotation since the early 1990s. In contrast, upstream canals only resorted to rotation in the last two seasons (and they were often discontinued when supply was sufficient), while the furthest downstream canals have never used them, probably on account of the impossibility to serve farmers properly with too limited flows (rotations do not work in critical shortage conditions).

A higher pressure on water can be traced to the hike in rice prices and to the 1997 crisis (coinciding with a return, albeit limited in the Central Plain, of unemployed workers to their

village). It is hard to assess whether the admitted lack of problems of the past must be attributed to better supply or to the fact that a significant portion of farmers had given up their plight for water and were not competing any more for the resource (especially in the last laterals, where more crop loss is recorded). Project data on cropping intensity suggest that this must have been the case, in parallel to efforts made by those who did not conform to the situation and developed secondary sources: farm ponds, deepened borrow pits, tube-wells (in the south of the Project), ditch and drains dredged in order to benefit from the water of the main drain, pumping capacity to better tap all these resources.

In some years, not everyone can grow dry-season crops. But with the staggering in calendars, most farmers are now in a position to engage in double-cropping. However, inequalities subsist as in years of shortage only the upper part of the Project is likely to engage in dry-season cropping, while in years of abundant supply this area will grow three crops and other parts two. It seems that being “near the canal” is more important than being at the head. Distribution in ditches is too slow and not efficient when water is available during a very short time. Farmers, instead, are better served by a high pumping capacity near the main canal.

Agriculture in the Project implies significant risk-management from the farmers, which probably conditions many of the behaviours observed. The clearest aspect of this is the choice of cropping calendars. Farmers use their experience to estimate the real degree of scarcity of water supply in the dry-season, including the likelihood to see RID allocate extra-water out of the planned schedule; they capitalise on field wetness and pounding water in the later rainy season, or on rainfall in the late dry-season, resort to secondary sources and grow short term rice varieties (90 days). Decision-making also incorporates locational specificities and the comparative advantage of the lateral canal in accessing water.

In case of crisis, when risk has been under-evaluated, farmers try to access water at any cost, generally pumping from the drain at the cost of several successive operations, step by step (there has even been the case of people buying trucks of water to save their crops⁴⁹); they also have, of course, the option to call for political intervention.

It must therefore be examined to what extent farmers gain in conforming to collective rules and when these are feasible. There are two collective gains from the rotational arrangements: the first one is the possibility to raise water levels in order to allow gravity inflow to the ditches, thus reducing pumping costs; the same can be said about the rotation implemented in Khlong Moho. The second overall benefit is greater equity, as potentially unfavourably located farmers also get some supply.

This holds as long as all the users who expect a certain amount of water eventually get it. If farmers feel, rightly or not, that they have no security to get water in their turn, discipline will

⁴⁹ but no case of “water market” (people selling water from their farm ponds, etc).

break. This chiefly applies to head-enders, who might get more water by adopting individual strategies. Tail-enders will generally be more passive and more likely to accept shortages, as their situation would be much worse should the discipline be broken. *Rotational arrangements are feasible only in a rather narrow range of the supply/demand ratio spectrum.* They will be all the more likely to fail if the canal inflow during the overall rotation cycle cannot be stabilised, meaning that some sections will both get less water than expected and less water than other parts (undermining the feeling of increased equity which is the principal motivation of such arrangements). In addition they will also be hard to implement when the overall supply is far below demand. In that case, the number of farmers who expect to get water during a given turn exceeds the number of users who can physically be served, resulting in frustration, overall shortage and breaking of discipline.

In summary, the discipline of the rotation can endure only in 3 conditions: 1) the presence of some leadership; 2) water is not too abundant (the burden of following a schedule loses its justification), and 3) not too scarce (head enders with pumping capacity will tend to reject the arrangement as they will prefer to save their crop by adopting individual strategies). Stability and predictability eventually rest with RID and are contingent upon the wider allocation and management levels of the basin. This stresses how local collective arrangements are strongly dependent upon upper levels of water management.

Locational aspects were shown to be important parameters explaining differences among laterals. This includes the canal sill elevation, the terrain slope (access to the drain), whether the canal has been dredged (lower level, inflow to ditches made difficult), whether it is lined or not, located after or before a regulator (on Khlong MoHo), divided in several reaches (check gates), or sub-branches; but it also strongly depends on the seriousness and capacity of the zoneman to establish equity-improving arrangements, and, ultimately, on local leadership (the presence of farmers with recognised authority). Differences in soil type and drainage conditions also govern crop choice and rice cropping intensity.

All these factors are, to some extent, useful in explaining differences observed between laterals as the mere position along Khlong MoHo, from km 57 to km 104. Nevertheless, there is a meaningful absence of rotational arrangement in the very last laterals, while those of the head ones were sometimes just abandoned because of sufficient supply. The gradient in cropping intensity, itself a reflection of a gradient in risk, was made clear by the 1999 shortage, in which only the upper part of the Project engaged in an early dry-season crop. It must be noted that without the possibility to use the drain, differences in cropping intensity would probably be much more significant.

These observations conform to the evidence that collective arrangements are feasible and that supply uncertainty generally make them impracticable. Setting more equitable patterns of water allocation would require both the stabilisation of inflows and the institutional determination to define and enforce them. In most cases, farmers are likely to display the collective skills needed for their success if these prerequisites are met.

TABLE 4: CROPPING INTENSITY IN THE 12 ZONES OF DON CHEDI PROJECT

Zone	Lateral	WS 2000	DS 2000 (1)	DS 2000 (2)	Total DS	Cropping Intensity
1	9,10	12084	12814	1250	14064	2,04
2	11,12	9068	9214	1737	10951	2,17
3	13,14	9634	8713	1850	10563	2,10
4	15,16	5112	5472	640	6112	2,05
5	17, 1L-18	7105	6725	571	7296	2,03
6	18	9555	9690	527	10217	2,04
7	19	10774	10774	0	10774	2,00
8	20	9610	9616	0	9616	2,00
9	21,22	6909	7949	1040	8989	2,00
10	23	10677	10901	0	10901	1,98
11	23	11404	13254	0	13254	1,86
12	24	10660	6986	0	6986	1,66
Total		112,592	112,108	7,615	119,723	

3.2 Case study 2: Borommathad Project;

Setting of rotations and other arrangements

In 1997, dry-season cropping rocketed up, boosted by high rice prices and large water supplies (partly due to a policy to compensate for some damage provoked by flooding in 1995 and 1996). Because of the sheer increase in water demand, uncommon protests arose from farmers located in the tail end of canals who were afraid to be deprived of water, as other head-end farmers were engaging in triple cropping. This led to the intervention of politicians and provincial authorities which involved themselves in the setting of rotational arrangements for water distribution. In 1998, similar measures were taken in many places. A survey in March 1998 was carried out in the Borommathad Project in order to shed light on this process, with focus on the area served by Canal 2L. The interviews carried out included RID officers, one TAO (Tambon Administration Organisation), several phuyayban and kamnan from the concerned area and 20 farmers.

3.2.1 Physical setting and dry-season water allocation

The three main canals of Borommathad Project branch directly from the Chao Phraya River, upstream of Chai Nat dam. They get some advantage from the fact that they are close to the water source but are also disadvantaged by a high sill level, which means that their inflow is often insufficient when the water level at the Chai Nat dam drops, notably during the early dry season (see details in Report I).

The Project mainly grows rice and as it is provided with several thousand tube wells (4,500) its cropping intensity is rather high: 1.47 over the last 20 years, and 1.72 over the last 5 years (see Report I). Triple cropping has been commonplace for the last ten years. Part of the Project area is provided with land consolidation facilities, including the upper part of our study area which encompasses the area served by Canal 2L, a waterway which follows the eastern bank of the Noi River (Figure 16). Extension services try to encourage farmers to plant field crops and sometimes distribute free seeds. One *puyayban* who had volunteered to grow 20 rai of mungbean in order to give the example was poorly rewarded as rainfall flooded the plot and the crop was lost. This serves here to emphasise and remember the limits of policies aimed at encouraging a shift away from rice to field crops.

The study area intersects 6 *tambon*, most particularly *tambon* Tiang Thew, Pho Ngam, Huay Krot and Huay Krot Patana, as shown in Figure 16. Therefore, several *tambon* belonging to two *amphoe* (mostly Sangkhaburi) are concerned by issues of water management in Canal 2L.

In the past, water management in the dry-season was rather loose. RID officers would prepare some formal schedule but it was never adhered to. Figure 17 provides a neat example of the difference between the planned and the observed discharge in the Project.

This is due to the difficulty of ensuring that there is inflow in the canals when the upstream water level drops but also because a lot of in-season adjustments are made in order to try to match real requirements or to respond to political interventions.

FIGURE 16: LAYOUT OF THE STUDY AREA, BOROMMATHAD PROJECT

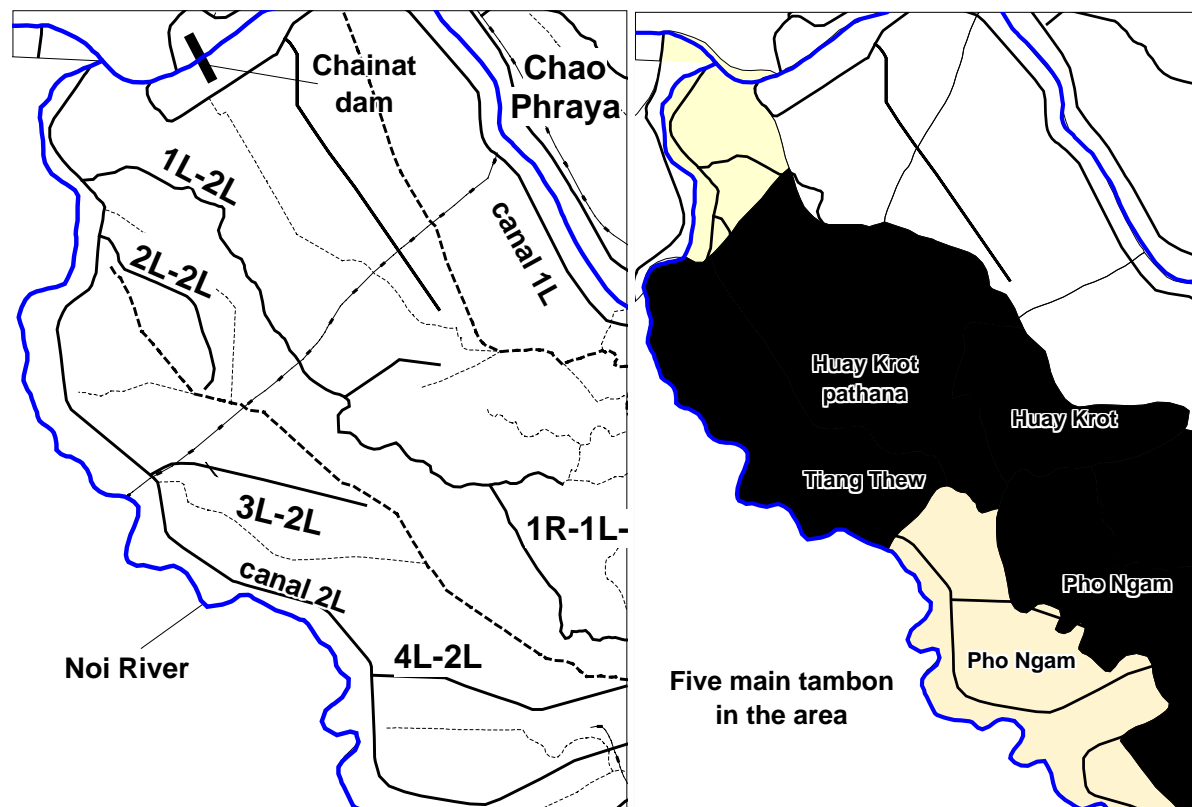
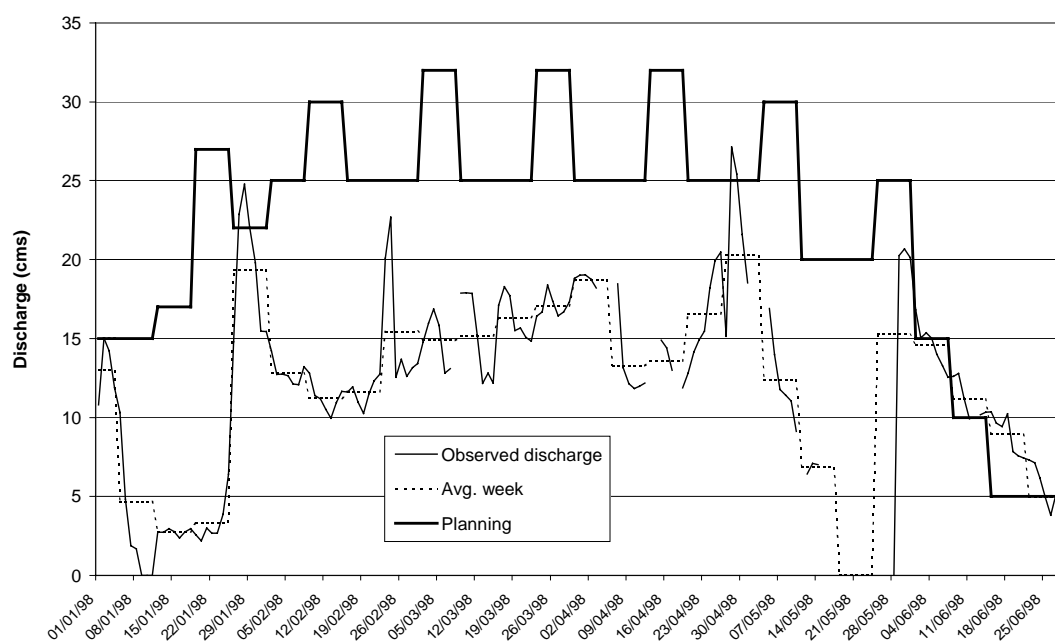


FIGURE 17: TOTAL SUPPLY TO THE THREE MAIN CANALS OF BOROMMATHAD 1998 (2541)



Former attempts to rotate water supply were reported but RID does resort to such measures on a routine basis. However, farmers are not told to refrain from pumping water out of their turn and they are hardly aware of such arrangements. Therefore, rotations are rather theoretical ("*pen thitsadee*", according to one kamnan) and more aimed at ensuring some flow for domestic use in the whole network.

Consequently, it is widely observed that head-enders grow at least two crops and often three, while those who receive water later achieve lower cropping intensities.

Although RID officers have tried to enforce the policy to deliver water alternately to the eastern and western banks of the Noi River (especially during the 1980s), they never totally cut supply in the other canals. These flows officially aimed at domestic supply (*upaphok boriphok*) are often also used for rice but some areas do need such water for tree plantations or pig raising; domestic uses are now widely met by village tap water networks.

Water User Groups are inactive in the area and the only way to derive a clear picture of water management in the area is to interview farmers.

3.2.2 Lateral/ditch management and access to water

Water management in Canal 2L is mainly geared towards ensuring some continuous flow along its course, with only a secondary concern for the level of water. Check gates are operated in order to increase the flow to a given reach. Some effective rotation among the reaches is carried out but without the other ('out-of-turn') reaches being prevented to withdraw water by pumping (or even by gravity, if this is possible). These gate operations are therefore better understood as a "re-balancing" of water supply along the canal than as a formal rotation arrangement.

The weakening of RID's authority has been largely fuelled by the development of farmers' pumping capacity. While this has also been paramount in giving flexibility in access to water, it has stripped RID of its capacity to enforce some rotation by controlling the water distribution through the manipulation of gates: as water can now be obtained independently of whether the water level is enough to ensure flows by gravity, even the incentive to respect rotations is significantly weakened. A consequence of this is that RID has also given less attention to water levels (some farmers reported that even in the wet-season they have to use their pump).

Several patterns of management at the ditch level are observed (ditches are sometimes a few kilometres long). Gravity inflows sometimes give way to a rotation within the ditch, starting by the tail reach after water has reached the end. In one case, it was found that there was an agreement made at the individual level, with an attribution of time proportional to the area. In case of no gravity inflow being possible, farmers pump individually or collectively. In the first case (when demand is limited), the first arrived is the first served; he must check that no water is diverted on the way to its plot and another farmer replaces him when he has

finished to supply his plot. In the second case (when demand builds up), several farmers set their pump at the same time and there is a need to make sure that no one is diverting to his plot more than his share. While this might lead to severe conflicts, particularly because plot inflow can only be assessed qualitatively by eye, few severe problems are reported, as all farmers show some flexibility and agree on what is acceptable and what is not (when there are significant differences of elevation between the plots, it is hard to avoid lower plots to get more water). It is however observed that the system works better when the farmers pumping at a given point in time have nearby plots, rather than distant ones.

Regardless of whether inflow is by gravity or by pumping, if some plot inlet is found open while it is not supposed to be (and the same happens for the FTOs if some rotation is set on a lateral), it is simply closed by those who are checking the situation. The farmer who has, willingly or not, taken undue water never shows up (which would be a face-loosing situation), nor does he generally insist in cheating (which would trigger more vigorous reaction). The same thing occurs in case of someone obstructing a given waterway in order to raise the water level or to prevent water from going downstream. Disagreements between villagers do occur but they hardly give way to severe conflicts and are generally solved internally.

The capacity to act collectively is also shown by numerous cases of wells drilled collectively. As a well is expected to have the potential to serve an area of 40-50 rai, farmers who only have small plots either group together or buy some pumping hours from a neighbour.

The most salient aspect of access to water in the area is the multiplication of the water sources used by farmers. The spread of tube-wells has already been mentioned. Interestingly, several people reported that the drilling of tube wells had considerably expanded in the last two years, showing again the responsiveness of farmers to rice prices. This was done although many people have experienced problems of aquifer drawdown in the past years and have been forced to deepen their wells. Well drilling is paralleled by the digging of ponds (individual or public⁵⁰) and by the growing pumping capacity used to tap drain water or the Noi River. These groups form spontaneously (they generally correspond to an area of 500 ha) and request a pump from RID (see Figure 18, right). Water is channelled to Canal 2L, trapped between a check regulator and a temporary weir, and diverted alternately to the 2 or 3 ditches concerned. These pumping groups pay for the gasoline but not for the service.

Ditch maintenance is generally carried out by farmers when only grass cutting is needed (some prefer to pay (typically 20 baht/rai) instead of showing up and working with their neighbours). From time to time, some dredging must be carried out. This is done by hiring a "makro" (500-1,000 baht/hour), either with some local public fund or by collecting fees from concerned farmers (50 baht/rai).

⁵⁰ Many of the natural swamps (considered as communal land) have been dredged and transformed in perennial ponds for the benefit of riparian farmers.

FIGURE 18: INDIVIDUAL AND COLLECTIVE PUMPING FROM THE NOI RIVER IN BOROMMATHAD PROJECT



3.2.3 Rotations in the 1997 and 1998 dry-seasons

In contrast with the relative acceptance of the loose pattern of water distribution experienced in the former years, the 1997 dry-season gave way to a crisis. The willingness of farmers to grow rice was stirred by attractive prices and by a poor preceding wet-season. Tension materialised as a gatekeeper⁵¹ was threatened by a gun-shot coming from a farmer unsatisfied with his closing the regulator. Canal tail-enders were faced with the perspective to see head-enders starting their third crop without having got sufficient water to start their own second crop and they voiced their disagreement to some local MPs, requesting their intervention. All this led the Provincial authorities to intervene in order to solve the looming crisis.

A big meeting, announced by loud speakers, was organised at Wat Chan (a major temple in the area) in March, to which 600 people reportedly attended. The meeting was chaired by the Province head (*phuwa changwat*), with the presence of all public agencies and administrations concerned: district and sub-district officials, extension services, police and RID officers, which were instrumental in designing the rotation arrangements proposed to the farmers. Most participants agree that little disagreement was observed during the meeting (but one farmer reported that everything was already fixed and that there was nothing to be discussed), with only a few farmers expressing their fear not to get water. The high level of attendance was indicative of the seriousness and rather exceptionality of the situation, as similar meetings held by RID alone usually attract much less people⁵². It was also evident that tail-enders were much more supportive of the measures proposed than head-enders.

The rotation therefore received a very strong political backing and was enforced by RID with the help of intensive police patrolling along the canals. Contradictory opinions were given by

⁵¹ One farmer commented that this happened because the gate keeper was not a real officer (*kharatchakan*), but a locally hired staff, and that this would not have happened should this not have been the case.

⁵² Unless seeds are also distributed, which is reported to be a powerful attractive event !

the interviewees. Some reported that 11 pump sets had been removed by the police (but later given back to their owners), others that only threats were made and a last one that a gun had been fired to frighten patrollers...

Most villagers acknowledge that the presence of policemen and district officials is a good deterrent to free-riding and that RID does not have the authority to enforce a rotation by itself ("when RID officers come we stop pumping, but when they go away we start again"). A few cases, however, were reported in which a farmer had refused to stop pumping, despite the intervention of the Kamnan and policemen. This shows the utmost reluctance of officials to enforce the rule when they know that it is likely to result in crop damage or loss.

In January 1998, a rotation of 4 days was set for Canal 2L: supply to the first (and longest) branch 1L-2L was interrupted for maintenance purposes and was ensured only in the rest of Canal 2L, with a division at the km14 regulator: upstream areas were to receive water two days and the downstream area also two days, further divided in one day for the km14-km19 reach and 1 day for the km19-km28 reach. Each canal reach must be full before farmers are allowed to pump. Otherwise as many as 100 pumps set along the canal can dry it up and prevent water from reaching downstream areas. However, the arrangement was not as strongly backed and enforced as in 1997. Patrolling was not systematic; as three farmers were caught pumping out of their turn, Kamnan B. requested the police to come in order to have them stop pumping.

Both in 1997 and 1998 the rotations happened to be rather short-lived, as the late dry-season received rather high rainfall. Several farmers mentioned that the rotations were successful because of the contribution of precipitations (in the absence of which water might not have been sufficient to meet the demand of the standing crops).

In contrast with the hopelessness of RID officers in controlling farmers' pumping, the rotation enforcement was considered to be satisfactory. Intensive patrolling was necessary and free-riding was significantly reduced, albeit not totally, with in particular some cases of night-time pumping⁵³.

3.2.4 Lessons learnt

3.2.4.1 Hierarchy and authority

When problems in water management or otherwise occur and when they are unable to solve them by themselves, villagers usually request the intervention of *phuyayban*, sometimes *kamnan*. There is a clear difference between the two *kamnan* of the western *tambons*, which are active and very well considered by villagers, and those of the eastern ones, who are not farmers but merchants, are said to have little interest for agricultural issues and draw

widespread criticism⁵⁴. When the problem of water cannot be solved locally, farmers report going to RID Project or contacting some MP. When a problem occurs because some farmers of *tambon* A are pumping, thus preventing *tambon* B, downstream, to get water, there is generally no direct interaction between the farmers concerned. Farmers from *tambon* B will request their kamnan to try to solve the problem.

Another lesson, also apparent in the other case studies, is the lack of authority of RID with regards to the enforcement of rotational arrangements or any other collective management. The spread of pumping devices has further undermined the command of RID in that water can now be extracted, especially along the main canals, regardless of rotations and of whether the water level allow gravity inflow or not.

The TAO was not seen by villagers as an organisation which could have a significant role in water management. Some mentioned that it was important for maintenance, ditch digging and even for buying pump sets to be used collectively to pump water from the Noi River but no one emphasised management activities. To the question of whether it was possible to envisage a joint action of the TAO of the different *tambon* concerned, villagers rather stressed that TAO were centred on their own *tambon* and had little capacity to act beyond its limits. A member of the Pho Ngam TAO also mentioned that water management was not in the attributions given by the law to TAOs, despite no evidence of such a fact (see later section). All this contrasts with the fact that water issues were reported to be a central subject of discussion at all the monthly TAO meetings.

3.2.4.2 Perception of equity

It was noted that the exceptional level of public intervention of 1997 was partly triggered by tail-enders who were facing the prospect of being deprived of a second crop by head-enders engaging in triple cropping and who did not accept this situation. This shows that while the inequity attached to the loose pattern of water management is accepted in normal years, this can cease to be the case in certain circumstances.

When asked whether the rotation, as a measure contributing to restore some level of equity, could be turned into a routine arrangement, no farmer was found to believe that this could be possible. Rather, they stressed the lack of enforcement and implicitly recognised that the involvement of the authorities (*fay pokrong*) and of the police would remain exceptional. It was apparent that they could not visualise sustainable mechanisms of collective management in which some level of discipline would be obtained from all farmers on a permanent basis.

⁵³ Night-time pumping also requires the owner to stay by his pump. There have been several cases of thieves coming at night with pick ups and taking away engines.

⁵⁴ One farmer said that it be would more profitable to swap the kamnan against a can (*ao pay kamnan lek krapong*)... These tambons are also known for severe problems of drug addiction and conflicts.

When asked whether they found the differences in cropping intensity equitable (*yutitham*), most farmers either evaded the question (*may ru*) or laughed and asked what on earth they could do ! This is a typical reaction in the Central plain. One farmer also asserted that those growing only two crops were lazier than those engaging in triple cropping, suggesting that access to water is not the sole contributing factor. Differences in age, will and strategy (pluri-activity) are also considerable.

3.2.4.3 Sustainability of the tested rotations

Much doubt remains on whether the attempted rotations could be adopted as a routine. The first reason alluded to above is that all the agencies and administrative levels involved in them cannot intervene on a permanent basis. Having the police taking over canal patrolling would have to be officially declared as a routine task. On the other hand, the farmers' demand and protest also appear to be short-lived and do not give a way to an organised force liable to influence policy-making⁵⁵.

The multiplication of water sources (canals, ditches, wells, drains, ponds, Noi River) has, on the positive side, allowed much more security and flexibility in water use. On the negative side, however, it has introduced a higher heterogeneity in the expectations of farmers regarding canal water and in their willingness/interest to participate in collective actions. Expectedly, farmers involvement and interest in canal water issues appeared to be strongly related to their dependence on that water. Farmers with most remote plots in general had either little expectation about dry-season cropping or a well and were often unaware of the current arrangements. More generally, those with secondary water sources (close to a pond, a drain or along the Noi River; tube wells) were showing much less interest in collective action and were obviously preferring to face the increase in pumping costs or in drudgery than the burden of collective organisation.

This heterogeneity adds up to that of farmers strategies: with the spread of pluri-activity, there is a wide range of interest in farming, from the full-time rice-farmer with no other income to the villager mainly living on other activities and remittances who keeps a few rai as an asset.

⁵⁵ It is interesting to make a parallel with the observation of Christensen and Siamwalla (1993) regarding the political mobilisation of farmers: "These events [demonstrations] show that the rural population does have a capability to organise, when the occasion arises, and to suspend for the duration its usual attitude of dependency towards the central government. However, such organisation is episodic and short-lived. While demonstrations temper the central government's ability to impose its will arbitrarily, it cannot generate a shift in the policy stance of the central government."

3.3 Case study 3: Roeng Rang Project

What are Water User Cooperatives useful for ?

3.3.1 Introduction

Roeng Rang Project is located on the eastern part of the upper delta. It has a Water User Co-operative established since 1979, (when such groups were formed on the instigation of the World Bank), which is often cited as one of the success stories of the establishment of Water User Groups in the delta and in Thailand. It was even recently awarded the prize of the best WUC in Thailand and is often visited by foreign experts and officials. This case study was designed as an investigation on the factors responsible for the assumed success of the WUC. Information was gathered from RID officials and interviews of 69 farmers.

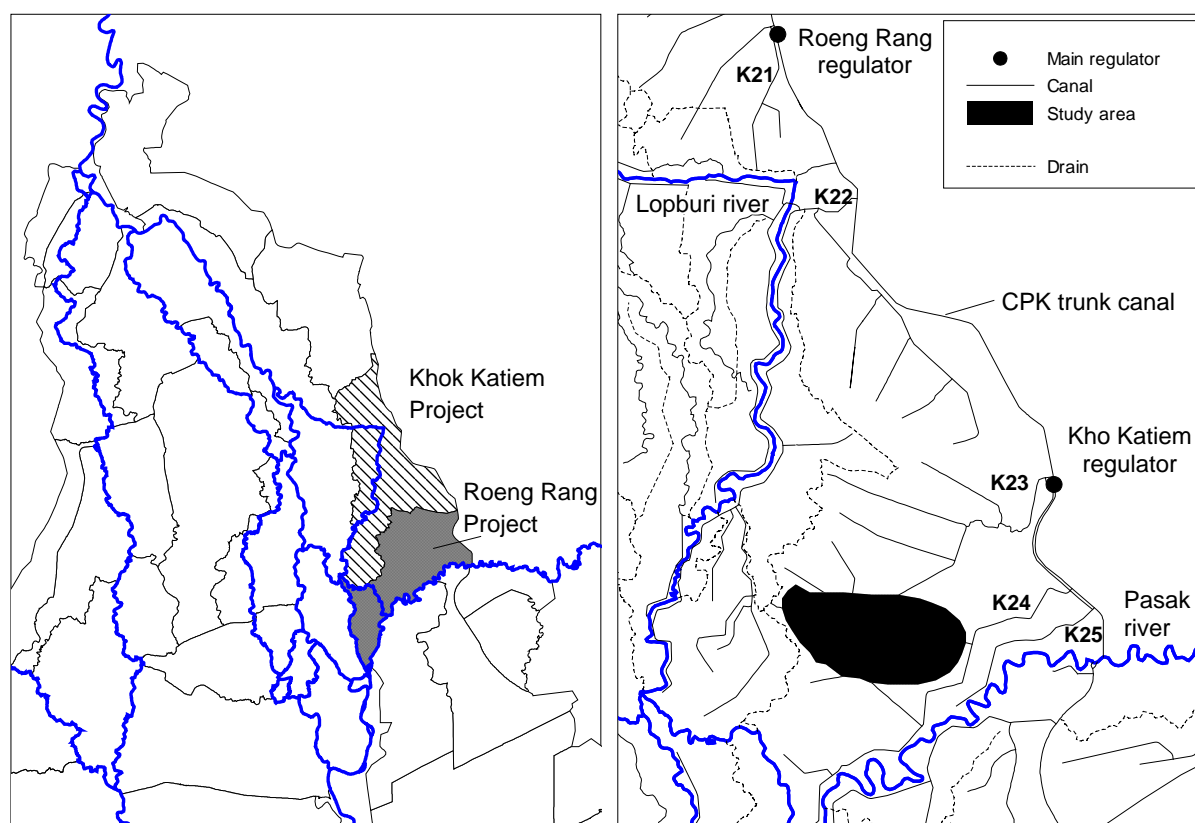
3.3.2 Layout and agro-ecological zoning

3.3.2.1 Location of Roeng Rang Project

Roeng Rang Project (RRP in what follows) is the fourth Project located on the Chai Nat-Pasak canal (CPK canal), the last one before the canal crosses the Pasak river and continues its way to the southern part of the delta. Its water supply depends on the Roeng Rang regulator, which raises the water level in the CPK canal in order to supply not only three main canals in Roeng Rang Project, but also the main canal of the Kok Katiem Project, upstream of it (Figure 19). The Project has little control on how much water it receives from the preceding regulator but is forced to adhere rather strictly to the discharge targets communicated by the Regional Office because most of the supply to the East Bank comes from the water it releases.

Another peculiarity is that the three main canals (K23, K24 and K25) all branch from the CPK trunk canal but K24 and K25 are also supplied by a feeder canal which runs in parallel of the CPK canal. This feeder canal branches off K23 which, in turn, takes its water from CPK but upstream of the Roeng Rang regulator. This canal was added 5 years ago because K24 and K25 could get hardly any supply from CPK canal in the dry season, due to the insufficient water-level in this canal.

FIGURE 19: LAYOUT OF THE ROENG RANG PROJECT



3.3.2.2 Layout of the study area

The Water User Cooperative (WUC) is supplied by the first secondary canal branching off K24 on its right side (in what follows this secondary is referred to as BNB (Ban Nong Bua) canal). The area is delimited on both sides by a drain (Drain N in the north, and Drain S in the South; see Figure 20). BNB canal is controlled by a head regulator and two cross regulators, located at 2.7 and 5.2 km from the head respectively (R1, R2 et R3 on Figure 20). This readily divides the zone in three parts: the upper reach (users getting water upstream of R2), the middle reach (those taking water between R2 and R3), and the lower reach (downstream of R3).

Apart from supplies from BNB canal, most farmers in the northern part of the zone rely on Drain N. The slope of the drain is such that by damming it, it is possible to divert some inflow by gravity from it. Drain N receives the return flow from Ban Mo but is also used as a waterway and RID purposely releases some water of the CPK canal in it, in order to serve riparian farmers.

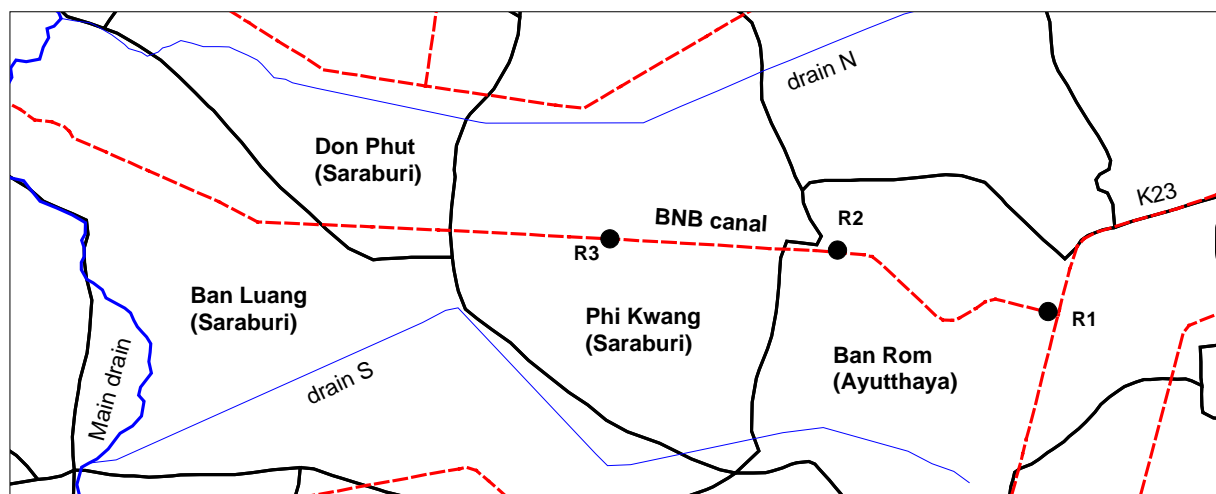
No tube-wells have been recorded in the area. Farmers only use superficial water for agriculture.

3.3.2.3 Administrative setting

Most of the study area belongs to 4 distinct *tambon* which, and this is an important point, do not belong to the same province (Figure 20). The WUC proper has most of its members in the two upper *tambon*: Ban Rom, Province of Ayutthaya, and Phi Kwang, Province of Saraburi. Historically, the WUC concentrated on these two *tambons* because water was little and there was no scope to consider the whole canal. However, the recent expansion of the dry-season crops in the lower part makes many farmers from Don Phut and Ban Luang also concerned by water supplies from BNB canal, although they are not formally members of the WUC (more on this later).

The fact that the area supplied by the BNB canal belongs to several sub-districts and two provinces has its importance in the Thai context. One practical reason is that local public budgets are attributed based on these administrative units. A ditch laid across boundaries will not be able to be dredged in one operation. More generally, the sense of belonging to these units is rather strong. Some farmers acknowledge that there is an “upland/upstream” group and a “lowland/downstream” group in the WUC as, in fact, regulator R2 which defines the two reaches is located exactly at the limit of the two provinces ! It does not follow that this is conducive to conflicts within the WUC but that this distinction may become much more significant regarding the farmers of the lower reach who now also use the BNB canal (an indication of this is given by two farmers who stated that they did not want to know about these people who “are from a different province”).

FIGURE 20: ADMINISTRATIVE BOUNDARIES OF *TAMBON* IN THE STUDY AREA

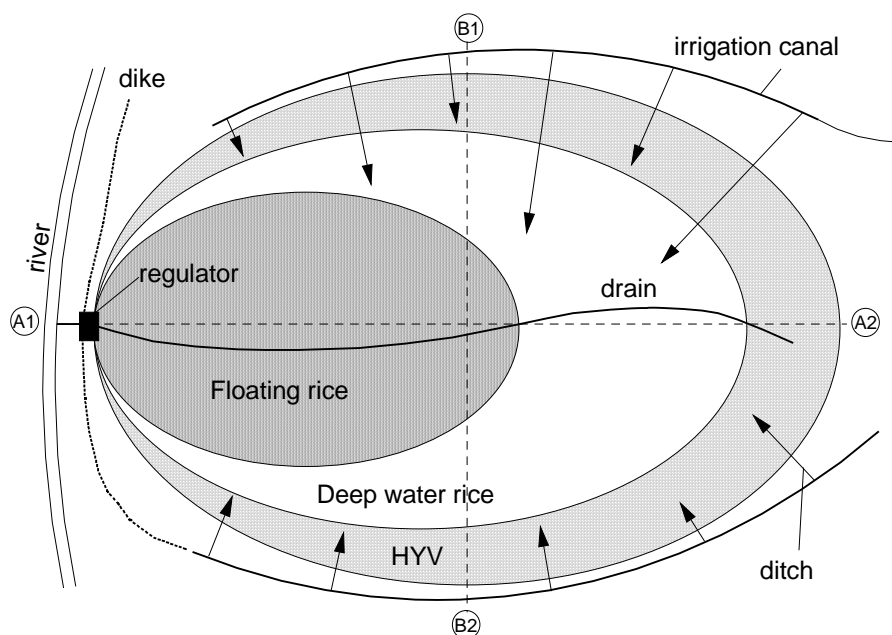


3.3.2.4 Agro-ecology of the study area

The Project encompasses a diversity of agro-ecological situations, as it is located at the transition between the flood plain of the delta and the lateral terraces. In the upper part (east), High Yield Varieties (HYV) can be found, established with wet broadcasting and canal water. In the middle part, Traditional Varieties (TV) of the deep-water type are grown with wet

broadcasting or dry broadcasting but are under flooded conditions. In the lower part (west), deep water and floating rice varieties are grown under flooded conditions and are dry-broadcast. This situation is common in the delta and is described in general terms in Figure 21. A regulator and a dike closing the lower part of the area maintain an adequate water level in the lowlands, while the upper parts are supplied by the irrigation canals. It follows that the areas which are more likely to grow a crop in the dry season are those located in the upper part, which not only are first served by the canals but can also establish their wet season crop quite late (they have no constraint of flood risk) (see Molle *et al.* 1998).

FIGURE 21: CUTTING ACROSS THE TOPOSEQUENCE

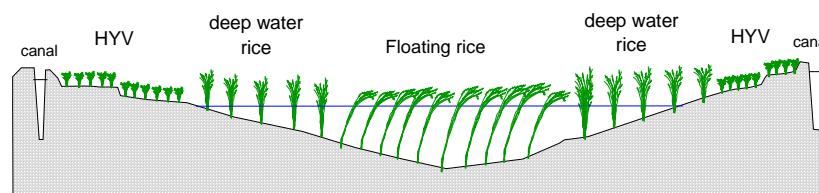


Schematic representation of a drainage unit

Cross-section A1-A2



Cross-section B1-B2



Source: Molle *et al.* 1999

3.3.3 Brief account on farming systems

A few features of farming systems in the area are reviewed here, in order to specify in which context does the WUC operate. General information on this area and the data collected from the 69 farmers are used here.

3.3.3.1 *Family structure and occupation*

The flood-prone area of the delta, to which belongs the lower part of our study area, is characterised by an ageing rural population and a high rate of both out-migration and pluri-activity.

Only 2 persons out of 69 do not grow rice as the chief occupation (only farmers were selected for the interviews), but many also have secondary activities, such as truck or taxi drivers, fighting-cock breeding, employee in construction or in nearby factories, wage labourers for agricultural tasks or taro peeling. Two thirds of the spouses also work in rice cultivation while others are occasional wage labourers in taro⁵⁶ or field crops production.

3.3.3.2 *Land use and tenure*

The very limited, and irregular, area cropped in the dry-season has not allowed significant capital accumulation in the area and agriculture is widely based on the monocropping of traditional rice varieties. Apart from rice, in general limited to the upper part of the area (that controlled by the WUC), a few field crops are also planted (mungbean, corn, groundnut, taro, etc). A few farms also have orchards. In our sample, 40 farmers grow HYVs, 24 grow deep water varieties and 3 floating rice varieties. Three cultivate taro, and 5 have orchards.

Only 21% of farmers are full owners, while 37% are owner/tenants and 42% full tenants. The high level of tenancy in the area is due both to the precariousness of agriculture (with a significant rate of land loss in the past decades) but also to an ageing population of owners who have no heir to take over their farms and therefore rent out their land. More land is released to the rental market by absentee investors who have acquired land in the area (Molle and Srijantr, 1999). On the whole, half of the cultivated land is cultivated by their owner, while the other half is cultivated by tenants (for a total in the sample of 1,228 rai, or approximately 200 ha).

⁵⁶ Taro production in the area has also triggered the development of a more unusual activity: Taro stems are peeled, cut into strips and dried. A family of three can produce 60 kg of dry stems per month which are sold at the price of 80 baht/kg. These stems are purchased every fortnight by middlemen and exported to Japan and Taiwan. Farmers jokingly report that they don't have the slightest idea of how such products are consumed but appreciate the income.

3.3.3.3 Equipment

The level of farm equipment is relatively high in the delta. The 69 farmers of our sample altogether own 31 two-wheel tractors, 6 small four wheel tractors and a stunning number of 29 big four wheel tractor (nine owners of such machines own two). 73% of farmers in our sample have a pump (15% own two sets).

3.3.3.4 Input, marketing

Fertilisers for rice production are in 20% of cases bought directly by the farmer at some shop. 62% borrow money from the Bank of Agriculture and Agricultural Co-operatives (BBAC) and 22% get fertiliser directly in kind. The role of middlemen in the area is rather limited as only 10% of farmers sell their product to them, while 90% sell their rice directly to the mill.

3.3.4 **Dry-season planning and distribution**

During the rainy season, there is by and large a continuous full-supply delivery of water in canals and few problems are recorded, at least relevant to our present concern. Issues of water management and collective arrangements are only salient in the dry-season.

3.3.4.1 Planning process

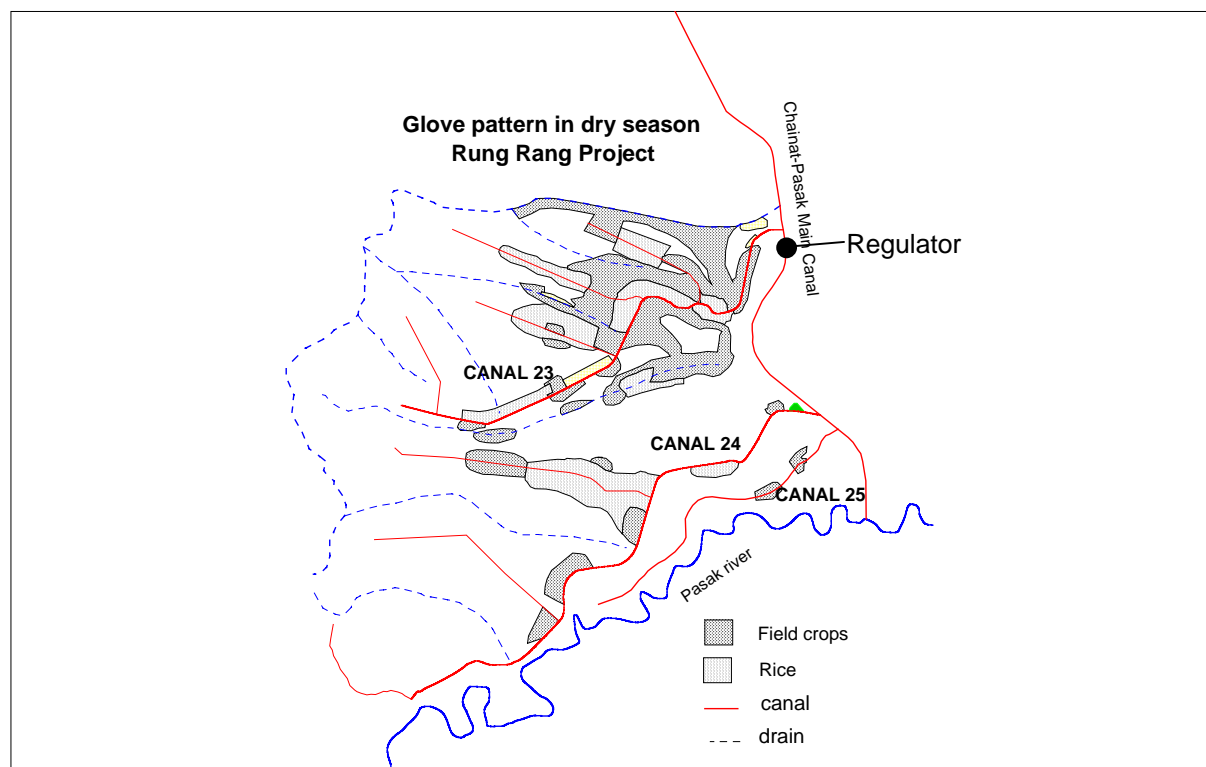
The dry-season period is first characterised by limited water supply and cropping areas. Furthermore, RRP appears to be one of the Projects with the lowest index of cropping intensity in the delta and probably one of the most disadvantaged in the allocation process (see Report 1). A few points can be recalled regarding the process of allocation and planning in the dry season, as regards to RRP.

The Project is requested by the Provincial Office (in Lop Buri) to prepare a plan for each dry-season. The target area is either determined by the Regional Office, based on the amount of water which has been allocated to the Region by Bangkok's Office, or proposed by the Project (taking into consideration the overall policy and known status of the dams) (for more details on this top-down process, see Chapter 5 of Report 1). RRP prepares a spatial plan with a division by district and provinces (an administrative/political requirement is to produce data on the situation by province), with a seasonal "target area" map showing where the cropping area is likely to spread. The map invariably follows a "glove" pattern, i.e. shows crops along waterways. This glove pattern is in fact close to what is usually observed: farmers who are, say, 300 m or less from a canal are likely to cultivate a dry-season crop, while other remote areas will be left idle. In the year 2000, however, no amount was fixed and the Project had to make its planning based on the conditions of a normal year.

Together with the target areas and maps, RRP also prepares a tentative weekly calendar for water supply. However, the Regional Office may cut some areas, in order to obtain a total area in line with its share, and also disregard the Project schedules. This contributes to turn the exercise into a routine, and Project officers understandingly demonstrate little interest.

One of the particularities of RRP is that the CPK canal reach upstream of Roeng Rang regulator also serves Kok Katiem main canal, the inflow of which it does not control. However, if the water released from Kok Katiem regulator is insufficient (or less than planned), then water levels will drop, affecting Roeng Rang canals but also and much more significantly Kok Katiem main canal. This serves to control temptation by Kok Katiem Project to divert more than its share to its upstream laterals.

FIGURE 22: EXAMPLE OF "GLOVE PATTERN" IN THE DRY SEASON (ROENG RANG PROJECT)



RRP has a potential for dry-season cropping estimated at 40.000 rai. In a normal year, the cropping area hardly exceeds 10.000 rai. Officers report *off-record* that they take care of maintaining a medium-low flow in the canal, so that it does not trigger the planting of too large an area. This is understandable from two points of view. The first one is that officers know that their share is both limited and fluctuating, so that a large area is objectively not desirable; in addition they feel in agreement with the general RID's policy to limit cropping areas. From another point of view, however, officers are not willing to fight for ensuring and/or increasing the Project's share of water. They are accustomed to a routine of 8-9,000 rai and are cautious about not raising farmers' expectations. The reason is that a larger cropping area (which is both technically feasible and desirable in terms of equity) would increase pressure from farmers demanding that crop requirements be met. This would entail rotational arrangements to be set up, inside the Project, but also with Kok Katiem Project. Such a higher competition for water would inevitably translate into increased field monitoring and police, which means increased involvement of other technical bodies and local political authorities. In short, this would bring increased work, conflicts and risk (possible

dissatisfaction from both users and hierarchical superiors), a perspective which, needless to say, is not appealing to officers.

3.3.4.2 Physical layout and constraints

The expansion of dry-season cropping in the command area is constrained by various physical factors. Some remote high lands cannot be reached easily by gravity and generally do not take the risk to start a crop. Some areas, in particular most of the tail-end part of the area, are deprived of on-farm ditches and drains. The access to water, and the need to drain, depends on neighbours and the succession of the cultivation operations must be carefully agreed upon. The lack of roads also constrain the access to plots at harvest time and imposes a logic of succession: higher and farthest areas start first and drain water (before sowing) to adjacent plots which continue the process. The constraint of micro-topography demands a collective decision of planting. Should one farmer let his plot uncultivated in the middle of the area, this would receive seepage from other plots and would be infested with weeds (he, therefore, also has to grow rice). Should a single or a few farmers cultivate alone, they would undergo high water loss by seepage and infiltration and would be doomed to concentrated rat attacks.

3.3.4.3 In-season water management

In real management, RRP officers completely disregard planned figures relative to water allocation to their main canals. They do make sure that the required discharge through Roeng Rang regulator is ensured because of its importance for (southern) downstream areas. Roeng Rang officers have, thus, less flexibility to modify or over-report this discharge, what upstream Projects sometimes allegedly do. Mismanagement of the Kok Katiem regulator, the preceding structure on the canal, is limited by the fact that in case of insufficient releases the canals from Kok Katiem Project, which branch off upstream of Roeng Rang Project, are the first to suffer because they are far from the regulator.

The question is, therefore, one of how water supplies and cropping areas are adjusted to one another in a context of uncertainty about whether, when and how much water will come into the Project. The answer is that no adjustment is eventually attempted, at least in a direct and quantitative way. Basically, and surprisingly enough, officers do not pay great attention to discharges in the main canals. They divert what is left after having ensured the downstream discharge and divide the flow between the (two) main canals. The upper limit of this is that flows must not be at full supply level for several days, as that would trigger excessive land preparation. The lower limit is defined by the level of complaint originating from farmers.

If a crisis situation materialises, then some temporary ad-hoc intervention (rotation, special request to Kok Katiem Project, first, or to the Regional Office) is decided, in order to get more water. It has happened twice in the last 10 years, that canal BNB was short of water and RID set up a mobile pumping station at its head, in order to boost the inflow into the canal. In summary, officers try to stick to an average and routine medium-low water supply to the two

canals : this minimises the risk of conflicts, of work overload, and of complaint from users and superiors alike.

It must be stressed that this strategy (alongside that to limit excessive cropping areas mentioned earlier) cannot solely be attributed to the slackness of civil servants, little committed to improving their work and the conditions of those who depend on it (although there are clearly some anti-drudgery aspects in their behaviour): it is also greatly governed by the lack of control on water flows which tends to increase from one Project to the next downstream one. We will address this point again in the conclusion.

Because of the rather low average flow in K24, RID officers have long established a rotation between BNB canal and the remaining reach of K24, after the branch of BNB canal. The rotation period was formerly fixed at 15 days and was later reduced to 7, as the waiting time was too long.

Inside the BNB canal itself, in normal conditions R1 regulator is fully open and R2 is set in order to divide the flow more or less in two equal parts. The water level in the upper reach is often high enough to allow many farmers (with the exception of some on higher land) to get water to their field by gravity. When the inflow in BNB canal drops, they must pump from the canal to the ditch. Slight imbalances between the two reaches are dealt with by manipulating the R2 regulator. There were a few mentions of a rule according to which farmers must wait for both reaches to be full before diverting or pumping water, but there was no wide agreement on this issue. Neither do all the farmers acknowledge or are aware of the rotation which is reported by others to be set between the two reaches of BNB canal in case of drastic shortage.

Until recent times, no water was released to the third reach of BNB canal, because no rice had developed there in the dry-season. Most plots were only fit for deep-water varieties and were not fully levelled or bunded. Because of the “dry-season boom” experienced in 1997 and 1998, buoyed up by attractive rice prices, farmers in the lower reach have improved their plots and started to grow HYV in the dry-season. Although this was done chiefly by using water from Drain N (see map), this eventually translated into some demand for water in BNB canal, downstream of R3. When water is released to the third reach, the water level in the middle reach drops and inflow by gravity becomes problematic in a few ditches. This is detrimental to the “members” (*samachik lambak*) and is resented by the WUC heads, a clear indication of their inability to keep the full benefit of water for their sole members. On the other hand, because this area is much lower, even a reduced flow at the bottom of the BNB canal can be easily diverted by gravity to the plots.

3.3.4.4 Problems, conflicts and way to solve them

No farmer reported severe problems of water and loss of crop, although they are known to have occurred in some areas distant from the canal. By and large, farmers get an adequate share of water, even though it may be with some delay or may imply the use of pumps (which allows farmers to tap for a few days the remaining water after the end of their turn).

The fact that the calendar of rice is very late in Roeng Rang Project (one of the latest in the delta) also implies that rainfall often contributes to alleviate punctual shortages.

Asked whether farmers at the end of the canal experience problems, most farmers answer negatively. Some mention the fact that several water sources are available (canal and drains, farm pounds, and also borrow pits), that shortages are often solved by RID officers, or that lower areas get return flows from upper plots and are therefore not disadvantaged.

Asked about who they request help from in case of water shortage in their plots, a majority of farmers said they refer to the WUC, most especially to its head, *nai Som*. Fourteen farmers mention they would ask directly RID (zoneman or even Roeng Rang Project, in cases of unsolved problems). In a few other cases, villages and sub-district heads or MPs are also sought to intervene. There is a clear grading of interventions, according to the seriousness of the situation. For small problems *nai Som* or the zoneman are contacted and they try to solve the problem based on the overall situation in the Project. If they don't succeed, farmers may form a group to go to the Roeng Rang Project's main office. When things get really bad, more powerful politicians, including MPs, at the provincial level are contacted.

A majority of farmers (56%) report conflicts among farmers but only at the ditch level (those who are near the BNB canal are not aware of conflicts). It shows, therefore, that there is normally enough water for both the upper and middle reach or that, at least, the repartition of the flow is rather balanced (a clear confirmation of this fact is that the check gates have apparently never been damaged). Conflicts arise most commonly either because head-enders block the flow in the ditch to their benefit, or because they drain and tail-enders block the water (to keep it in the ditch for further use), provoking some flooding in some lower plots. Overall, many of the farmers reporting such conflicts minimise them and say they are "normal", in general solved without consequences.

3.3.5 The water user co-operative

The establishment of the WUGs started after 1979, at the instigation of the World Bank. Although this top-down voluntarist policy soon translated in thousands of groups, all with their heads (*huanaa tho*), these structures rarely developed any organisational capacity and rapidly retained only an official existence (see section 4.1 for more details). Ban Rom WUG was formed in 1979 and was later, in 1985, transformed into a co-operative (WUC). Since its inception, the co-operative has been headed by "*nay Som*", who later also became head of village.

3.3.5.1 Membership and attendance to meetings

The official number of 320 members is the reference for committee members of the WUC. These members are those who registered at the time of the setting of the co-operative in 1985, after paying a fee of 10 baht, although some farmers do not remember having paid anything. All these farmers have their land located in the upper and middle reaches of BNB

canal. Surprisingly, many farmers happened to be puzzled by the apparently simple question of whether they were members of the WUC or not. Some declared that they were not members anymore. Asked whether they had followed some administrative procedure to cancel their membership, they replied that they just did not attend meetings any more. On the other hand, many farmers, a great majority of which from the lower reach, declared themselves member without hesitation, although they had never registered. Questioned on the possible contradiction between these two facts, they felt that they were members because they usually attended the main meeting of the WUC, and – for some of them – even participated in the decisions (vote by a show of hands).

The overall impression is that membership is conceived in a rather loose manner and that the original “official” registration little matters, as it is often forgotten or unknown. Most farmers have no idea whatsoever of how many members there are in the WUC and are often not persuasive when questioned on the advantages attached to membership (*may ru pen samachik dii yangnay; pen samachik may pen, ko muankan*). The sense of group belonging seems rather more associated with the location of the land, either in the “original” upper and middle reaches, or in the recently irrigated lower one. When emphasis was laid on their non-official registration, the former tended to insist that they were members, while the latter ended up reckoning that they were rather participants.

An interesting point raised to “Bam” (the deputy-head of the WUC) was whether the WUC itself felt the necessity to “harden” the notion of membership. It was also anticipated that the WUC might wish to strengthen its hold on the canal area by trying to incorporate the new irrigators from the lower reach. The answer was that this was not intended at all (“more members, more problems!”) and – when questioned on whether the expansion of the irrigated area could be detrimental to the group – that the zoneman was opening the gate of the lower regulator at their request, while this should be “ordered by the head of the WUC” (*khamsang tong you kap nayok*). “If they don’t come here [to the WUC], then the WUC has no authority (*amnaat*)”. This clearly sets the dilemma faced by the WUC: the more global decisions about water issues in K24 (including tail-end users) are taken independently of the WUC, the more it undermines its role and its authority; on the other hand, it is unwilling to widen its scope and to incorporate downstream users.

A possible part of the reluctance of the WUC to re-consider the question of membership, and to openly call for the registration of new users, may be that they fear that many of the initial 320 members would not show up, as the interest for the WUC has eroded with time. There may be also the pervasive feeling that doubling the area “controlled” by the WUC would probably do little to get more water: in fact, it is unlikely that Roeng Rang Project be attributed water much in excess of past historical records, especially in a context of decreasing stocks. The risk is therefore high for the WUC to be unable to satisfy an enlarged group. The expansion of demand is therefore destabilising, because it breaks the precarious balance which had been enforced by almost two decades of experience.

When asked what is the frequency of WUC meetings, half of the farmers reported between 1 and 3 meetings per year, while the other half gave frequencies of once/month or more (in the dry season). As explained by one farmer, there are two kinds of meetings: the seasonal one, where information is passed on about the coming season, and the in-season ones, to which only attend those who have a keener interest in water issues.

Asked whether they attend all meetings, 40% answered yes, 50% reported that they attend only sometimes, if they are not busy, and 10% never. Interest is varied, but farmers who have very good access to water tend to show little interest in the group.

3.3.5.2 Leadership in the WUC

Nay Som is the WUC leader or headman. He has been elected to this position at the very beginning of the shift from a WUA status to a WUC one, and has retained it hitherto. He strengthened his position early by giving part of his land to build the office of the WUC. Income for the WUC has come from some politicians (see more on this below) and is also derived from “*tham bun*” sessions, ceremonies presided by monks in which people are requested some donation. A major ceremony was organised for the inauguration of the WUC center. *Nay Som* was later elected village headman (*puyaban*) after taking over the WUC.

The reiterated election of *nay Som*, every two years, is felt by farmers either as an obvious necessity or as a fatality. On one hand he is the one to show interest in solving water problems (at least for his nucleus of members) and who, in fact, endeavours to build up an image of himself as identified with the water issues. On the other hand, it is sometimes felt (obviously, first, by those who don't support him) that some change would be beneficial. However, the lack of candidates is also emphasised; there are two sets of reasons for that. The first one is that the position is not attractive, as few farmers feel that there is any material benefit attached to it (“*may mi ngeun duan, may mi kray ao*”). Rather, supporters of *nay Som* stress that he spends a lot of time and gasoline patrolling the area and talking with members, admittedly at his own expense. The second explanation is that he is not willing to cede his position and uses different artifices to keep his grasp on it : a key asset is the building of the WUC head office, which is located on his own land, next to his house. A potential candidate would have to propose another centre, incurring expenditures and occupying land. A last point is that most of the committee members stand together and said they would quit if the Head was to be changed. This means that a possible concurrent would have a hard task in proposing a new local and a new team, while in the same time material advantages are scarce and the authority of the WUC is declining.

Turning to the question of the election, it appeared that the on-going team was proposed to the members, without competitors, on the basis of a crude “who agrees to keep the same team ?”, followed by a show of hands. On the other hand, while the committee members were, in the past, chosen by farmers (the “head of ditch (*huana tho*)”), they are now appointed by the Head himself. This weakening of the democratic functioning of the group

can be ascribed to the mounting critics surrounding the Head who, on the other hand, is unwilling to hand over his position.

The WUC leaders are reported to use different ways to maintain their grip on the group and to sustain a certain degree of participation from members, a *sine qua non* condition for the WUC to keep its legitimacy and to materialise its existence. These range from normal organisation and co-ordination tasks aimed at keeping the group alive to more explicitly coercive measures. One farmer expressed some fear to say anything about *Som*, saying that if they did not go to the meeting because of some other occupation *Som* might later lend a deaf ear to their plea in case of water problems.

Attendance to meetings by members is obviously the most simple “thermometer” of the interest of farmers for the WUC. They are enticed to participate in order to express a wish regarding the cropping area they intend to plant on the basis that RID would disregard the area if they did not do so. This is somewhat abusive, as it is clear that the determination of the area is mostly the result of a top-down supply based process, but it is also not totally wrong when seen in the long term: to the extent that the area is favoured by RID because of its shared interest in maintaining a WUC there, farmers’ participation is also a clear measurement of the group vitality for the irrigation officers.

Som is reportedly “*khosok*”: he likes to announce and mediate social events, and is not insensible to social distinctions. His penchant for appearances in the media (newspaper, television) or for receiving official visits (including numerous foreigners) is jokingly/bitterly referred to by fellow farmers (recently, they were asked to gather near the canal to take a picture with *Som*). Last year, the cooperative won a prize as the most outstanding WUC in the country⁵⁷. Farmers show some weariness regarding this inclination and report that “while he is keen in showing [them] the distinctions, what they want to see is water !” Another farmer, who used to be a committee member, also reported that he resigned because of repeated official meetings for which they ended up being requested some financial participation.

This propensity to auto-promotion led *Som* to take rapid decisions which have sometimes put him at odds with sections of the villagers. These personal initiatives are commented with some irritation by *Bam*, who declares that the committee is now dissociating itself from these moves and wants to make clear that they have no relation whatsoever with issues related to the WUC. Three examples have been cited during the interviews.

A first breach was opened due to a dispute concerning the crematorium of the village temple. The old man who, a few decades ago, had ceded a piece of land for the construction of the crematorium passed away and his descendants expressed their wish to recover their land. Angered by this will, part of the villagers, headed by *Som*, decided to collect funds and to

⁵⁷ and the WUA also won a national prize in 1989.

construct a new crematorium within the nearby temple of Makham Rieng. In return, this provoked the ire of the rest of the villagers who wanted to keep on using the old establishment and apparently succeeded in convincing the proprietor of the land to go back on his decision. This quarrel must be seen in the perspective of the paramount economic importance for temples to perform cremations, as this is their main source of revenue.

With a reiterated will to favour Makham Rieng temple and to have a say in the main affairs related to it, *Som* also intervened in the choice and nomination of the new abbot of the temple, favouring a candidate which apparently was not to the taste of other villagers. This alienated again part of the population from him.

A third case was reported about his initiative to improve/build a farm road, which ended up with the filling up of an adjacent ditch. Some farmers complained that this impacted on their access to water and raised the issue at the *amphoe* level. The head of district had to come to the site of the dispute, together with other officers, and ruled that the ditch be opened again. This resulted in an obvious “face-losing” session for *Som*.

Dissent in the committee is also perceptible as some members have quit their position; this is the case of the *puchuy* (deputy-head) Amnuay, who is now member of the TAO. All these conflicts within the village have fuelled an atmosphere of tension, with a rift between supporters of the headman and his detractors. This lack of harmony is readily expressed by the interviewees (“the head of village is good but it is the villagers themselves who are not good”; “there is no harmony in that village “ (*may kheuy samakhikan*”), etc.

3.3.5.3 The WUC in the socio-political context

This takes us to the question of the ambiguous relationships between RID and the WUC. On the binding side, there is a clear two-fold interest from the RID officers' part. First, they appreciate the role of intermediation played by the WUC, in that their task of communicating with farmers is greatly facilitated. This falls under RID's overall policy to develop or support groups of users which act as representatives. This role may also extend to controlling the expansion of the dry-season cropping area: in the year 2000, farmers located 500 m away from BNB canal also expressed their will to grow rice, but the WUC tried to dissuade them on the basis that the planned water would only be enough for a 300 m stripe along each side of the canal. It is not clear whether the persuasion of the WUC is efficient or not, as the area greatly expanded, but this shows that the WUC tries to support RID's policy of containing the rice area, even though this may be more driven by the objective to minimise difficulties within the WUC than by a concern for macro-level policies.

Secondly, the WUC is also a convenient “showcase” which brings some fame to the Project and allow officers in Bangkok to substantiate the claim that RID is giving some kind of attention to the issue of WUC. As this issue is a growing obsession of international agencies and donors, it is undoubtedly convenient to have some cases accessible within a one day trip from Bangkok.

On the other hand, RID Project officers cannot venture too far in their support to the WUC, and to *Nay Som* in particular. They cannot bend basic equity standards beyond a certain limit. This can be done at the macro-level, by arguing an alleged scarcity of water or physical constraints. At the lateral level, however, closing the third regulator (R3) to deprive tail-enders of water, for example, is impracticable (all the more in a situation in which water is relatively abundant). The first reason is that closing the gate in excess would create a water shortage which would in all likelihood lead to the destruction of the gate. The second is that the zoneman has a clear interest in remaining on good terms with all farmers in general, irrespective of their position, both social and locational. Showing outright favouritism would rapidly alienate him against a part of the population and make his job unbearable. Protests would rapidly build up and be channelled upward through local politicians and it is, for an officer, an appalling perspective to be caught up in such social disarray, a clear breaking of the collective harmony.

RID is therefore both willing to give full support to the WUC and compelled to limit its power when it turns out to be an element of social tension rather than one of collective management. A hint of a shift from the former to the latter position is given by the fact that RID has recently asked *Nay Som* to return to him the “key” which enables the operation of the head regulator (R1). This, to some extent, symbolises the end of the shared responsibility of the WUC and RID regarding water management and the recognition of the fact that there was more risk of social conflict than potential benefit in letting the WUC co-managing the regulator.

Things may have been rendered more difficult after the recent change of the zoneman in the area. While the former officer – allegedly strongly bound to the group - was unanimously praised for his capacity and dedication, the new one is still widely unknown to most farmers.

We may now turn to the integration of the WUC into the political structure. “*Nay Bam*”, himself known as a party canvasser and linked to a MP of the Ayutthaya Province, vehemently stated that “the WUC has nothing to do with politics”. There is some evidence, however, of a political interest in local collective organisations. It appears that the MP referred to above was the generous donator of the chairs of the meeting hall of the WUC (which all bear a badge with his name). It was also mentioned by one farmer of canal K23 that the same MP was sponsoring the idea to set up a new WUC in this area.

It was also reported that another local MP, had been asked to make financial some contribution by the WUC for fertilizer. Heng-Yu-Thai rice mill donated seeds, fertiliser and guaranteed the sale price.

Not surprisingly, this points to some shared interest between local politicians looking for intermediaries in the countryside, as a way to strengthen political and electoral clienteles, and the WUC committee which can benefit both from interventions in case of drastic shortage and financial support, albeit probably limited.

3.3.5.4 *Usefulness of the WUC*

The central question is obviously to determine in what aspects of the farmers life is the WUC useful⁵⁸. The question was first asked in an open way and, after collecting these non-directed answers, four specific fields were mentioned explicitly and proposed to the interviewees as potential benefits : water allocation (getting water for dry-season cropping), water management, maintenance of ditches and wholesale input buying. This was completed by a question about what the differences between the lateral which had a WUC (K24) and the others.

3.3.5.4.1 *Non-directed answers*

Spontaneous answers from interviewees markedly centred on the water issue (72%). The most unanimous answer was that the WUC was useful to get/request water from RID (31); ten other slightly different answers insisted on the role of intermediation (individuals don't have to make request individually) (10); 7 farmers emphasised the contribution to water management (gate operation and monitoring of water conditions), while 4 mentioned the information provided on coming deliveries (amount or timing). Another 4 farmers stressed the usefulness of the group as a way to give strength to farmers' claims and to their bargaining power.

Surprisingly, the maintenance issue was cited only 4 times. Other points cited only once, include the benefit from meeting (information provided by extensionists) and the possibility to borrow small sums of money (?). Six interviewees could not answer (two of them declaring that their husband was the one to go to meetings) and four demonstrated hostility to the WUC.

TABLE 5: NUMBER OF ANSWERS, BY CATEGORY

Useful to get water for the dry season (5 specifying "only")	31
Useful as intermediate between RID and farmer (mostly to get water), does not need to go himself	10
Water management; monitor water conditions	7
Provides information on calendars, amount of water for each season	4
Makes us united and stronger, with more bargaining power (probably mostly for water)	4
Maintenance	3
To get budget for maintenance	1

⁵⁸ The alleged activities of the Ban Rom Water user Association were: "the members helping in dredging the 9 farm ditches, cleaning the farm ditch twice a year, the budget and labour in constructing the association's office, negotiating mungbean seeds with the Lop Buri Seed Center, collecting O&M with the rate of 3 baht/rai, setting up the rotation schedule among the members (JICA, 1994)".

We get suggestions for varieties and techniques at the meeting	1
Can borrow money from WUC	1
"Give" water to farmers	1
Other	4
Does not know (2 because husband goes to meeting)	6
Useless, other negative answer	4
TOTAL (multiple answers)	77

3.3.5.4.2 Suggested answers

REQUESTING WATER FROM RID

Almost half of the farmers reported that the WUC either contact RID, or organise a meeting with RID, or establish a "wish list" from farmers and transmit it to RID. Twelve percent, however, estimate that the WUC does not have any influence because everything is determined by RID or depends on how much water is available. Others did not know or did not answer.

ROLE OF THE WUC TO GET MORE WATER

Farmers were questioned on whether they thought that having a WUC brought more water to them (or if they would get the same amount of water, had they not formed a WUC). A high percentage (67%), close to that of farmers who had mentioned the request of water as the main benefit of the WUC (see above), think that the WUC is useful and effective in that respect. 24 % were of the opposite opinion and 19% did not know.

ROLE OF THE WUC FOR WATER MANAGEMENT

Although the issue of water management got very little spontaneous answers, would the efforts of *Nay Som* in patrolling the canal be better rewarded when a direct question was asked ? 74% reported that the WUC has a role in water management but almost all referred to the setting of rotations. Others think that RID is managing by itself or that there is nothing to do.

Two types of rotations were mentioned. The first one, more commonly reported and fixed by RID, is the rotation on the main canal, according to which water flows alternately one week to BNB canal and one week further downstream of K24. The other, limited to periods of shortage, is a rotation between the upper and the middle reach of canal BNB (hinging on R2 regulator).

MAINTENANCE

Regarding maintenance, the answers converged towards a similar story. In the past, at the beginning of the WUC, the co-operative would assist in the organisation of the collective cleaning of the ditches. Along the last decade, several other systems have emerged. The main one is farmers joining together to hire a “makro” (mechanical digger) to dredge their ditch. Joining together is still common but mostly for cutting weeds in the ditches. In some cases, farmers may pay someone to do the work in their place. The increasing use of machines has also been fostered by decreasing costs (700 baht/hour) and by a shift from farmers’ budget to public budget. Farmers needing to hire a “makro” would intercede with the village or the sub-district heads to have the service charged on one of the local budgets. When there is some urgency, or little goodwill from the administration, farmers are forced to pay themselves. In the last two years, the advent of the TAO (*tambon’s* council) led to a further shift, and farmers now argue that the TAO has a budget for ditch maintenance and allocates it to some dredging work each year. The WUC has therefore no impact on maintenance, although there were a few mentions that it helped making contact with contractors.

The BNB canal is periodically mechanically dredged by RID. Interestingly, 3 farmers believe (and may have been suggested) that the corresponding budget has been obtained, and in one case even given, by the WUC.

INPUT PURCHASING

It was also expected that the WUC would be instrumental in mediating the collective purchase of fertilisers, seeds and other input, as this is one of the distinctions between WUGs and WUCs. Surprisingly, no such service is performed by the WUC. Only do some salesmen contact the WUC head and participate in seasonal meetings, taking advantage of the gathering to offer their products.

3.3.5.5 The WUC and other canals

Consistent with the benefits farmers attribute to the WUC, is their opinion that BNB canal has a privileged situation with regards to K23, because of the WUC. 20%, however, think there are no differences, while 20% acknowledge that K23 is advantaged by the fact that it supplies a lower area to which water flows easily; Some added that this is the reason why they don’t need a WUC. A few quick interviews carried out in the area supplied by K23 showed that farmers had no or very little knowledge about the WUC.

3.3.5.6 Perception of equity

A simple inquiry was made to assess farmers’ perception of (in)equity in water distribution. It was asked whether “they found equitable the fact that some farmers could grow only one crop while others could grow two or more”. The question was slightly provocative, already mentioning the clear inequity in water distribution which can be observed around them. The

most common answer invariably started with a laugh. This can be interpreted in several ways. There appears to be something of a joke to raise questions about inequalities in life, both because they are evident to anyone and because questioning such a point is seen as unusual, useless and somewhat unsuitable.

Only seven farmers spontaneously answered “it’s unfair” (*may yutitham*), and out of them five added “but what can we do?”, showing that there is little notion of how stricter hydraulic rules or collective organisation can bring more equity (or at least little hope that such arrangements may be effective). Most farmers mentioned that it depends on the location of the plot, the amount of water available or the seriousness of the farmer and that this is normal, in that there is nothing that can be done to change what is given. Here are some meaningful answers:

- It's normal that the farmers grow a crop when they have enough water and don't do it when they have no water.
- it's unfair, but if there is no water, what else to say ? just don't grow rice (*May yuthitam, te wa may ni nam ko may wa aray. May tham na*).
- it's unfair, just like some farmers grow three crops. This is just a motive to think, not to do anything. (*Mi te khit, may tham aray*).
- Normal, it depends on the quantity of water that RID can release, enough or not.
- It's normal, in this case it's up to the water quantity, farmers and diligence.
- Normal. I can grow one crop only. It depends on the farmer. Because the farmers who grows 2 crops they always help themselves and use their pump, pay money for input, gas or oil or everything just to raise their production and increase they income.

It is both striking and meaningful that farmers always accept locational advantages just like any other inequality in life, and that they often mention the “responsibility” of the farmer, or rather the fact that differences between farmers are great, as a way to stress that they may compensate or accentuate these imbalances by their own quality or behaviour.

3.3.6 Lessons learned and conclusions

This case study provides a few interesting glimpses at the effective/potential role of Water User Groups in the delta. We may here attempt to first synthesise the respective interest of the different actors and their interplay and, then, to discuss more in detail aspects of water management proper.

3.3.6.1 Actors and interplay

The field survey has allowed the identification of four major parties: the RID, politicians, the farmers and the WUC committee, which is increasingly identified with the interest and the personality of its head, *Nay Som*.

RID's officer have an interest in the WUC because of its role of intermediary between farmers and themselves, because it may contribute to controlling the expansion of the cropping-area (in that its internal stability would be threatened by anarchical demands), and because it is a convenient "showcase" which also brings both visitors and notoriety to the Project. However, this clear interest and corresponding support to the WUC has its limit in that RID officers cannot support behaviours which would go against the interest of sub-groups of farmers (gauged by the capacity/possibility of such sub-groups to voice their discontentment and mount pressure on RID).

Politicians are in the background and try to make sure that their intervention in times of shortage and their possible financial contributions be politically remunerated. Local leaders are coveted for their ability to relay political influence and act as canvassers.

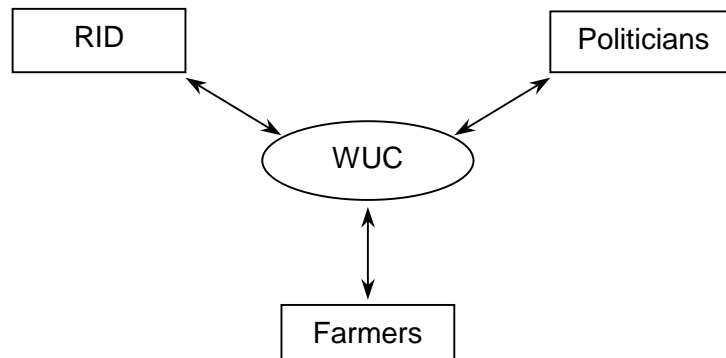
Farmers, although admittedly split into two lines (two factions in the upper reach ; upper reach/middle reach and provincial division) are by and large supportive of the WUC (without any support, the WUC would have no more existence than the other virtual ones registered in the RID's Project). Their support is based on both a range of real or assumed benefits and on ambiguous aspects of the headman (his personality and the various means employed to secure his grasp on the WUC).

With no exigency of compulsory financial participation, the WUC's strength is strongly linked to its ability to make farmers believe, regardless of whether this is true or not, that its existence is a guarantee of preferential treatment by RID. Farmers also benefit from the readiness of *Nay Som* to constantly monitor the situation in the canal and intervene with RID to solve problems of water shortage and from a better information on the status of the water supplies planned for their area.

The retribution of *Nay Som* for his water monitoring and mediation services seems to be essentially in terms of social recognition. His penchant for medals and fame would probably not give rise to more than jokes from his fellow farmers had he not involved himself, in the past years, into self-conducted activities or decisions which alienated from him a part of the village. *Nay Som* is also surrounded by some committee members closely attached to him who may have their own interest (like "Bam", a local canvasser, who declares that he was the one behind the election of *nay Som*, who now escapes his control, with his unexpected behaviours), but a few have left in disagreement. His permanence as a headman is ensured by (a) farmers' recognition for his (unpaid) services, (b) some fuzziness maintained on what was really obtained by him or just imposed/given by others (RID, TAO,...), (c) gentle coercion (election) or veiled threat (meeting attendance), (d) a total lack of potential candidates for the position and (f) the presence of the WUC office on his own land.

In the near future, the WUC is likely to undergo two main threats. One is linked to the increasingly conflicting position of its headman. The second might come with the growing demand for water in the area (which will be strongly governed by the price of rice) and will depend on the capacity of RID to allocate more water to meet this demand. Should the WUC

be unable to ensure the continuity of a level of supply basically attuned to a group of farmers whose plots are located both near the BNB canal and in the upper and middle reach (with an accepted exclusion of those who are too far), then the internal stability of the WUC would probably be jeopardised. It may face the dilemma of either attempting to protect its perceived “historical right”, but may not be supported by RID, or trying to enlarge the group to include downstream users. This would expose the WUC committee further, as its legitimacy would be battled by the inclusion of farmers “from another province”, with a high risk not to be in a position to fulfil expectations of members.



On the whole, the permanence and survival of the WUC lie in the capacity of its committee to achieve and maintain this delicate balance of interlinked interests between RID, farmers and politicians.

3.3.6.2 The WUC and water management

We now turn to the assessment of the role of the WUC in water management, a role which is the main benefit in farmers’ eyes. The absence of serious conflicts within the two reaches covered by the WUC, and the fact that gravity inflows are often possible from the BNB canal to the ditches (thanks to the topography) tend to give a rather positive picture of the area, if compared with the general situation in the delta. This may be partly attributable to the WUC action but it is undoubtedly related to the capacity of Roeng Rang Project’s staff to control supplies. As they acknowledge off-record, they take great care not to allocate full-supply level deliveries for too long periods or too far along the main canals, as a way to avoid frantic expansion of the cropping area which they would not be in a position to serve afterwards. The relative stability observed is also due to the fact that the inequity between upstream and downstream reaches is accepted, based on the evidence that water supplies are never sufficient to reach all the plots.

We can also question the specificity of the WUC on the ground that many of the tasks performed by its committee, and *Nay Som* in particular, are commonly found to be carried out informally by local leaders. When water levels dropped in canal K24, the WUC was instrumental in requesting a pump-set from RID, but such requests are observed in many

other places; *Nay Som* is monitoring the water conditions, but most secondary canals have people - zoneman or villagers-, who also serve as intermediaries between irrigators and RID.

The residual peculiarity of the WUC could well be the fact that it gets a preferential treatment from RID because of its compliance with the overall policy to set WUG, what is sometimes referred to by RID officers as “bonus”⁵⁹. It is difficult, however, to measure this possible advantage.

More generally, a WUC could be instrumental in increasing certainty and equity along the secondary, but it needs to be sure of its water allotment : if the planning, at least expressed in terms of “who will get (enough) water when ?”, cannot be respected, the discipline and the authority of the WUG will be weakened, and eventually broken, because those who were expecting water in their turn, don’t get it. This means that a WUG is viable, and is able to perform improved collective tasks of water management, only if the agency is committed to doing its part in the process through reducing uncertainty. But RID is unlikely to commit itself further because of the lack of control the Project has on its inflow.

⁵⁹ See also (JICA, 1994): “Upon the success of this association, project staffs of RID gave very strong encouragement to the WUA committee”.

3.4 Case study 4: Maharat Project

Water User Groups in *amphoe* Phromburi

Officers from Maharat Project once reported that farmers in Ban Mo sub-district had taken the initiative to constitute a group, in order to increase their bargaining power and to improve local water management in the dry-season. This constituted quite an exceptional case, in opposition to the widespread failure of formerly established Water User Groups. The case study was designed to investigate how the initiative had risen, what was the interest of farmers, and if any specific conditions could account for this experience.

3.4.1 Physical and administrative setting

The sub-district (*tambon*) of Ban Mo, *amphoe* Phromburi, is composed of 8 villages (*mu*). The *tambon* is located along the Chao Phraya river, in the middle of Maharat Project. This Project is particular in that it mostly comprises a main canal of 120 km long, with a few laterals branching off eastward (Fig. 1). Many areas are supplied directly by ditches branching directly off the main canal. The Project area encompasses both high land, planted with HYVs (mostly along the main canal), and lowlands, planted with deep-water and floating rice varieties (on the eastern side).

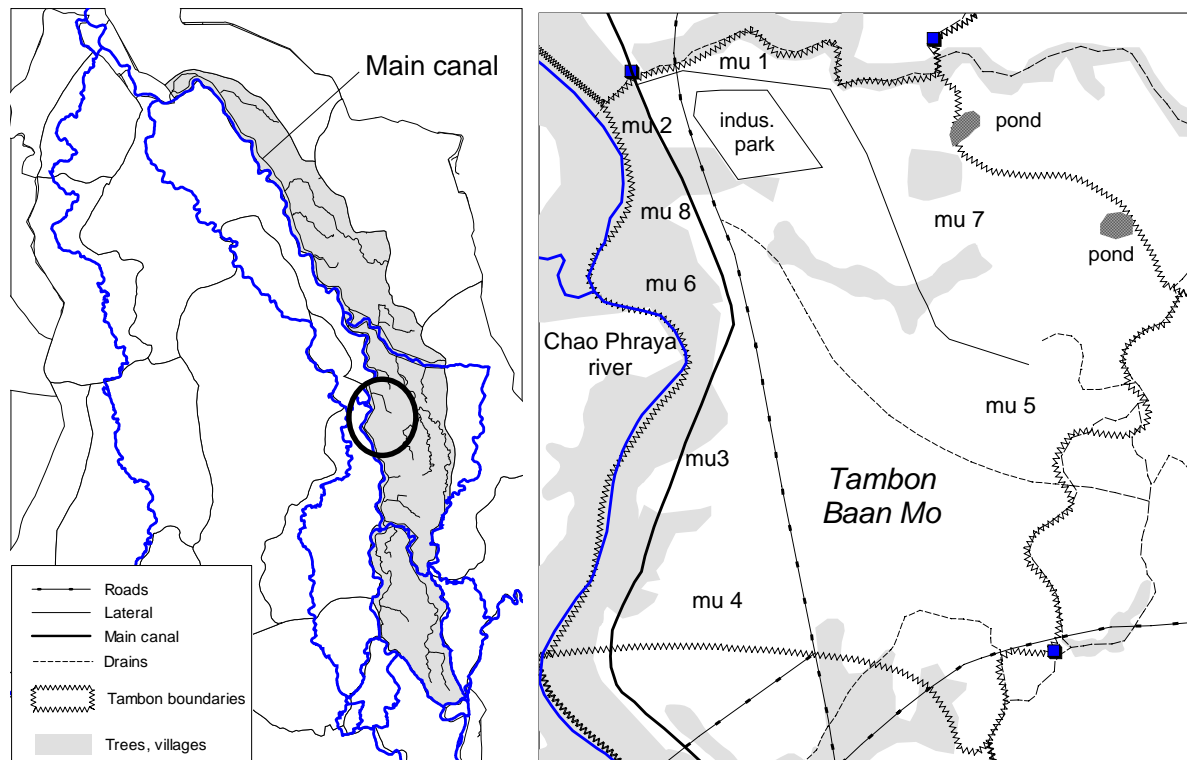
This is one of the reasons, together with the high length of the Project, why the cropping intensity of the Project is rather low. Many flood-prone areas are not provided with on-farm infrastructure, are poorly levelled and deprived of bunds. Plots which have already been supplied with water during the dry season have often been improved by farmers and may grow a HYV, using the wet-broadcasting technique (irrespective of whether they grow HYV or deep-water rice in the rainy season, although the first case is obviously more frequent).

The 8 villages of the *tambon* are either served by the main canal, or by its 10th lateral canal (10L). They display drastic contrasts regarding size and occupation. Some, like *mu* 6, where the *Tambon* Administration Organisation (TAO) and the main temple are located, have very few families left engaged in farming, while others, such as *mu* 4 or 5, are predominantly agricultural villages (*mu* 4 has 185 families out of which 120 have agricultural activities).

The *tambon* also includes the recently established Sing Buri Province Industrial Park, an earth-filled area located along the main north-south highway which goes through the *tambon*. A few factories have significantly raised the supply of jobs in the area but they also have created environmental problems (air and water pollution). The impact on the labour market is apparent from the rather high daily wage for unskilled labour. It was reported that no one would work for less than 150 baht/day. This has to be compared with areas in the Mae Klong region, where the daily wage is at 100 baht/day.

Many households were found to complement their income by some piecemeal work carried out at home: mattresses are delivered to villagers by a local producer, whose task is to perform some additional delicate hand-sowing aimed at strengthening them.

Fig. 1: Location and physical setting of Maharat Project and of the study area



3.4.2 Conditions of water use and management

As the water supplied to the Maharat canal is not sufficient to grow rice in the whole Project area, a loose rotational pattern is adopted, with priority given alternately, every second year, either to the upper half or to the lower half of the Project. The study area is located in the upstream part of the lower half. However farmers located along the main canal have been little affected by the rotation. They grow two or three crops every year, relying on pumping when they are out-of turn. This is possible because RID always maintains some flow to downstream areas (for orchards, domestic consumption, cattle, etc), of which they take advantage. When the lower half is “in turn”, some rotation is also implemented between the first canal reach (our area), and the remaining downstream area (they area separated by a regulator located 3 km downstream of our *tambon*). Each reach is supplied during one week alternately, but pumping along the upper reach is not discontinued when the area is “out of turn”.

In the year in which they are out-of turn, some villagers from *mu* 2 or *mu* 8 usually grow some mungbean in the dry-season, capitalising on field wetness. The profitability is rather low (1000 baht/rai) and it is often difficult to find labour at harvest.

Apart from irrigation canals, there are several other water sources in the *tambon*. The main one is the Chao Phraya river itself, but it is little used because of the high head imposed to pumping. On the other hand, a spread of several thousands tube-wells was observed in the area, mostly during the last ten years, some of them originating from provincial public initiative (as measures of drought relief in the 1991-94 period: see Report I). There are also two public ponds which have been excavated in natural lowlands, and provided with a surrounding dike. They both cover an area of around 20 rai and are convenient water sources for riparian farmers⁶⁰. Last, there is a natural waterway in the north of the *tambon* (now a drain), which may retain some water and be tapped by pumping too.

All farmers were found to have engaged in dry-season cropping quite recently. While some started in the early 1990s (those located along the main canal), many grew their first crop in 1996, after the flood destroyed the 1995 wet season crop and water was delivered to the area during the next dry-season in unprecedented amounts. As, for many farmers, growing a dry-season crop meant investing to improve the plot and accommodate HYVs, the incentive was provided by the high rice prices of the 1996-98 period, during which everyone engaged in dry-season cropping. The move was also boosted by the return to the village of some people working in Bangkok, who lost their jobs in the post-1997 crisis time and were looking for some activity. The great majority of the farmers who started dry-season cropping in the last 5 years have grown a crop every dry-season since then.

Because of the efforts and investments made to improve the on-farm level, all farmers are now in a position to grow dry-season rice. It can be seen that the indirect impact of the 1995 flood was to develop the capacity and interest to grow dry-season rice crops. It thus contributed to significantly raise expectations and the pressure on water demand in the dry-season. Another unexpected significant change was that the lower eastern half of the *tambon*, which was still growing traditional varieties in the rainy season, shifted to HYVs. This was allowed by the on-farm investments mentioned earlier and by opening the drain regulator which, in the past, was closed in order to raise the water level and keep the whole area under water. The move was identical to that observed a few years ago by Molle and Keawkulaya (1996) in the lower Borommathad Project. With the change in water management, some plots formerly cropped with flooded traditional varieties remained disconnected from the irrigation network and had to dig ditches or drill wells to access water.

⁶⁰ Contrary to other reservoirs excavated in the middle of low-lying floating rice areas, which have a difficult access and are little used, these reservoirs are surrounded by fields where HYVs are grown.

Conflicts are common along tertiaries (ditches), but have no serious consequences and are generally solved locally. Collective pumping at the head of the ditch is sometimes necessary to ensure proper inflow.

Local water management operations are satisfactorily shared between farmers and RID field staff. The zoneman is praised by most farmers for his dedicated work.

3.4.3 The Water User Group

3.4.3.1 *Farmers and groups*

The WUG was built partly on the basis of a pre-existing group at the level of *mu* 4, which had been set two years earlier⁶¹. The WUG was first set for a two year period (July 1998- July 2000) and a committee of 14 persons was elected. It included one representative from each village and was headed by the proper district head (*kamnan*), assisted by *puyay* Amnuay, the head of village of *mu* 4 (and of the former group). The Kamnan, although not himself a farmer, was universally reported as the adequate person because of his political connections and ability to find budgets and support. *Puyay* Amnuay, in his turn, is widely praised as an efficient leader and most farmers referred to him as the effective head of the WUG⁶². Although it is located at the extremity of the *tambon*, *mu* 4 is generally the meeting place of the WUG, because of its numerical weight and the residence of *puyay* Amnuay. *Mu* 4 and *mu* 5 are also considered strong rice-growing villages and still practice the traditional system of labour exchange (*long khék and ao reng*).

It appeared that the proposal to form a Water User Group did in fact originate from RID, with the help of the *tambon* extension services and some participation from an officer of the RID Regional Office, in Lop Buri. It is interesting to investigate what was the rationale of the proposal, given the well known failure of the WUG officially established some 20 years ago. The argument used by RID officers was that the *tambon* would have to set a group in order to be in a position to request, and obtain, water in the dry-season.

That RID did put some degree of persuasion in its proposal and explanations can be sensed from a few interviews, including a few farmers who reported they were told that they would not get water without setting a group (this was said to be contingent upon a written official demand which only a formalised group would be in a position to issue), and a man who reported that farmers who would not attend the meeting would be fined 50 baht... It is not clear whether the RID's proposal went as far as suggesting a veiled threat, but there is no doubt that officers emphasised the benefit farmers would draw from the group for requesting

⁶¹ At the time of group setting, some of the villagers were taken to the Ban Rom Water User Association, presented as an example of what should be achieved (see case study 3).

⁶² *Puyay* Amnuay was recently awarded a prize by the Ministry of Interior for his achievements as a village headman.

water in the dry-season. Indeed, all the group members interviewed mentioned this point as the chief benefit (*phonprayot*) of the group setting and very seldom were able to point out to any other potential benefit.

The list of the WUG includes only 224 names. Even in *mu* 4 and *mu* 5, only one farmer out of 5, and 30 farmers out of 120 agricultural households respectively, are formally members of the WUG. The loose membership is reinforced by the fact that adhesion is free and is best shown by the fact that the proper WUG leader, *puyay* Amnuay, was unable to tell about the number of members and assessed it as "more than 100"... A farmer in *mu* 5 thought that the group was restricted to his village and was unaware of larger scale connections. A farmer in *mu* 8 asserted that the head of the group was "Mr. Chaleum, from *mu* 8". Some non-member farmers, who are often located next to the main canal or to an independent water source, had not even heard about the existence of the group. Many more were unsure about whether a fee was due for registration, and often confused the 90 baht fee of the agricultural group with that of the WUG. The WUG has so far held two meetings a year, the most important one in February, before the onset of dry-season cropping. In spite of its two-year term being completed and of the recent resignation of the head (the kamnan also resigned from his position in order to be candidate to the position of head of the TAO), there was no move to call for a meeting and to elect a new committee for the WUG. The low percentage of WUG members among farmers is also attributed to the past failure of former WUGs, which keeps villagers' expectation very low.

Numerous groups exist in the *tambon*. This includes "*saja*" groups, which provide small amounts of credit and use social control to ensure repayment, groups of housewives (*klum meban*), the WUG and an agricultural group (*klum kaset*). This group is older and is instrumental in buying⁶³ wholesale bags of fertiliser which are paid by farmers only at harvest time (with an interest of 5 baht/bag which goes to the group running fund). Groups were also organised by the Department of Rural Development (Ministry of Interior) among riparian users of the two ponds; activities include cutting grass on the dike and controlling water abstraction in order to avoid untimely prejudice to the fish raised in the ponds.

Overall, there is a feeling of "geological" accumulation of group layers initiated by the administration: they tend to exist as successive layers, as groups are rarely deactivated, even if they are not successful. As a result, there is a sense of loose membership, associated with the impression that these groups are in general little active and superficially superimposed over village life. It is sometimes difficult to explore and identify these "sedimented layers" as farmers tend to mix the different groups (especially when the leaders are the same and the meetings held in a row).⁶⁴

⁶³ The group was given 40,000 baht each year for 5 years, in order to constitute its own fund (this was part of the Social Investment Fund activities).

⁶⁴ Samudavanija (1985) shows that this proliferation of groups is also the expression of the competition of the different Departments of the central administration to appropriate development activities. "The confusion and

Another mentioned benefit of the group is to increase interaction between farmers and to facilitate common agreements regarding the date and decision to plant. This is necessary in *mu* 5 because incomplete on-farm infrastructures create constraints on water (seepage and flow from plot to plot) and access (land preparation and harvesting operations must be phased).

It was also mentioned that the group would be useful to call for collective actions of ditch cleaning, but farmers acknowledged that this was also done before the group was created. The group was attributed some budget from the Miyasawa fund in 1999, in order to organise the cleaning of ditches.

Overall, most farmers reported that they still had not seen the real benefit of the group, while some attributed this to the short experience of the WUG: only two years, with little problems of water supply experienced, especially for the year 2000.

3.4.3.2 RID and the WUG

From RID's side and point of view, the WUGs have several advantages. The main one is to channel farmers' demands and complaints through a unique representative. It appeared that in recent years, the shortages experienced during the dry season prompted a flurry of individual requests of intervention at upper political levels, in particular to a local MP and the Provincial authorities. Annoyed by the un-coordinated nature of these interventions and to the series of phone calls that they triggered, both RID's officers and the local sub-district head⁶⁵ were willing to support the establishment of a group expected to act as a representative.

A second motive was to facilitate the exchange of information (planned supply and seasonal policy, interruption of deliveries for maintenance, etc) and the hope that the group could be instrumental in helping to control the cropping area in years of low water supply. As more pressure on water builds up in the dry season, RID feels the need to improve its communication with the farmers concerned. A last possible motive is some kind of recognition drawn from complying to the general and re-affirmed policy to set up WUGs and to increase farmers' participation in management. More recently, officers of the Maharat Project have created similar groups in other neighbouring *tambon*.

The interest of politicians in the establishment of the WUGs was not as obvious in the case study of Baan Rom. It appeared that the *kamnan* head of the WUG was a political ally of an influential MP of the Province (the same MP that farmers used to seek in case of water shortage, himself belonging to the same party as the provincial head's), but whether there

duplication of village committees reached such a point that the cabinet had to pass a resolution (in 1981) allowing only one committee for each village".

⁶⁵ In one case, the Head of the Province visited by the area after being informed by a MP and some farmers of on-going problems, without local officers having been informed of his coming.

was some hidden political agenda in the *kamnan*'s contribution to establishing the group and in his election as a head could not be clearly established.

A conclusion strongly suggested by the heterogeneity of villagers, both in their occupations and in their interest for the WUG, is that several factors contribute to weaken the collective dimension of the group. A first factor is pluri-activity, which entails that the dependence of farmers on agriculture is very varied (and so is their interest in participating in collective initiatives). A second one is the presence of several secondary water sources, principally tube-wells, ponds and drains, to which farmers can resort to in case of water shortage. This individual solution to water problems, even though it may entail increased costs due to the cost of pumping of underground water, is obviously preferred to that of building improved collective management and co-ordination, which involve significant transaction costs. Farmers located along the main canal also show weaker interest because of their almost permanent access to water. Another point is that the proportion of farmers in some villages is so low that those still engaged in farming tend to be isolated and have little interaction with fellow farmers.

Another noteworthy aspect is the pervasive structuring of top-down collective actions in accordance with the administrative levels of organisation. The logic of incorporating the village level is apparent in the fact that each of the 8 villages has one representative (while 5 other members include, head, vice-head, secretary, etc). This runs counter to the fact that farmers are predominantly located in particular villages (120 farmers in *mu* 4 against only a few in *mu* 6) but is typical of the difficulty to conceive collective initiatives independently of the official administrative framework (house < village < *tambon* < *amphoe* < province < Bangkok). The hydraulic-based logic would be to form WUGs by lateral, and by reach along the main canal (the area between two regulators).

In conclusion, it was shown that the group had been initiated by RID based on the persuasive argument that it was necessary in order to direct requests of water in the dry-season. The initiative met neither resistance nor enthusiasm and only a minority of farmers ended up adhering formally to the group, despite free registration. A high heterogeneity in interest, expectation and participation was found, while collective action was hampered by individual strategies (tapping secondary and independent water sources) and pluri-activity. Much of the enterprise rests on the personality and social recognition of the WUG's effective leader and the immediate benefit for RID is to provide a way to channel farmers' individual requests and complaints. With the implicit RID's argument that the WUG would be rewarded by a due consideration given to its request, something similar to the "bonus" granted to Baan Rom Water User Cooperative, it remains to be seen how the Project officers will succeed in satisfying the set of WUG that they have been attempting to establish in the last months.

4 The failure of the Water User Groups

Based on the preceding observations on the Thai social context and on the Borommathad, Maharat, Roeng Rang and Don Chedi case studies, it is possible to derive some overall considerations on the alleged failure of water user groups formerly and formally established in the Central Plain of Thailand. It is also possible to investigate whether there is still scope and justification for attempting to organise farmers, or to create conditions in which they would be encouraged to do so.

4.1 Past policy for farmers organisations

A first attempt to design WUOs (Water User Organisations)⁶⁶ was recorded in 1963 in the Northeast and led to the foundation of the first legal Water User Association (WUA) in 1966 in Udon Thani Province (Poolswat, 1992). Other WUAs were then created with the main following objectives (JICA, 1994):

- To promote farmers' understanding of the value of water
- To participate in the water allocation and maintenance of canal systems and structures
- To mediate conflicts among farmers regarding water use
- To help members in buying input and equipment and in selling farm products

WUAs had to elect a head, or "Common Irrigator", whose attributions were modelled on the head irrigators of Northern Thailand, but "in practice Project Engineers sometimes intervened in the selection because they believed that "the farmers do not always select competent men" (NEDECO, 1970); they were to be paid by farmers but were eventually supported by RID.

Ten years later, in 1974, WUAs proved to be too large in size and in area to allow proper communication with RID, which also felt the lack of regulations and laws to control free-riding and opportunistic behaviour. Emphasis was therefore shifted to WUGs to be established at the tertiary level. In 1989, RID moved to pool WUGs at the lateral level (IWUGs, Integrated Water User Groups) and further to the Main canal level in Water User Associations which were deemed to function as co-operatives but were not formally registered as such. They resembled the former WUAs with regard to their size and attributions but were not granted formal or legal status.

WUAs, however, were not abolished and remained a legal alternative of WUO covered by the Civil and Commercial Code, with the specificity to be able to run specific commercial

⁶⁶ WUO is taken here as a generic term for the different types of organisations presented below.

activities, although not a profit-making basis. As a way to associate activities of production, input purchasing and marketing, a legal framework for Water User Co-operative was also established under the 1960 Co-operative Act, allowing them to carry out a range of activities identified as income generation for the group. They were in general found in RID areas provided with land consolidation, where they were instrumental in collecting O&M fees.

Several Projects have been implemented in the last two decades to support farmers' participation in the Northeast. NESSI (Northeast small-scale irrigation Project) rehabilitated 7 Projects in the 1980s. Standard format for WUO rules and regulation were proposed and farmers were expected to take part in water management. However, involvement in operations remained "largely limited to the farm ditch, with no substantial role in allocating or scheduling of water in the main ditch and canal" (Havorongkura, 1995). It was also concluded that improving water management was not enough and that long-term goals of improving crop production and increasing farmers' incomes were needed (Halcrow, 2000).

Another project was launched in the 1980s, based on the idea that Irrigation Community Organisers (ICOs) recruited among university graduates should bridge the alleged gap between RID and farmers but did not prove successful in creating a pattern of organisation which could be disseminated (Halcrow, 2000). A larger scale Project (NEWMASIP) was launched in the 1990s and also attempted to create incentives for farmers to participate in irrigation management and to develop collective actions regarding production and marketing. The degree of success for each of the ten Projects considered was extremely varied and only one is known to still have WUAs with some activity. Kawsard (1999) concludes that "in its relatively short life NEWMASIP has not had enough time to progress beyond Stage II (joint management, with different degrees depending on the tasks), but Stage III (turnover) should remain the goal for both farmers and Royal Thai Government".

These different experiences were, by and large, ineffective in triggering a mode of participation which could serve as a model for the region. In almost all cases, activities ceased when Project staff discontinued their support or incentives. The level of awareness of RID's staff about the necessity to have users participating in decision-making did not prove sufficient and top-down management remained the rule.

4.2 Accounting for an announced failure

We may attempt here to review the different arguments which can be raised to explain the failure of the top-down initiative to create Water User Groups, Associations and Co-operatives. These reasons are extremely varied (and numerous) and are obviously more or less insignificant according to the case considered. We focus here on the situation of the Central Plain.

4.2.1 Individualism and acceptance of inequity

We have seen earlier that the social fabric of the rural Chao Phraya Delta differ(ed) from that of other regions in Thailand. Historical circumstances and ecological settings, in particular, are at variance with that of other regions. The characteristics of a “frontier society” and its tight consubstantiality with the development of the rice market economy have obviously shaped a different society. Those who associate the “penetration of capitalism” with the downfall of harmonious and united communities are faced with the challenge of a society which did develop through its link with commercialisation (Douglass, 1984). In all cases, whether social disintegration is posited as an outcome or as a constitutive element of the delta society, it is common knowledge to classify the region as a somewhat exceptional part of Thailand.

The assumed individualism of farmers in the Central Plain is therefore partly rooted in its peculiar genesis. We have seen in § 2.1.1 that this assumption had been put forward by those who opposed the generalisation of the “lose structure” paradigm and saw it as a mere feature of a few studies relative to Bangkok surroundings. We also reckoned that, while the high flexibility and impermanence of dyadic relationships could be seen as a distinctive hallmark of Thai social structure, the reliability of these relations, on the other hand, re-introduces a strong element of social structuring.

We have shown a few examples of contractual arrangements which appeared to be much more stable and, all in all, fairer than often assumed. From his study of contractual relationships in a village of Ang Thong Province, Gisselquist (1976) also observed that “in several instances, such has been the case, farmers have proven themselves capable of cooperation and joint investment”. The example of the collective arrangement made necessary to pump water simultaneously at the head of the lateral and at the plot level (Don Chedi case study) also demonstrated that a rather complex organisational need could be responded to efficiently by farmers.

At the same time, the diagnosis of water management in the delta, along its different nested levels, has pointed to a state of generalised free-riding, where farmers pump available water sources as soon as water appears and as the likelihood that it will be available during the time needed to grow a rice crop is believed to be high enough. Cropping intensity has been shown to depend on head-tail end locations and according to the main canal considered. Rotational arrangements are extremely rare. However, it was worth noting that a higher pressure on water in the dry-season in the last 4 years had triggered a series of rotational schedules in most Projects in the delta. These rotations have been effective thanks to political commitment and to the involvement of different segments of the administration, including the police.

It is our contention that, while acknowledging a propensity to individual behaviour and the lack of strong built-in social incentives for collective action, farmers in the delta are not deprived of the social capital needed to act collectively. In other words, although the delta

social features may not appear as providing an ideal setting for organising water users, it is believed that the main deterrents must be sought elsewhere.

Staying in the realm of Thai culture, there is one cultural feature which might be much more relevant to our present debate. As alluded to in the case studies, Thai farmers display a very pervasive acceptance of inequalities. This was noted regarding the head/tail-end problem (where locational advantages are taken for granted). The same question on how farmers felt to grow only one crop while head-enders would grow two in most dry-seasons was always shrugged away with some laughter. Only in rare cases, and in specific situations, as documented in the Borommathad case study, would tail-enders' dissatisfaction build up and produce some intervention by RID or politicians.

Conversely, this acceptance of inequalities is paralleled, in a more positive tone, by widespread sentiments of tolerance: farmers in the Don Chedi Project were widely sympathetic to those fellow farmers located outside of the area and who were developing large scale diversion of the same canal water serving, insufficiently - their area. What is an obvious new competition was, surprisingly, not perceived as such. It is not hard to find examples in the literature in which similar situations escalated in severe conflict. Another example is that of inequities resulting from the simultaneous use of pumps with different engine power at the head of the lateral which are also not perceived as significant and are commented by "*tong chuaykan*" (one must help one another).

Whether these two traits must be traced to Buddhist culture may lie beyond the scope of this study, but it is tempting to establish a correlation. The deep feeling that one's situation is not socially determined but, rather, governed by the accumulation in former lives of merits and demerits, obviously has an impact on the way farmers look at what outsiders see as inequities⁶⁷. Visser (1980), who studied a village of the delta, also reported that the view is held that the poor farmers have only themselves to blame for their situation; "indeed the origins of poverty are considered to lie in individual characteristics and situational circumstances of a non sociological nature". Asked to comment on wealth disparities among farmers, villagers rarely display any kind of aggressiveness or strong reaction. It is easy to have Thai farmers of the lower Mae Klong area commenting on their differences in wealth, workload or sense of entrepreneurship with regards to local Chinese, but this is rather said smiling than with any demonstration of envy or jealousy.

It follows from these cultural traits that group formation and collective action are not necessarily the preferred option to solve a situation of conflict or inequity. Such situations can be dealt with in different ways:

⁶⁷ As nicely put by Redmond (1998), Thai see no inherent justice in life: "Is life fair ? No, but why should it be ? (...) life is not something to be legislated, but to be indulged in. Life and Justice are like two estranged sisters, one promiscuous and the other proud, who refuse to speak when they meet on the street".

- The first and most common reaction is conflict avoidance, to adapt to the situation and to search for other opportunities (“*tham jay*” option). The principal option within agriculture is digging a well or pumping from other sources. Acknowledging the unfavourable position of the plot may also be a push factor towards engaging in non-agriculture activities and keeping agriculture as a secondary activity, or even giving up farming.
- The second is to co-operate and to try engaging in some collective action (“*chuaykan*” option). This is generally only possible at the local level; farmers will group to pump at the head of the canal or would agree to some rotation within the lateral (under the supervision of RID field staff). This also includes collective maintenance.
- The third one is *intermediation*; most commonly villages headmen and sub-district heads, more rarely other local leaders, are called in to solve a dispute; a compromise is found in order to avoid social disruptions. To lose a bit is seen as a much more desirable outcome than public outrage and the damaging of local social relationships. Intermediation allows the avoidance of face-to-face confrontation and lowers the probability of losing face.
- The fourth one is the *patronage option*. Farmers try to obtain a change in their favour by approaching people with adequate power and who are expected to behave as patrons. These patron-client relationships are common in Thai society and easy to observe in political life (Christensen and Siamwalla, 1993; Arghiros, 1999).
- The last one is (unresolved) open conflict, but it is very seldom the chosen option. It was observed in some case of latent conflicts between villages, sometimes driven by ethnical differences.

It can be seen that cooperation is only one of the options and that, depending on the local context, it may or not be the one chosen by villagers to attempt remedying their problem.

4.2.2 Leadership

The lack of local leader is also often mentioned as a contributing failure of the WUOs. This weakness is sometimes attributed to the “loose” setting assumed to prevail in the Central Region.

What remains beyond doubt is that the presence of local leadership, someone who can be both a visionary and have the authority to draw his fellow villagers behind him, is strongly correlated with success stories in the country side (Shigetomi, 1999). Duncan (1978) found that contrasting examples of *chak* management (tertiary) showed the importance of leadership, while Tubpun (1981) has found the same importance in the Northeast for Tank associations. The change in agricultural conditions observed by Molle and Keawkulaya (1996) in the upper delta was also attributed to the initiative of a local and respected *kamnan*.

Our case studies have shown a similar paramount importance of local leaders. This was apparent in the Roeng Rang and Maharat Case studies, but also in Don Chedi where the

existence and the effectiveness of collective arrangements were associated, among other factors, with the commitment of a *phuyayban*, or of a dedicated farmer or zoneman with social recognition. This strongly suggests that the human factor is paramount and that there is probably nothing which can be done to obviate the corresponding very contrasting pattern of social responsiveness to opportunities or to state-initiated projects.

At the same time, it was apparent that such leadership was highly localised, in general at the level of one or two villages, and that wider arrangements needed to be mediated by RID officers at the main or secondary level, and by politicians at upper levels (e.g. Khlong MoHo). It was also observed that the role of *phuyayban* and *kamnan* as representative of villagers was being undermined by a growing proportion of such leaders not involved in farming and manipulating elections (patronage, vote-buying) in order to appropriate the parcels of power transferred to these levels within the decentralisation process.

4.2.3 Spatial definition of groups

Another difficulty in the setting of WUG comes from the definition of hydraulic units. The example of Don Chedi Project provided some hint on how village units overlap with lateral canals. Most of the canals serve 3 or 4 villages, even if in most cases the area corresponding to some of these villages is small (in other words a lateral generally serves mostly 2 or 3 villages).

Hydraulic units, as is often the case, do not correspond to social units nor do they fit the administrative layout of villages. Despite a wide debate, alluded to earlier, on the relevance of the village as a social unit, it is believed that in many cases, in the upper delta, it constitutes a reasonable unit of collective action, decision and control. This is not only so because of the obvious lack of an alternative but because the accumulated thrust of state intervention has along the years, given some kind of existence to the village. The importance of the *phuyayban* and *kamnan* for both the resolution of local conflicts and as an interface with the state has led villagers to a degree of identification with the administrative village they live in. This was apparent in the Roeng Rang Project case study and, rather, it is the occasional opposition between some villages which appeared to create difficulties for water management⁶⁸.

Exceptions to this are some villages, often ribbon-type settlements, which have been defined totally arbitrarily. Such cases are more frequent in the lower part of the delta, where settlements follow the canals, than in the northern part where the gravity irrigation, with which were are here concerned, is to be found. There are many old villages in the northern delta

⁶⁸ Schiefer (1973), wondering on adequate patterns of organisation for Thai irrigators in the Northeastern Region, also embraces the idea of the village as a basic structural unit, with the headman as a strong figure of conflict solving. He recommends to design tertiary units of approximately 50 ha as much as possibly included in the village territory, and to group the groups of a given village into an irrigation committee.

(and although they are located on levees, they are often of the cluster type), to which clearly correspond some socially distinct group. In any case, it is readily apparent that if a significant part of a village relies on a given water source, the *phuyayban* is likely to be concerned with it, although leadership in such issues often rests with local informal leaders too. However, when the scale of the problem is larger than two or three villages (and typically encompasses several *tambon*), then the articulation between users appears increasingly problematic.

While the issue of social cohesiveness and social relationships do matter for the establishment of the water groups, the lack of fit between hydraulic and social units (whatever definition is retained) is clearly a disadvantaged but not an insurmountable factor.

4.2.4 Social cohesion within the wider agrarian change

An important factor contributing to the success of WUGs comes with situations in which farmers have a “singular dependence on irrigated agriculture for their livelihoods” (FAO, 1999). This means that in a system with few job opportunities outside irrigated agriculture and/or with precarious subsistence-oriented farming systems (whatever the reasons for this), the livelihood of farmers and their families strongly rests on irrigation, as a means to stabilise or increase the household’s production. This degree of dependency is a measure of the resources (money, labour, time) farmers are likely to be willing to invest in a process geared towards providing them with greater control on water management. It is also, although many other factors may intervene, an indication of whether farmers are likely to be encouraged/forced to raise their social capital and act collectively. Chompoonut (1992) has found that the level of participation in a WUC of the Kok Katiem Project was correlated with the age, level of education, land, number of persons in household, but not with water conditions. This suggests that farmers with much land or large families may be more interested by water issues, while those with poor water conditions have turned their attention to other activities (see below).

In the case of the Chao Phraya Delta, the evolution of farming systems suggests that collective action is weakened by the heterogeneity of farmers’ motivations. Our three village survey (Molle *et al.* 2001b) and other studies (see Kasetsart University and ORSTOM, 1996; Molle and Srijantr, 1999) have shown the extent of pluri-activity and composite income within the household. While some farmers are fully dedicated to their farm, others are part-time farmers and only grow rice in spare time (typically they would prepare the land and establish the crop on a week end and monitor water conditions early in the morning or in the evening). Such part-time farmers have little time to devote to collective action and, especially if they are in a favourable location within the hydraulic network, they may be little interested in costly personal investments (in terms of commitment) aimed at raising the productivity of an activity which is only marginal for them.

Such a situation is also widely documented in the People’s Irrigation Schemes found in the north of the country (Charoenmuang, 1994; Cohen, 1999). The opening to the world in general and to the wider economy in particular have weakened the individual commitment in

collective management of some villagers, therefore weakening the whole institution. Farmers' cohesion has been weakened by the intrusion of market forces and State intervention in resource management and the failure of the government to ensure proper management led to a renewed interest in decentralised decision-making, without certainty however on whether previous *community failure* situations can be reversed (McCay and Jentoft, 1998).

We believe that this overall trend of the delta agrarian system has a significant impact on the potential pressure coming from farmers with locational disadvantages. Added to the cultural propensity to accept differences, it is all the more likely that farmers who could not get access to water were also those who tended to leave agriculture or to engage in pluri-activity. In systems where no such opportunities exist, the *push* towards intensification and the reactivity of farmers doomed to subsist on their agricultural production is much higher. This translates into stronger concern for equity and collective actions aimed at regulating and at evening the access to resources.

Farmers' heterogeneity in interest, commitment and social interactivity is a reflection of their economic strategies within a wider multifaceted economy and is certainly a factor which tends to weaken collective action. The degree of dependence of farmers on their agricultural activities is governed by a set of interrelated factors which can come under the term of *agrarian pressure*. If pressure builds up through processes such as growing human densities, fragmented farms and constraints to intensification (such as access to water for dry-season cropping), then farmers will be pushed to improve their situation and may more easily adopt collective solutions. If opportunities are given to escape and release pressure (migration to the land frontier of urban centers, diversification, off-farm job-opportunities, etc), then a growing number of individuals in the village will have a declining interest in agriculture, other sources of income and less incentive to engage in collective actions. The cultural propensity of conflict avoidance can express itself when drastic disadvantages regarding access to water can be dealt with by occupational shifts.

The numerous rotational arrangements set in 1998 and 1999 were maybe indicative of the fact that the perception of inequity is relative to a wider economic context which provides a certain array of alternatives and opportunities. The 1997 economic crisis had increased the burden on agriculture to support families spread over the rural and urban activities and attractive rice prices buoyed up the farmers' expectations. Relatively abundant water and high rice prices made the common tail-head inequality no longer acceptable⁶⁹.

The absence of critical socio-cultural stratification (as seen for example in India) and a certain reluctance to negate someone's right when a situation of crisis arises, are positive factors allowing more collective responses. The engine for such initiatives may not be purely community-based but also relayed by the different tiers of the administration, especially when

⁶⁹ The arrangements did not totally ensure equity but farmers vying to grow a second crop imposed a rotation to make sure they would be served too instead of having head enders growing three crops at their expense.

meso and macro levels are concerned. The arrangements of 1998 and 1999 are examples of such reactions which were implemented by both farmers and the administration, often with the mediation of local politicians.

4.2.5 Role in system maintenance

Maintenance is an essential component of irrigation systems management. Whereas RID is responsible for the maintenance of the primary and secondary levels, farmers are supposed to take over the tertiary level. WUGs, as noted in the case study, were ascribed this role, under the supervision of the “ditch leader” (*huana tho*, or head of pipe). Ditch maintenance is essential to preserve access to water for those whose plot is not located along the canals. Cleaning and grass-cutting are tasks to be undertaken annually, while dredging is done according to necessity.

It was found that in most of the delta farmers were now widely contributing to this task by gathering money, often under the initiative of one of the farmers. The drudgery associated to ditch dredging has been overcome by resorting to mechanical means. “Macro” excavators are now very common and can be easily rented. Second, it has also been observed (Molle et al. 1998), and confirmed by our case studies, that the burden of maintenance has partly been transferred to local budgets. With the decentralisation and the possibility for farmers to have a say in the allocation of some funds, more and more operations of ditch digging or dredging are passed on to the sub-district or to the district budgets.

It follows that what might have been one of the strongest incentives for farmers to co-operate has been waning over the years, thus contributing to undermine the existence and effectiveness of Water User Groups. Chompoonut (1992) found that the cooperative maintenance of the ditches was the main reason for the farmers of a WAC in Lop Buri to associate but the last ten years have significantly altered this point. This has to be reckoned before designing new patterns of joint management, in order to avoid putting emphasis on an issue which is often paramount but does not appear to be central to the case under consideration.

4.2.6 Role in collecting fees

Collecting fees was one of the major tasks attributed to WUAs in the late sixties by the government, both as a way to control O&M expenditures and as a response to pressure from the World Bank (Duncan, 1978). Farmers were expected to pay 10 baht on registration and annual “assessments of 10% of the increase in crop production”. Such a collection rapidly turned out to be a failure. No provisions were set to deal with defaulters and the will of the government also waned as it became clear that farmers were not reaping the expected benefits from the new irrigation infrastructures and that the WUAs were showing little sign of activities. The further shift of priority to WUGs at the tertiary level did not prove more successful in this respect (Duncan, 1978).

This experience does not necessarily invalidate the interest to levy water charges nor the capacity of farmers' organisations to carry out this task. However, it strongly demonstrates that when the power of WUOs to formulate and to be involved in policy-making is negligible, there is little chance to mobilise farmers for levying a fee. As the overall political support for such a measure is admittedly weak, there is little scope to initiate such a policy if the whole context of water distribution and allocation is not overhauled. Discussions on the appropriateness of introducing water pricing can be found in Report 1 and are developed at length by Molle (2001).

4.2.7 Role in production and marketing

As mentioned earlier, one of the conclusions of the first experiences with the promotion of farmers' participation in irrigation schemes was that water management in itself was not sufficient to provide the "glue" expected to bind farmers together and have them act collectively.

It was posited that a wider range of activities likely to benefit farmers would help raising their level of participation. Judging from the very low number of WUCs in Thailand (only 6 officially registered), there is no indication that this assumption was valid. Generally speaking, the level of activity of co-operatives in the delta is very varied but they rarely appear as a stronghold of farmers' activity. This does not dismiss the evidence that farmers can significantly improve their position by a greater control on marketing and on the price system (and that it may even be a priority) but raises questions on *how* this can be achieved and on whether conventional existing co-operatives are up to the task. In some cases, it was apparent that a lack of training (e.g accounting), communication or organisation (e.g fertilisers coming too late) contributed to the poor performance of WUAs or WUCs.

4.2.8 Role in managing water: the ditch (tertiary) level

We now turn to the core function of WUG, the management of water at the tertiary level. WUGs are widely expected to define rotations within the ditch, to help solve conflicts which may arise, and to follow the discipline dictated by the scheduling defined at the lateral level (open FTOs and farm inlets only in turn, do not tamper with structures, etc).

The most pervasive impression derived from interviews of farmers in the delta is that they most often don't know who is, or is supposed to be the "head" of their ditch. This is highly indicative of the erosion of the very sense of the existence of WUGs in farmers' mind. This can be traced to the prevailing conditions of water distribution in the delta. During the rainy season, by and large, canals function at their full-supply level and the ditches receive enough water to make any discipline useless. If this is not the case, pumps are readily set to fill up the ditch. In the dry season, the overwhelming use of pumps also serves as a substitute for more constraining rules and management. It is easy to understand that in such conditions there is little scope for water user groups' activity.

1) Because of the unpredictable and fluctuating supplies, 2) the existence of a technical solution providing a flexible alternative to social organisation, and 3) the cost of the pumps was “lower” than the transaction costs which would occur if collective organisation was attempted, farmers have swiftly adopted this innovation. It goes without saying that if a remarkable efficiency has been achieved by the spread of numerous pumping devices allowing the tapping of whatever water resource, *the shift has also been highly detrimental to equity*, as head enders tend to access water first.

Such conditions have contributed to decreasing the necessity of collective organisation at the ditch level. Also paramount are the changes which have affected rice cultivation. In the 1960s and 1970s most of the irrigated rice was transplanted and on-farm control was generally poor. These two factors demanded a higher degree of collective action. Transplanting had to be planned because of the necessity to prepare nurseries in advance and to have the fields in muddy conditions at the right time; staggering of calendars and of water distribution was to be planned with more certainty. Widespread plot-to-plot distribution of water also meant that neighbouring farmers were compelled to attune their operations and calendars. All these changes in cropping techniques (wet broadcasting), on-farm conditions (ditches) and pumping capacity have dramatically decreased the necessity of interaction between the farmers of the same ditch. This point is not reckoned, which explains why current proposals insist in building WUOs starting with WUGs at the tertiary level.

Farmers in a WUG must know what they are associating for. If the purpose of the group is to distribute water to all farmers, and to collaborate with the other groups supplied by the same lateral, their activity must be part of a wider allocation plan in which they know when they will get water. If it is not the case and if water is not sufficient or too uncertain to ensure that all members are served, it is easy to understand that the group will quickly disband. If there is too much water, then there will be no necessity to act collectively as everyone will be served; if supply is uncertain and scarce, no discipline is possible because some participants (in general, always the same ones) will not get their share. In between, there is scope for cooperation, if establishing some kind of rotational schedule is to bring more efficiency and more equity.

In order to manage water at the ditch level, through the design of some kind of rules aimed at sharing water, farmers must first have a notion of what they are supposed to share. Whether this comes as a right or as a planned allocation, defined by a combination of discharge, time and frequency, farmers must first build a concrete image of the flow which is going to enter their ditch. In conventional gravity systems, this flow of water will be contingent upon proper regulation of the water level in the secondary canal. This level, in its turn, will be governed by the inflow of water at the head of the canal. In other words, it is obvious that nested levels are dependent upon the upper ones.

4.2.9 Role in managing water: the lateral (secondary) level

Many lateral canals in the delta are in practice already co-managed by RID and local farmers. A wide diversity of situations can be found, ranging from the lateral where the zoneman operates on his own (but with feedback from users) to cases where farmers have the “key” of the check regulators and act as gatekeepers. The five cases of lateral management identified in the Don Chedi case study are widely valid. If a rotation is needed then it is often agreed upon through the mediation of the zoneman or a local leader. The case study of Tha Maka Project has shown that in some cases such agreements are not easily reached and may degenerate into conflicts and even death. Such cases, however, are exceptions rather than the rule and the dominant impression is that of a passive acceptance of the inequitable pattern described in the case studies.

It is interesting to note that the initial official setting of WUOs was done at the lateral level and that there was, later, a shift to the tertiary level, believed to be easier to deal with. There was a sense that lower levels had been neglected and that IWUGs (Integrated Water User Groups, at the lateral level) and WUC (co-operatives) should rather be seen as the logical outcome of the expected maturation of the WUGs. We must remember that at that time the question of on-farm water control was prominent. Much of the benefit of irrigation schemes could not be delivered because of poor farm access to water. Individual pumping capacity was still limited and cropping operations (notably transplanting and plot-to-plot irrigation) demanded a certain degree of planning, timing and ditch management.

This policy was fundamentally flawed. Instead, it would have been wiser to keep committees operating at the lateral level and to concentrate on achieving a target schedule of water allocation to these secondaries. Groups at the ditch level could have been then established as a necessity, and in a rather endogenous way, within only general guidelines. Groups at the lateral levels were undermined by a process parallel to that of the WUGs. Without any defined pattern of water supply at the lateral (and main) canal levels, there was no sense of *what* should be managed and how. Rather, farmers strategies shifted toward adapting to the context of uncertainty.

It appears that the main cause of failure of the WUOs was the incapacity of RID to establish both allocation and operational strategies for water management in which users might have had a say. The reasons for such a failure include structural aspects (insufficient means of regulation of the hydraulic network, poor on-farm infrastructures, etc), managerial aspects (lack of control on calendars and water abstraction in the middle basin), climatic aspects (variability of the amount of water to be used in the dry season) but also the once prevailing conception of farmers-agency relationships.

4.2.10 Relationships between farmers and RID

Relationships between state agencies and farmers have long been marked by a degree of paternalism answered to by a mixture of passivity and suspicion. The ideas that farmers are

not educated, stubbornly grow rice with wasteful techniques, and do not co-operate for water management are commonplace. Such a vision also permeates the way officers envisage reforms, group setting or co-management and can be found more generally in the Thai administration as a whole (see examples in Nelson, 1999). For Atiya Chakulwisut (2000), "although they are known as civil servants, many bureaucrats think of themselves as the people's masters. They think of rural villagers as backward and passive, unable to initiate anything for themselves. This attitude bars many of them from getting to know the people and whatever needs they might have". This is echoed by Samudavanija (1985) who see state officials "inclined to blame the people for lack of enthusiasm, ignorance and disinterestedness" and Rubin who emphasises that "many of the practical and material problems of rural development are attributable to the Thai perspective concerning superior-inferior relations" (1974; cited in Rigg, 1991).

As expressed by Poolsawat (1992), "bringing a WUO to its goal is a matter of patience and efforts. It is a continuous task of repeated monitoring and problem resolution"; emphasis is often laid on "strengthening water user organisations" (JICA, 1994) and on "efforts by RID and other agencies to help [WUOs] develop" (Havorongkura, 1995). The process is therefore envisioned as a task of convincing somewhat apathetic and reluctant stakeholders that their interest lies in the structures proposed to them. These attempts are undermined by the inappropriateness of the conceptions underlying State involvement in the countryside. Most programmes are well-intentioned voluntarist undertakings aiming at fulfilling a "blank" identified by bureaucrats in Bangkok. Groups are established in a top-down and prescriptive manner with the assumption that farmers will adhere to the activities or to the structures proposed after due training and being shown "their interest".

It is interesting to note in this respect that most proposals regarding Participatory Irrigation Management (PIM) and most reports pondering on past experience and future prospects generally continue to borrow from these conceptions, as appears in the expressions used. In some cases, it is even difficult to see how the new proposal differs from the old one (and therefore how the outcome should be more successful). Most studies recommend to establish new organisations, insisting on "community preparation" or "strengthening WUGs", and assume that, "this time", with good will, dialogue, proper training and involvement, they are deemed to be successful (JICA, 1997). In the NEWMASIP Project, agencies' officers "were encouraged to communicate with farmers through the WUO, thus recognising the importance of farmers institutions, and improving efficiency" (Kawsard, 1999). Strong emphasis is always laid upon the necessity to involve farmers in the process but the process adopted shows that farmers' enthusiasm hardly comes as a result ("farmers should be involved to an appropriate extent in every phase of project development" (Poolsawat, 1992); "Farmers should be treated as key participants, not just as a supplementary element of the system" (JICA, 1994); "Farmers participation is key to project success. The Water User Group is a fundamental institution to facilitate farmers participation" (Havorongkura, 1995); etc).

Despite “more training”, “better on-farm and canals”, “improved cooperation between agencies”, “continuing efforts by RID and other agencies to help them develop, most WUAs stopped functioning soon after their creation” (Havorongkura, 1995). Lamenting the farmers’ lack of interest or lack of participation, officers stress both the importance of communities’ involvement and their poor responsiveness but rarely carry out the in-depth analysis which would allow the next attempt to be more successful (Cohen and Uphoff, 1980) Attempts to institute PIM are still perceived as state initiated and state-oriented⁷⁰, without real benefit for the farmers in terms of improved access to water.

The successive efforts to establish and strengthen WUOs have not only been little successful and wasteful in terms of budget and energy, but they have also contributed to the spread of mistrust and of lack of interest regarding State initiated groups. This is reinforced by the tendency of the Thai Government, commented in the Maharat case study, to pile up “layers” of successive groups aimed at various activities, even though most groups appear to be apathetic.

4.2.11 Conclusion on WUOs failure

The failure of past attempts to set up WUOs in the Delta can be traced back to several adverse factors. While some lie within the local culture (no traditional pattern of corporate group, frontier society, patron-client relationships between state officials and villagers, etc..), or in the growing heterogeneity of individual interest and strategies due to economic diversification), the most salient reasons are probably the incapacity to effectively empower rural communities and the failure to deliver water with enough regularity and certainty. A PIM process must be embedded in a wider context of institutional change, management improvement and scheme modernisation and the failure to recognise the interconnectedness of these elements leads to an inadequate focus on the alleged lack of interest of users. We may now turn to a brief analysis of the scope for instituting such a process.

⁷⁰ This can suggestively be seen in the use of the term "*phi liang*" (*phi* is elder, *liang* is to feed or by extension to raise) applied to RID with regards to its setting of WUOs. Interestingly we have, albeit occasionally, seen this word used both by RID officers and by farmers.

4.3 Scope for the establishment of groups

Truly, renewed attention to WUAs may appear futile. Given the investments already made by the farmers (pumps) and the prevailing habits of individualistic behaviour, it is doubtful whether any change is likely to happen. Those who are in an advantageous position, in particular, are unlikely to engage in any collective undertaking. As observed by Ostrom (1992), “a new rule affects not only the amount of net benefits that can be derived from a system but also the distribution of those benefits. Once some individuals have achieved a particular distribution, they will be loathe to accept a new rule that does not allocate at least as many benefits as before”.

However, there are three reasons why this exercise may not be totally in vain. The first one is the example provided by the 1997-99 period, where a few factors drove demand for water to unprecedented heights, prompting the implementation of rotational scheduling. The second is that because of the declining average amount of water allocated to the delta (see Report 1 for a full analysis of this trend) and of the necessity to intensify cropping in order to keep farm income at a sustainable level, it is likely that this trend will strengthen the necessity to devise rules aimed at counterbalancing the growing inequity entailed. Third, there is scope to discuss the feasibility of granting groups of users a more accurately defined “water right”, as a component of a wider proposal including some kind of turn-over and water pricing (see Report 1 for more details).

4.3.1 Working hypothesis

We may take as an hypothesis the constitution of water users groups at the lateral level (WUAs), to which would be allocated a “water right”, defined as a given amount of water to be received during a specified period of the dry season, an amount possibly subject to change depending on the available water in the dams each year. Such farmers groups would be responsible for the allocation and distribution of water along the lateral, and a collective fee to be used for local maintenance and to hire field staff might possibly be levied. Representatives of these WUAs would be associated to the decision making regarding water allocation at upper levels (main canal, Projects, delta). The advantages and difficulties of such a proposal are reviewed in what follows.

4.3.2 Some criteria from the literature

We may first “screen” such an hypothesis through some criteria given by the literature as contributing factors to a successful turnover. FAO (1999), for example, proposes the following check list:

- ***Irrigation makes a significant improvement in productivity and profitability of irrigated agriculture, compared with rain-fed agriculture***

This does not really apply, as wetland rice cultivation would hardly be feasible without irrigation.

- ***Irrigated agriculture is an important component of farm family livelihoods.***

As mentioned earlier, this is not a strong characteristic of the delta, as many families rely on several incomes, often non-agricultural.

- ***Most farmers are either landowners or cultivators on multi-year leaseholds.***

This varies according to locations in the delta (Molle and Srijantr, 1999). However, it has been shown that tenancy was not as precarious as often stated. This might be a negative factor, but not a decisive one.

- ***A generally-accepted system of land and water rights exists or can be expected to exist by the time IMT is implemented.***

No right exists at present, beyond that of the “first-come-first-pump” principle. In the hypothesis considered, the “right” would be defined by the commitment to allocate a given amount to the lateral.

- ***Social divisions are not serious enough to prevent communication and joint decision-making among farmers.***

This can apply to the delta.

- ***Social traditions support group organization for irrigated agriculture, existence of producer cooperatives and other rural organizations.***

This point has been debated earlier. Although collective organisation is not a strong feature of the delta, it is believed that – should it be in their clear interest – farmers would have in most cases the collective capacity to set the required groups.

- ***Farmers are dissatisfied with the current irrigation management service by the government and believe that improvements in the quality of irrigation management could significantly increase the productivity and profitability of irrigated agriculture.***

At least some farmers are clearly dissatisfied but not those with better access to water. Emphasis is not placed on gains of efficiency or profitability because these are already close to their potential; the issues, rather, are equity and reliability. The granting of a given amount of water to such farmers could both restore equity and be seen as a premium to those who engage in collective action.

- ***Farmers believe that these improvements can be realised through the association's control over the management of water services.***

There is probably no clear understanding/belief from the farmers that joining groups would significantly improve their lot. This has to be understood in the light of the past negative experience of the WUGs and also of the weariness of villagers with respect to government-initiated groups. This must be shown through concrete examples; the supply of water should be clearly associated with the existence of WUAs.

- ***Farmers believe that their association can reduce or contain increases in the cost of irrigation to farmers.***

Indirectly, as a potential benefit of a more rigid scheduling, with rotational arrangements, is to allow more irrigation by gravity.

- ***Farmers generally believe that the benefits of IMT will outweigh its costs and that the benefit/cost ratio for transfer is roughly equal among farmers.***

No. The benefit/cost ratio is obviously not equal among farmers. The benefit is to have more water and/or more reliable supply.

- ***It is technically feasible to implement the water service with existing infrastructure or after pending improvements are made.***

Drastic upgrading of infrastructure is required. Foremost, control over water use in the whole basin must be restored. The matter is therefore not only technical but also institutional and political.

We may also refer to the conditions for successful management transfer, as seen by Geijer et al. (1995).

- ***Strong high-level political support***

Not evident at the moment

- ***Clear policy direction***

Not evident at the moment

- ***Legal basis for new managing entities***

To be defined within the framework of the reform proposed. The status of WUA would probably have to be adapted.

- ***Economic benefit to farmers***

(as above)

- ***Well-defined water rights at system and farm levels***

This undoubtedly is the crux factor and is further commented on below.

- ***Functional irrigation facilities***

(as above)

This second set of contributing factors reveals some weak points of the Thai context and shows there is not much room for unfettered optimism.

4.3.3 Difficulties to be faced by a reform of the irrigation sector

There is a wide range of potential obstacles to the reform sketched above. To list them is a useful exercise which helps one being aware of the gap between the world of theory and the real world. It does not serve to deny that change is possible or desirable but that there are obvious pre-requisites to some particular actions and that the time required to effectively institute the reforms envisaged may be much longer than implied by the agenda of those who instigate them.

4.3.3.1 Difficulties at the farmers' level

The reform sketched out above may underestimate the difficulty of the task blithely attributed – on paper – to farmers. It is apparent that much of the burden corresponding to unresolved questions (managing water at the micro level, assessing water use and benefits, collecting fees and minimising defaulting, etc) has been passed on to the "group" which is supposed to perform at the secondary level what appears impossible to achieve at the tertiary or individual level.

Each WUA will have the difficult task to achieve a delicate balance between efficiency and equity in **allocating** water (taking in particular into consideration differences of soil, topography, access to drain water or to wells, etc) and in defining how water is allocated for different degrees of water scarcity (planned supply lower than the potential demand of the group).

One of the daunting tasks of the WUAs would be to decide how to allocate their share of water among their members when – and this is likely to be the rule rather than the exception – this water is not sufficient to serve all farmers. What is the situation at present ? The relative scarcity of water defines a risk which increases both along the ditches and along the lateral, from head to tail. As those with easier access use water first, farmers who have more distant plots just do not consider running the risk and/or the burden to engage in cropping. Competition and conflicts along the ditches have therefore been reduced because all users are unlikely to grow rice and because in case of shortage, pumps will be used to boost discharge. The uncertainty and conflicts that go together with gravity flows (rotations needed but flows may vary and meeting requirements becomes uncertain) are tremendously reduced by the possibility to boost the ditch inflow by pumping. However, the frequency in which such provisions are needed increases, together with costs and drudgery, for distant farmers who tend to be discouraged and to give up their interest in growing rice.

If a drastic change in the distribution of water is to increase the quality of scheduling and to allow the definition of *de facto* rights, we might observe the growth of individual claims within the groups. However desirable this increase in equity may be, it raises questions on how such claims will be dealt with by the groups. Worries are not to be directed so much to the social capacity to address such situations but on the possibility to effectively and technically do so in a context where the allotment of water: 1) may vary each year (depending on the water available in the dams), and 2) hardly be up to the needs (groups will rarely receive enough water for all members and will have to negotiate priorities within the group). This call for the establishment of allocation patterns liable to reduce these fluctuations. In addition to stirring claims from farmers, giving right to a lateral level might also encourage those who have *never* received water in the past (because they are at the end of the network) to claim their share of water. An unexpected consequence of promoting equity would thus be to raise the overall demand (in contradiction with all other policies), thus further decreasing the share of those who were used to receiving water.

Similarly, policies must be designed regarding water **distribution** and include whether and how rotations are necessary, how to set check gates to regulate continuous flows, etc. Assuming that some kind of wholesaling of water is to be established, the WUA must also decide how this financial burden is distributed among individuals (based on area, crop, considering farmers' pumping or not, or even site specific social criteria, etc), how defaulters are dealt with, etc. If the access to water is not uniform (some farmers must not get their share, or have to pump while others are served by gravity), it is likely that pleas for fee reduction will accumulate and entail heavy transaction costs, as no metering facilities are available.

All this reminds us that the expected contribution of WUAs to policy and management is huge and that it must come along with some kind of water right and with a significant participation in negotiations in the upper levels of the basin, where their share and fate is eventually decided. It is also self-evident that any failure to deliver water according to the scheduled agreed upon will be fatal to the hope of seeing farmers fulfilling their part of the contract⁷¹. This also shows that taking for granted the existence of 'building blocks' waiting gleefully to pay for 'service agreements' tailored to their needs is a dangerous oversimplification of reality. It tends to generalise the situation of the small basins (like in the North, where well identified *muang fay* systems may more easily negotiate with other groups and collectively adapt to variations of the hydrologic regime) and ignores the multi-levelled constraints of hydraulic regulations in larger basins and hydraulic networks (2/3 of the irrigated areas of Thailand). Hunt's remark (1989) that the interest in WUOs and their

⁷¹ See Freeman and Lowdermilk (1985): "Farmers are quick to see that, from an individually rational standpoint, one is foolish to pay water assessments-especially those whose water supply and control are decidedly inferior-when water service is not substantially affected by making payment. To disconnect farmer payment of assessments for maintenance, whether in cash or kind, from water delivery is virtually to invite organisational decay."

bureaucratic design are based on an abusive extrapolation of the more successful experience of community-based irrigation systems is all the more relevant in the Thai context.

In any case, the tasks to be performed by WUAs must be defined but their modalities should not appear as blueprints and be left as flexible as possible. For example, members could decide by themselves how to deal with defaulters and free-riders, to prioritise maintenance works, to allocate water when it is insufficient to serve the whole group, and to divide the burden of the water fee should some kind of wholesaling to the group be established. At the ditch level it is recommended not even to attempt to establish groups (requesting the election of a leader, etc) but to let concerned farmers decide which kind of leadership is required, if rotational distribution must be adopted, how to deal with the necessity of pumping when the ditch inflow is insufficient, how to set cropping calendars in order to be able to access all plots at harvest time, or to reuse water from plot to plot at the time of land preparation, etc.

If we add these difficulties to the already mentioned negative factors (habit of free-riding, lower social cohesiveness, heterogeneity of farmers' interest and strategies, etc.), it appears that over-enthusiasm would be misplaced. Farmers' participation may be ensured by empowering them in some parts of the allocation and management decision-makings. If their access to water is contingent upon the collective weight that their group is requested to put in these processes, then they are likely to not only willingly adhere to the proposed structures but to take the lead. In other words, if they are given rights and not only duties they will be likely to adopt any disposition contributing to the enforcement and defence of these rights. The key points are therefore about establishing a real participatory process of decision making and linking supply to the participation and contribution of farmers groups.

4.3.3.2 Difficulties at the RID's level

This holds as long as RID is in a position to fulfil its part of the 'service agreement' binding it to users. "A crucial condition for successful transfer is that *sufficient* and timely deliveries of water be made available to farmer-managed units within the scheme" (FAO, 1995). This entails significant upgrading of the regulation capacity (see Report I) but also that control over water use (and users) in the basin be restored.

There may also be some lack of skill and corresponding needs in training, in order to allow the modernisation of infrastructures and the development of a more responsive Management Information System. The cultural aspects should however not be downplayed, as it is apparent that many officers have a vision of villagers, and a conception of their role and position towards them, which poorly fit the new role that they are supposed to fulfil. Asserting that "building capacity within RID to reorient itself toward strengthening and providing long term support to water users is the key to PIM success" (Halcrow, 2001), focuses only on 'capacity' and tells little on how such a radical cultural change in mentalities can be achieved. It assumes optimistically that deeply entrenched vertical relationships may be transformed into horizontal partnership by some process of capacity building. As Freeman and

Lowdermilk (1985) have put it, "central officials are typically quite eager to decentralise the unglamorous and costly tasks of routine ditch maintenance, but fear to empower local command area organisations with real authority over water allocation, conflict management, and rehabilitation work".

Past experiences have shown time and again that reforms were quickly diluted in the inertia of resilient public agencies. If the reform does not go as far as binding part of the salary of those in charge of the distribution of water to their performance and to the satisfaction of users (which requires changes which might well be beyond what the concerned administrations are ready to accept), there is little chance that drastic transformations be achieved.

4.3.3.3 Difficulties at the political and institutional level

In upper tiers of the administration, as well as in political circles, the support to the reform may often be half-hearted or nonexistent. There is no evidence at the moment of a wide political determination to engage in sweeping large scale reforms. There are a few reasons which can explain the current political immobility. As stressed by Ostrom (1992), "politicians lose one source of power when irrigation is no longer a part of the "pork barrel" politics⁷² of a nation; hence politicians are unlikely to initiate major changes in fee structures unless pushed hard by tight budgetary constraints". Whatever the reasons, international experience shows that political backing is a crucial factor leading to the success of PIM. It is doubtful that, where it is lacking, the pressure of donors may constitute an adequate substitute for this commitment.

In addition to the fact that sound legal provisions for the reform of the water sector are not going to be issued in the near future⁷³, such provisions are obviously useless without a basic capacity of law enforcement and penalties, an aspect in which Thailand admittedly has an unimpressive record (Flaherty et al., 1999; Christensen and Boon-Long, 1994; Wongbandit, 1995; Kraisoraphong, 1995⁷⁴). This difficulty is best exemplified in the incapacity to regulate groundwater abstraction in the BMA, despite the horrendous costs in flood damage and flood protection caused by land subsidence, and the fact that measures have been debated already for 25 years. Another recent example is the ban on inland shrimp cultivation (a dead letter). Regarding water use in the Chao Phraya Basin, it appears that despite the great majority of water diversion in the Lower Ping and Lower Nan Rivers being done either by RID or by DEDP Projects, these public agencies are in practice unable to control water use in

⁷² Interventions aimed at gaining preferential allocation of resources for a particular area, under the influence of and for the benefit of politicians.

⁷³ Drafts of the Water Bill were elaborated ten years ago and have remained stranded in administrative processes.

⁷⁴ "Thai society has not been known to be a legally conformative one...[and] is built on personal relationships, not on principle or laws."

these areas. This example is indicative of the practical difficulties which will be faced when trying to establish a system of registration and rights.

Because of the much heavier externalities and costs of land subsidence to the Nation, and also because well identified industrial units theoretically lend themselves more easily to control, including volumetric records of water use, it is suggested that political be first tested by enforcing the measures (technical control, equating underground and tap water prices, etc) that have already been proposed for two decades. It is probably illusory to expect the much more complex issue of agricultural water use to be successfully reformed if the government is not in a position to enforce the control of underground water use.

5 Conclusions

Much of this report was concerned with the organisational exigencies of irrigated agriculture in the Chao Phraya Delta. The necessity to share a scarce resource at several successive levels of a network encompassing almost 2 million ha requires significant collective arrangements upon which will heavily depend the reliability, the efficiency and the equity of water distribution.

Because of its specific features of a market-oriented frontier society, the delta is often considered to have given rise to a distinct social fabric and many weaknesses, such as those observed in the limited impact of village based group activities, which are ascribed to a lack of social capital. A brief review of the sociological and anthropological debate about the structure of the Thai rural society has shown that if there was little overall consensus on the degree and definition of its 'looseness', a few general features could nevertheless be emphasised. The absence of corporate families or corporate groups stands in contrast with a web of interpersonal dyadic relationships which include horizontal relationships (typically within the kindred or for arrangements such as labour exchange) and vertical relationships (typically patron-client relationships with more powerful individuals).

The impermanent, short term, ad-hoc and voluntary nature of these dyadic relationship may be interpreted as a mark of looseness or individualism but there is evidence that despite providing little sense of a community these relationships offer a rather high degree of reliability and are socially controlled. Villages can seldom be identified with a 'natural community' in that it is difficult to isolate a definite number of people who are mobilised as a group. They can nevertheless be construed as *denser points*, or denser zones, of the web made of superimposed interpersonal networks. 'Villages' are zones where kindreds mingle together because of inter-marriage and overlap with other networks (attendance to the same *wat* or the same school, exchange of labour or services, etc). Depending on local historical or ecological features, these denser zones may – in varying degrees - correspond to a physical bounded reality (the idealistic communitarian cluster village). This appears to be undoubtedly more frequent in the north or the northeast than in the central plains, especially the lower part of the delta. This social structuring of space is also overlaid with the boundaries of administrative villages. The congruence between these units and the villages described above is also often problematic. However, because of the power of the *phuyayban* and *kamnán* in conflict solving and in mediating between the village and the upper tiers of the administration, the administrative village is also becoming an entity to which farmers identify themselves. Last, the lack of fit appears even more serious when hydraulic units are considered, which means that collective water management may not easily coincide with and benefit from existing social networks.

Despite this social setting being less than favourable to collective action, the case studies presented have shown that there was a multiplicity of local arrangements aimed at sharing

water in given circumstances. These arrangements neatly fit the general pattern of flexible, voluntary and short-term arrangements commonly found in Thai rural society. They are sometimes complex (10 people pumping at the same time at the head of the lateral and a second time at the plot level) but rather reliable and effective, as a degree of imbalance in the benefits is well accepted as long as it does not result from outright cheating.

In contrast with the flexible and endogenous nature of these arrangements, a situation of generalised free-riding, fostered by the dissemination of mobile individual pump sets, was observed. The most striking feature was probably the wide acceptance, even by those who were harmed by it, of a situation in which locational advantages are perceived as so many normal inequalities of life. The first reaction of farmers confronted with such situations is to find an individual adaptation to it (the '*thamjay* option'), which includes tapping secondary water sources (tube wells, farm ponds, pumping from drains, etc). Conflicts are also probably reduced by the fact that such disadvantaged farmers may not rely only on rice and that if this is the case they may find occupational alternatives. This, coupled with a culture of conflict avoidance, strongly contributes to smooth out potential conflicts, although counter-examples are obviously not rare. Disagreements exist in most ditches but they were never found to lead to serious conflict and are always reported by farmers with the comment that they know how to handle such situations.

However prone to accept inequalities and to adapt to them, farmers have also shown that certain circumstances may drive them to refuse what is usually accepted. The 1998 and 1999 dry seasons, in a post-economic crisis context where agriculture had to support a growing number of family members and where the price of rice was attractive, witnessed several interventions from farmers worried to see canal head-enders engaging in triple cropping without having grown a second crop themselves. Many of these concerns were channelled through politicians and resulted in several rotational arrangements sanctioned by all the agencies and administrative levels concerned, and enforced by RID and the local police. These arrangements were short lived but showed both the difficulty and the possibility to implement such large scale agreements. They also clearly evidenced how local water management is critically contingent upon higher levels of the distribution network and, therefore, the uselessness of organising farmers locally without ensuring their participation in the control of these upper levels.

As stressed by Shigetomi (1998), rural communities are becoming holders of economic resources and are learning "how to manage these resources and how to mobilise their residents for this purpose. For individual villagers, this means that they are now collectively holding economic resources and securing accessibility to them as a community. This fact in turn is compelling the villagers to perceive the existence of the community". In other words, the on-going process of decentralisation may be marred with a process of trial-and-error but it may also reverse the reasons why village cohesion has been decreasing over the last decades. As the WUG failure has shown, the lack of real empowerment and control over common resources have reinforced economic individualistic behaviours to the detriment of collective ones. If a role in water management and allocation is given to them, villagers are

likely to mobilise social capital (despite the evolution of the rural economy toward a complex mix of pluri-activity which reinforces the heterogeneity of villagers' interests and strategies).

This was highlighted as one of the principal causes of the failure of the Water User Organisations established in the past, in the delta and elsewhere in Thailand. In other words, farmers were asked to organise but without any control on both allocation and management of water, neither locally nor at the upper levels. WUOs had not been initiated by farmers. They soon discovered that being or not being a member was insignificant, and that having or not having a group was of little importance. The case studies on existing WUOs showed that farmers' support to the groups hinged on the belief that they received some beneficial treatment from being identified by RID as a WUO. Regardless of whether this feeling was induced by RID or not, and whether it is correct, it teaches us again the simple lesson that people are unlikely to engage in energy/time consuming activities if they cannot sense the benefit they draw from them. It also showed unambiguously that water allocation in the dry season is the main issue and that reforms must address the issues of equity attached to it.

In most cases governments are the primary initiators of irrigation management transfer. According to Geiger (1995), "the most common reasons governments choose to pursue turnover are: lack of government funds to pay for O&M, inability of governments to collect service fees, and poor management by underfunded irrigation agencies. Additional reasons are a shortage of qualified people and the broader privatisation policies of governments". This general rationale is at present used to push for the establishment of water fees and for the setting of a Participatory Irrigation Management approach. In light of the analysis carried out in this report and in Report 1, these arguments appear either weak or oversimplified, and the case of Chao Phraya calls for an adaptation of these broad assumptions. Government funds are scarce but even in the post-crisis situation agencies have never been short of budget to the point that they were obliged to head for drastic reforms. There is no sign that RID's budget is to be drastically reduced and therefore no strong incentive to reform, as was the case in the Philippines or Mexico⁷⁵. Fee collection is not an issue and the rationale for cost recovery or achieving water savings is irrelevant (see Report 1). Management is also not adequately qualified as "poor": the current management is derived, by experience, from a certain degree of control allowed to RID by the institutional and political setting, by its skills and by the technological level of control infrastructures. With all its defects, notably in terms of equity, the prevailing system of water management, contrary to common wisdom, has been shown to be rather efficient [see Report 1, and (Molle, 2001)], both in terms of water use (only 15% of the water released by the dams in the dry-season is lost) and in terms of sectorial allocation (economic activities with higher return have been given priority).

The most important convergence point of the parallel analysis of Report I and II (this report), is the understanding of the interplay between the technical, social, institutional and legal

⁷⁵ We do not discuss here whether this is to be viewed as positive and what are the causes of such a situation, but only note that the argument is still not as pressing as often suggested.

aspects of the water sector. The scenarios sketched out in the two reports emphasise the interdependence of the elements of a possible reform and, in particular, stress that it would be hazardous to attempt organising farmers in 'building blocks' before ensuring a technical and institutional capacity to define and enforce scheduling. This refers to better controlling large and complex diverging hydraulic networks but also to identifying users and defining rights, which demand a high level of legal and administrative control, and political commitment. We have mentioned earlier the contradiction between the decentralisation rhetoric and the very nature of the Thai bureaucracy, which prompts Rigg (1991) to state that "a truly decentralised, grass-roots development approach comes into conflict with bureaucratic methods and Thai society". There is at the moment no sound evidence that the administration and politicians as a whole have fully endorsed the necessity of a sweeping reform and accepted its consequences on the redefinition of the role of the state and of the citizenry. The main difficulty faced by the reform lies in the necessity to operationalise in parallel several measures (technical, administrative, legal, cultural) on which depends the overall success. This serves to caution against over-enthusiastic short-term agendas in which the means and time frames to effect the different segments of the reform may not fit the constraints of the real world.

In a sense, the past failure of the WUGs appears as a telling example of the difficulty to operationalise changes which heavily rely on radical transformations in infrastructures, management, social organisation and in deep-seated conceptions of state/farmer relationships. This provides a warning but also a capital of experience which should allow us to see more clearly whether new emerging conditions permit us to envision a needed reform with more confidence.

6 References

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