



IRRIGATION, GOVERNANCE AND WATER ACCESS: GETTING BETTER RESULTS FOR THE POOR

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ABSTRACT

Expectations that WUA committees would take on leadership and management roles have, in the past, been based on unrealistic assumptions about participation, representation and accountability. Users' organisations were formed with inadequate attention to their support needs. They were often dominated by engineering and infrastructure activities so that they lapsed soon after the initial investment was complete. The establishment of the WUAs glossed over the mixed livelihood strategies of water users, the nature of relationships in socially heterogeneous communities, and the particular interests and relationships of those who were recruited as members of WUA committees. Insufficient effort and time was invested to develop skills and relationships between water users and with the WUA leadership. Technical procedures have also tended to be stereotyped and not to take account of local requirements and objectives. WUAs do not have the resources to adapt standard procedures. These problems have been observed to varying degrees on different projects, and this has often led to bad governance and erratic irrigation service delivery.

Following from this diagnosis the two interventions described in this paper were designed: 'water users' schools'; and participatory monitoring and consultation for improved water distribution. These were tested and further developed during two action research projects in seven irrigation schemes in Nepal, India and Kyrgyzstan.

The guidelines developed through this action research project incorporate a participatory process of engaging with water users to understand and adapt to local circumstances, and to implement inclusive measures which support and develop skills and relationships. However, the effectiveness of the process depends on two other key conditions: an enabling environment and long term support – including the allocation of adequate resources.

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The experiences reported in this paper indicate the following features should be included in a strategy to improve irrigation governance and water distribution:

- Adopt a process of engagement which includes multidisciplinary studies, entry point activities to build confidence, and activities which build human and social capital and embed the WUA in the community by developing awareness and skills and building relationships.
- Identify and work with ‘Champions of Change’ at all levels – local, regional and national.
- Develop capabilities for management: locally appropriate technical, organisational and governance, and financial skills – to promote trust, transparency and legitimacy.
- Ensure long term support – including practical backstopping for water users and their organisation.
- Ensure an appropriate enabling environment: legal, financial and political.

Key Words: equity, governance, human capital, india, institutions, irrigation, irrigation management transfer, kyrgyzstan, livelihoods, nepal, participatory learning and action tools, participatory management, policy, relationships, social capital, sustainability, training, water distribution, water users’ associations

INTRODUCTION

This paper reports on two action research projects conducted in Nepal, India and Kyrgyzstan between 2002 and 2005 (Guidelines for Good Governance – GGG, and Equity, Irrigation and Poverty – EIP)¹. Their aim was to improve livelihoods through better irrigation governance. The activities were undertaken on seven irrigation schemes ranging in size from 500 ha (Kamala Uttarbahini, Nepal) to 265,000 ha (Sri Ram Sagar, Andhra Pradesh, India)², as summarised in Tables 1 and 2.

The first project addressed general governance issues, highlighting the need to develop skills and relationships amongst water users from all categories, and with their WUA committee members. The second project applied this approach to a specific recurring issue – equitable distribution of irrigation water. Whilst irrigation management and water distribution problems are often perceived to be technical, and hence requiring

1- This work was undertaken under two DFID-funded research projects – R8023: Guidelines for Good Governance [GGG], (covering Nepal); and R8338: Equity, Irrigation and Poverty [EIP] (covering Nepal, India and Kyrgyzstan). Work was conducted in Sunsari Morang Irrigation Project (SMIP), Khageri Irrigation Scheme (KIS), Kamala Uttarbahini Irrigation Scheme (KUIS), and Bijaypur Irrigation Project (BIP) in Nepal; Obu Haet (OH), Jany Aryk (JA) in the Kyrgyz Republic; and Kadambapur WUA in Sri Ram Sagar Project (SRSP) in Andhra Pradesh, India. Fieldwork for the two projects was undertaken between 2002 and 2005. This paper is an output from the Department for International Development (DfID) funded Engineering Knowledge and Research Programme. The views expressed are not necessarily those of DfID.

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technical solutions, the process helped participants to analyze the effect of social and institutional factors as well. This enabled irrigation stakeholders to work together to improve the governance of water users' associations and the reliability, predictability and equity of water distribution.

Table 1: Case study sites – GGG (Nepal)

Project	Total Area	Type	WUA			Detailed study areas
			Name	Area	Date Estd.	
Kamala Uttarbahini Irrigation Scheme (KUIS)	500 ha	Farmer managed, built approx 1960; govt. assistance in mid-1980s and 1990s	Kamala <i>paini</i>	500 ha	1995	Entire scheme (500 ha)
Bijaypur Irrigation Project (BIP)	1,000 ha	Being prepared for transfer; upgraded /extended over 200 yrs; most recently in 1983.	Bijaypur	1,000 ha	2001	Branch Canals 3 and 4 (260 ha)
Sunsari Morang (SMIP)	58,000 ha	Joint Managed; Built 1975 rehab / CAD ongoing. Largest project in Nepal	Sitaganj (S9)	7,985 ha	1993	SS9E T-2, T-3 and T-5 (600 ha), with some coverage of whole sub-secondary canal (722 ha)

Table 2: Case study sites – EIP (Nepal, India and Kyrgyz Republic)

Country	Project	Total Area	Type	WUA			Detailed study areas
				Name	Area	Date Est.	
Nepal	Khageri (KIS)	3,900 ha	Built 1969 small run-of river	KIS	3,900 ha	1993	Spring paddy irrigation area (420 ha), focusing on BC-1 (Outlet 18) and BC-2 (pilot gate west and <i>pachas bigha kulo</i> which total 90 ha)
	Sunsari Morang (SMIP)	58,000 ha	Built 1975 rehab / CAD ongoing. Largest project in Nepal	Sitaganj (S9)	7,985 ha	1993	SS9E -T5 (140 ha), with more limited coverage of whole sub-secondary canal (722ha)
India (AP)	Sri Ram Sagar (SRSP)	265,000 ha	Built 1965 rehab ongoing, reservoir backed, major inter-state river	Kadam-bapur	1,023 ha	1997	P2, P5 and P9 of M30R (69 ha)
Kyrgyz Republic	Obu Haet (OH)	1,803 ha	Built - unknown (Soviet era) rehab planned, run-of river augmented by inter-basin canal linking to reservoir	Obu Haet	1,803 ha	2002	Buvakul on-farm canal (143 ha)
	Jany Aryk (JA)	1,390 ha	Built - unknown (Soviet era) rehab planned, reservoir backed	Jany Aryk	1,390 ha	2003	Khatta Khaz 1 on-farm canal (188 ha)

THE PROBLEM

PERFORMANCE OF THE IRRIGATION SECTOR

As most participants in this conference will know well, disappointment with the performance of the irrigation sector has inspired interest in Participatory Irrigation Management (PIM), and the closely related concept of Irrigation Management Transfer (IMT) (IIMI, 1995)¹. These concepts have emerged in the context of:

- central governments' and international donors' unwillingness or inability² to finance operation and maintenance of irrigation systems,
- growing competition for water, and
- a view that irrigation services can be managed better by locally-based, user-governed, organisations.

IMT has often included handing over a varying range of irrigation management responsibilities to Water Users' Associations (WUAs). The expectation has been that by virtue of their structure, their relationship with the service-using 'community', and their local knowledge, WUAs would provide a better and more sustainable service than government agencies have been able to provide.

However, the findings of this research indicate that pressure on government funding has extended to an unwillingness to provide sufficient resources to help WUAs develop skills and relationships needed to undertake effectively the management responsibilities handed to them. Furthermore, behind the expectations for WUAs have been unrealistic assumptions about their governance.

GOVERNANCE OF WUAS

Along with 'participation', the word 'governance' has come into increasing usage in the water sector³. There are, for example, concerns about corrupt practices, and lack of transparency and responsiveness in service delivery. But it has not always been clear what 'governance' means, and there has sometimes been a tendency to identify governance either with government or with management.

Here governance of irrigation is defined as the way decisions are made and actions are taken to manage everything to do with the irrigation resource. This is a rather dense definition, and it is helpful to expand it by identifying four key features of governance.

1- There is a very extensive literature on these topics – see, for example, FAO, 2001a; Global Water Partnership, 2000a; IIMI, 1995; IWMI, 2006; Ostrom, 1992; Peter, 2002; Peter, 2004; Plusquellec, 2002; Saleth and Dinar, 1999; Skogerboe, et.al., 2002; Svendsen et.al. 1997; Vermillion, 1997; Vermillion and Sagardoy, 1999; Vermillion, 2000; World Bank, 1996; and World Bank, 2006

2- The distinction between unwillingness and inability is highly political, and related to views about the role of the state. The interpretation of the 'fiscal crisis of the state' in the context of globalisation is also relevant. This is not the place to explore these issues, so we simply bracket these two contributors together.

3- Water governance is a term which is interpreted in many different ways. Franks (2006) provides a good overview, and other perspectives are given in ESRC, 2004; Global Water Partnership, 2000b, 2003; FAO, 2001a; Merrey, et.al., 2006 Peter, 2002; and Rogers and Hall, 2003.

Firstly, governance involves **processes for making and implementing decisions**. Decision-making processes can involve, for example, mass meetings, committee deliberations, elections, or the independent judgements of a powerful individual, etc. Decisions can be implemented e.g. by *ad hoc* or regularly organised groups of irrigators, or by staff employed by a WUA.

Secondly the processes and decisions are the **outcome of relationships** between different categories of people. This includes a range of relationships, e.g. between irrigators, between irrigators and WUA committee members, between irrigators and agency staff, between national politicians and donor agency representatives, etc. The nature of communication and access to information, with its implications for trust and transparency, is an important aspect of relationships.

Thirdly, the way that people in these relationships make decisions is **shaped by values, institutions (laws and rules), and policies**. For example, governance of water distribution is shaped by values surrounding equity and mutual obligation, rules about water theft, and policies that determine the legal powers of enforcement given to the WUA.

Fourthly, it involves the **exercise of authority**. Individuals, groups and organizations involved in irrigation determine whether WUAs have the authority to implement decisions. WUA authority depends on relationships, influence, power, legitimacy and compliance.

WATER MANAGEMENT, LIVELIHOODS AND WATER ACCESS

WUAs are usually expected to perform well because they are devolved and participatory organisations. This expectation is based on a number of assumptions about the way water users interact with each other and with the WUA. Water users are assumed to have the time and opportunity to influence and agree on matters such as canal maintenance and water sharing. Shared values and the balance of power and interests are expected to result in a distribution of water which is equitable and acceptable to all concerned¹. WUA leaders and committee members are assumed to be willing and able to reflect and advance the interests of all water users.

These assumptions often fail to take adequate account of institutional complexity, social heterogeneity and the mixed livelihood strategies of the majority of irrigation water users. These conditions present social and administrative challenges which the WUA must address if it is to govern the irrigation service well, and protect the access of poor users to irrigation water.

All water users suffer from poor governance. They have to invest more resources to protect their access to water, and the lack of discipline affects the regularity and predictability of water supplies to their fields. The weakest water users find it hardest to cope, and suffer most. The poor (both farmers and labourers) also suffer indirectly through reduced employment opportunities, as disorganised water delivery affects the

1- Equity in formal rules is a normative concept: it says how water should be distributed in keeping with what is considered to be a fair, or even-handed way of sharing water. Most public irrigation systems in the study countries are designed to deliver water uniformly with respect to land area, according to crops grown.

crop choice and productivity of richer farmers, and hence the demand for agricultural workers.

OUR APPROACH TO PROMOTING BETTER IRRIGATION GOVERNANCE – METHODS AND FINDINGS

This action research incorporated six inter-related and mutually supporting elements, with feedback between diagnosis and intervention. The Diagnostic Learning/Action Planning in GGG, and the initial assessment in EIP, brought out governance issues and the need to develop skills and relationships. The Water Users' School intervention in GGG, and the participatory monitoring in EIP, provided further evidence of governance shortcomings and needs, while beginning the process of improving skills and relationships.

HAVING A SUPPORTIVE POLICY AND LEGAL ENVIRONMENT: IMPLEMENT POLICY AND LAWS THAT ENABLE WUAS TO CARRY OUT THEIR FUNCTIONS

The study countries were selected because the legal environment was generally considered to be sound¹. However, the diagnostic phase of this project revealed some gaps – for example policies reiterate the need to involve women and marginal groups, but land tenure requirements and custom effectively exclude these groups from WUA membership.

Furthermore, implementation of these laws and policies is weak, and this has not been favourable for the four key features of governance listed earlier. WUAs have often been formed hastily, quickly neglecting formal commitments to continuity of support. Funds, time and effort have not been sufficient to ensure that WUAs are adequately rooted and responsive to local conditions. In SMIP this resulted in delayed elections, limited participation in decision making, and poor communications to water users. In all study sites some combination of interests in contracts, failure to act on other matters, and a common perception that the WUA is not transparent in its financial dealings, have reduced the legitimacy of the WUA in the eyes of the water users. This has undermined its authority and ability to govern the delivery of the irrigation service, and has left the regulation of water distribution and the organisation of canal maintenance to the vagaries of the values and relationships of individuals and small groups.

In the studies described here WUA members and their leadership were helped to understand their new responsibilities through measures outlined below, so that the WUAs could actually support democracy and inclusiveness, rather than perpetuate dominance by an elite group.

1- Legislation provides the basis for legal recognition and authority for water users' organisations to function. It also includes generalised objectives about sustainable and equitable irrigation service delivery.

TAILORING METHODS TO LOCAL CONDITIONS: EACH SCHEME IS DIFFERENT AND NEEDS INDIVIDUALLY IDENTIFIED SOLUTIONS

Irrigation has a different political and institutional history in each of the three countries studied, and it operates in very different conditions within each country.

WUA promotion in Nepal has been inspired by a heritage of farmer-managed irrigation which still accounts for about two-thirds of the irrigated area. Against this background, WUAs have been formed to take part at all levels in systems which previously were entirely government agency-managed. However, WUAs have been set up without adequate attention to incentives to 'participate' or to how this interacts with political interference. Incentives to take over responsibilities from agency-management, and politics, are also issues in India. But, in addition, the irrigation department here has historically played and still retains a more dominant role; and it feels more threatened by the introduction of WUAs. In Kyrgyzstan, by contrast, WUA formation followed the break up of large state or collective farms into a large number of small holdings. WUAs were created to take on the tasks of internal water management and coordination which were abandoned with this break-up. The state agency continued its previous responsibility for bulk water supply to the gates of the former enterprises.

These differences notwithstanding, the process of WUA development has been remarkably similar in each country¹ – with a focus on formal aspects of putting new organisations in place on irrigation schemes serving a large number of very small farm units (typically 1 ha or less).

Within each country schemes differ in size, natural and physical resources, social composition, human skills and financial assets. The teams in these studies comprised engineers, sociologists, and agriculturists and they worked with water users to facilitate the understanding of the specific characteristics of each location.

WORKING WITH WATER USERS: USE AN INCLUSIVE AND PARTICIPATORY APPROACH TO WORK WITH AND INVOLVE WATER USERS

The diagnostic studies highlighted the social heterogeneity of water users. This is associated with significant migration both into and out of the irrigated areas. Groups from differing ethnicities or castes do not necessarily communicate or collaborate, and some groups dominate others. Weak social relationships – amongst water users and between water users and the WUA – have led to poor maintenance and disorderly water distribution. The prevailing rule is 'might is right'. Many water users are resigned to a poor service and are reluctant to become actively involved.

The participatory approach adopted by the teams aimed to explore (rather than gloss over) the social heterogeneity of the irrigation schemes. The teams used carefully designed measures drawn from the Participatory Learning and Action repertoire, so that

1- The sites included in this research are mostly typical of larger government-developed irrigation schemes in that the formation of WUAs has been part of an internationally-funded programme or project package. This package has included a combination of irrigation infrastructure works (accounting for most of the budgeted funds), changes in high level (national or state) legislation and policies, and the creation of new organisations to take on management responsibilities at the irrigation system level (Mott MacDonald, 2002 and 2006). These typical elements are summarised in e.g. Vermillion and Sagardoy, 1999; and FAO, 2001a.

all stakeholders - particularly those from marginalized groups, including women - could participate in the process of developing skills and relationships. Well-being ranking and social mapping were used to ensure that members of all social groups were identified and located¹.

After the participatory diagnosis, two key initial activities in each site were adopted: (1) identification of suitable 'entry point activities' which could be implemented relatively quickly, and (2) identification of local 'champions' willing to actively promote change. Advice or training on agricultural matters and simple measures to promote communication of irrigation schedules were adopted as entry point activities. The 'champions' were locally-respected individuals who were able to influence the WUA from inside or out, though they were not necessarily WUA members.

This approach made it possible to be inclusive when exploring irrigation issues and identifying and testing solutions to management problems. This led the way for water users and WUA committee members to be more willing to take over management responsibilities based on an improved understanding of needs and constraints, improved communication and trust, and willingness to comply with the rules.

ORGANISING OUR UNDERSTANDING: DEVELOP A MULTIDISCIPLINARY UNDERSTANDING OF THE COMPLEXITY OF IRRIGATION SYSTEMS WITHOUT BEING OVERWHELMED BY DATA

The teams used the sustainable livelihoods framework to understand the multiple uses of irrigation systems², the complexities of land tenure, and the mixed and varied livelihood strategies of water users³.

In the Nepal and India sites the structure of land holdings is such that there are a large number of small land owners, combined with a small number of influential larger land owners, many of whom are non-resident⁴. Major attempts to reform land ownership have brought some redistribution of land, but it has also led to concealed ownership and short-term informal tenancy arrangements. This is most evident in SMIP in Nepal, but it is also found in the other Nepal sites where many tenants have extremely short-term agreements (often just one season at KIS) and no legal rights. This has important consequences for irrigation as the responsibilities of tenants and landlords for irrigation operation and maintenance are often ambiguous. Many farm holdings are also fragmented with individuals owning or farming land in the command area of more than one canal or WUA administrative unit.

Kyrgyzstan differs fundamentally in that land was only allocated to individuals in 1995 following the break-up of collective agriculture after the collapse of the Soviet Union. Sale of land is not yet permitted. Land holding size is fairly uniform across households

1- See Grandin, 1988; IIED and Mott MacDonald, 2004 for descriptions of these methods.

2- See DFID for practical guidelines and case studies on applications of the Sustainable Livelihoods Framework. Bakker *et al*, 1999, provide a useful discussion of multiple uses of irrigation systems.

3- The team developed an assets matrix which provided a useful structure to summarise the livelihood assets and strategies of different socio-economic categories of water users. See Mott MacDonald, 2006.

4- See Mott MacDonald, 2006 and the forthcoming report for Guidelines for Good Governance for details.

within a WUA, most landholders are owner-operators, and there is less fragmentation than in South Asia.

The teams found that the majority of irrigators, small, medium and large, have off-farm occupations in addition to farming activities. Both short-term off-farm employment and long-term long-distance migration is common in all study sites. Off-farm demands mean less time is available in the field to coordinate and cooperate with field neighbours, or participate in irrigation-related meetings. This affects reliability of irrigation as those working elsewhere have less time to spend negotiating for and guarding water supplies. It may also encourage indiscipline amongst users who irrigate to suit their time availability and convenience, rather than following rules which aim to increase order and equity in water sharing.

Male migration is increasing women's activities related to irrigation. Yet, although there is variation, women are generally subordinate to men and have less access to education, economic resources, and political power. In Nepal this varies from one ethnic group to another. For example, among Hill migrant Brahman/Chettri communities, such as those that predominate in KIS, female status is relatively better than in the Tarai 'migrant' communities, such as the Sah and Yadav which are dominant in the SMIP study area. In SRSP, Andhra Pradesh too, women are not involved in formal decision-making about irrigation, even though they provide a large part of the labour for agricultural production. In Kyrgyzstan, Uzbek villages are traditionally observant of Moslem restrictions on women, and women tend to rely on male relatives to represent them, including in irrigation matters. Women in Kyrgyz communities are traditionally more assertive and this may extend to being active in irrigation. In all sites, despite their agricultural activities and reliance on irrigation, women remain on the whole dependent on men to protect their access to water and they still have little role in decision-making on irrigation matters.

In all sites the pattern is for landholders to take individual measures to access and guard water supply to their field. Those landholders who do collaborate or negotiate with other irrigators tend to do so with a small group (less than five or six) and only for activities at a field level. They rarely collaborate to approach the WUA or the irrigation department regarding access to water. Contact tends to be made on an individual basis, particularly by those who can draw on personal relationships or influence with the ditch-rider (*dhalpa/mirab/lashkar*) or WUA committee members.

INVESTING IN SOCIAL AND HUMAN CAPITAL: THE 'WATER USERS' SCHOOL' AND FARMER OBSERVERS AS POSSIBLE MODELS

Under GGG a programme of "Water Users' Schools" (WUS) was tested on three sites in Nepal to develop those aspects of human and social capital which influence irrigation. Under EIP Farmer Observers observed, recorded and analysed water distribution practice, and reported their findings for discussion and action at community meetings.

The Water Users' School concept was adapted from the farmers' field school (FFS) approach of 'learning by doing'. FFS have previously been used on integrated pest management schools as pioneered by the FAO (1995 onwards), and later adapted to irrigation through the on-farm water management programme in Nepal (in 1997) and

integrated crop and water management (ICWM) in 2002¹. These all aimed to develop agricultural skills amongst farmers, using adult learning techniques. About 25-30 farmers attend the school for one morning a week during the crop season.

The WUS incorporated some key changes to this model in order to meet the needs identified through the studies outlined above. They

- were planned on the basis of the participatory diagnostic studies in each project, so that the methods and curriculum were tailored to local needs;
- included group activities (for institutional development, management of canals etc) as well as individual tasks, and focused on building the relationships and skills necessary to undertake them;
- aimed to enable participants to identify, understand and solve problems, not teach them solutions, and to give them the basic technical knowledge and skills to do this effectively;
- required purposive selection of participants to ensure representation of all stakeholder groups in irrigation management, and with careful curriculum design and structure of activities to encourage the participation of vulnerable stakeholders such as female heads of households and landless farmers;
- specifically aimed to disseminate knowledge and findings to non-participants, helping participants to act as trainers for other stakeholders and to learn from them, in order to ensure a cyclic learning process; and
- encouraged links between water users, WUAs, and other local institutions and agencies, making users more aware of the role of the various stakeholders, and the relevant policies, legislation, rules and regulations regarding water management.

Under EIP slightly different approaches were used in each study site to adapt to the differing history of WUA support. In SMIP the study site had the benefit of having participated in a WUS under GGG. In KIS much related work had been done previously by other agencies – this both facilitated and hindered work. The two projects in Kyrgyzstan had relatively new WUAs which had been supported by the On-farm Irrigation Project (OIP). With appropriate modifications, the process in these four case study sites involved working with Farmer Observers and WUAs for systematic observation and analysis of water distribution practices in one season, leading on to identification and introduction of changes to water distribution practices, and evaluation and adjustment at the end of the study period.

Water Users' Schools and Farmer Observers are intended to help the WUA to work effectively and in the interests of all stakeholders. This accounts for the intensive nature of these activities. But they are not offered as recipes to be directly replicated. Neither is a cheap and easy "fix". They offer approaches which are locally adapted and multidisciplinary, and which recognize varying interests, livelihoods and power relationships. They stress the need to use a range of the most effective communication methods to develop relationships and technical understandings amongst all water users. The aim is that water users will be genuinely empowered to make informed decisions,

1- FAO, 2001b provides guidelines on the use of FFS in this context.

and take appropriate responsibilities, for the sustainable delivery of the irrigation service.

PROVIDING O&M FOR INSTITUTIONS: WUAS NEED CONTINUITY OF SUPPORT

More than anything this research has shown the pitfalls and dangers of not providing sufficient resources – in funds, staff and time – to help WUAs to be developed in an organic relationship with the full range of water users they are expected to serve. This requires a genuine commitment to take measures not only to establish firm foundations for the WUA, but also to provide continuing technical and financial support during the medium term while the WUA becomes ‘embedded’. The methods, time and resources required will vary considerably from place to place. But we can draw some insights from two of our case studies to estimate the level of support needed.

The WUA in the study site at SMIP in Nepal was set up a decade ago but the poor performance of WUA committees may have actually corroded relationships between water users and the WUA committees, and amongst users for water distribution. The activities described above were initiated in the first year, culminating with a water users’ school (WUS) for one cropping season. This was followed by a further one-season-long activity focused on measures needed to improve water management. After the end of the two action research programmes water users still needed a third season of support to address outstanding technical and institutional issues and to put these measures on a stronger, and more sustainable, footing. The intensity of support needed (types of activities, number of support staff from different disciplines, frequency of visits) declined with each season. A much lower level of background support, with periodic visits and specialist consultancy on call, is still needed in the longer term to help to ensure that progress is sustained. Long term support must be carefully designed to avoid increasing dependency, as highlighted by observations in KIS, a site which was much studied before the start of the EIP intervention.

The experience at Obu Haet in the Kyrgyz Republic is very different from SMIP. The WUA was still being supported under OIP and faced fewer technical and social challenges than SMIP. But it was apparent that the water users had a very limited awareness of their role in the governance of the WUA, or of their responsibility to enable it to distribute water reliably and equitably. The reasons for this incomplete engagement between water users and the WUA, while quite different from the case of SMIP, can also be found in the top-down process used to establish the WUA. In common with SMIP, there are a large number of water users at Obu Haet, as land holdings are so small. In an effort to achieve democratic accountability while rationalising the numbers involved in decision-making, zones have been defined for local management and to select delegates to a Representative Assembly. But so far it has proved difficult to engage adequately with water users for WUA management.

A programme similar to the WUS – but adapted to the skills, relationships, and interests that prevail locally – would help the water users in the Kyrgyz sites to develop their own rules for water sharing, and establish self-generated discipline in water management. Here an associated programme will be needed to improve crop husbandry skills, and this could be a useful ‘entry point activity’. The relatively high levels of

education mean that this can be delivered in more straight-forward ways than were appropriate in Nepal, and can include printed leaflets and other written materials.

OUTCOMES OF OUR INTERVENTION

WUA GOVERNANCE

The activities described above had a positive impact on each of the features of governance identified earlier.

In each of the study sites the **processes for making and implementing decisions** were improved through a range of measures. In all sites water users from all socio-economic categories increased their understanding of how the WUA was supposed to function, they improved their contact and communication with WUA committee members, and they gained confidence to insist that committee members perform their duties actively. In SMIP and KIS they identified improvements needed in the WUA organisational structure, and in SMIP they established small task-oriented sub-committees to take action on canal maintenance and water distribution. The involvement of female irrigators without formal rights to membership was increased, and communications were improved so that water users were better informed of the irrigation schedules.

The WUS and Farmer Observer activities improved the quality of communication, mutual understanding and **relationships** between users, with the WUA and with other agencies. Safe forums were created for all water users, including those who are normally excluded, such as informal tenants from other villages and women, to meet and discuss irrigation issues and arrive at mutually beneficial solutions. It also brought all water users into closer contact with the supply agency and other support services, such as agricultural extension. This enabled the WUA to make better-informed decisions, and ensured that committee members and support services were better able to take account of different interest groups.

One outcome of the change in relationships was a greater commitment on the part of water users and WUA committee members to the **values and rules** of equitable water distribution. The recognition of the right to assert a claim to water proportionate to area of land held was particularly helpful to poor water users, who were reluctant to complain for fear that this would adversely affect their relationships and thus their livelihoods as a whole. But it was beneficial to all water users who were struggling to protect their access to water in an unruly environment.

Finally, as water users developed more confidence in the WUA committee members, the WUAs gained **authority** to implement decisions, and to define and administer penalties for those who broke rules, e.g. in relation to damaging structures, failing to participate in canal cleaning, or 'stealing water' and not observing distribution rules and schedules.

WATER MANAGEMENT

The ultimate aim of WUA governance is sustainable and fair distribution of water to all users. The extent to which this was achieved can be best evaluated by examining SMIP,

which, unlike the other study sites, had the advantage of two years of intervention (2002-04) through both GGG and EIP.

Initially, water distribution was erratic, inequitable and did not comply with the design objectives of a structured irrigation system¹. Subsequently, rules were designed by a sub-committee of the WUA. Crucial to successful implementation of the rules was the ability of the WUA committee members to monitor compliance, and so they were helped to develop indicators which they themselves could understand and use.

The measures undertaken under this programme resulted in a much deeper understanding of the irrigation design concept, better standards of canal maintenance, a reduction in the number of illicit actions (such as blocking canals or cutting banks), and the introduction of systematic water management through higher flow rates through a smaller number of outlets for shorter periods – all of which were directly observed during this study.

The outcome of these actions was to increase the amount of water reaching the tail of the study sub-secondary canal from about 30% of that intended to about 100%. This was achieved at the same time as reducing the total volume of water entering the canal. For example, in 2002, the flow was 6,100 m³/ha spread over 54 days, only 34 of which were scheduled to receive water as compared to a plan of 4,900 m³/ha over 44 days. After the intervention (in 2004), the delivery matched the plan – a saving of 20%. In 2002 the tail watercourses received water for 60-70% of the planned time, but this was increased to 100% in 2004.

This success was achieved as a direct result of the actions summarised in the ‘Guidance for Improving Irrigation Governance’, presented in the final part of this paper

LIVELIHOODS: IMPACT ON ALL WELL-BEING GROUPS – ESPECIALLY THE POOR

The limited duration of the two studies made it impossible to determine the medium and long term sustainability of results, and nor was it possible to demonstrate rigorously the impact of this intervention on livelihoods.

However, within these limitations, it was possible to observe the livelihood impact of the interventions most systematically at SMIP in Nepal. Poor water management is a cause of considerable social tension, which in turn has an impact on livelihoods and well-being. Water users identified three areas of significant progress:

- Social capital and relationships – better relations with neighbours enabled co-operation not only for irrigation but also in other activities.
- Time saving – less effort needed to repair canals or to deal with other disruption due to neglected maintenance, less time needed to manage irrigation as the timing was predictable and shorter, less effort needed to guard irrigation as others were more willing to obey rules.

1- See Albinson and Perry, 2001 for a description of this concept, which was the basis for the design of SMIP

- Crop productivity – although this is a major reason for improving irrigation management, in SMIP this benefit would only be evident in marginal areas and in unusually dry years. This was not observed in the course of this study.

Similar results were observed in the KUIS and BIP study sites under GGG. In the other sites the single season duration of the study meant that changes were either small or not observed. However, the measures to improve communications and awareness of the timing and duration of irrigation deliveries at Obu Haet did lead to an immediate reported impact in terms of relationships and reduced conflict, and this could be expected to be conducive to improved crop productivity.

LESSONS LEARNED AND UNRESOLVED ISSUES

The observed impacts are very encouraging and do suggest that this systematic and comprehensive approach to WUA establishment and support can have a significant impact on WUA governance, water distribution and ultimately on livelihoods – particularly of the poor. Part of the promise of this approach lies in learning lessons from successes and tackling, rather than ignoring, issues that remain unresolved.

Champions of Change – implementing teams have a key role as ‘Champions’ to improve access of the poor to the irrigation service (see also, Bird and Grant, 2005a and 2005b; Kolavalli and Brewer, 1999). They act not only as catalysts, but crucially as independent arbiters to build consensus and to stand up to existing power bases on behalf of weaker sections of the community. They also encourage local champions -- WUA committee members, individual water users, irrigation department staff members, etc. – to carry the work forward. Politicians should be engaged to support, and not obstruct, this work.

Multi-disciplinary teams - engineering specialists worked in closely knit teams with social and agricultural specialists. This was not always easy - it required a shift in expectations and ways of working. But compared with when engineers and ‘institutional development’ teams work separately, multidisciplinary teams are better able to respond to the reality of the integrated activities and concerns of water users and the WUAs. Nevertheless, it must be recognised that this places high demands on team skills and effort, covering a range of topics and disciplines – facilitation and training skills are particularly demanding for a project of this nature and there are a limited number of people able to carry out these tasks with the degree of sensitivity required.

Sensitive facilitators - The technical content of the schools must be very carefully designed to ensure that it is appropriate and sufficient – taking particular care to ensure that it is focused on specific needs. Facilitators must be skilled in local languages to make the ‘water users’ schools’ effective and ensure that the poorest participants are actively involved. The curriculum of the Water Users’ Schools was in some respects too complicated and in others too standard: this needs to be further refined, possibly reducing the time some participants are expected to spend at the ‘school’. Also, other means of communication, such as radio, television, drama, etc. should be explored.

Understanding farming conditions and livelihood strategies –WUA formation must be based on a realistic understanding of the assets, constraints and interests of all water users. This requires: (1) understanding farming conditions and livelihood strategies of

water users from all socio-economic and ethnic groups, male and female; (2) strategies to engage all groups, and (3) sufficient time to test and revise solutions, forge relationships, and develop confidence in the WUA. In this study, the participatory tools and observation techniques yielded an excess of information on one hand, and gaps and inconsistencies in data on the other. A more streamlined procedure should be developed for initial diagnosis and relationship formation, complemented with focussed supplementary investigations to answer specific questions as the need arises.

Development of appropriate technical skills – water management is a complex task, but the skills need to be presented in simple ways so that the WUA can learn practical techniques. They need to be able to design irrigation schedules which meet the specific local requirements - these often differ in small but significant ways from the idealised standard which tends to be presented in many training programmes. The WUAs also need to understand how flow measurement structures actually function, otherwise they may be interfered with simply because farmers do not understand how they work. While existing skills and knowledge are an important resource, there may be surprising gaps in this knowledge – for example, the nature of the water source and main supply channels in the case of large schemes such as SMIP. However, local knowledge on issues such as the variability of irrigation requirements is invaluable for effective water management.

Involvement of full range of stakeholders – activities should be extended further beyond all categories of water users, WUA committees and Departments of Irrigation and Agriculture to include other related support agencies, NGOs, community groups and politicians. This would open further new perspectives, and help forge social links, promote feedback, accountability and appropriate adjustments to support services, and to the legal and policy environment.

Engagement of ‘losers’ from management reform - those who have had privileged access to water could lose from management reform, resist engagement and obstruct changes. Therefore ‘champions of change’ have an important role in the sensitive task of facilitating positive engagement and negotiating with potential ‘losers’.

Engagement of poor and marginalised water users - factors such as lack of time, lack of confidence, social risks and doubts about the relevance of activities to their needs, all acted against participation in programmes such as the WUS. The techniques to involve the most marginal users were only developed during the study. It is important to continue the search for better ways to allow the voice of the poor and marginalised to be heard and for their needs to be responded to, without making unrealistic or inappropriate demands on their time and efforts.

Continuing resource needs of WUAs - many irrigation systems, and their WUAs, will not be viable without continuing outside technical support. Indeed a key message is that without more support than has been given to WUAs in the past, management reforms are unlikely to yield the improved irrigation service that is expected. But WUAs need to develop and manage sustainable local financing sources for their staff and direct costs if they are to cope with declining subsidies from the government for these essential operating costs.

Political will – is needed to support governance of WUAs and to allocate sufficient resources – to support the processes, relationships, values and institutions, and

legitimate authority which will enable WUAs to provide a satisfactory and sustainable service accessible to all water users.

GUIDANCE FOR IMPROVING IRRIGATION GOVERNANCE

SUMMARY OF FINDINGS

Expectations that WUA committees would take on leadership and management roles have, in the past, been based on unrealistic assumptions about participation, representation and accountability. Users' organisations were formed with inadequate attention to their support needs. They were often dominated by engineering and infrastructure activities so that they lapsed soon after the initial investment was complete. The establishment of the WUAs glossed over the mixed livelihood strategies of water users, the nature of relationships in socially heterogeneous communities, and the particular interests and relationships of those who were recruited as members of WUA committees. Insufficient effort and time was invested to develop skills and relationships between water users and with the WUA leadership. Technical procedures have also tended to be stereotyped and not to take account of local requirements and objectives. WUAs do not have the resources to adapt standard procedures. These problems have been observed to varying degrees on different projects, and this has often led to bad governance and erratic irrigation service delivery.

Following from this diagnosis two interventions were tested: 'water users' schools', and participatory monitoring and consultation for improved water distribution.

The guidelines below incorporate a participatory process of engaging with water users to understand and adapt to local circumstances, and to implement inclusive measures which support and develop skills and relationships. However, the effectiveness of the process depends on two other key conditions: an enabling environment and long term support – including the allocation of adequate resources.

The experiences reported in this paper indicate the following features should be included in a strategy to improve irrigation governance:

Process of engagement

- Champions of Change and Committed Leadership: identify catalysts to support development or reform of the WUA for each stage in the process -- from within the water user community and its leadership, and amongst other stakeholders, agencies and organisations at various levels from local, to national and international.
- Multidisciplinary Participatory Studies: undertake a rapid participatory planning study to achieve a good understanding of the irrigation system and its constraints. This should be facilitated by a team which combines social and technical skills to understand and respond to water users' livelihood strategies, priorities and constraints. Use Participatory Learning and Action tools and the Sustainable Livelihoods Framework to engage with water users and to organise observation and analysis.
- Identify entry point activities to help build confidence that some improvement is possible.

- Build Human and Social Capital to embed WUAs in the Community: ensure all socio-economic groups, male and female, are involved in a programme to develop:
 1. Awareness, understanding and willingness to participate
 2. Relationships (bonds, bridges and links)

This activity should be combined with developing the more technical skills needed for management, which are described below: disillusionment will soon set in if the awareness is not translated quickly into tangible achievement.

DEVELOP THE CAPABILITIES FOR MANAGEMENT

1. Technical skills in their local context
2. Skills in organisational management and governance
3. Financial skills and management – for trust and transparency

Water Users' Schools and Farmer Observation and Analysis are two possible models which were tested in this study, but other communication techniques and media may be more appropriate in other situations and countries.

ENSURING LONG TERM SUPPORT

- Training and technical backstopping: provide continuing skills development and technical support for Water Users' Associations to maintain high standards of routine service provision.
- Specialist technical support: for non-routine technical problems, and to ensure that the WUAs receive a satisfactory service up to the point where their responsibilities begin.
- Financial support: ongoing budget support for the WUA, to cover the training and technical support above¹. In some situations it may be necessary to design a realistic financial complement to the income the WUAs can be expected to generate from water users and other sources. This may include, for example, a commitment from the government to assist with emergency repairs to cope with natural disasters.

ENSURING AN APPROPRIATE ENABLING ENVIRONMENT

- Legal basis for participation: develop in response to WUA experiences and ensure WUAs have the legal authority to fulfil their responsibilities and enforce rules.

1- We focus in this paper on improvements to management rather than infrastructure, and selected irrigation systems which were in a generally sound, but not perfect, condition having recently been rehabilitated. Where some minor physical improvements are needed to reach the minimum standards necessary for the WUA to manage the project effectively and sustainably, these must be planned and implemented jointly with the WUA. The process for planning such infrastructure works is outside the scope of this paper, but it should be guided by the same principles of engagement outlined here.

- Financial basis for decentralised management: provide WUAs with the legal authority and skills to manage finances, to give water users confidence in their financial capacity, probity and authority.
- Support from irrigation supply agencies: implement incentives and orientation for agencies to provide the services and technical and managerial support WUAs need to perform their functions.
- Political support: obtain political commitment to providing necessary resources while allowing WUAs to deliver their service equitably and without interference.

PROGRAMME AND RESOURCES NEEDED

The model tested included activities over two to three seasons to strengthen an existing WUA and to support it to improve water distribution. Continuing technical backstopping and consultancy is needed thereafter. The general programme for each season would be:

- **Season 1:** Process of engagement, including embedding the WUA and initial development of skills, through an activity, such as a Water Users' School.
- **Season 2:** a follow-up but still intensive, programme focused specifically on technical, social and institutional measures needed to improve water management.
- **Season 3:** a less intensive programme which aims to help the WUA and water users to address outstanding technical, social and institutional issues in a sustainable manner, and to ensure that the legal and policy environment is supportive.

The precise content and duration of the activities which are included in each season of activities will depend on the history of WUA development and the type of irrigation scheme.

The estimated direct costs of the whole programme as conducted in the SMIP study site are around \$75 - \$100/ha, with the costs being split between the three successive seasons roughly in the proportion 60%:30%:10%. This can be compared with about \$1,000 per ha for the rehabilitation and command area development. These costs are analysed further in the final report of GGG (Mott MacDonald, 2004). The direct costs would reduce as the process became better established, but initially the constraint would be the availability of skilled and dedicated people and organisations to facilitate the programme.

No infrastructure was built during this study, but if infrastructure rehabilitation is being planned at the same time as WUA establishment and development, the two aspects need to be implemented in a coherent and integrated manner¹. Detailed rehabilitation planning should start once the initial work of embedding the WUA is well-advanced.

1- Rehabilitation and institutional development are sometimes separated into two discrete activities, for pragmatic reasons. This division should be resisted, as infrastructure and institutions are but two facets of the same problem. Good governance demands that they should be tackled together.

CONCLUSION

Water Users' Associations have played an important part in irrigation reforms in many countries, but there have been difficulties in ensuring that they are sustainable and that all stakeholders benefit fairly. Prospects for replication and sustainability depend above all on two factors: (1) a willingness to face the facts: there are no quick and easy shortcuts for establishing effective WUAs; short one-off training linked to a rehabilitation programme is not only unrealistic but likely to be counterproductive; and (2) the political will to make the necessary investment in genuine engagement with water users to meet local requirements – with all the messiness this represents, and the conflicts that will have to be resolved.

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