



## **BUILDING CAPACITY FOR PARTICIPATORY IRRIGATION MANAGEMENT - EXPERIENCES AND EMERGING ISSUES**

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### **ABSTRACT**

This paper builds on established concepts of capacity-building to look in turn at the key dimensions of the policy environment, institutional strengthening and individual development. The importance of a consistent and supportive policy environment for building capacity for participatory irrigation management (PIM) is emphasised. A range of approaches to institutional strengthening are put forward, and their focus on the strengthening and development of Water Users Associations for PIM is discussed. Individual development is normally undertaken through training, but there is a clear need for innovatory and non-formal approaches to training, particularly to support PIM.

The paper then goes on to discuss water governance and social learning, as two key emerging issues of particular relevance to capacity-building for PIM. Water governance provides a framework for viewing PIM within the wider perspective of the water sector as a whole, while the current emphasis on social learning is particularly relevant to concepts of participation and PIM, and provides an entry point for capacity-building through individual development.

Recent experiences collated through ICID workshops and elsewhere are reviewed for insights into capacity-building for PIM. These include experiences from India, China, Peru, and transition economies such as Ukraine and Albania, with reflective case studies from Pakistan, Bangladesh, Nigeria and Tanzania.

The paper draws on these experiences to develop some general conclusions in the light of the theory and concepts of capacity-building, in particular highlighting the need to take an integrated view of all the resources needed for capacity-building for effective PIM and the importance of better understanding of participatory processes and of learning at the local level.

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## INTRODUCTION

Capacity-building is now recognised as an essential component of policies, programs and projects for development. It is realised that scientific and technological advances must be accompanied by matching increases in the capacity of individuals and organisations to manage technology if overall improvements are to be made. This is particularly the case in participatory irrigation management (PIM) and other areas of agricultural water management, which bring together a complex mix of biophysical, economic and social factors, encompassing a range of actors.

A range of definitions of capacity-building are available. A useful definition is given by UNDP, which has done a considerable amount of work in this area:

‘the process by which individuals, groups, organisations and societies increase their abilities to perform core functions, solve problems, achieve objectives and to understand and deal with their development needs in a broad context and a sustainable manner’ (UNDP 1998).

This definition focuses on capacity-building as a process and highlights that it is needed not only to support individuals and organisations in their day-to-day operations (core functions) but also in taking a strategic view (developmental needs and objectives). It therefore encompasses a range of concerns, at the large and local scale and in the long and short term. There is an extensive literature by a variety of development institutions and international agencies on approaches to capacity-building which address these range of concerns (see for example (Fukuda-Parr, C et al. 2002).

A consensus emerges from this body of work on a basic theoretical concept for capacity-building. This concept has been taken up by ICID in the recent work carried out through the Working Group on Capacity-Building, Training and Education (<http://www.wg-cbte.icidonline.org/home.html>) and forms the framework for this paper in consideration of capacity-building needs for PIM. The concept identifies capacity-building needs at three levels, at the level of policy, at the level of the organisation or institution, and at the level of the individual.

This paper describes the context for PIM and elaborates the conceptual framework within which to consider capacity-building for PIM. It then addresses in more detail certain key issues which have arisen recently in this field, before going on to review the experiences in capacity-building brought together within ICID and other fora over the past few years.

## THE CONTEXT FOR PIM

Over the past two decades dissatisfaction with public sector management of irrigation has grown as a result of constraints on government effectiveness and financing and of ideas of ‘rolling back’ the role of the state from that of service provider to that of regulator. This has particular resonance in the irrigation sector, in which beneficiaries are often relatively well off compared to others in the agricultural sector. This suggests that private sector structures may be more appropriate than traditional public organisations in providing services to irrigation farmers, in turn leading to the idea of transferring responsibility for management to beneficiaries through some form of irrigation management transfer (IMT).

IMT requires that there are institutions ready and capable of taking over some of the management responsibilities. Such may indeed be the situation in richer countries with a long history of private sector development, in which private sector institutions may have the capability and experience to take on management roles and where formal legal relationships are well understood and developed. In many other poorer countries, including many of those with extensive surface irrigation systems, institutional structures are not developed in this way, there are few institutions with the management expertise to take up the new roles under IMT, and formal legal relationships are ill-defined and difficult to exercise. In such situations it is necessary to build on existing institutional structures and find innovative ways of bringing farmers together to assume management responsibilities. Almost inevitably this requires some form of PIM, implying 'participation' between farmers who, in other respects, may not necessarily be accustomed to participation with one another, or who would prefer for other reasons to participate in different structures and groups from those reflecting the hydraulic system. Most often participation is expected to take place through some form of Water User Association (WUA) which takes over some of the managerial roles and responsibilities of the public irrigation agency. Inevitably, therefore, much of the focus of capacity-building for PIM lies in developing or strengthening WUAs and the participatory processes which underlie them.

## **THE POLICY ENVIRONMENT**

It has long been recognised that a supportive policy environment is essential if efforts to increase capacity at the local level are to be successful. In the case of PIM, the key policy measures have been identified above, a policy of transfer of management responsibility for irrigation (IMT) away from the public sector to an appropriate private or non-governmental organisation, and, where the private sector is not yet in a position to take the responsibility, a policy of participation in irrigation management (PIM) through a WUA. These two form the essential components of a capacity-building strategy for the sector.

However there is also a clear need in capacity-building to ensure that other subsidiary policies are in place to support overall policy aims and directions. For example, there are often regulations concerning the establishment of participatory organisations which involve heavy transaction costs (visits to central ministries and departments, payment of significant fees) and which may result in constraints and hindrances to their effective functioning. Another aspect of supporting policy which must be considered is the relationship between hydraulic organisations such as WUAs and the structures of local government, particularly in contexts where hydraulic systems form the dominant element of the local landscape. In such situations the overall policy environment may actually be hostile to the establishment of powerful and effective grass-roots irrigation organisations because of their significant political importance at this level, even if the avowed policy aim in the agricultural sector is management transfer to participatory management organisations (Theesfeld 2004).

## INSTITUTIONAL STRENGTHENING

Institutional strengthening forms the next level of capacity-building. The concept of institutions needs some definition here, since it has two distinct but related meanings. Institutions refer, firstly, to the rules and norms which govern the way people live and interact with one another. Thus reference is made to the institutions of the law, such as property rights, and the institutions of personal relationships, such as those set by marriage or kinship. Such institutions result from a range of formal and socially-constructed forces in society (politics, legislation, culture, tradition, wealth and so on). They change and develop over a long periods and, whilst their importance in capacity-building is widely acknowledged, it is also recognised that it is difficult to make significant changes over the short-term of development interventions. The second meaning of institutions is in relation to organisations, deliberately or informally constructed groupings which may range from bureaucratic structures with established constitutions and defined roles to loosely-aligned groups of individuals and households. Institutions in this sense refer to the Law Courts (the arrangement of judges and other legal officers, together with their buildings and operational systems) or the grouping of individuals within family household or kinship structures. Much of the challenge of capacity-building lies at the institutional level.

Part of the challenge arises from the dual nature of 'institutions'. That element of institutions relating to rules and norms arises over the long-term as a result of interactions between individuals in close groups, in the wider environment of organisations and in the context of society as a whole. Rules and norms are dynamic and change over time, but they change as a result of the interaction of a range of different trends, forces and pressures, and they are seldom susceptible to change as a result of a single development intervention or even a programme. For example, attitudes towards co-operation and participation will be determined by a range of factors in the local context and in society as a whole, and they will not change significantly over the long-term solely as a result of a project designed to foster participation. The other aspect of institutions, the groupings and organisations which provide roles for the individuals within them, are more amenable to purposive change through projects and other interventions. Here again, however, a note of caution must be sounded as organisations consist of both structure and culture. The structure (the relationship of roles) is possible to define, develop and modify. The culture (the way of doing things in the organisation) bears many resemblances to the rules and norms of institutions. It develops slowly over time and can be changed only incrementally and in a loosely-defined way.

With this note of warning, there are nevertheless some approaches which can be used as a basis for approaches to institutional strengthening within capacity-building. For example Ostrom has been working on issues of self-governing institutions for irrigation over the past 20 years. Whilst her interest lies in governing the resource commons in general, her focus on irrigation as a case study makes her work particularly relevant for PIM. Initially postulated as a set of design principles (Ostrom 1991), more recently the ideas have been recast as a set of questions to be asked when designing or strengthening institutions for resource management (Ostrom 2005). With specific reference to PIM at the local level, they can be translated as:

- How can the boundaries of the system and the people using it be defined, so as to make clear who is authorised to benefit?

- How can the relationship between benefits received and costs contributed be defined?
- How can the participation of those involved in making key decisions be supported and encouraged?
- Who is monitoring the operation of the system, and do they have appropriate incentives for this task?
- What system of sanctions is in place for infringement of rules and are these appropriate and appropriately graded?
- What mechanisms exist to solve conflicts over water use?

There has been considerable discussion and comment on these design questions, on a number of counts. For example, it is suggested that they do not sufficiently take into account the variability and dynamism of the contexts in which they are applied, nor the socially-constructed understandings that shape peoples' collective action (Cleaver and Franks 2005). For example, people may have a wide range of reasons for interacting with one another, such as kinship, so that their relationships are not wholly mediated by the fact that they are members of the same WUA. Thus the simplicity of the concepts underlying the design questions may mask a range of complex inter-relationships which will have an important bearing on the way that institutions for PIM develop. Nevertheless the Ostrom questions provide a useful entry point into thinking about the necessary conditions for long-lasting institutions for PIM.

A second entry point to institutional strengthening arises from approaches commonly applied to organisations across the spectrum of management concerns. These have been codified for development organisations into a number of questions (DFID 2003):

- Is there a strategic plan for the organisation? How does the strategy relate to the organisation's mandate and responsibilities?
- What is the formal structure of the organisation? How is decision-making exercised and what are the mechanisms for accountability?
- What is the organisation's culture? How are its rules and norms established?
- What inputs and resources are available to the organisation? What systems and processes are in place to define the organisational system? What outputs and performance result from this?

Questions arising both from the Ostrom principles and from management approaches more generally put great emphasis on the formal structures of institutions, and highlight concepts such as transparency and accountability. They provide much less guidance in dealing with the informal and unstructured aspects of institutions, the way people do things in an organisation, and how these rules and norms have developed. In addition a whole range of issues and questions are raised by the nature of participation, which are reflected by the wealth of development literature about its problems and pitfalls. These arise from inter-related strands of debate about the various types of participation. So, for example Khanya defines participatory relationships ranging from self-mobilisation at one extreme (in which people participate by taking initiatives independently of external

institutions for resources and technical advice they need, but retain control over how resources are used) to manipulative participation at the other extreme (in which participation is simply pretence, with representation on official boards by people who are not elected and who have no power) (Khanya 2002). Issues of power and power relationships underlay key discussions about participation, leading us to ideas about the 'tyranny' of participation and about modes, methods and outcomes of participation within a single group or organisation. This in turn raises questions concerning the position of individuals within participatory groups such as WUAs. Who participates and why? What are the outcomes for different people within the group or organisation? How can we strengthen participatory organisations such as WUAs whilst at the same time allowing for the important differences that underlay the contribution and commitment of people within the association.

In considering capacity-building for PIM, it must be recognised that there is no universal theory underlying institutional strengthening. It is therefore inevitable that any approach to institution building must work not from theories but from a range of questions or issues which need to be addressed. The answers to these questions will vary from location to location, and indeed will change over time. Moreover the process of answering these questions must emerge through a participatory process, if long-lasting participative institutions are to result. This process needs to pass through the stages of:

- diagnosis (assessing the present situation)
- design (proposing changes and improvements for the future)
- implementation (initiating and establishing the proposed changes)
- evaluation (assessing outcomes and identifying the need for further modifications).

If truly effective participatory structures are to emerge, there will be need for further consultation and participation at every stage of this process. Overall, therefore, it may become very lengthy, and required sustained effort and support over considerable time. The need for such sustained intervention is constantly stressed in the development literature (Toner and Franks 2006): frequently it requires considerably more time than that for the development or upgrading of the accompanying physical systems.

## **INDIVIDUAL DEVELOPMENT**

Individual development forms the third level of capacity-building. The capabilities of individuals are essential to the effective operation of systems and organisations and there has therefore been considerable emphasis in the past on developing capabilities through programmes of training and extension. There have been significant successes in training programmes, both for the personal development of individuals and also in making them more effective in their organisational roles. However it is also widely acknowledged that training initiatives are often a default option for capacity-building programmes, since they are relatively easy to deliver and evaluate. Increases in individual capabilities can be demonstrated to be value for money, without having to address the more difficult question of whether they in turn contribute to an overall

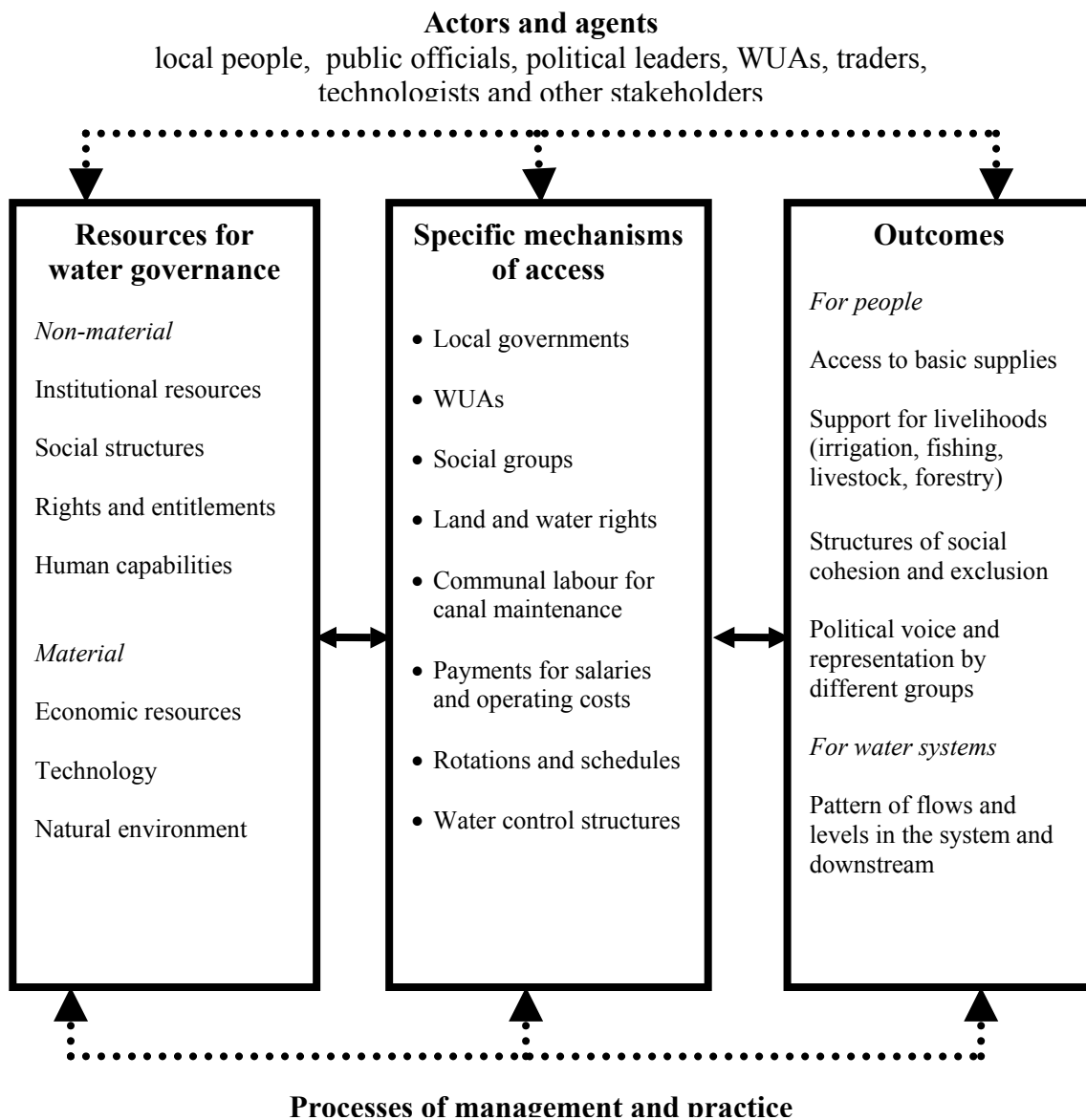
increase of capacity at the institutional level. Training and extension to support PIM is vitally important and the approaches to successful training are now well understood.

A significant feature of modern approaches to individual development is the increasing emphasis being put on non-formal methods and approaches. Whereas in the past the most common option was to work through a programme of formal classroom-based training, it is now recognised that other methods may be more appropriate and effective. This include ideas such as twinning, where individuals exchange visits with others in similar organisations to see how problems can be addressed in different ways, and networking, where individuals share experiences with groups of others to address common problems. Advances in IT have made possible forms of twinning and networking which would have been impossible a few years ago because of the constraints of communication and distance.

### **EMERGING ISSUES**

Whilst ideas of capacity-building have been with us for some considerable time, the water sector has seen emerging in recent times some new and innovative concepts which can enrich and broaden the range of available approaches. This paper will focus on two of these in particular, concepts of water governance and ideas of social learning.

Water governance is gaining increasing attention in the international consensus on water policy. Defined as “the range of political, social, economic and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society” (Rogers and Hall 2003), good water governance implies finding appropriate structures for water management which bring into play the different sectors and groups in society, such as government, the public sector, the private sector, together with citizens’ groups and NGOs which will come together through some form of participation. It thus has particular resonance with the ideas of PIM, since it suggests the need to look for structures and processes which work alongside more traditional bureaucratic systems. Recent proposals for a framework for water governance (figure 1) link available resources to mechanisms for access to water, leading in turn to outcomes for people and the ecosystem (Franks and Cleaver 2007). This framework suggests a complementary perspective from which to view capacity-building needs, by stressing the importance of understanding how people draw on a diverse range of resources (institutional, social, rights, economic, human, technological and natural) to support their access to water



**Figure 1. A Framework for Water Governance**

A further development of relevance to capacity-building for PIM has been the recent focus on ideas of social learning. Social learning refers to individual learning based on observation of others and their social interactions within a group and has found wide applicability in a range of social and technical contexts. It has only recently come to be applied to water management, but finds particular resonance when applied to ideas of PIM. Specifically it emphasises collaborative and participative learning by individuals within the institutions responsible for PIM, rather than top-down, hierarchical learning which will not be fully owned by the farmer and farmer organisations at the local level. Social learning was the topic for a special session at the Fourth World Water Forum ([www.wg-cbte.icidonline.org/ft4\\_20\\_report.pdf](http://www.wg-cbte.icidonline.org/ft4_20_report.pdf)). In its findings this session emphasised the need for broad partnerships among stakeholders to reach out and involve as many



people as possible in the capacity development process, and for mechanisms to allow these stakeholders to work together and learn from each other.

## EXPERIENCES TO DATE

ICID's Working Group on Capacity-Building, Training and Education has been researching issues of capacity-building over a considerable period. Most recently this has been through a series of workshops, mainly co-sponsored and funded through IPTRID, which have studied the whole cycle of capacity-building. Thus, starting in 2003, there was an opening event which set out the basic concepts of capacity-building, as presented in the preceding sections, and brought together an initial series of case studies (ICID and FAO 2004). This was followed in 2004 by a workshop in Moscow which focussed on the approaches and methods of capacity needs assessment, and then in 2005 by the Beijing workshop which highlighted the design and implementation of capacity development strategies. The final workshop in the series, in Kuala Lumpur in 2006, considered approaches to monitoring and evaluation of capacity-building. This brought together some very interesting case studies but, not surprisingly, it was the area where there was least experience. This reflects the fact that M&E is more talked about than practised (very few sponsors or financing institutions are actually willing to put time and resources into M&E, in spite of the theoretical importance it is given), and also by the fact that it is intrinsically very difficult to monitor and evaluate the outcomes of capacity building initiatives, except in relation to the specific output of training programmes (numbers of people trained, in which topics).

The workshops brought together experiences over the whole spectrum of capacity-building. These included capacity-building for PIM, and a brief reference is made here to the key papers and presentations relevant to this field. In the main these experiences related to capacity building for Water User Associations (WUAs), with the generally unspoken assumption that WUAs are an essential component of IMT and PIM, since it is actually WUAs which will need to take up the functions of management transferred from the public sector.

An important set of experiences arises from the Andhra Pradesh Farmer Management of Irrigation Systems (APFMIS) legislation of 1997 (Peter 2003). This was a very large scale undertaking to transfer responsibility for management in the state, involving the establishment of over 10,000 WUAs. Peter's main emphasis is on the creation of farmer networks to support the overall process of capacity building but importance was also given to exchange visits and study tours, and to an effective communication strategy using information technology and other media. Throughout the process there was an emphasis on empowering WUAs and providing continued support after their establishment. Training formed an important part of the process but more significant inputs came through other formal and informal means of institutional strengthening and individual development. Complementary experience of capacity building in the Andhra Pradesh Farmer Managed Groundwater Systems project (APFAMGS) is described by Rao et al (Rao, Das et al. 2006). Capacity building for this large-scale project was carried out using a variety of methods comprising cultural shows, training, workshops and visits. A key component of the process in this case was farmer field schools, relying extensively on non-formal education methodology. (The need for developing non-formal education methodologies is also explored in the paper by Botha on South

African experience (Botha 2005), though Botha's paper does not directly deal with PIM).

Fuqiang and Heping explored issues of large-scale capacity-building for WUAs in their review of experiences of China (Fuqiang and Heping 2006). This review emphasises the importance of an appropriate policy environment. They note in particular that the level of water fees was set so low that most of the fees collected went towards buying bulk water from the irrigation district agency, thus leaving little for supporting the day-to-day activities and operation of the WUAs. They also note that developing participatory systems is difficult in contexts where there was a highly centralised system of control, resulting in very little autonomy for the newly-formed WUAs and a corresponding lack of performance incentive for the managers (a point emphasised in the Ostrom design questions).

Other regions of the world which have also experienced transitions from a centrally-planned economy have met similar difficulties in building authentic capacity for PIM. Van Scheltinga and Zovtonog described the approach on the Watermuk project in Ukraine, involving the setting up of WUAs in a situation where previously there had been strong centralised control (VanScheltinga and Zovtonog 2004). Here, too, use was made of the concept of study tours and exchange visits, to complement formal training and to introduce the officials and participants to contexts in which such organisation can function effectively. Dedja provides an interesting review of the experience in Albania, including the transition from village-based to hydraulic-based WUAs (Dedja 2003), to reflect a more rational boundary for co-operation and participation. Dedja emphasised the importance of technical assistance and training particularly in financial management, to ensure the financial sustainability of the associations. This experience is mirrored in other sectors and in other regions around the world.

Ledesma (Ledesma 2003) described a programme to change long-established institutional arrangements for irrigation management in Peru. An international NGO was invited in to lead a comprehensive programme of institutional change, mainly through a programme of participatory training focussing on changes in knowledge, skills and attitudes, both for irrigation agency officials and for some 64 user boards. The training and capacity-building was directed towards encouraging the user boards to take on full responsibility for local water management, including the collection of fees from farmers and to encourage private funding for irrigation. ICID engaged with the issues of social learning, with the paper by Mati presented at the Beijing Workshop. Whilst emphasising the importance of approaches such as the establishment of farmer networks and exchange visits, Mati and her colleagues put stress on the value of identifying farmer innovators who can be supported as champions of change at the local level (Mati 2005).

Ideas of water governance and participation lead to a complementary set of considerations for institutional strengthening of PIM. In a recent survey practitioners were invited to develop reflective case studies from their field experience, in which they reflected on the mechanisms which people use to support or enhance their access to water, many of which are in context which imply some form of participatory management. Thus Hill working in Bihar notes the need for sustained support for newly-formed WUAs and also the crucial importance of financial sustainability and some form of financial saving or contribution to pay operation costs (Hill 2006). The

need of financial sustainability has been noted by many other commentators, both within the irrigation sector (for example in Bangladesh by Smith et al (Smith 2005) and outside it, in Uchira, Tanzania by Toner (2006) and in NWFP, Pakistan by Tod (2004). Lessons from Africa likewise confirm the potential advantages but also some of the pitfalls of assuming that PIM will operate effectively. In SW Tanzania, for example, the costs of collecting water rates from a number of widely-distributed small farmer organisations far outweighed the revenue collected, thus leaving the Water Office worse off than if no fees had been collected (Lankford 2005). In Nigeria Bdliya notes the importance of a wide-ranging stakeholder analysis to correctly identify the locus of power and influence surrounding irrigation systems (Bdliya 2006). In that particular case, traditional (non-bureaucratic) structures are far more important than government agencies and bureaucracies because they lie closer to the system and because they form part of the daily fabric of peoples' lives, rather than being connected with only one part of it, the allocation and use of water. In such a context, any form of PIM must work in harmony with existing institutional structures if it is to be successful.

## CONCLUSION

This paper analysed the need for capacity building for PIM at the level of the policy environment, institutional strengthening and individual development. It discussed the importance and relevance of the emerging concepts of water governance and social learning to capacity-building for PIM. Finally it reviewed the experience of ICID and others in the field.

From the field experiences a consensus seems to emerge on the need for:

- understanding existing institutional and social structures
- sustaining support for institutional strengthening
- building the financial sustainability of local institutions
- identifying local champions for change

In general, institutional strengthening provides the most significant issues in capacity-building, and there is no blueprint for success. The article outlined approaches to institutional strengthening which build on a set of design questions. The appropriate responses to these questions will vary from location to location.

The emerging concepts of water governance and social learning suggest further key challenges for capacity-building. These include the need to:

- take a broad and holistic view of institutional strengthening, viewing it not just as establishing the form and structure of appropriate organisations but rather as working across the range of resources for water governance.
- understand better how participation works in different situations, and how it can be supported by individual learning in a social context.

Whilst much has already been learnt from field experiences, there will always be a need for further learning as the needs for capacity-building change in the constantly evolving context of PIM.

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