



Water governance and poverty: a framework for analysis

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Abstract

In this paper we present a framework for understanding water governance, through which we critique some of the assumptions underlying the current consensus on good governance. Specifically, we suggest that current approaches are based on incomplete or partial understandings of the concepts of governance. We question the idea that governance can be identified as an abstract set of principles, without the need for contextualisation and localisation. In particular, we suggest that there is a general lack of understanding of the way local interactions shape and influence governance processes. Finally, and with specific reference to the MDGs and the water sector, we question the implicit assumption that 'good' governance is necessarily pro-poor governance.

The paper addresses these issues through a critical discussion of governance, from which we develop a framework for conceptualising water governance. The framework draws on theories of governance, institutions and structuration, but is also informed by recent empirical research and experiences from the field. We apply the framework to a specific case in Southwestern Tanzania and raise a number of issues and challenges for further research. Our intention is to develop a model which is theoretically sound and applicable in practice.

Linking poverty and governance – the current consensus

The concept of good governance is now inextricably linked with the strategies and aims of development. The eradication of poverty and extreme hunger is the explicit goal of the development community through the definition of Millennium Development Goal 1. Addressing poverty is also an implicit issue in the majority of the other Millennium Development Goals (MDGs), relating to health, education and gender, and is strongly linked with Goal 7, ensuring environmental sustainability. The role of water in this process is recognised through the formulation of target 10 ("Halve, by 2015, the proportion of people without sustainable access to safe drinking water and sanitation"), and by the recognition by those working in the water sector that the water targets must be met within the context of plans for water resource management.

The broad acceptance of the MDGs is matched by a general consensus on a range of developmental issues, including the need for 'good governance' as a necessary condition for meeting these goals. The concept of good governance is taken to apply generally across all sectors, and has been actively taken up within the water sector. Most policy prescriptions and initiatives within the sector are posited on the idea of 'water governance' as a self-evident way of 'doing things better' (see, for example, World Water Assessment Programme 2003, DFID 2005). The adoption of good water governance will, it is assumed, contribute to the achievement of the water targets and the related MDGs.

In this paper we present a framework for water governance, through which we critique some of the assumptions underlying this consensus. Specifically we suggest that current approaches are based on incomplete or partial understandings of the concepts of governance. We question the idea that governance can be identified as an abstract set of principles, without the need for contextualisation and localisation. In particular, we suggest that there is a general lack of understanding of the way local interactions shape and influence governance processes. Finally, and with specific reference to the MDGs and the water sector, we question the implicit assumption that 'good' governance is necessarily pro-poor governance.

The paper addresses these issues through a critical discussion of the fundamental ideas, from which we develop a framework for conceptualising water governance. We apply the framework to a specific case in Southern Tanzania, so that we can see how the framework might be applied in practice. We conclude with a discussion of the assumptions inherent in the idea that good governance is pro-poor governance, and raise a number of issues and challenges for further research. Our approach is located within theories of governance (Pierre 2000), environmental management (Mehta, Leach and Scoones 2001), and social theory (Giddens 1984), but we also draw extensively on literature from development partners (ADB 1999, UNDP 2001) as well as experiences from the field (Cleaver, Franks et al, 2005). The intention is to develop a model which is theoretically sound and applicable in practice.

Conceptualising governance – what it is, and what it is not

The concept of governance, as employed in development thinking, is characterised simultaneously by a diversity of definitions and by a surprising degree of concurrence on what the abstract principles of ‘good’ governance are. Governance is a relatively recent term. Whilst its exact provenance is not clear, it has only entered common use in the last 15 years. In this time, however, it has assumed increasing importance as traditional concepts of government are challenged. The challenge to government comes at many levels (Pierre 2000). At the international level, globalisation, improved communications and increasing capital flows across borders are just some of the contemporary phenomena that have combined to reduce the power and autonomy of national governments to act alone and in the national interest. At the national level, there is growing involvement of the private and third sectors in areas of policy-making and service provision which were hitherto the exclusive preserve of government. At the local level, new alliances of community organisations, networks and partnerships are likewise calling into question the traditional role of governments to order the daily life of its citizens. All of these challenges require a rethinking of relationships and decision processes in society, reflected in the emergence of the new term ‘governance’.

Writers on governance characterise it in a number of ways. Some, such as the Institute of Governance in Canada (quoted in Bakker 2003) look on governance as the way society decides to order itself. They draw attention to the involvement of different sections of society through the concept of stakeholders, and to aspects of the processes by which this ordering takes place. Others, with the international financing institutions in the lead (ADB, 1999) focus on “how power is exercised in the management of a country’s economic and social resources for development”. Although this definition is fairly general in its coverage, the practical application of this concept by these institutions tends to focus of the practice of government (Grindle, 2002).

We take as our starting point the definition by the UNDP (2001). It sees governance as:

“the exercise of economic, political and administrative authority to manage a country’s affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences”.

Whilst our framework suggests that concepts such as authority and institutions need deeper scrutiny, the UNDP definition highlights governance as processes of decision-making involving society at all levels through its citizens and groups.

These diverse views illuminate many different aspects of governance, helping us to understand what it is, and also what it is not. Governance is about the way stakeholders in society shape their relationships to order their affairs. Whilst government, in all its manifestations, is one of the key stakeholders in this process, it is only one among many. Equating governance with government is a common practice by many commentators, for example by the international financing institutions, as noted above (ADB, 1999). However, this reduces the scope of the concept, which is more productively used as a basis for thinking about new and emerging ways in which society orders its affairs, rather than as a way of helping government to function better.

Another way in which the term governance is commonly used is as a synonym for management. Management is the collective allocation of resources to achieve specific objectives. It links to governance through the processes of decision-making related to those resources, but is exercised within administrative boundaries by specific groups (for example, the managers of a water utility establish operating procedures to deliver water to different groups of consumers). Management requires interaction by the managers with stakeholders in the process of achieving outputs, whilst governance describes the interactions between stakeholders to achieve outcomes (for example, the overall system by which the citizens of an urban community decide how services will be delivered, who will be responsible for the management of these systems, how they will be held accountable and so on). Management systems can be planned and implemented, governance is a concept which evolves through the political relationships of different groups in society.

Finally, governance is often used as an expression of 'doing things right', and that therefore it is intrinsically 'good'. This notion is reinforced by the regular practice of describing abstract principles of governance which also equally apply to the practice of government. For example, Grindle (2002) describes six governance 'principles' (participation, fairness, decency, accountability, transparency and efficiency) and goes on to give the results of a survey of perceptions of government performance against these principles in 20 countries. This reflects the fact that many of the 'governance' initiatives in development are directed towards inculcating these principles in the practice of the formal affairs of government. Specifically, in the development context, (good) governance is taken to mean the absence of corruption, and lack of governance is equated with low standards of probity in public life¹. However, if we use governance as a term to describe the complex interactions between groups in society to order their affairs, then governance can be 'bad' as well as 'good' in relation to the outcomes of these processes, at least for certain groups in society. An important part of our work is to question how 'governance' works out for the poor.

In summary, we build on the basic UNDP definition of governance as the way that citizens and groups order their affairs. A specific outcome of this is that we see governance as a localised, context-specific concept about the way people make decisions and do things in practice (Franks 2004). Whilst it links to ideas of government at many levels, it is most relevant at the meso and micro levels of society, rather than at higher levels of national government and policy making. It is at these levels that the partnerships and networks are formed which most strongly influence daily lives, particularly of poor people. We believe that the development of a framework to better understand how the mechanisms and processes work out in practice can provide a rich understanding of how people access resources and how poverty can be addressed.

Water governance – an evolving concept

Whilst governance has been discussed and debated in the context of society and development as a whole over the last fifteen years or so, the concept has also been taken up actively within the water sector. The sector has seen an emerging consensus, both on the scale of the problems to be faced in delivering water services and on the broad processes which are needed to solve these problems. This emerging consensus can be seen most clearly in the tri-ennial World Water Forums (WWF), and in the communiqués that issue from them. Thus, the 2nd WWF in The Hague emphasised integrated water resources management as a necessary condition for achieving water development (Cosgrove and Rijsberman 2000). The 3rd WWF in Kyoto in 2003 focussed on water governance as the key process, the latter drawing seamlessly from the former but presenting a broader, less technocratic approach which seems to be more consistent with current trends in development thinking. In this way, water governance has taken over from earlier ideas such as 'managing water wisely', as a concept which all can agree as being intrinsically good.

¹ Similar ideas are emerging in the rich world in the use of the term 'corporate governance' to imply the application of abstract principles of good behaviour in the running of large corporations.

The most common definition of water governance is that of Rogers and Hall (2002):

“water governance refers to 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”.

It can be seen from our earlier discussion that this incorporates many of the ideas that we think makes governance such a rich concept. It implies the need to encompass a range of actors and agents which is much broader than government. It suggests a range of outcomes (‘water resources’ as well as ‘water services’) which is broader than the management functions of individual authorities. Its reference to different levels of society implies a recognition that outcomes may be different for these different levels, and that, for example, the poor may need special consideration in the working out of governance systems.

Whilst acknowledging the overall value of this definition, the concept of political, social, economic and administrative systems needs, in our view, further critique and analysis. Our approach is to use social theory as a way of understanding how these ‘systems’ of governance actually work out in practice, and what these may mean for the poor. In addition, we try to incorporate perspectives from environmental management. We do this through the development of a framework for water governance, which can be applied both as an interlocking set of concepts for illuminating water governance in general, and as a tool for assessing specific situations as a basis for action.

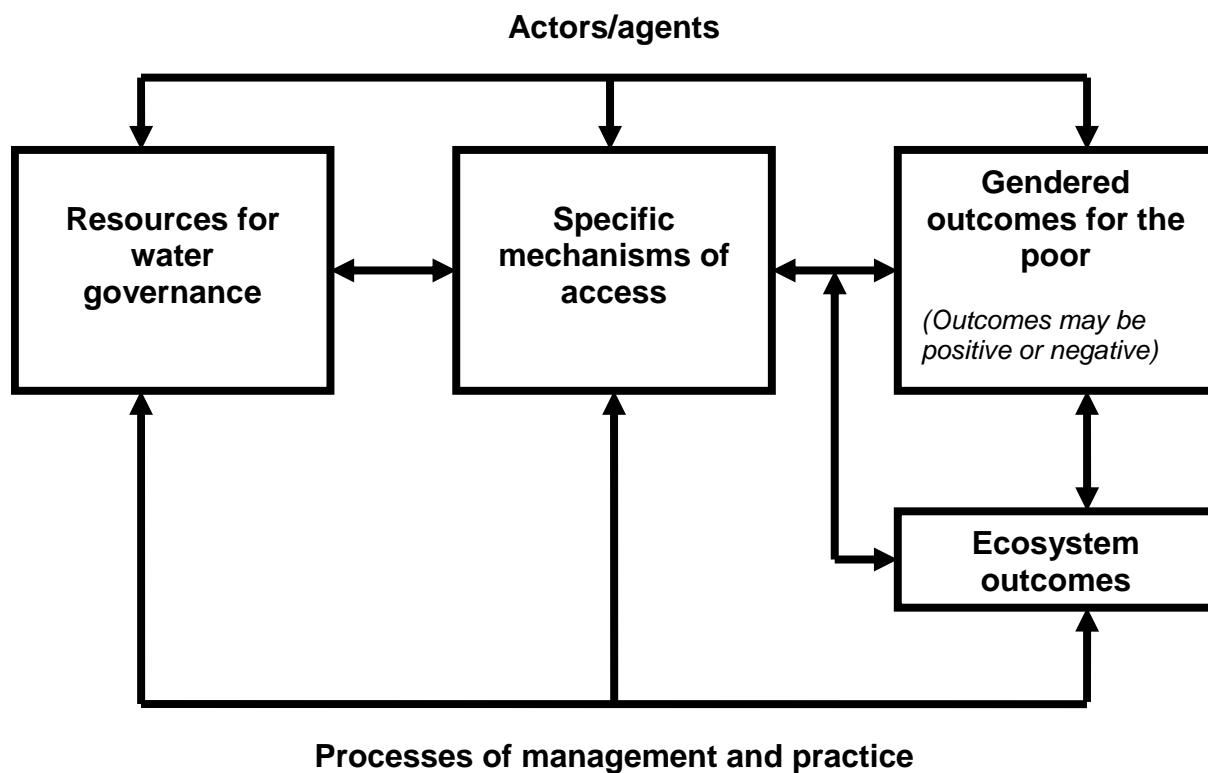
The analytical framework

Here we propose an analytical framework which can help us to understand how arrangements for water governance are shaped and how they impact, both positively and negatively, on the poor. The framework is generated by insights from empirical data and by reflection on current thinking about water governance. In constructing the framework we have adapted concepts derived from social theory (Giddens, 1984) as well as insights from ‘post-institutionalism’ (IDS 2003, Benjaminsen and Lund 2002), sustainable livelihoods (Ellis 2000), and recent works on chronic poverty (CPRC 2004, Bevan 2004, Hickey and Bracking 2004).

Our framework depends on a number of key concepts. ‘*Resources*’ (the materials from which human interaction and social structures are constructed) are drawn upon in differing ways by *actors* (individuals, groups, the state) to construct the mechanisms of water governance. ‘*Mechanisms*’ are particular context-specific arrangements for organising access to water. ‘*Outcomes*’ for the poor, and for ecosystems, are shaped by these mechanisms. At each interface in the framework, *actors* are recursively implicated (being shaped by and shaping resources, mechanisms and outcomes). Mechanisms are fashioned from resources by actors ‘managing’ and ‘practising’ *processes* of water governance. Similarly the outcomes of such mechanisms are shaped by context-specific processes of management and practice.

The relationship between these concepts is represented in the framework (figure 1). We elaborate here the theoretical basis of the concepts, whilst in a subsequent section we apply the ideas to a specific case, to see how the theoretical framework might work out in practice.

Figure 1 A Framework for Water Governance



Resources

Here we understand ‘resources’ to be the material and non–material properties of social systems from which human governance of water is constructed. Giddens (1984) distinguishes between *allocative* (raw materials, material power sources, means of production, produced goods) and *authoritative* resources (organisation of time/space, chances for self-development, organisation between people)². For him “resources are the media through which power is exercised” and “resources are structured properties of social systems, drawn upon and reproduced by knowledgeable agents in the course of interaction.” (Giddens 1984, p15) Human agents make rules which structure the deployment of resources; the patterning of command over resources in turn shapes the actions of agents. The concept of ‘resources’ as we adapt it to water governance encompasses general relationships of power, structures of inequality and ‘rules’ of social life and resource allocation. The concept is intended to imply a socially dynamic (rather than a more static technical view) of governance; the idea of power relations and processes is built into it.

We have chosen to focus on the concept of ‘resources’ in order to widen the analytical gaze beyond the physical and organisational manifestations of water governance (in our framework these appear as ‘mechanisms’). These physical and organisational manifestations are a reflection of the “exercise of economic, political and administrative authority” contained within the UNDP definition of governance, discussed above. However, if we are to understand how pro-

² Giddens, in his theory of structuration, distinguishes between ‘allocative’ and ‘authoritative’ resources. Allocative resources are ‘Material resources involved in the generation of power, including the natural environment and physical artefacts; allocative resources derive from human dominion over nature’. By contrast, authoritative resources are the ‘Non-material resources involved in the generation of power, deriving from the capability of harnessing the activities of human beings; authoritative resources result from the dominion of some actors over others’. (Giddens 1984:373)

poor change may be effected through water governance mechanisms, then it seems imperative to understand some of the structuring of relations and resources which underpin them.

In the framework we adapt Giddens to suggest a number of key resources (both authoritative and allocative) from which the mechanisms of water governance are drawn. These are; institutional resources, social resources, resources of rights and entitlements, financial resources, human capabilities, the natural environment and technology. Such resources are conceptualised at the level of general societal organisation. So for example the resources of rights and entitlements might include the wider legislative frameworks (within which specific rights to water are enacted), and the constitutional definitions of citizenship. The category of social resources might encompass the patternings of gender, class, ethnicity and the history of social association.

Mechanisms

In this framework general societal resources are drawn upon in differing ways by various actors (individuals, groups, the state) to construct water governance. Tangibly, resources are shaped and mediated through 'mechanisms'; particular context-specific arrangements for organising access to water. We have avoided defining mechanisms purely as 'institutions' because access to water may be defined also by physical structures and technology. So 'mechanisms' covers a variety of mediators of access ranging from formalised institutions³ (such as water user associations) through socially embedded norms of 'proper' use, to particular technologies (handpumps, pipes etc). Of course, different types of mechanism may overlap and inter-relate; it is quite likely for example that a particular technology will be associated with specific institutional arrangements. Such arrangements may be a complex and dynamic mix of formal (village councils, legislated rights to minimum water,) and socially embedded (rules-in-use).

Mechanisms, as understood in this framework, are not necessarily fixed arrangements for water delivery but rather arrangements which can be negotiated and which are likely to change over time. (Our research has highlighted how little we know of the content of these mechanisms; the processes by which water access is negotiated and shaped within various governance arrangements, Cleaver et al, 2005). So, for example, specific mechanisms drawing on *social resources* include arrangements to access water through particular families, kinship groups or located gendered relations. Mechanisms drawing on the *resources of rights and empowerment* include legislated minimum quantities of water, local property rights, quotas for representation in governance bodies as well as socially understood entitlements of citizens in communities to claim access to water.

The above explanation of the construction of mechanisms from resources suggests a purposive and functional enterprise akin to the design of institutions (Ostrom 1992). However, we suggest that actors construct mechanisms of water governance both consciously and non-consciously; through management processes *and* through the practices of their daily lives. This implies that the conscious design of such water governance mechanisms may lead to unintended outcomes as the daily practices of agents' lives may shape water access around different principles and priorities⁴.

Outcomes

³ Whilst we do not discuss definitions of institutions in detail here we draw on emerging views which go beyond the distinctions between local/global, formal/informal, modern/traditional categorisations. Rather, we see institutions as arrangements between people which are reproduced and regularised across time and space, and which are subject to constant processes of evolution and change. Such institutions differ in the extent to which they take organisational form, and in how far they are robust and enduring (Mehta, Leach and Scoones 2001, Benjaminsen and Lund 2002, Giddens 1984).

⁴ We explore further ideas about the complex evolution of institutions and the extent to which these can be shaped through development interventions in previous papers; Cleaver and Franks (2005) 'How institutions elude design' and Cleaver (2002) 'Reinventing institutions; bricolage and the social embeddedness of natural resource management'

Similar processes of deliberative management and routine practice shape the outcomes of water governance mechanisms for the poor. Different categories of outcomes relevant to the assessment of pro-poor impact can be identified. These cover *basic access* (quantity, quality and timing of water availability) and *livelihoods*, how the poor can use water to support and improve their status (for example, through development of alternative or supplementary income streams). Outcomes of water governance arrangements can be seen in terms of social relations and processes, for example in latent or overt conflicts that arise over access and instances of inclusion and exclusion. Finally outcomes evolve at political levels, as structures of power and influence are changed through the working out of these processes, and poor people can gain political voice. (In this respect, governance of water, a basic and essential resource in which all people are stakeholders, is often seen as a key to much wider issues of governance and political development.)

We have particularly specified the need to consider gendered outcomes in this framework for a number of reasons. Firstly, the Millennium Development Goals specify key gender goals, and securing improved access to water is seen as interlinked with achievement of these (WELL, 2004). Secondly there is considerable evidence to suggest a gendered patterning of access to water, participation in governance institutions and of poverty (Coles and Wallace 2005). Finally, much current writing on governance, and particularly water governance, is gender blind.

Our framework defines outcomes for the ecosystem as an integral and essential element of it. These ecosystem outcomes may become apparent in a number of ways, from dramatic and immediate impacts on levels, flows and volumes, to subtle and long-term changes which are hardly detectable on a day-to-day basis but which may nevertheless have profound effects on the way poor people live their lives. As with other elements of the framework, it is important to bear in mind that outcomes for the ecosystem and for poor people are recursively linked in many ways. As environmental changes take place, these have an influence on outcomes for the poor. The outcomes for the poor may in turn result in changes which further affect the direction and pace of environmental change.

Agents and processes

The final component of our framework comprises the actors and agents who interact at all points within it. They shape and are shaped by the resources, mechanisms and outcomes, through a range of gender-specific processes. We use the terms 'actors' and 'agents' interchangeably here, 'actors' being the more common terminology in development literature, 'agents' the preferred usage in social theory.

Here it is useful again to borrow from Giddens in seeing agents as motivated by three levels of consciousness; the 'unconscious' (the underlying psychological/ emotional motivators) 'practical' consciousness (habit, routine and the right way of doing things) and 'discursive consciousness' (where individuals reflect upon and explain their actions.) Additionally Giddens conceives agency not solely as comprised of particular individualised acts, but as a flow of action constituting the *duree* of daily life, producing both intended and unintended consequences (Giddens 1984, p27).

This helps us to recognise that participation in water governance may be both deliberate and non-conscious, and that the shaping of water governance and its outcomes occurs through the interaction of purposive action and everyday practice. Purposive action results from the collective endeavour of groups and networks, articulated through processes of water management. The non-conscious actions of everyday practice are less easily defined but may have equally important impacts on outcomes for the poor and for the ecosystem.

The Kimani catchment – A complex web of water governance

We investigate how our framework might work out in practice by using it to diagnose a specific situation, the case of water governance in the Kimani catchment in south-western Tanzania. This

catchment forms an upstream part of the much larger Usangu basin of the Great Ruaha river. The basin, which covers the important Usangu wetland, has been the subject of intensive study and development initiatives over the last decade, since the flows in the Great Ruaha started to dry up during the dry season in the mid 1990s⁵.

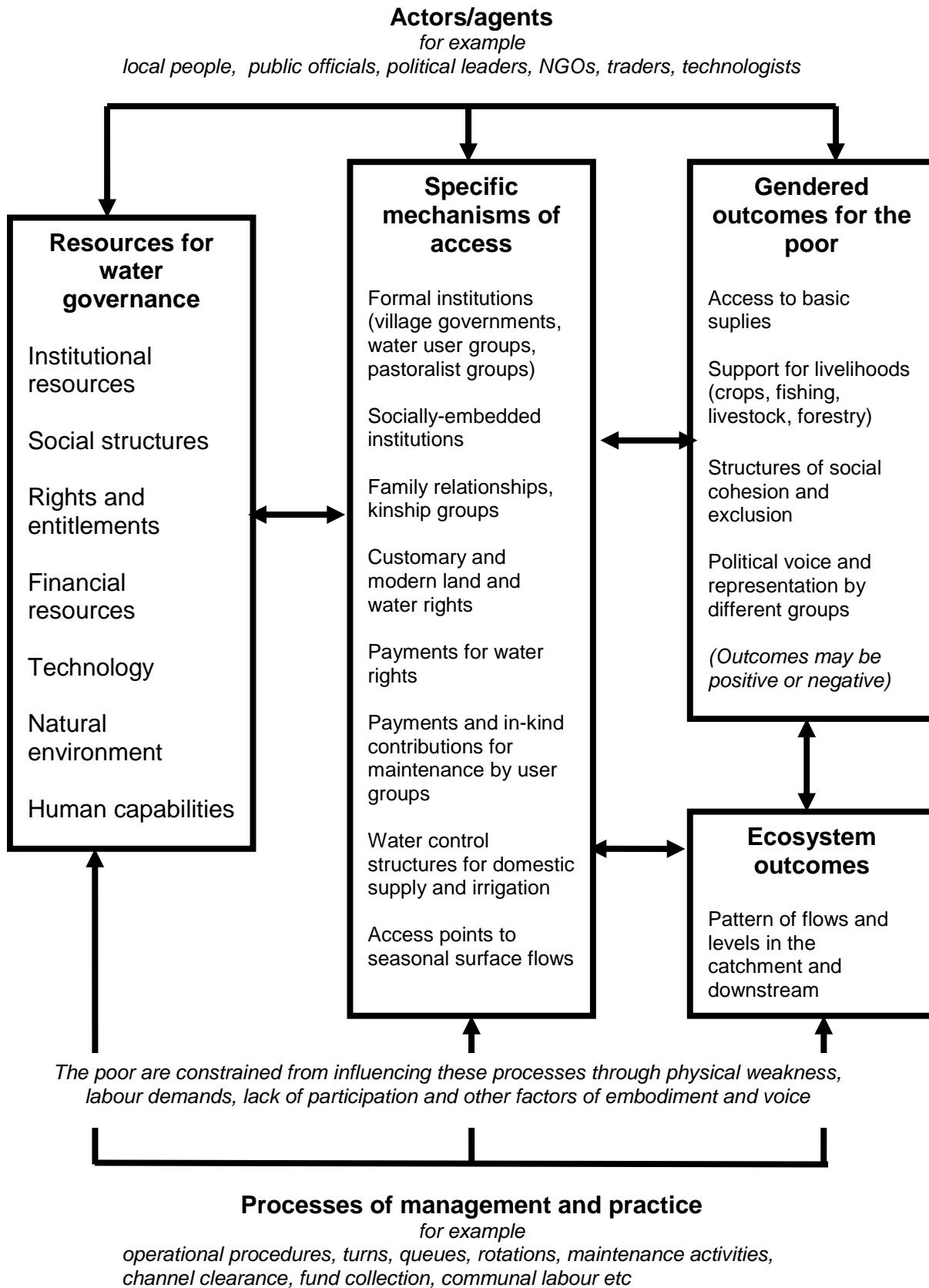
The Kimani catchment comprises the land drained by the Kimani River which flows into the Usangu wetland. It covers a total area of about 60,000 ha, extending from well-wooded uplands in the south to flat grassland in the north. The majority of the population live in nine villages, in two administrative districts. The river provides water for a piped supply to several of these villages, and for about 2,500ha of irrigation, as well as livestock watering and fishing. Downstream the water has important environmental functions, for maintenance of the wetland and, further downstream still, for the flows of the Ruaha River in the Ruaha National Park and in the hydroelectric dam at Mtera.

Issues facing the people living in Kimani centre on the allocation of, and access to, the key natural resources of land and water in the catchment. There is competition for land resources between dryland farmers, irrigated farmers and pastoralists. This competition is reflected in competition for water between some of these groups, and with other water uses, for domestic supply and for fishing (Franks et al, 2004). Balancing access and supplies for the inhabitants of Kimani with those of downstream users is also an issue.

The way in which the communities of the Kimani address these issues, and the outcomes that this has for their access to water, lies within the domain of water governance. We therefore use the framework to analyse the situation and to diagnose the impact of changes and interventions. This is presented in figure 2.

⁵ The case study data is based on the experience of the two authors of working on the DFID funded Sustainable Management of the Usangu Wetland and its Catchment (SMUWC) 1998-2001. It draws on a series of project reports (www.usangu.org), including the findings of a research project into Rural Livelihoods in the area, and other academic works associated with the project or the area (Maganga 2002, Odgaard 2002, Walsh 1984, Cleaver 2005). Discussion of research methodology can be found within the Rural livelihoods Report (www.usangu.org/reports/rural_livelihoods.pdf)

Figure 2 Water Governance in the Kimani Catchment



Resources

In principle the people in Kimani have the full range of resources for water governance on which to draw. However, endowments are allocated patchily in the catchment and some resources are relatively scarce. For example, financial resources vary considerably between commercialised roadside villages and those more remote from markets. Limited access to financial resources may be linked to limited access to technology in the form of pumps and engines, and to entitlements to irrigated land.

Regarding human capabilities, educational and health levels are low, with only primary facilities available in the catchment. Human capabilities are further constrained by the Aids epidemic which is resulting in a shortage of labour for both productive and reproductive work and a restructuring of patterns of social dependency. Lack of labour constrains livelihoods, public participation and access to resources like water.

Land resources for productive agriculture are limited, though there are extensive woodlands and also some scattered deposits of gold which support artisanal mining. Water is reasonably abundant through the flows in the Kimani, and it is of excellent quality.

The social and institutional resources, and rights and entitlements, within the catchment are complex. These resources are both formal and socially-embedded. A long history of in-migration of different ethnic and livelihood groups into the area as well as experience of state-directed relocation of populations has resulted in a mix of customary norms and understandings of inter-linkages between people, ancestors and natural resources. People claim allegiance to a number of 'ethnic groups' in the catchment, each with their own sets of continuously reinvented norm sets and cultural 'rules'. There is a widely perceived division between people whose main livelihood is pastoralism and those whose main livelihood is agriculture, although in reality the divisions between these may be often blurred. These 'customary' understandings are inter-woven with modern manifestations of rights of citizens (to access resources and services) in varying degrees of formalisation, such as legislation, the Primary Courts system and so on. The dual legal and institutional systems of 'customary' and 'modern' government result in a variety of channels through which people can make claims and gain access to resources (Odgaard 2002)

Notably the resources outlined above may inter-relate to further reproduce social inequalities. For example the educated officials of the modern Tanzanian state perceive pastoralism to be an inferior way of life and pastoralists to be intransigently itinerant, backward and not fully incorporated as citizens. This shapes the ways in which pastoralists access resources, and as we will see below, the workings of water governance mechanisms. Additionally, whilst resources are interlinked, they are not necessarily substitutable. The chronically poor households studied in the catchment suffer from a dearth of resources which interact to reinforce their marginalisation. The poorest households suffer from a chronic lack of financial resources which limits their access to technology. They lack education and good health and so feel constrained from institutional participation even at the most local level, a factor which significantly limits their claims to rights and entitlements. Their shortage of labour further prevents them from accessing natural resources. Such social dimensions of inequality pattern both the underlying allocation of resources and also shape the specific mechanisms of access to resources, as we will see below.

Mechanisms

These resources are mediated through processes of management and practice to produce a range of mechanisms of access to water by the different groups within Kimani. For example there are a large number of 'formal' institutions, comprising the local government structures (village and hamlet) as well as formally constituted resource user groups for the domestic supply, the irrigation systems (three groups) and the pastoralists. For example one village in the catchment has, in addition to the village council and village assembly (which have the broad remit of resource allocation), specific sub committees dealing with irrigation or natural resources, an irrigators association, a water users association, and access to the ward level primary court for resolution of disputes. The pastoralists of the village are part of a wider pastoralist association actively lobbying for rights at national as well as local level.

These formal institutional mechanisms are complemented by a rich pattern of socially-embedded institutions, comprising family, kinship and resource groups which interact with one another in a variety of ways and may often cross the boundaries of the formal arrangements. An example is the practice of households of cultivating fields or grazing animals in places distant from their residence, in order to access better resources and spread the risks of local micro-climate variability. People often use kinship relations to access land and water resources in other villages, where they might have varying degrees of engagement with other water governance mechanisms.

A feature of socially-embedded mechanisms of water access and governance is that they often appear at first sight to have little to do with water. For example, much associational life in villages is conducted through groups such as choirs, women's groups and youth groups. In addition to their social /cultural function these groups engage in collective labour (often on irrigated land), income-generating activities and in the case of youth groups the vigilante exercise of law and order in loose association with the village council. People in these groups are better able to articulate in public meetings about water allocation, can save money to pay joining fees of water related associations and can shape the allocation and use of water in practice. Such examples illustrate the importance of widening the analytical gaze beyond the more formalised and visible manifestations of water management, to incorporate the decision making and allocation arrangements of everyday life.

The mechanisms of rights of access to resources may also come in a combination of formal and socially-understood entitlements. The mechanisms that give rise to access to land are particularly complicated and opaque, comprising a combination of land allocation through the village committee (which in theory has a formal system of assembly and public decision-making) together with customary rights of access. Customary rights to land (and associated water resources) are themselves complex; often drawing on perceived differences in rights between 'indigenous' people and 'strangers' (in-migrants), they are interpreted and contested through lived practice, traditional authorities, and primary courts of law (Maganga 2002, Odgaard 2002)

Water access likewise is subject to a range of formal and socially-embedded rights, ranging from water rights issued by the Rufiji Basin Water Officer, to the systems of turns for livestock watering and locations for fishing which are determined through negotiation amongst the users. Although the people of the catchment are quite poor in financial terms, financial mechanisms play a significant part in water governance. These mechanisms include the payment of the fee for the (bulk) water rights issued by the Water Office for the domestic and irrigation systems, as well as the contributions that must be made by the users for the user groups (officers' salaries, basic equipment). Payments in kind are also made by users, for example in contributions of labour for the physical maintenance of systems and infrastructure. The technological mechanisms for water governance in the catchment comprise an upstream offtake for the domestic water supply and a downstream weir, controlling flows to the irrigation systems. These in turn include a number of gates which divert flows within the systems. There is no natural water storage in the catchment, and no significant supply of groundwater.

Two dimensions of human capabilities are particularly important in enabling and constraining mechanisms of access to water; these being physical embodiment and 'voice'. We have seen how water governance is conducted through formal and informal institutions, social relationships and through the 'rules in practice' of everyday water use. Physical labour is required to access water – to collect it in buckets, open the gate or to drive the cattle to water. Those who are physically present at water sources are most likely to shape the rules-in-practice – the conventions of queuing, rationing, charging based on estimations of quantities used and so on. We have already seen in our consideration of resources that many poorer people in the catchment are chronically constrained in their physical ability by poor health and high dependency ratios, and thus less able to shape the practical rules of water governance. Physical presence and the exercise of public voice are also elements of the formal institutions of water resource management, although not necessarily sufficient to secure water access. Despite the

physical presence and nominal 'voice' of the pastoralists at a village council meeting, they were still allocated unsuitable scrub land for cattle grazing at the otherwise unwanted margins of the village. This example reminds us that there is no simple relationship between poverty and power; the pastoralists of Kimani are on the whole relatively wealthy, with large herds, high capacity for agriculture and significant cash resources. Nonetheless they are persistently marginalised in decision-making and allocation arrangements because of the inequitable structuring of power and resources more generally between agriculturalists and pastoralists in Tanzanian society.

In relation to human capabilities it is notable that in interviews chronically poor people, often with little education and poor command of the common language, expressed reservations about attending resource allocation meetings, other than at the most local level. Where they do attend meetings they go 'just to listen, not to speak'.

Processes of management and practice

These mechanisms of access are mediated through a loosely-connected set of processes of management and practice which 'allocate' water and 'maintain' systems. These processes can be both at the regional and local scale. For example, the Water Office in theory allocates bulk supplies to take into account both the users in Kimani and the users downstream, whilst the user groups in the catchment allocate water between different users on the same field channel or between different parts of the reticulation system. The processes of management and practice can be both formal and informal. Whilst in some cases they involve the control or manipulation of physical infrastructure such as gates and valves, this is not necessarily the case, since access to livestock watering points is also controlled through processes of management and practice but without physical intervention. The processes of management and practice do however involve the interaction of the environmental and human resources of water governance, as all the actors and agents involved are working from their perception and understanding of how those interactions are shaped and evolve⁶. All the processes of management and practice which mediate the mechanisms of access are in turn mediated by the institutional norms and social structures which form the key resources for governance in Kimani.

Outcomes

Outputs of the processes of management and practice lead to outcomes. These outcomes occur at different levels (access, livelihoods, social cohesion and political voice) and are also differentiated within each level according to status, gender, location and many other factors. The most basic level is that of access to basic supplies for domestic uses. Here outcomes are differentiated according to whether consumers are close to the piped system (and can pay the costs and charges associated with the system), whether they are close to the river and can access supplies directly, or alternatively whether they are disadvantaged and therefore expend considerably more time and effort than others in collecting supplies through carriage and headloading. It is notable here how many of the people upon whom the impacts of water access fall are the women and children who mainly collect water for domestic purposes. In the catchment these are the people least likely to shape formal water governance mechanisms through presence or voice, yet they play significant roles in shaping rules-in-practice and the social arrangements of water use and allocation.

There is differentiation in relation to livelihood outcomes for different water users, with those on the irrigation schemes being in a relatively favourable position relative to the rainfed farmers through the benefits of irrigated rice cropping. Within the irrigated farmers, there is also a strong degree of relative differentiation, with those near the head of the system better endowed in terms of livelihoods than those at the tail end. Other water users also build livelihoods round their access to the supplies of the Kimani, for example, the fishers and pastoralists, both in the catchment and downstream. Those with greater social and financial resources are better placed

⁶ For example, an important issue of water governance in the Kimani is an understanding of the relationship between water and trees, and the likely affect of an increase or decrease in tree cover in the upper catchment. These relationships are perceived very differently by different stakeholders, and different practices of land and water management are advocated as a result.

to use water for productive purposes. So the well-connected families able to host collective labour days, or to hire labour, are able to expand their irrigated land, whilst the poor are unable to utilise irrigation water because they lack the ability to make contributions to the upkeep of the system, or the labour to intensively cultivate the fields.

Outcomes from access to water are also experienced through their impact on social cohesion in the population within the catchment. The mechanisms which are put in place to mediate this access have a strong influence on social structures and institutions as groups form and negotiate to protect or increase their access. In Kimani, this is most strongly seen in relation to the pastoralists, who are generally excluded from the formal institutions of village government for a variety of reasons, but they also occur in relation to communities and the settled groups of water users. In particular the better endowed irrigated farmers are in a position to protect their interests through alliances and linkages with key officials in the catchment.

In several cases observed in the catchment the inequitable structuring of societal resources between pastoralism and agriculture was reproduced in the outcomes of water governance arrangements. For example, in some regulated arrangements pastoralists were allowed to take water only after agriculturalists had had their turn (because pastoralists, transporting water by donkey, take 'too much' compared to the headloading agriculturalists).

In the long-term, outcomes of water access can also be seen in terms of the political voice of the water users. For example, the networks established by irrigated farmers support a range of political representation, through the structures of government at village and district level, and through linkages to the organs of central government such as the Rufiji Basin Water Office. It is interesting to note that the pastoralists compensate for their lack of representation in local institutional structures by establishing political links at higher levels of regional and central government. In both cases, these political links build on sources of power and influence which are supported, at least indirectly, by access to water. We have explored above how a lack of material and social resources severely impedes the ability of poor people, not just to speak, but to be heard in public fora. The poor, who have more difficult access to water, are generally not in a position to develop the same level of political voice. The same is true for women, despite quotas on village councils and a nominal recognition of them as important water users and farmers. However, women may have more voice in negotiating processes of resource access and allocation at family level and in very localised settings (Odgaard 2002).

Outcomes of the processes of management and practice lead to outcomes for the people who live in the catchment, differentiated according to group, status, location and so on. They also lead to outcomes for the catchment's ecosystem. Specifically, the practices result in changes in flows, which may be very significant for downstream users. In Kimani, water management practices are directed towards water use or abstraction, and the cumulative effect is to reduce downstream flows. This is experienced both at the local level, between the upstream and downstream users on the irrigation schemes, and on the basin scale, with significant reductions in the flows to the wetlands. In turn this affects water users on the wetland like fishers and pastoralists. In theory, changes in volumes will be linked to changes in quality. However, in the case of Kimani, the water is of very high quality and the impacts of the relatively small population are likely to be negligible. In general, however, environmental changes resulting from the outputs of mechanisms for water governance are an important outcome, closely linked to the opportunity for people to access water. Since the poor often rely very directly on access to water to support their basic needs and livelihoods, ecosystem outcomes may be of particular significance to them. Outcomes of this water governance system are an uneven compromise between social acceptability and resource management effectiveness, with the balance neither stable nor entirely predictable.

The framework as a diagnostic tool

A number of omissions in these proposed governance arrangements and challenges to pro-poor resource governance were identified during the SMUWC project, and through the associated

rural livelihoods research (SMUWC 2001). These included the need to recognise the seasonality of rural people's lives, which means that at key agricultural stress periods (such as planting, transplanting, harvesting) people are likely to experience high opportunity costs of participating in public decision-making and negotiation. And yet these are often the times when resources are under the most pressure and the need for rationing and regulation arrangements is the greatest. One challenge then is to ensure a fit between governance arrangements and the seasonal rhythms of livelihoods, possibly through the development of time-saving institutional solutions. For example, a common solution in Kimani to managing the heavy demand on drinking water supplies in the dry season is to disconnect piped supplies. This reduces the costs of monitoring usage and increases the visibility of collection.

Given the relative lack of women's participation in formal resource management structures in the catchment there is a need to understand how women influence decision-making, and to identify the modes of public articulation of needs and priorities with which they are most comfortable.

Another major challenge to water governance in Kimani is to reconcile effective resource management with poverty objectives. Our studies showed that it was the middle-income householders who are most likely to engage with and to benefit from the formalised arrangements of governance outlined above.

The case study also illustrates the need for holistic approaches to improving access to water. For example, it was proposed to bring together the key officers of all the resource users organisations in an 'apex body' for the catchment, in an effort to promote integrated resource use (Franks 2005). However these efforts quickly ran into difficulties, mainly because the users perceived that the apex body would result in identifiable and increased costs for them, without a related set of clearly identifiable benefits. It therefore did not have a good fit with the existing systems of governance in the catchment, nor provide a mechanism which was perceived to provide improved processes of water management. Another example relates to plans to improve the efficiency and reliability of water supply to tailenders in the irrigation systems. It became clear that these were likely to have limited impact unless the severe labour shortages of the poorer irrigation farmers were addressed.

Questions arising

The framework for understanding water governance which we propose in this paper is still in its early stages. Many questions must be addressed for its further development as a basis for understanding water governance in specific situations and as a diagnostic tool for interventions and support for better outcomes of water access. Detailed analysis of the resources for water governance (Cleaver, Franks et al, 2005) reveals many issues still to be investigated or resolved, particularly in relation to access by the poor. These questions relate to all types of resources for water governance, ranging from our understanding of the way institutional resources and social structures support or constrain poor people in their access, through to questions relating to the human capabilities and technology which are deployed in accessing water and the mediating influence of the natural environment. Our earlier work specifically focussed on the need to increase our general understanding of how community-level water governance works, and how it can be supported to ensure pro-poor outcomes.

This in turn requires better understanding of the mechanisms of water governance, of local structures and processes of decision-making, and how social relationships, norms and daily practices interact with management systems and shape access to water by the poor. For example we need to research the actual processes of decision-making and allocation of water so that we can understand better the range of resources and mechanisms that bear on those practical decisions, and how these understandings can be incorporated in 'better' water management practices. We need to look for new approaches and processes such as multi-stakeholder platforms and alternative dispute resolution mechanisms which may be better suited to water governance in a complex, multi-dimensional setting than traditional formal systems of

water management based on notions of order and structure which rarely operate at the local level. We need also to understand how these processes fit with concepts of integrated water resources management, and indeed how such concepts relate and interact with the day-to-day concerns of the poor in accessing water.

A key aspect of our framework is the emphasis on outcomes, particularly for the poor, in terms of access, livelihoods, social structures and political voice. These outcomes are complex, differentiated, gender-related and dynamic. They may be positive or negative at different times and change over time. We need to increase our understanding of these outcomes, and how they link with each other and with other aspects of poverty. Specifically we need more and better long-term studies of how these outcomes impact on poor peoples' lives over time, and how poor people cope with, and are affected by, changes in access to water on a daily, seasonal or long-term basis.

Studies and research across these questions will improve our understanding of the framework for water governance. This will allow us to develop diagnostic tools to analyse specific situations more effectively and support processes for better water governance in those situations. This may in turn lead to improved water management practices, and to better outcomes for the poor in terms of access, livelihoods, social structures and political voice. Finally these water-related outcomes may feed into a deeper understanding of governance processes in general, and how these may complement concepts of government and management in addressing the needs of the poor.

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