CHALLENGES FOR FRUITFUL PARTICIPATION OF SMALLHOLDERS IN LARGE-SCALE WATER RESOURCE MANAGEMENT ORGANISATIONS: SELECTED CASE STUDIES IN SOUTH AFRICA

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Abstract

In South Africa, the 1998 National Water Act has created two user-driven water resource management organisations, namely the Water User Association at the local level and the Catchment Management Agency at a larger catchment level. The paper investigates some challenges concerning the participation of smallholders in water resource management organisations involving also large-scale users. Specifically, the paper analyses the possible discrepancies between the needs of smallholders with regard to water and the functions of these organisations. A simple typology of needs concerning water is presented and used to classify the main problems faced by smallholders in selected case studies. In some of the cases studied, smallholders need above all funds for investment in waterworks and their operation. They are not directly affected by water resource management issue, a lack of overlap between their needs and the functions of a water resource management organisation might lead to their unsustainable presence within the organisation. In such cases, one alternative is to achieve cross-subsidization. The National Water Act calls for it, without providing specific requirement. The proposed creation of small-scale user forums in the Olifants Water Management area can be described as cross-subsidization. It might improve the internal organisation among smallholders and give them a voice. Some funds will be dedicated to forums' activities, but they are not entrenched as part of the core functions of the Catchment Management Agency. This analysis shows the importance of undertaking an assessment of smallholder water related needs to orientate the public participation process.

1. INTRODUCTION

In South Africa, the 1998 National Water Act (NWA) launches a far-reaching reform of the water resource management. This Act aims at setting a more efficient system, with the definition of temporary water licences and the participation of users in the management of water resources. The Act creates

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two Water Resource Management Organisations (WRMOs), which will be driven by the users in the long term: the Catchment Management Agency (CMA) and the Water User Association (WUA). At the catchment level, a CMA will be established in order to achieve the management of water resources in an integrated way (NWA, section 80). The WUAs are to be created at a more local level than the CMAs, in order to coordinate different users in the day-to-day management of an irrigation scheme, a river or a catchment. The WUA is an organisation, which will be used in two different situations. First, the management of the numerous smallholder schemes in the former homelands will be transferred to users. These users will form then a WUA to manage the scheme (DWAF, 2002). Since in these schemes farmers farm on small areas (usually less than 2 ha), these WUAs will be referred hereafter as "smallholder WUAs". Second, the WUAs will involve large-scale users and possibly also small-scale ones. These WUAs will be called hereafter "large-scale WUAs". The bulk of these WUAs will come from the transformation of the Irrigation Boards (IBs) controlled by large-scale farmers, which used to manage water in many rivers. These IBs often administer large areas. Some large-scale WUAs may also be created around non-agricultural water use (for instance mines).

The NWA aims also at "redressing the results of past racial and gender discrimination" (section 2). Indeed, South Africa has still to deal with the huge burden of the past apartheid regime, which created a highly uneven distribution of land and water rights between the large-scale farmers and the Historically Disadvantaged Individuals (HDIs) situated in the rural areas. This term regroups all the persons who were deprived of certain rights during the past dispensation, i.e. Black, Coloured, Asian people as well as the women.[2] There is a strong commitment to include HDIs rural users in the new WRMOs (Karar, 2003).

The set up of these WRMOs is currently delayed. At the beginning of 2003, no CMA is enacted. There are only one smallholder WUA, around 20 WUAs which come from former IBs (Karar, 2003) and one large-scale non-agricultural WUA. On the one hand, the main constraint with regard to the creation of the smallholder WUAs is the financial sustainability of these future

[2] *A formal definition is: "HDI means a South African citizen, who (i) due to the apartheid policy that had been in place, had no franchise in national election prior to the introduction of the Constitution of the Republic of South Africa, 1983 (Act 110 of 1983) or the Constitution of the Republic of South Africa, 1993 (Act No 200 of 1993) (the interim Constitution); and/or (ii) is a female; and/or (iii) has a disability, provided that a person who obtained South African citizenship on or after the coming to effect of the interim Constitution, is not to be an HDI" (Free State Provincial Government, 2002).*

associations (Perret, 2002), as in many other developing countries. On the other hand, the delay in the establishment of both the CMAs and the large-scale WUAs is mainly due to the long-term challenges of achieving a meaningful participation of HDIs (Karar, 2003).

In organisations where both large-scale and small-scale users are expected to participate (CMA, large-scale WUA), many analyses put forward the difficulties and weaknesses of the public participation process as a cause of the limited involvement of HDIs in the proposals (e.g. Van Koppen *et al*, 2002; Motteux, 2001; Goldin, 2003). This paper analyses the challenges vis-à-vis the involvement of HDIs in these organisations with a different approach, i.e. the existing discrepancies or overlaps between HDIs' water related needs and the functions of these WRMOs. Indeed, the participation of the HDIs is meaningful only if the WRMO, which the HDIs are invited to join, is addressing problems that are of concern for them. On the one hand, the existence of an overlap between the HDIs' needs and the WRMO's functions is a prerequisite of the public participation process if the WRMO's functions are defined from the outset. On the other hand, if there is a possibility of lack of overlap, the functions of the WRMO might be part of the discussion during the participation process. The paper investigates some cases of large-scale WRMOs, being either a CMA or a large-scale WUA. It does not address the situation of smallholder WUAs. It also does not study the water supply and sanitation organisations as created in the Water Service Act (1997) and whose functions are explicitly different from water resource management. Finally, this paper focuses on management organisations: it does not analyse the judiciary ones, e.g. the Water Court, since the latter play currently a marginal role in South Africa.

The paper shows that, while in some situations there is an overlap between the WRMO functions and HDIs' water related needs from the outset, it is not the case for other ones. In the latter cases, it could be legal possible to set up some cross-subsidization to finance water-related needs. The main forms of cross-subsidization found are actually to link the functions of the WRMO with either HDIs' needs for employment, or their needs of organisation. In one example, some funds are proposed to support HDIs' water needs, but they are not important and their existence is not entrenched in the core functions of the organization.

The paper is organized as follows. The next section presents some elements explaining the rationale behind user-driven WRMOs. It also describes the functions of the South African WRMOs and shows why the CMA and the WUA, while having very different functions, can be analysed together with

regard to the focus of this paper. Then, a conceptualisation of smallholder needs with respect to water access is proposed, with some illustrations from selected case studies in South Africa. The last section uses this analytical framework to analyse the overlaps and discrepancies between the current HDIs' needs and the current WRMOs' functions. It investigates some solutions in cases where there is at first no overlap. Finally, the current process of definition of the WRMO functions during the participation process is discussed.

2. USER-DRIVEN WATER RESOURCE MANAGEMENT ORGANISATIONS

2.1 Rationale of user-driven organisations

A user-driven WRMO is defined an organisation where the users are the ones taking the final decision: there might be some government representatives but the latter do not have the majority of votes. This situation is different from the case of a government agency merely undertaking a consultation process. The model of a user-driven WRMO bears its roots in the idea of managing a common property. For centuries, communities all around the world have been managing resources in common property, e.g. fisheries, rivers, pastures, forests (Ostrom *et al*, 1999). Such approach has been bit by bit extended to large basins, for instance in the Ruhr in Germany as soon as 1913 (Barraque, 1995:28). User-driven organisations exist now in developed countries, like France and Australia (Barraque, 1995; McDonald & Young, 2000) as well as Brazil (Dourojeanni & Jouravlev, 2002). In some other middle-income countries, committees of users have a consultative role while the final decision remains in the hands of the State: Mexico **(**Wester *et al*, 2003), Equator, Argentina and Costa-Rica (Bourlon & Berthon, 1998). Both the Dublin Statement on water (Principle 2, 1992) and the new European Water Framework Directive (Consideration 14, 2001) call for an in-depth participation of users in the decision-making process, even if they do not require that the WRMOs should be actually governed by the users.

Several theoretical arguments support the move towards user-driven WRMOs. First, user-driven WRMOs can be efficient in situations where there is a risk of collectively inefficient use of the resource, known in economics as a Tragedy of the Commons (Hardin, 1968). In this kind of circumstances, the shift from an unmanaged to a managed situation can lead to a Pareto-improvement for the group of water users. Many scholars have shown that in numerous situations user-driven organisations can be more efficient to organize the collective use of the resource than either the State or a system of private rights (e.g. Ostrom *et al*, 1999). Second, user-driven organisations are

of interest because they are more likely to (a) have the relevant information, (b) find innovative solutions through negotiations and (c) get users' acceptance of the decisions taken than a top-down approach led by the government. In the field of economics, this concept was popularised under the name of the "Coase theorem": if the water rights are completely defined and if the transaction costs are negligible, then organizing a discussion among the stakeholders will be able to lead to a Pareto-optimum (Coase, 1960).

With respect to water management, an externality means that a user, by withdrawing water or discharging effluents, affects the water resource and hence also the other users. For instance, a user downstream can be affected by the activity of another user upstream, regarding either the quantity or the quality of water. Hereafter, an externality in water management will be defined only within a given distribution of rights: it corresponds to a situation where one gets an amount of water, in quantity or in quality, different from one's right because of other users. Hence, a situation where somebody is limited by his or her water right and cannot get it increased because of the rights of other users will not be described as an externality. Solving a problem of externality regarding the quantity of water may be achieved for instance by taxing users according to the amount of water they withdraw and by using these taxes to build a dam upstream.

In developing as well as in developed countries, the functions of user-driven WRMOs consists mainly of (a) dealing with externalities, (b) allocating the water licenses, and (c) increasing the resource. Such set of functions will be described hereafter as the international model.

2.2 Water resource management organisations in South Africa

The CMA and the WUA are described by the NWA as two "water management institutions", which share some common legal requirements regarding their management (Schedule 4 of the Act).

At the broad catchment level, a CMA will be established to "delegate water resource management to the regional or catchment level" (NWA, 1998: Preamble of Chapter 7). For instance, the mission of the Olifants Water Management Area CMA is: "to assist in the protection, use, development, conservation, management and control of the water resources in the Olifants Water Management Area to ensure the maintenance of fitness for use on a sustainable basis for all users" (DWAF, 2003:3-13). The CMA will be responsible for the definition of a Catchment Management Strategy as well as for organizing the funding of its implementation. The CMA will also be

responsible for issuing and modifying the water licences (Department of Water Affairs and Forestry (DWAF), 1999b). However, DWAF will retain this function in the short term, especially in places where there is a need to review completely the allocation pattern. The CMA should not be a priori responsible for managing the waterworks (Pegram & Palmer, 2001). There will be one CMA for each of the 19 water management areas of South Africa. The users will not be in charge of the day-to-day management. They will seat at the Governing Board, which will take the strategic decisions, and where there will be also representatives of the national and provincial government (DWAF, 1999b). The CMA is a classic WRMO at the catchment level: its responsibilities as well as its funding are similar to existing organisations in France or Australia.

At the local level, the WUAs "operate at a restricted localised level, and are in effect co-operative associations of individual water users who wish to undertake water-related activities for [members'] mutual benefits" (NWA, 1998: Preamble of Chapter 8). These WUAs are fully managed and controlled by water users, even if the NWA provides DWAF with some means to monitor their activities. The core activity of a Water User Association is to operate the waterworks under its responsibility and to monitor the allocation of water among its members. The WUA cannot change these allocations. All the already existing IBs are supposed to be transformed into WUAs (NWA, 1998: Section 98). The shift to these new organisations should crystallize a move from a purely commercial farmers' organisation to one that will include all water users of the same resource. These large-scale WUAs may undertake ancillary functions, for instance regarding the integrated management of water resources.

3. A TYPOLOGY OF NEEDS IN WATER USE

This section first proposes a typology of needs regarding water, followed by an assessment of the most important water-related problems faced by HDIs in some case studies in South Africa.

3.1 Types of water access

Getting access to water requires that two types of access are met in the same time: (i) a legal water access, i.e. the entitlement to withdraw a given amount of water at a given quality from a river or a canal, and (ii) a technical and financial water access, i.e. the availability of an equipment to bring water from the river to either the field or the village as well as the ability to pay the corresponding cost of distribution. These two types of access will be more or

less linked depending on the possibility to trade water licences. In countries where a market is fully authorized, the two types of access are actually linked: one can buy a legal access to water, for instance in California (Svendsen, 2000). The distinction becomes relevant when only intra-sectoral markets are authorized, and becomes really clear if water markets are not authorized at all (for example France or Indonesia). According to the typology of river basin development proposed by Molden *et al* (2000), the technical and financial water access will tend to be more important than the legal one if the basin is still *open,* i.e. it is still possible to mobilize new water resources. It will be the opposite if the basin is *closed*.

3.1.1 The legal water access

In some places, the user main concern relates to the management of the water allocation. It happens either when smallholders need to defend their existing rights or when they need more water rights.

a) Improvement within the given water allocation pattern

In some situations, the user welfare can be improved within a given water allocation pattern. There can be an improvement in two types of situation: the day-to-day management of water resources and the possible gaps between theoretical and real allocations. Regarding the day-to-day management, the water licences only describe the amount of water a user is entitled to withdraw during normal situations. In case of drought or accident (e.g. breakdown of a pump), a scarcity will occur and the water resource will often have to be shared with temporary rules that will be negotiated at the time of the accident. Users may be empowered to have a voice in this discussion. Besides, there may also be a difference between the formal allocation and the real one. For instance, in a certain irrigation scheme in India, the large-scale users upstream use more water than they are entitled to during normal flow (Mollinga & Van Straaten, 1996). This gap may also take place in a problem of pollution: the user downstream can claim his or her legal right to get clean water against the polluter upstream. For example, in India, a local community claimed its historical right to clean water, in a situation of pollution by textile factories upstream (Bruns & Meinzen-Dick, 2000:364). Overall, this situation corresponds to the management of externalities.

b) Change of the water licence allocation pattern

Another possible constraint for the user is a lack of water licences, either because the already existing emerging farmers would like to increase their areas under irrigation, or because other people would like to start farming and require new licences (for instance to get a loan from a bank). Both cases can be found in the Inkomati Basin (Faysse *et al,* 2003). If the basin is still *open*, then providing legal access to users can be achieved simply by increasing the

available resource, e.g. building a dam. Otherwise, if the basin is *closed*, the legal access will have to be found through a decrease of other users' licences.

3.1.2 The technical and financial water access

The water user may need to pay a fee to get water (for instance, the fee required by a WUA) or may need to invest in equipment in order to withdraw water and to use it for production, for instance farming, or for home consumption. This setting may correspond to two types of situations. First, the smallholders may have a legal access, but not the technical and financial one. For instance, the Arabie scheme in the Olifants Water Management Area use a very small portion of their formal water rights because of many internal problems (technical access to water, land tenure, etc.) (Kamara *et al*, 2002). Second, smallholders may have neither of the two, for example the numerous demands to get water licences to start a farming activity in the Inkomati Basin (Faysse *et al*, 2003).

This typology of water needs can be used to describe a current situation. However, the situations that are analysed can clearly evolve. If users' needs are progressively met, their needs could for instance be at first one of investment, afterwards one of getting more water rights and finally one of solving externality related problems. Finally, both the CMA and the WUA are organisations whose primary functions are to deal with legal water access. Since the paper studies to what extent the HDIs face problems related to legal water access, the following analysis will study the two organisations in the same approach, even if the CMA and the WUA core functions are clearly different.

3.2 Relative importance of the different water-related problems for HDIs in selected case studies in South Africa

Several places where large-scale and small-scale users share the same resource have been investigated (Figure 1). First, a research has been undertaken on several case studies of IBs transforming into WUAs, in places where there is a significant presence of HDIs: the Komati and Lomati IBs in Mpumalanga, the Great Letaba WUA in Limpopo Province, the Lower Olifants WUA in Western Cape and the Umlass IB in KwaZulu-Natal (Faysse *et al*, 2003; Faysse, 2003). Other IBs transforming into WUAs have been studied though a literature review: the Kat River WUA (McMaster, 2003) in Eastern Cape and the Stompdrift-Kamanassie WUA in Western Cape (Wellman, 2001). Finally, a literature review investigated the process of creation of the Lepelle CMA in the Olifants Water Management Area[3] (DWAF, 2003; Kamara *et al*, 2002;

[3] *Hereafter the Olifants River will designate the one situated North-East of Pretoria. The term Lower Olifants will designate the case study in Western Cape.*

Perret, 2002), including more specifically the Steelpoort River, a tributary of the Olifants River (Stimie *et al*, 2000; Ardorino, 2002).

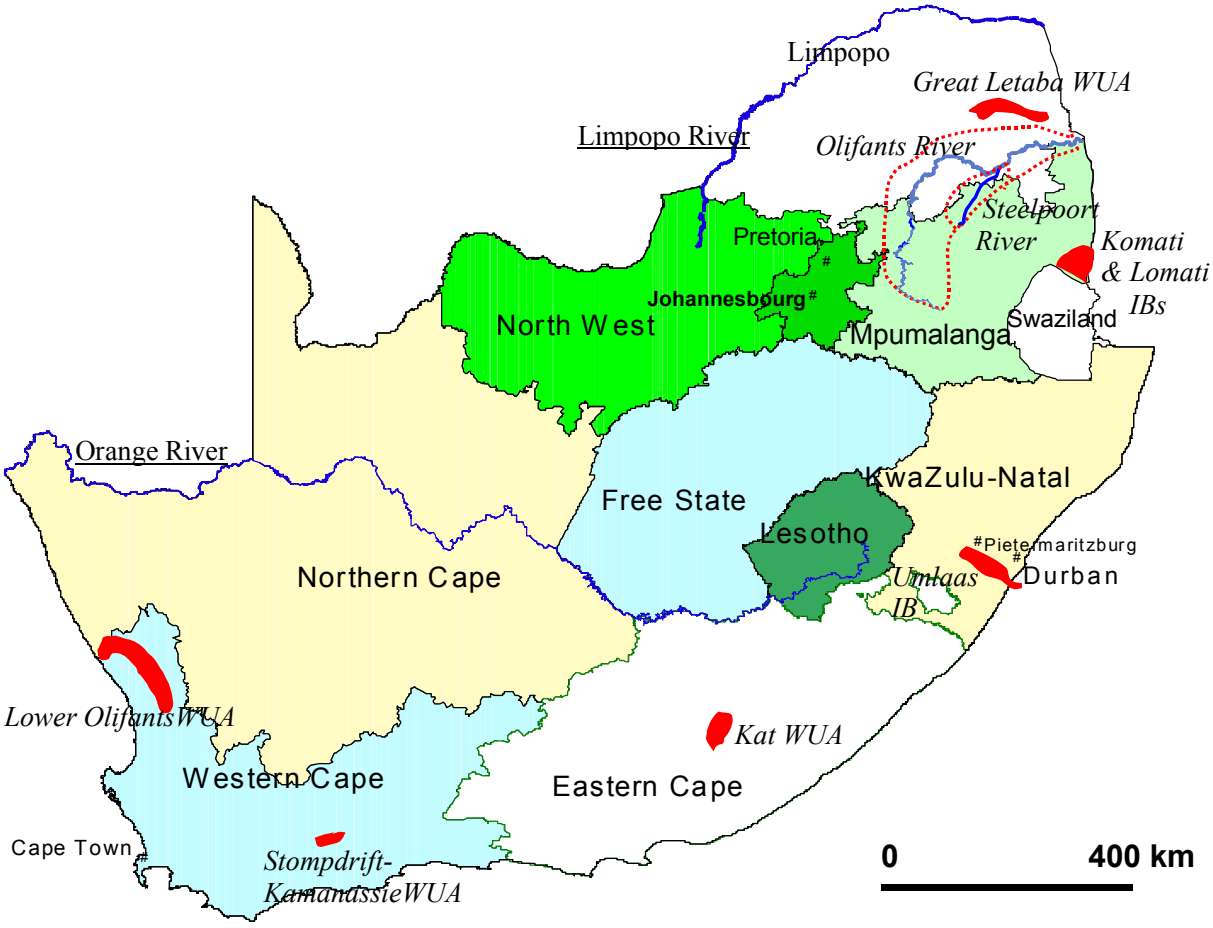

Figure 1: Selected case studies in South Africa

Actually it is possible to define 4 categories of HDIs water user: (i) the emerging farmers designate the small-scale farmers who have a water licence or who are supposed to get one soon, (ii) the upcoming farmers are persons who would like to start farming but are compelled to wait, for instance because of a lack of water licence, (iii) the rural communities, and (iv) the farm workers living in the farm. The rural community encompasses the drinking water users as well as the small-scale users who, under the Schedule 1 of the NWA, do not need a formal water licence, i.e. "reasonable domestic use, small gardening not for commercial purposes and the watering of animals". The following analysis will only consider the farmers and the rural communities.

These different case studies were analysed to assess the problems with regard to water needs as reported by the HDIs. In a very broad manner, two situations are distinguished. First, a water-related need can be a general problem, widely recognized by the HDIs' community. This community will be

ready to organize itself in order to participate in meetings to solve this problem. Second, the water-related need may be satisfied overall in the HDIs' community. There may be some persons who face a problem with regard to this need, but the problem is not of enough importance to federate the community to engage these problems.

Assessing the needs of a group of users is a very difficult task. The methodology used in the fieldwork and the review of literature does not attempt to provide an in-depth assessment of these needs. However, it was sufficient to assess the widely recognized HDIs' needs.

In 7 cases studied out of the 10, the HDIs community experiences widely recognized legal water access problems. In the Komati and Lomati IBs, existing emerging farmers as well as possible upcoming ones are requesting water licences to start or increase their farming activities (Anderson, 2002; Faysse *et al*, 2003). Emerging farmers as well as a rural community need to be part of the day-to-day management of the dams (Faysse *et al*, 2003). The same situation occurs in the Kat River (McMaster, 2003). In the Lower Olifants WUA (Western Cape), a HDI community situated downstream the canal operated by the WUA does not get the water it is entitled to (a dam is currently being built and should alleviate the problem, Faysse *et al*, 2003). The same problem is mentioned in the Stompdrift-Kamanassie WUA (Wellman, 2001). Emerging farmers of the Boschkloof irrigation scheme along the Steelpoort River complain of a lack of water in winter due to commercial farming and mining upstream (Stimie *et al*, 2000). Some rural communities of the Steelpoort River Basin drink water directly from the Steelpoort River and complain about pollutions created upstream by mines, commercial farmers and settlements (Ardorino, 2002). Finally, the smallholder schemes in the Great Letaba River are mainly facing problems of land tenure and of poor capacity of the distribution network. Due to a specific local setting, these emerging farmers should not face as many water restrictions as the commercial farmers: they need to be part of the day-to-day management to make sure that this right is enforced (Faysse *et al*, 2003). In all cases, HDIs stress as an important problem the lack of funds for infrastructure development and maintenance or for paying the water distribution fees.

In the cases of the Umlaas IB and the Lepelle CMA, HDIs do not report problems of legal water access. In the Umlaas IB, there are almost no emerging farmers. The upstream rural communities are not affected by commercial farmers' water use. Downstream, the Hopewell community is still using water from the river for drinking purpose, and hence is concerned by water quality issues, but this problem should be solved when the policy of providing 6,000 l/household/month free is set up in this place (Faysse *et al*, 2003). In the Olifants River Basin, some meetings of a Stakeholder Reference

Group were held to set up the CMA. During these meetings as well as during some other local forums, the HDIs were invited to state their needs with regard to water. The HDIs put forward a need of investment for water supply and sanitation as well as financial support for their farming activities (DWAF, 2003: Appendix B). Almost no one complained of a lack of water in the river itself or a problem of water quality in the river. The situation faced in the Olifants River Basin is actually happening in many other places. Due to the reduction of parastatals' activities after 1994 and subsequent closure, most of the 250 small-scale irrigation schemes in the former homelands are struggling to break even. In most of these schemes, the legal water access is not the leading constraint: farmers still have to solve many internal issues (access to market, land tenure, etc.) before the legal water access becomes a constraint (Shah *et al*, 2002). By comparison, large-scale users face above all legal water access problems and rarely technical and financial ones.

Table 1 provides an overview of the problems faced by HDIs water users and large-scale users in the different reviewed cases.

Table 1: Widely recognized problems for HDIs' communities and large-scale users: some examples

Type of access	Type of needs	Users								
		HDIs' community								Commercial farmer or mine
		Komati and Lomati IBs	Kat River WUA	Lower Olifants WUA	Stompdrift – K. WUA	Steelpoort River Basin	Great Letaba WUA	Umlaas IB	Olifants River Basin (except Steelpoort)	
Legal water access	Need of water licence	■								■
	Need to be part of the day-to-day management	■	■	■			■			■
	Water in the river or the canal lesser than what it is supposed to be		■	■	■	■				■
	Water quality in the river lesser than what it is supposed to be					■				■
Technical and financial water access	Need of funds for infrastructure maintenance and development and water distribution fees	■	■	■	■	■	■	■	■	

■ Widely recognized problem □ Not a problem (except isolated cases)

There may be situations of pollution, which create a problem of water quality, with users not being aware of the problem. For instance, there are some

pollution problems by heavy metals in the Steelpoort River (DWAF, 2003: Appendix C:4-5), but the HDIs' community is not aware of them (Ardorino, 2002). However, this community is aware of pollution problems (silt, lack of proper sanitation upstream) hence they already stress pollution as a water-related problem.

4. ACHIEVING AN OVERLAP BETWEEN WATER RESOURCE MANAGEMENT ORGANISATIONS' FUNCTIONS AND HDIs' NEEDS

The WRMOs are sustainable only if they meet core needs of the users. Large-scale users have important legal water access problems: they are interested to join both the CMA and the WUA. In the same way, the WRMOs will incorporate in a sustainable way the HDIs only if the former address one at least of HDIs' problems. This point does not imply that every single HDIs' water need should be addressed by a WRMO. DWAF and the Municipalities are responsible for water supply and sanitation in the rural areas; the Department of Agriculture and DWAF are responsible for investment in infrastructure in smallholder irrigation, etc.

As it has been seen in section 2, coping with situations where users' water needs relate to legal water access - either because of an externality or because of a need to get a (larger) water licence - belongs to the functions of WRMOs adopted worldwide (cf. section 2). When HDIs face such problems, there is a clear overlap between the WRMO functions and the HDIs' water needs.

This study has assessed two situations (one CMA, one IB) where HDIs do not face widely recognized problems of legal water access. In these situations, there is a priori no overlap between the functions of the WRMO, as described in the international model, and the needs of the HDIs. A first possibility, which is discussed here, is to organize cross-subsidization within the WRMO. Actually, in the two previous cases, there is some form of cross-subsidization. However, it is not directed towards the investment in waterworks (dams, pipes, drinking water networks, etc.). These solutions will be presented hereafter.

4.1 The legal possibility of cross-subsidization

Several South African policy documents dealing with these issues were reviewed to assess the legal possibility of cross-subsidization: the National Water Act, the Water Pricing Strategy (DWAF, 1999a), the Guidelines for financing CMAs in South Africa (Pegram & Palmer, 2001), the Proposal for the

Establishment of a CMA for the Inkomati Basin (New Format) (MBB *et al*, 2001) and two Guides edited by DWAF regarding "the Transformation of IBs and certain other Boards into WUAs" and on "Establishing a WUA" (DWAF, 2000a and 2000b).[4]

Regarding the emerging farmers belonging to government water schemes, the Pricing Strategy (DWAF, 1999a:34) declares that "the catchment management and operation and maintenance fees, plus a surcharge of 10% as contained in the agreement with the SAAU[5] should be phased in over a period of five years". Nevertheless, such a –short-term- subsidy will only help farmers who are constrained by the water fee: it will be of no use for the farmers that need investments in infrastructure.

The NWA states that a WRMO – a CMA or a WUA- should devise a business plan, which must include a financial target. "In preparing or revising a financial target, the board must have regard to (…) the need to maintain a reasonable level of reserves, especially to provide for corrective action to redress the results of past racial and gender discrimination in the use of the resource" (NWA, 1998: Section 24 of Schedule 4). Hence, the NWA sets a possibility of cross-subsidization, but without giving any requirements, for instance in terms of the share of the total budget.

Regarding more specifically the CMA, since the CMAs have not started yet, one has to look at the policy documents. The use of the CMA's fees to invest in technical and financial access is rendered possible by the NWA. The NWA states that "in performing its functions a CMA must be mindful of the constitutional imperative to redress the results of past racial and gender discrimination and to achieve equitable access for all to the water resource under its control" (NWA, 1998: Section 79). However, the report made for the Water Research Commission, which provides "Guidelines for financing CMAs in South Africa", does not consider the possibility of CMA funding technical and financial water access (Pegram & Palmer, 2001). In the same way, the current proposals for establishing a CMA in the Inkomati (MBB *et al,* 2001) and in the Mvoti to Umzimkulu (Wilson & Associates, 2002) water management areas do not refer to cross-subsidization in their functions (some form of cross-subsidization is proposed in the Lepelle CMA, cf. hereafter).

[4] *Regarding pricing issues, the National Water Resource Strategy does not add to the NWA and the 1999 Pricing Strategy.*
[5] *South African Agricultural Union.*

At the WUA level, the fee charged by the WUA should be basically used to achieve actions "of mutual benefits" (NWA, 1998: Preamble of Chapter 8). The initial goal of a WUA is to distribute water according to existing allocations and to maintain waterworks. Currently, it is still under discussion whether the goal of uplifting HDIs should be an ancillary function (in which case the WUA is free to determine itself the budget dedicated to this action) or a principal one. The "Guide on the Transformation of IBs and certain other Boards into WUAs" and the one regarding "establishing a WUA" do not tackle this issue (DWAF 2000a; 2000b).

In conclusion, apart from the requirements for the Business Plan of a WRMO as stated in the Schedule 4 of the NWA, there is no statement regarding whether these WRMOs should be compelled, or not, to organize cross-subsidization. If some cross-subsidization is to be set up, it will be necessary to provide more detailed requirements, for instance a given share of the budget dedicated to cross-subsidization. More generally, one of the purposes of the NWA is to "promote equitable access to water" (Section 2). Nonetheless, the implications regarding the duties of a WRMO will be different if the word "access" in the previous sentence is understood as only a legal one, or if it incorporates also the technical and financial ones.

The review made for this paper did not find any evidence of a country where user-driven and user-funded WRMOs are required by the government to invest in technical and financial water access for the poorer users in the name of redressing inequities. The international model of WRMO manages the river as a common, the main functions being then to solve externality related problems or to allocate water, e.g. to make sure that there is not over-pumping in the river, or that the effluents are of a correct quality. On the contrary, a WRMO that would choose to invest in developing the infrastructure of a small-scale farmers scheme would then increase the amount of water withdrawn from the river.

Requiring cross-subsidization at the WRMO level has both advantages and drawbacks. On the one hand, it enables a real participation of HDIs in these situations where HDIs do not face widely recognized legal water access problems. Moreover, large-scale users may accept more easily to finance actions on which they can have a word and where they can see the results. On the other hand, there is a risk of blurring the core functions of water resource management. Besides, the needs of HDIs will change in the future: an optimistic scenario may be that small-scale users will gradually meet their needs for infrastructure. In such a situation, it could be considered that cross-

subsidization is set up for a limited period. Afterwards, the WRMO would join the international model.

Among the cases studied, there is no cross-subsidisation in terms of financial help for infrastructure development, maintenance or payment of water distribution fees. However, the Gamtoos WUA charged the HDIs only 5 percent of the cost charged to other irrigators (Mullineux, private communication). The WUAs and the CMAs invest on the other hand in the capacity building of the HDIs. This capacity building might be related to the water resource management in the Lomati IB, a translator is hired for the meetings. In the Mlazi River, the Environment Officer hired by the IB provides some training on environment management. The capacity building might also be on broader issues: the Mdloti Catchment Management Forum trained young people in local tourism activities (Wilson & Associates, 2002:18).

4.2 Some cross-subsidization, but not for investment in water works

In both of the two cases studied where HDIs do not face widely recognized problems of legal water access, the WRMO organizes cross-subsidization to a certain degree, but not for the development of waterworks.

The Umlaas IB needs to limit erosion in the upper part of the catchment. Therefore, it has actively participated in organizing a successful dialogue with the rural communities upstream, around conservation projects. Most of these projects are funded by the Working for Water programme; some of them by the IB itself (Faysse *et al,* 2003). These projects meet the rural communities' needs of employment.

In the case of the Lepelle CMA, the issue of overlap is not addressed in the proposal (DWAF, 2003). However, the proposal aims at enabling an organisation of the small-scale users community. This organisation might in turn bear some fruits.

Because of the difficulty faced to get small-scale users represented, the CMA proposal for the Olifants Water Management Area intends to set up many Small-Scale Water User Forums (DWAF, 2003: Appendix B: B-4, B-28). These forums will be organized at a very localised level. In some preparatory meetings, the small-scale users were asked to state what they would expect from such forums. They answered that the functions should be to improve the organisation of the users as well as to serve as a body to represent their interest. Almost none of the many expectations related in the minutes of the

preparatory meetings relate to a legal water access problem (DWAF, 2003: Appendix B). Users stressed the need of financial help, even in the Steelpoort River Basin where problems of water scarcity and pollution are reported elsewhere.

The small-scale water user forums will be used basically to (a) organize small-scale users, (b) link with the government departments for technical and financial water access issues, (c) organize some activities within the forum, and (d) report externality problem among small-scale users participating in the same forum or with users outside the forum.

The CMA proposal schedules a budget to enable the organisation of these Small-Scale Water User Forums (SSWUFs) as well as a budget to support their activities. A total annual budget of SAR 983,000 is proposed, out of an overall CMA budget of around SAR 18 million. The budget per forum for supporting the forum activities will be enough to undertake: some capacity building activities, some community mobilization (e.g. the Water for Food movement which promotes the development of garden plots at household level) or studies (e.g. marketing). However, the proposed budget will not be enough to undertake any investments in infrastructure development or maintenance. Some local catchment forums in South Africa are involved in a local development project and have their words in the use of certain funds, for instance the Working for Water project in the Mlazi River or a road development program in the Kat River (McMaster, 2002). These projects are key elements for the viability of these forums. In the Olifants Water Management Area, the funds currently scheduled for the activities within the forums may not be sufficient to constitute a drive. Therefore, to ensure that these SSWUFs will be sustainable in the future, it may be of importance that they become a real place of interaction between the different government departments and the users.

There may be a disconnection between the Catchment Management Committees, which will deal mainly with externality issues among large-scale users, and the SSWUFs. Indeed, on the one hand, externality issues with other users in the catchment will not be important issues in the SSWUFs, at least in the short term. On the other hand, the problems of pollution and water use in the Olifants are basically a problem among large-scale users: mines, industries, commercial agriculture and natural reserves. The HDIs use a small amount of water compared to these users and their pollution is much less a concern than the one of the mines.

All in all, the Lepelle CMA proposes to dedicate some funds to HDIs' development, most of which being used to set up forums as places of expression and coordination of HDIs' water related needs. Among the initial functions, only the support of the organization and participation of smallholder is proposed (DWAF 2003:3-15). The general aim of supporting small-scale water users is a delegated function, i.e. a function on which the Governing Board has a prerogative to "decide on an implementation strategy" (DWAF 2003:3-16, 3-17). Therefore, only the task of helping the organization of HDIs is entrenched as a core function.

4.3 How are the functions of the WRMOs decided?

The public participation process is an opportunity for HDIs to ask that their needs are taken into account in the CMA functions. For instance, in the Inkomati Basin, some smallholders threatened to step back from the Inkomati CMA process if the issue of getting water entitlements was not declared as part of the responsibilities of the CMA in the short term (Waalewijn, 2002). In the Olifants River Basin, HDIs asked for investments in water supply and sanitation and in irrigation infrastructures. However, the question of cross-subsidization is often seen as something that might be started in the future, when the organisation is well-functioning, rather than an issue that should be discussed from the outset. It is hence not part of the agenda of the meetings.

Moreover, this issue of overlap between functions and needs has been blurred for the past years because of the difficulty to achieve a public participation process, and especially because of the lack of organisation and expertise of the HDIs' community. At the meeting of the Olifants River Basin stakeholder reference group in February 2002, when the HDIs' representatives asked for investments in water supply and sanitation, their proposal to add this task to the functions of the CMA was dismissed on the ground that, first, it was not part of the management of water resources. Second, if HDIs proposed these functions, it was basically because they did not understand what was the management of water resources- and what was not. However, if HDIs' representatives fail to distinguish water resource management from investments in water supply and sanitation and in irrigation schemes, it is also because they are not constrained by a lack of water in the river or a problem of pollution. One could expect that, in a situation where HDIs would not be able to pump water from the river because a large-scale user pumps too much water upstream, they would more easily understand the rationale behind the management of water resources. In the same way, in the Inkomati Basin, the emerging farmers were in a strong need of new licences and participated actively in the debates (Anderson, 2002).

There is a need to improve the public participation process. In the Olifants, the HDIs stated their more important needs, i.e. ones of investment. This stress has overshadowed the possible other externality-related problems. It is relevant to let the HDIs talk about their general water-related issues: in many places, it is the first time they have an opportunity to have a voice. Such information may be used under the WRMO role as a coordinator with financing organizations. However, it would be also necessary to ask HDIs specifically about their legal water access problems, i.e. to what extent they are limited either by a lack of water licence, or by having less water in the river that they should get, or by having water of a quality lesser than scheduled.

5. CONCLUSION

South Africa has set very ambitious goals in terms of involving the users – and especially the small-scale ones – in the management of water resource. To achieve these goals, the best practices around the world were examined, and the 1998 NWA laid ground for the creation of two user-driven WRMOs: the CMA and the WUA. This paper analysed some challenges faced to get a successful participation of HDIs in large-scale WRMOs. The focus was the assessment of the existing overlap between HDIs' water needs and the WRMO functions. The international model of WRMO core functions addresses the legal water needs, by tackling externality problems, harnessing new resources or by allocating water licences. It appears that in several cases in South Africa, these core functions do not meet any of the problems of HDIs' with regard to water. In these situations, these users need above all funds, for instance in order to invest in their water distribution network and maintain it. If this problem is not addressed, there is a risk of HDIs losing interest in participating in the WRMO. While cross-subsidization is legally possible, there is no specific requirement and it is actually not used in the cases studied for the development of water works. In these cases, some funds are to be dedicated to small-scale development initiatives within the smallholder forums. Other funds are to be used to tackle HDIs' needs other than the technical and financial water access need: need of employment or need of organisation and capacity building. In the absence of specific funds to cater for HDIs' needs for investment in waterworks, the involvement of HDIs in the WRMO will be sustainable all the more if the latter serves as a platform for fruitful discussions with the organisations responsible for answering their technical and financial water needs.

There may be the view that the WRMOs may undertake cross-subsidization in the long term, once they are well-established organisations. The present

analysis shows that, in some places, the issue of going into cross-subsidization or not should be addressed from the outset.

This study shows also that the needs of HDIs vis-à-vis water can vary a lot from one place to another. It is useful to include such an assessment of the needs in the public participation process used to set up the WRMOs, especially in order to differentiate the legal water access problems from the technical and financial ones.

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